

Faculdade de Engenharia da Universidade do Porto

OnlyFEUP

Product and Presentation

Laboratório de Bases de Dados e Aplicações Web Turma 5 - Grupo 5

- André Correia da Costa (<u>up201905916@fe.up.pt</u>)
- Fábio Araújo de Sá (<u>up202007658@fe.up.pt</u>)
- Lourenço Alexandre Correia Gonçalves (<u>up202004816@fe.up.pt</u>)
- Marcos William Ferreira Pinto (up201800177@fe.up.pt)

Porto, 31 de Dezembro de 2022

Índice

Índice	2
A1: OnlyFEUP	5
Project Stakeholders	5
Goals & Objectives	5
Motivations	5
Main features	6
User	6
Authenticated User	6
Post Author	6
Comment Author	7
Group Member	7
Group Owner	7
Administrator	7
Notifications	7
Help	7
A2: Actors and User stories	8
2.1 Actors	8
2.2 User Stories	9
2.2.1 User	9
2.2.2 Visitor	10
2.2.3 Authenticated User	10
2.2.4 Group Owner	14
2.2.5 Group Member	15
2.2.6 Post Author	15
2.2.7 Comment Author	16
2.2.8 Administrator	16
2.3 Supplementary requirements	17
2.3.1 Business rules	17
2.3.2 Technical requirements	18
2.3.3 Restrictions	19
A3: Information Architecture	20
3.1 Sitemaps	20
3.2 Wireframes	20
3.2.1 UI01 - Home Page	21
3.2.2 UI10 - Profile Page	22
3.2.3 UI20 - Groups Page	23

A4: Conceptual Data Model 4.1 Class Diagram	24 24
 4.2. Additional Business Rules A5: Relational Schema, Validation and Schema Refinement 5.1 Relational Schema 5.2 Domains 5.3 Schema validation 	25 26 26 27 28
A6: Indexes, triggers, transactions and database population 1. Database workload 2. Proposed Indexes 2.1. Performance indexes 2.2. Full-text Search indexes 3. Triggers 4. Transactions 5. Database Schema 6. Database Population	34 34 35 35 39 43 53 74
A7: Web Resources Specification 1. Overview 2. Permissions 3. OpenAPI Specification	75 75 75 76
A8: Vertical Prototype 1. Implemented Features 1.1. Implemented User Stories 1.2. Implemented Web Resources Module M01: Authentication Module M02: Users Module M03: Posts Module M04: Search Module M05: Administration 2. Changes to database 3. Prototype	77 77 77 79 79 79 79 80 80 80 80
A9: Product Installation Usage Administration Credentials User Credentials Application Help Input Validation	82 82 82 82 82 83 83

Check Accessibility and Usability	87
HTML and CSS Validation	87
Revisions of the Project	87
Database Schema	87
Triggers	88
Routes	88
User Stories	88
Web Resources Specification	89
Implemented Web Resources	89
Module M01: Authentication	89
Module M02: Users	89
Module M03: Posts	90
Module M04: Search	91
Module M05: Administration	91
Module M06: Comments	91
Module M07: Comments	92
Module M08: API	93
OpenAPI Specification	93
Implementation Details	93
Libraries and Frameworks Used	93
User Stories	93
A10: Presentation	99
Product Presentation	99
Video Presentation	100
Revision history	101
Artifact A1 - Editor: Fábio Sá	101
Artifact A2 - Editor: Marcos Ferreira	101
Artifact A3 - Editor: Lourenço Gonçalves	102
Artifact A4 - Editor: André Costa	103
Artifact A5 - Editor: Fábio Sá	103
Artifact A6 - Editor: Marcos Ferreira	104
Artifact A7 - Editor: Lourenço Gonçalves	105
Artifact A8 - Editor: André Costa	106
Artifact A9 - Editor: Fábio Sá	107
Artifact A10 - Editor: Marcos Ferreira	113
Annexes	113
Alliekes	
Database schema	114
	114 130

A1: OnlyFEUP

The main goal of the OnlyFEUP project is the development of a web-based social network with the purpose of creating connections between students and staff, sharing resources about courses and subjects. This is a tool that can be used by anyone from FEUP. After signing up and verifying the user is related to the university (students/teachers), they can start using it for a better experience at FEUP.

A team of administrators is defined, which will be responsible for managing the system, ensuring it runs smoothly, removing illegal content and material in which they are not the author or have permission to share.

This application allows users to integrate into groups and follow students/teachers whom they find their work interesting, they can also create groups if none was found. Users will be able to more easily share resources with people who are actually interested (their followers).

Users are separated into groups with different permissions. These groups include the above-mentioned administrators, with access and modification privileges, student users and teacher (FEUP staff) users.

The platform will have an adaptive design, allowing users to have a pleasant browsing experience. The product will also provide easy navigation and an excellent overall user experience.

Project Stakeholders

- FEUP students
- FEUP professors

Goals & Objectives

The main objectives of OnlyFeup project is to facilitate students and teachers to share and discuss some ideas and resources about some subjects by posting or comment on someone's post, bringing a closeness between them by creating connections (friend requests) and ease the creation of groups among co-workers or friends (just to chat).

Motivations

To facilitate the lives of people related to feup by showing relevant information by allowing them to follow and block content, instead of the actual model of e-mail, which are sent to everyone (even people completely unrelated to the matter). Follow that to allow users to more easily connect with/find students, teachers, groups they are part in, etc.

Main features

User

- Login/Logout
- Registration
- Recover password
- View public timeline
- View public profiles
- Delete account

Authenticated User

- View profile
- Edit profile
- Suport profile picture
- View personal notifications
- View personalized timeline
- Exact match search
- Search for public Users
- Search filters
- Full-text search
- Send Friend Requests
- View profiles followed
- Search for posts, comments, groups and users
- Follow someone
- Manage received follow requests
- Manage followers
- Create post
- Comment on posts
- Like posts
- Reply to comments
- Create groups
- View users' feed
- Join public group
- Manage notifications
- Tag friends in posts
- Request to join public groups

Post Author

- Edit post
- Delete post
- Manage post visibility

Comment Author

- Edit comment
- Delete comment

Group Member

- View group members
- Post on group
- Leave group

Group Owner

- Edit group information
- Remove member
- Invite to group
- Remove post from group
- Change group privacy
- Manage group invitations
- Manage join requests

Administrator

- Administer user accounts
- Block and unblock user accounts
- Delete user account

Notifications

- Likes on own post
- Comments on own post
- Follow request

Help

- Placeholders in form inputs
- Contextual error messages
- Contextual help
- About us/Contacts
- Main features
- Help

A2: Actors and User stories

Actors and user stories contain specifications about the people that are going to use OnlyFeup in any way and how they are going to use it. It serves as a simple and fast documentation to the projects requirements.

2.1 Actors

For the **OnlyFEUP** system, the actors are represented in Figure 1 and described in Table 1.

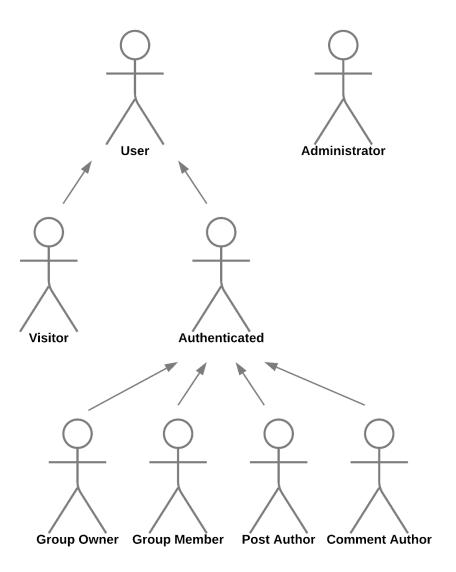


Figure 1: OnlyFEUP actors

Identifier	Description
User	Generic user that has access to public information
Visitor	Unauthenticated user that can register itself (sign-up) or sign-in in the system and view the public feed
Authenticated	Authenticated users that can consult information, insert works, items and ideas, comment on another person's work and manage and chat in your groups.
Group Owner	Users that created or have permissions to edit the group name, description, group's visibility, add/remove participants, edit participants permissions (member to owner or vice-versa).
Group Member	Users that can participate, chat and socialize in a community/group but don't have the permissions of an owner
Post Author	Users that can edit or delete their own post
Comment Author	Users that can comment on someone's or on their own posts
Administrator	Administrator have the power to remove posts (to remove offensive posts) and block/unblock people

Table 1: OnlyFEUP actors description

2.2 User Stories

2.2.1 User

Identifier	Name	Priority	Description
US01	See Home Page	high	As a User, I want to see the Home Page so that I can start navigating the site.
US02	View Public Timeline	high	As a User, I want to be able to view the Public Timeline so that I can keep up with what's happening.
US03	View Public Profiles	high	As a User, I want to be able to view public profiles so that I can see their posts and information.
US04	Search Public Users	high	As a User, I want to be able search for public users so that I can view their profiles.

US05	See About Us	medium	As a User, I want an 'About Us' section so that I can find out more about OnlyFEUP's creators.
US06	Consult FAQ / Help / Contacts	medium	As a User, I want a 'FAQ / Help' section so that I can find a solution to a problem
US07	See Main Features	medium	As a User, I want a 'Main Features' section, so that I can find what can I expect from OnlyFEUP

Table 2: User user stories

2.2.2 Visitor

Identifier	Name	Priority	Description
US08	Sign-up	high	As a <i>Visitor</i> , I want to register myself into the system, so that I can authenticate myself into the system
US09	Sign-in	high	As a <i>Visitor</i> , I want to authenticate into the system, so that I can access privileged information

Table 3: Visitor user stories

2.2.3 Authenticated User

Identifier	Name	Priority	Description
US10	Sign-out	high	As an Authenticated User, I want to sign out, so that I am not logged in anymore.
US11	View User Profiles	high	As an Authenticated User, I want to see User Profiles, so that I can see their posts
US12	View personalized timeline	high	As an Authenticated User, I want to view a personalized timeline, so that I can view posts that I actually have an interest in.
US13	Create Post	high	As an Authenticated User, I want to create posts, so that I can share information to my followers.
US14	View Own Profile	medium	As an Authenticated User, I want to see my profile, so that I can see what I wrote in the past
US15	Support Profile Picture	medium	As an Authenticated User, I want to see my profile picture, so that I can share my face.

Recover Password	medium	As an Authenticated User, I want to recover my password, so that Change it in case I forget it.
Delete Account	medium	As an Authenticated User, I want to delete my account, so that I can stop thinking about FEUP.
Send Follow Request	medium	As an Authenticated User, I want to send follow request to a private profile, so that I can show interest in following the respective user.
View profiles followed	medium	As an Authenticated User, I want to view profiles followed, so that I can get information and view posts about people that I follow.
Search for Posts, Comments, Groups and Users	medium	As an Authenticated User, I want to search for stuff, so that I can find things relevant for me at a certain time.
Exact Match Search	medium	As an Authenticated User, I want to search exactly what I am looking for, so that I can find things relevant for me at a certain time.
Full-Text Search	medium	As an Authenticated User, I want to search in Posts and Comments texts, so that I can find things relevant for me.
Search filters	medium	As a user, I want to be able to filter the search results so that I can find what I want more efficiently
Search over Multiple Attributes	medium	As a user, I want to be able to search over text attributes, like name or username, description or title, so that I can find relevant data more efficiently.
Follow someone	medium	As an Authenticated User, I want to follow someone with a public profile, so that I can start viewing their posts in my feed.
Manage Received Follow Requests	medium	As an Authenticated User, I want to manage received follow requests, so that I can control who can follow me or not.
Manage Followers	medium	As an Authenticated User, I want to manage followers, so that I can remove someone from following me.
Comment on Posts	medium	As an Authenticated User, I want to comment on posts, so that I can share my point of view or pass information related to the post.
	Password Delete Account Send Follow Request View profiles followed Search for Posts, Comments, Groups and Users Exact Match Search Full-Text Search Search over Multiple Attributes Follow someone Manage Received Follow Requests Manage Followers Comment on	Password medium Delete Account medium Send Follow Request medium View profiles followed medium Search for Posts, Comments, Groups and Users medium Exact Match Search medium Full-Text Search medium Search filters medium Search over Multiple Attributes medium Follow someone medium Manage Received Follow Requests medium Manage Followers medium Comment on medium

US29	React to post	medium	As an Authenticated User, I want to like posts, so that I can show my support of it.
US30	React to comment	medium	As an Authenticated User, I want to like comments, so that I can show my support of it.
US31	Create Groups	medium	As an Authenticated User, I want to create a group, so that I can share information about specific topics to people who are interested in it.
US32	Manage Group Invitations	medium	As an Authenticated User, I want to manage group invitations, so that I can control the amount of invitations that I receive about a certain topic.
US33	Edit profile	medium	As an Authenticated User, I want to edit my profile, so that I can change my picture, my name and/or my description.
US34	View Personal notifications	medium	As an Authenticated User, I want to view notifications, so that I can view who interacted (or wants to interact) with me.
US35	Placeholders in Form Inputs	medium	As an Authenticated User, I want to see placeholders in form inputs, so I can have help on what to write there.
US36	Contextual Error Messages	medium	As an Authenticated User, I want to see contextual error messages after inputs, so I can have help on what went wrong.
US37	Contextual Help	medium	As an Authenticated User, I want to see contextual help, so I can have help on how to perform any task.
US38	Follow Requests Notification	medium	As an Authenticated User, I want to receive notification when someone requests to follow me, so I keep informed about possible followers.
US39	Started Following Notification	low	As an Authenticated User, I want to receive notification when someone starts to follow me, so I keep informed about new followers.
US40	Accepted Follow Notification	low	As an Authenticated User, I want to receive notification when someone accepts my follow request, so I keep informed about users that I've been following recently
US41	Invite Group Notification	low	As an Authenticated User, I want to receive notification when someone invites me to join their group, so I can accept or not the invitation.

Reply to Comments	low	As an Authenticated User, I want to reply to comments, so that I can share my point of view or pass information related to a comment.
Tag Users in Posts	low	As an Authenticated User, I want to be able to tag users in my posts so that I can inform the viewers of the people related to the posts and their respective accounts.
Post Tagging Notification	low	As an Authenticated User, I want to receive notification when someone tags me in their post, so I keep informed.
Comment and Reply Tagging Notification	low	As an Authenticated User, I want to receive notification when someone tagged me in their comment or reply, so I keep informed.
Join Public Group	low	As an Authenticated User, I want to be able to join public groups so that I can view its posts and interact with its members.
Request to Join Private Group	low	As an Authenticated User, I want to able to request join private groups, so that I can view its posts and interact with its members
Manage my notifications	low	As an Authenticated User, I want to be able to manage what notifications I receive, so that I am only notified for things I care about.
Delete notifications	low	As an Authenticated User, I want to delete old notifications, so that I clear my notifications page.
Hashtags	low	As an Authenticated User, I want to be able to create, see and search for hashtags in posts, comments or descriptions
Notification context	low	As an Authenticated User, I want to see notification context, so that I can see post/comment/subcomment associated it
Send Private Messages	low	As an Authenticated User, I want to send private messages to another OnlyFEUP user, so I can contact them directly.
Private Messages Status	low	As an authenticated user, I want to see if there are any new unseen private messages so I can quickly see who has contacted me recently
	Tag Users in Posts Post Tagging Notification Comment and Reply Tagging Notification Join Public Group Request to Join Private Group Manage my notifications Delete notifications Hashtags Notification Send Private Messages Private Messages	Tag Users in Posts low Post Tagging Notification low Comment and Reply Tagging Notification low Join Public Group low Request to Join Private Group low Manage my notifications low Delete notifications low Hashtags low Notification low Send Private Messages low Private Messages low

US54	Send Private Media	low	As an Authenticated User, I want to send media (photos, videos or audios) to another OnlyFEUP user, so I can contact them directly and in private mode.
------	-----------------------	-----	---

Table 4: Authenticated User user stories

2.2.4 Group Owner

Identifier	Name	Priority	Description
US55	Edit Group Information	medium	As a Group Owner, I want to edit the name or the description of the group, so that the purpose of the group is well explained.
US56	Remove member	medium	As a Group Owner, I want to remove/ban a member of a group, so that they can no longer access the information of the group.
US57	Add to group	medium	As a Group Owner, I want to add someone to the group, so that they can access the group information.
US58	Remove post from group	low	As a Group Owner, I want to remove a post from a group, so that its information is no longer visible.
US59	Change group visibility	low	As a Group Owner, I want to change the group privacy, so that I can choose if the group information is public or not and who can enter in the group.
US60	Manage Group invitations	low	As a Group Owner, I want to manage my invitations, so that I can delete an invitation if I change my mind.
US61	Manage Join Requests	low	As a Group Owner, I want to manage group join requests, so that I can accept or reject possible members.
US62	Delete my group	low	As a Group Owner, I want to delete my group so all members can no longer access the information of the group
US63	Give Ownership	low	As a Group Owner, I want to give ownership of my group, so that I will be not group owner anymore
US64	Request Join Notification	low	As a Group Owner, I want to receive request join notifications, so that I see who wants to join in my group.
US65	Joined Notification	low	As a Group Owner, I want to receive join notifications, so that I see who is joining my group.

US66	Accepted Invite Notification	low	As a Group Owner, I want to receive accepted invite notifications, so that I see who accepts my invitation to join my group.
US67	Leave Group Notification	low	As a Group Owner, I want to receive leave group notifications, so that I see who leaves my group.

Table 5: Group owner user stories

2.2.5 Group Member

Identifier	Name	Priority	Description
US68	View group members	medium	As a Group Member, I want to see the members of a group, so that I can see users with the same likes as me
US69	Post on group	medium	As a Group Member, I want to post on a group, so that all members can see or access the idea/resource that I shared.
US70	Leave group	medium	As a Group Member, I want to be able to leave a group, so that I no longer receive notifications from it.
US71	Favorite	low	As a Group Member, I want to be able to mark groups as my favorites
US72	Ban Notification	low	As a Group Member, I want to receive notification when I get banned from a group, so I keep informed.
US73	Ownership Notification	low	As a Group Member, I want to receive a notification when I become the group owner, so I can stay informed about my new group.

Table 6: Group member user stories

2.2.6 Post Author

Identifier	Name	Priority	Description
US74	Edit post	high	As a Post Author, I want to edit my post, so that I can correct a mistake I made.
US75	Delete post	high	As a Post Author, I want to delete a post, so that I can remove something that I put by mistake.

US76	Likes on Own Post Notification	medium	As a Post Author, I want to receive notification when someone likes my post, so I stay informed.
US77	Comments on Own Posts Notification	medium	As a Post Author, I want to receive notification when someone comments on my post, so I keep informed of the user's opinions.
US78	Manage post visibility	low	As a Post Author, I want to manage post visibility, so that I can restrict the post visibility only to my followers.
US79	Post media	low	As a Post Author, I want to see my posts with media (photos, videos), so I can share them instead of text.

Table 7: Post Author user stories

2.2.7 Comment Author

Identifier	Name	Priority	Description
US80	Edit comment	medium	As a Comment Author, I want to edit my comment, so that I can correct a mistake I made.
US81	Delete comment	medium	As a Comment Author, I want to delete my comment, so that I can remove a comment that is no longer relevant.
US82	Likes on Own Comment Notification	low	As a Comment Author, I want to receive notification when someone likes my comment, so I stay informed.
US83	Replies on Own Comment Notification	low	As a Comment Author, I want to receive notification when someone replies to my comment, so I keep informed of the user's opinions.

Table 8: Comment Author user stories

2.2.8 Administrator

Identifier	Name	Priority	Description
US84	Special Search privileges	high	As an Administrator, I want to search for profiles and groups even if they are private, so that I can

			investigate if there is something against the guidelines.
US85	Administrator Account	medium	As an Administrator, I want to have an administrator account, so I can see OnlyFEUP data with privileges.
US86	Administer user accounts	medium	As an Administrator, I want to administer user accounts, so that I can investigate a report.
US87	Block and unblock user accounts	medium	As an Administrator, I want to block an user, so that I can punish them for not following the guidelines.
US88	Delete user account	medium	As an Administrator, I want to delete an user account, so that I can remove an user that repeatedly broke the guidelines.
US89	Delete posts and comments	medium	As an Administrator, I want to delete posts and comments, so that I can remove content that does not follow the guidelines.
US90	Delete groups	low	As an Administrator, I want to delete groups, so that I can remove content that does not follow the guidelines.

Table 9: Administrator user stories

2.3 Supplementary requirements

2.3.1 Business rules

Identifier	Name	Description	
BR01	Deleted account	The history of an item must be maintained even if the item is deleted in order not to lose the loan record for all items.	
BR02	Only people related to Feup	Since it will only work when connected to the university's wifi or VPN, it is already restricted to people related to FEUP.	
BR03	Media types	Media types needs to be as required because of the size of files itself: • Images in jpg,png,jpeg,gif • Videos in mp4 • Audios in mp3 Since they are more compact (although not lossless) and will be less taxing on the database.	

BR04	Profiles	Profiles can be public or private. Content of private profiles are only visible to followers or administrators.
BR05	Interact with own Posts	Authenticated users can comment/like their own posts/comments.
BR06	Dates	The date of each post is always less than or equal to the current date.

Table 10: OnlyFEUP Business rules

2.3.2 Technical requirements

Identifier	Name	Description	
TR01	Availability	The system must be available 99 percent of the time.	
TR02	Accessibility	The system should work with different hardware and software, so that OnlyFEUP can be available to a plethora of users (even if the hardware/software is reasonably old).	
TR03	Usability	The system should be simple and easy to use.	
TR04	Performance	The system should have response times that are reasonably fast and does not handicap the users' usability of the product.	
TR05	Web application	The system should be implemented HTML, CSS, Javascript and PHP	
TR06	Portability	The server-side system should be platform independent and work with different hardware/software to accommodate eventual changes and upgrades deemed necessary.	
TR07	Database	The system should store data in a reliable and non-redundant database.	
TR08	Security	The system shall protect information from unauthorized access, ensuring that only the user itself, the people whom the user has shared the information and administration of onlyFEUP can access the data, and even so only as a necessity.	
TR09	Robustness	The system must be prepared to handle errors and be able to continue working/boot itself up in case of a failure.	
TR10	Scalability	The system must be prepared to deal with the growth in the number of users, and the number of posts and files to be stored.	
TR11	Ethics	The system must respect the legislation of the places where it operates (in our case Portugal), and the system should respect the users' preferences and privacy.	

Table 11: OnlyFEUP technical requirements

Usability and accessibility were chosen as the most critical technical requirements because, since it is a social network, it needs to be simple and easy to use by any user, also because of the many users and their different equipment, software, operating system, ways of using the systems, versions of software, etc it needs to be robust to handle all of the these mentioned above.

Since the user is also going to be creating and submitting information as normal usage of the system, it is important that their information is secure from unauthorized access and in compliance with the privacy regulations.

2.3.3 Restrictions

Identifier	Name	Description
R01	Deadline	The system should be ready to be used by the end of the semester
R02	Database	The database should use PostgreSQL

Table 12: OnlyFEUP restrictions

A3: Information Architecture

3.1 Sitemaps

The image below represents the pages that are going to exist in onlyFEUP and how they can be accessed or used. It is a simple design of the process of using the website.

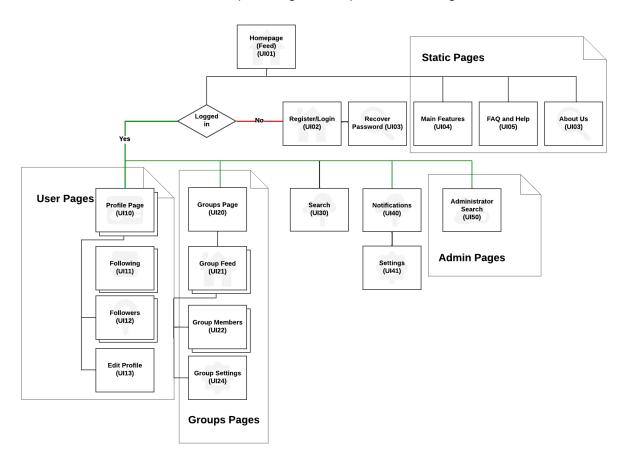


Figure 2: OnlyFEUP sitemap

3.2 Wireframes

The wireframes below show the template and localization of the important interactive elements. The home page is the most significant page in our system and because of it it is represented below, the next pages that required some clarification and thinking about its usability are the profile page and the groups page. As such they also have wireframes.

3.2.1 UI01 - Home Page

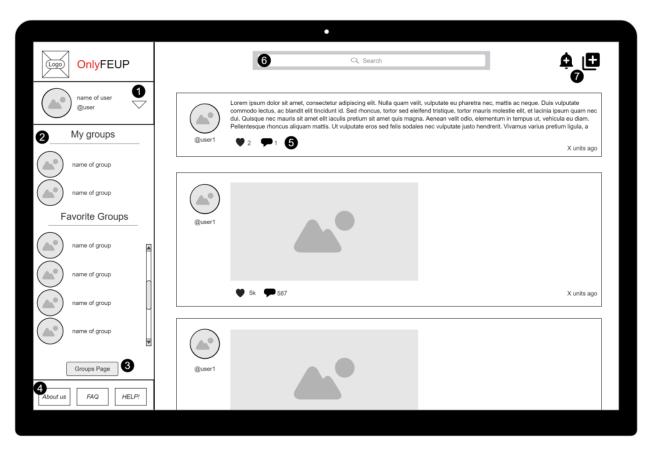


Figure 3: OnlyFEUP Home Page

- 1. Dropdown menu with various options
- 2. Side-bar for quick access to groups
- 3. Button to reach the Groups Page
- 4. Buttons to reach pages with help and information about the developers
- 5. Zone to interact with Posts; owner of the post have option to edit or delete post
- 6. Direct access to search feature
- 7. Notifications and post buttons respectively

3.2.2 UI10 - Profile Page

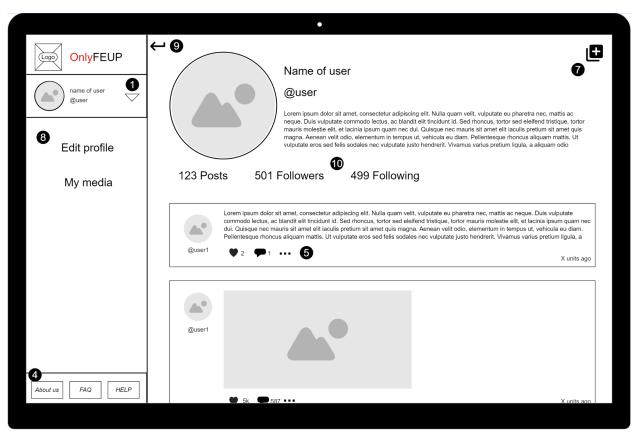


Figure 4: OnlyFEUP Profile Page

- 1. Dropdown menu with various options
- 4. Buttons to reach pages with help and information about the developers
- 5. Zone to interact with Posts; owner of the post have option to edit or delete post
- 7. Post button
- 8. Side-bar with access to edit profile page and the media of the user
- 9. Button to return to the previous page
- 10. Access to the Followers and Following pages respectively

3.2.3 UI20 - Groups Page



Figure 5: OnlyFEUP Groups Page

- 1. Dropdown menu with various options
- 2. Side-bar for quick access to groups
- 4. Buttons to reach pages with help and information about the developers
- 6. Direct access to search feature
- 9. Button to return to the previous page
- 11. Direct access to the "Create new group" page
- 12. Toggle between "groups I take part in" and "public groups"
- 13. Direct access to the group where you can define if it is favorite or not

A4: Conceptual Data Model

This section contains the description of the entities and relationships that exist to the onlyFEUP project and its database specification.

4.1 Class Diagram

The UML diagram in Figure 6 presents the main organizational entities, the relationships between them, attributes and their domains, and the multiplicity of relationships for the OnlyFEUP platform.

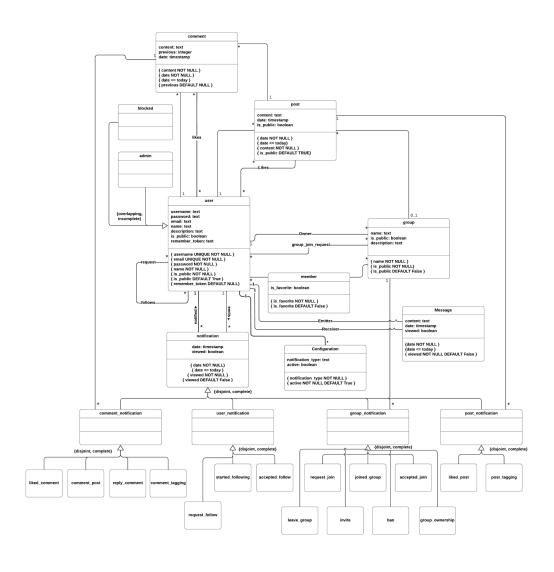


Figure 6: OnlyFEUP conceptual data model in UML

4.2. Additional Business Rules

Additional business rules or restrictions that cannot be conveyed in the UML class diagram of OnlyFEUP's system.

Identifier	Description
BR07	A user can only like a post once or like posts from groups to which they belong or like comment in posts from public users or users they follow
BR08	A user can only like a comment once
BR09	A user can only post to a group that they belong to
BR10	A user cannot follow themselves
BR11	In post, media and content cant both be null
BR12	A user can only comment on posts from public users, posts from users they follow, on posts from groups to which they belong or in own posts
BR13	A group owner is also a member of your group
BR14	A user cannot request to follow a user that he/she already follow
BR15	A user cannot request to follow themselves
BR16	A user cannot request to join a group that he/she is already a part of
BR17	When deleting a post it also deletes its comments, subcomments, likes and notifications
BR18	When deleting a comment it also deletes its likes, subcomments and notifications
BR19	When deleting a group it also deletes its posts, members, likes, subcomments, notifications
BR20	When new user appears, he initially gets all kinds of notification

Table 13: Additional Business Rules

A5: Relational Schema, Validation and Schema Refinement

This section contains the relational schema obtained from the conceptual data model by analyzing it. It shows each relational schema, attributes, domains, primary keys, foreign keys and other integrity rules necessary such as unique, default, not null and check.

5.1 Relational Schema

Relation reference	Relation Compact Notation
R01	users (<u>id</u> , username UK NN , password NN , email UK NN , name NN , is_public NN DF true, remember_token DF null)
R02	admin (<u>id</u> ->users)
R03	groups (<u>id</u> , owner_id->users NN , name NN , is_public NN DF false, description)
R04	post (<u>id</u> , owner_id->users NN , group_id->groups, content, date NN CK date <= today, is_public NN DF true)
R05	comment (<u>id</u> , author_id->users NN , post_id->post NN , content, date NN CK date <= today, previous DF null)
R06	blocked(<u>id</u> ->users)
R07	notification (<u>id</u> , date NN CK date <= today, notified_user->users NN , emitter_user->users NN , viewed NN DF false)
R08	comment_notification (id->notification, comment_id->comment)
R09	user_notification (<u>id</u> ->notification, notification_type NN CK notification_type IN user_notification_types)
R10	group_notification (<u>id</u> ->notification, group_id->groups NN , notification_type NN CK notification_type IN group_notification_types)
R11	post_notification (<u>id</u> ->notification, post_id->post NN , notification_type NN CK notification_type IN post_notification_types)
R12	member (<u>user_id</u> ->users, <u>group_id</u> ->groups, is_favorite NN DF false)
R13	follow_request (<u>req_id</u> ->users, <u>rcv_id</u> ->users)
R14	follows (<u>follower_id</u> ->users, <u>followed_id</u> ->users)

R15	post_likes (<u>user_id</u> ->users, <u>post_id</u> ->post)	
R16	comment_likes (<u>user_id</u> ->users, <u>comment_id</u> ->comment)	
R17	group_join_request(<u>user_id</u> ->users, <u>group_id</u> ->groups)	
R18	configuration(<u>user_id</u> ->users, notification_type NN , active NN DF true)	
R19	message(<u>id</u> , emitter_id->users, receiver_id->users, content NN , date NN CK date <= today, viewed NN DF false)	

Table 14: OnlyFEUP Relational Schema

Legend:

- UK = UNIQUE;
- NN = NOT NULL;
- DF = DEFAULT;CK = CHECK;

5.2 Domains

Specification of additional domains

today	DATE DEFAULT CURRENT_DATE
user_notification_types	ENUM ('request_follow', 'started_following', 'accepted_follow')
group_notification_types	ENUM ('request_join', 'joined_group', 'accept_join', 'accepted_join', 'leave_group', 'invite', 'ban', 'group_ownership')
post_notification_types	ENUM ('liked_post', 'post_tagging')
comment_notification_types	ENUM ('liked_comment', 'comment_post', 'reply_comment', 'comment_tagging')

Table 15: OnlyFEUP Domains

5.3 Schema validation

All functional dependencies are identified and the normalization of all relation schemas is accomplished.

Table R01 (users)	
Keys: {id}	
Functional Dependencies	
FD0101	{id} → {username, password, email, name, is_public}
Normal Form	BCNF

Table 16: user schema validation

Table R02 (admin)	
Keys: {id}	
Functional Dependencies	none
Normal Form	BCNF

Table 17: admin schema validation

Table R03 (groups)	
Keys: {id}	
Functional Dependencies	
FD0301	{id} → {owner_id, name, is_public, description}
Normal Form	BCNF

Table 18: group schema validation

Table R04 (post)	
Keys: {id}	
Functional Dependencies	
FD0401 {id} → {user_id, group_id, content, date}	
Normal Form	BCNF

Table 19: post schema validation

Table R05 (comment)		
Keys: {id}		
Functional Dependencies		
FD0501	$\{id\} \rightarrow \{author_id, post_id, content, date\}$	
Normal Form	BCNF	

Table 20: comment schema validation

Table R06 (blocked)	
Keys: {id}	
Functional Dependencies	none
Normal Form	BCNF

Table 21: blocked schema validation

Table R07 (notification)		
Keys: {id}		
Functional Dependencies		
FD0701	{id} → {date, notified_user, emitter_user, viewed}	
Normal Form	BCNF	

Table 22: notification schema validation

Table R08 (comment_notification)		
Keys: {id}		
Functional Dependencies		
FD0801 $\{id\} \rightarrow \{comment_id\}$		
Normal Form BCNF		

Table 23: comment_notification schema validation

Table R09 (user_notification)	
Keys: {id}	
Functional Dependencies	
FD0901	$\{id\} \rightarrow \{notification_type\}$
Normal Form	BCNF

Table 24: user_notification schema validation

Table R10 (group_notification)	
Keys: {id}	
Functional Dependencies	
FD1001	{id} → {group_id, notification_type}
Normal Form	BCNF

Table 25: group_notification schema validation

Table R11 (post_notification)
Keys: {id}

Functional Dependencies	
FD1101	{id} → {post_id, notification_type}
Normal Form	BCNF

Table 26: post_notification schema validation

Table R12 (member)	
Keys: {user_id, group_id}	
Functional Dependencies	
FD1201	{user_id, group_id} →{is_favorite}
Normal Form	BCNF

Table 27: member schema validation

Table R13 (follow_request)	
Keys: {req_id, rcv_id}	
Functional Dependencies	none
Normal Form	BCNF

Table 28: follow_request schema validation

Table R14 (follows)	
Keys: {follower_id, followed_id}	
Functional Dependencies	none
Normal Form	BCNF

Table 29: follows schema validation

Table R15 (post_likes)	
Keys: {user_id, post_id}	
Functional Dependencies	none
Normal Form	BCNF

Table 30: post_likes schema validation

Table R16 (comment_likes)	
Keys: {user_id, comment_id}	
Functional Dependencies	none
Normal Form	BCNF

Table 31: comment_likes schema validation

Table R17 (group_join_request)	
Keys: {user_id, group_id}	
Functional Dependencies	none
Normal Form	BCNF

Table 32: group_join_request schema validation

Table R18 (configuration)	
Keys: {id}	
Functional Dependencies	
FD1801	{id} → {user_id, notification_type, active}
Normal Form	BCNF

Table 33: configuration schema validation

Table R19 (message)	
Keys: {id}	
Functional Dependencies	
FD1901	{id} → {emitter_user, receiver_user, content, date, viewed}
Normal Form	BCNF

Table 34: message schema validation

Because all relations are in the Boyce–Codd Normal Form (BCNF), the relational schema is also in the BCNF and, therefore, the schema does not need to be further normalized.

A6: Indexes, triggers, transactions and database population

The A6 artifact contains the postgres sql code. In other words, It contains the physical schema of the database and its population, the support of data integrity rules with triggers, the identification and characterisation of the indexes and the definition of the database user-defined functions.

It also shows the transactions needed to ensure correctness of the data after accesses and/or changes to the database itself. Furthermore the isolation level is explained as required.

1. Database workload

In order to develop a database with good design, it is essential to comprehend the growth of a table and how many times it will be accessed. The table below shows said predictions:

Identifier	Relation Name	Order of magnitude	Estimated growth
RS01	user	10 k	10
RS02	admin	1	1
RS03	group	1 k	10
RS04	post	10 k	1 k
RS05	comment	10 k	100
RS06	blocked	100	10
RS07	notification	1 k	1 k
RS08	comment_notification	100	100
RS09	user_notification	100	100
RS10	group_notification	100	100
RS11	post_notification	100	100
RS12	member	100	100
RS13	follow_request	10	10
RS14	follows	10	10
RS15	post_likes	1 k	1 k

RS16	comment_likes	1 k	1 k
RS17 group_join_request		10	10
RS18	configuration	10k	10
RS19	message	100k	1k

Table 35: OnlyFEUP workload

2. Proposed Indexes

We used Indexes to increase the database performance by letting It to find and retrieve specific rows in more rapidly ways. An index defined on a column that is part of a join condition can also significantly speed up queries with joins. Moreover, indexes can also benefit UPDATE and DELETE commands with search conditions.

2.1. Performance indexes

Some queries would normally take a long time to execute. With performance indexes, we can improve the performance of SELECT queries at the expense of increased execution time for INSERT, UPDATE and DELETE operations. Despite this, some tables can benefit from the increased speed in searches. The following tables show the performance indexes used:

Note that the first and second indexes relate to the same queries, the difference being that they relate to different columns in notification, as such they can be considered the same.

Index	IDX01
Index relation	notification
Index attribute	notified_user
Index type	B-tree
Cardinality	Medium
Clustering	Yes

Justification	Table 'notification' is very large. Several queries related to notifications in comments, posts and groups need to frequently find out the user notified. This is done by exact match, thus an hash type index would be best suited. However, since we also want to apply clustering based on this index, and clustering is not possible on hash type indexes, we opted for a b-tree index. Update frequency is low and cardinality is medium so it's a good candidate for clustering.
SOL Code	

CREATE INDEX notified_user_notification ON notification USING btree (notified_user); CLUSTER notification USING notified_user_notification;

Table 36: Notified User index

Index	IDX02	
Index relation	notification	
Index attribute	emitter_user	
Index type	B-tree	
Cardinality	Medium	
Clustering	Yes	
Justification	Table 'notification' is very large. Several queries related to notifications in comments, posts and groups need to frequently find out who made a notification. This is done by exact match, thus an hash type index would be best suited. However, since we also want to apply clustering based on this index, and clustering is not possible on hash type indexes, we opted for a b-tree index. Update frequency is low and cardinality is medium so it's a good candidate for clustering.	
SQL Code		
CREATE INDEX emitter_user_notification ON notification USING btree (emitter_user); CLUSTER notification USING emitter_user_notification;		

Table 37: Emitter User index

Index	IDX03
Index relation	post
Index attribute	owner_id
Index type	Hash
Cardinality	Medium
Clustering	No
Justification	In a social network, posts are essential and therefore the table 'post' will be quite large. As such, for each post it is frequent and necessary to search for the user who made it. This is done by exact match in those ids. Update frequency is extremely low and cardinality is medium so it's a good candidate for hash tables.
SQL Code	
CREATE INDEX owner_id_post ON post USING hash (owner_id);	

Table 38: Post Owner index

r	
Index	IDX04
Index relation	comment
Index attribute	owner_id
Index type	Hash
Cardinality	Medium
Clustering	No
Justification	In a social network, comments are essential and therefore the table 'comment' will be quite large. As such, for each comment it is frequent and necessary to search for the user who made it. This is done by exact match in those ids. Update frequency is extremely low and cardinality is medium so it's a good candidate for hash tables
SQL Code	
CREATE INDEX owner_id_comment ON comment USING hash (owner_id);	

Table 39: Comment Owner index

2.2. Full-text Search indexes

As required by the project's specifications indexes for full-text search must be developed. Hence, to improve text search time, we created Full-Text Search (FTS) indexes on the tables and attributes we thought would be queried the most. Those indexes can be found in the following tables:

Index	IDX05
Index relation	group
Index attributes	name, description
Index type	GIN
Clustering	No
Justification	To provide full-text search features to look for groups based on matching names or descriptions. The index type is GIN because the indexed fields are not expected to change often.
SQL Code	•
Add column to group to store computed ts_vectors. ALTER TABLE group	

```
ADD COLUMN tsvectors TSVECTOR;
-- Create a function to automatically update ts vectors.
CREATE FUNCTION group search update() RETURNS TRIGGER AS $$
BEGIN
IF TG OP = 'INSERT' THEN
    NEW.tsvectors = (
     setweight(to tsvector('portuguese', NEW.name), 'A') ||
     setweight(to_tsvector('portuguese', NEW.description), 'B')
    );
END IF:
IF TG OP = 'UPDATE' THEN
     IF (NEW.name <> OLD.name OR NEW.description <> OLD.description) THEN
      NEW.tsvectors = (
       setweight(to_tsvector('portuguese', NEW.name), 'A') ||
       setweight(to_tsvector('portuguese', NEW.description), 'B')
      );
     END IF:
END IF;
RETURN NEW:
END $$
LANGUAGE plpgsql;
-- Create a trigger before insert or update on group.
CREATE TRIGGER group_search_update
```

```
BEFORE INSERT OR UPDATE ON group
FOR EACH ROW
EXECUTE PROCEDURE group_search_update();

-- Create a GIN index for ts_vectors.
CREATE INDEX search_group ON group USING GIN (tsvectors);
```

Table 40: Group FTS index

Index	IDX06
Index relation	user
Index attributes	name, username
Index type	GIN
Clustering	No
Justification	To provide full-text search features to look for users based on matching names or usernames. The index type is GIN because the indexed fields are not expected to change often.

SQL Code

```
-- Add column to user to store computed to vectors.
ALTER TABLE users
ADD COLUMN tsvectors TSVECTOR;
-- Create a function to automatically update ts vectors.
CREATE FUNCTION user search update() RETURNS TRIGGER AS $$
BEGIN
IF TG OP = 'INSERT' THEN
    NEW.tsvectors = (
     setweight(to tsvector('portuguese', NEW.name), 'A') ||
     setweight(to tsvector('portuguese', NEW.username), 'B')
    );
END IF:
IF TG OP = 'UPDATE' THEN
     IF (NEW.name <> OLD.name OR NEW.username <> OLD.username) THEN
      NEW.tsvectors = (
       setweight(to_tsvector('portuguese', NEW.name), 'A') ||
       setweight(to tsvector('portuguese', NEW.username), 'B')
      );
     END IF;
END IF:
RETURN NEW;
```

```
END $$
LANGUAGE plpgsql;
-- Create a trigger before insert or update on user
CREATE TRIGGER user_search_update
BEFORE INSERT OR UPDATE ON users
FOR EACH ROW
EXECUTE PROCEDURE user_search_update();
-- Create a GIN index for ts vectors.
CREATE INDEX search user ON users USING GIN (tsvectors);
```

Table 41: User FTS index

Index	IDX07
Index relation	post
Index attributes	content
Index type	GIN
Clustering	No
Justification	To provide full-text search features to look for posts based on matching content. The index type is GIN because the indexed fields are not expected to change often.

```
SQL Code
-- Add column to post to store computed to vectors.
ALTER TABLE post
ADD COLUMN tsvectors TSVECTOR;
-- Create a function to automatically update ts_vectors.
CREATE FUNCTION post search_update() RETURNS TRIGGER AS $$
BEGIN
IF TG OP = 'INSERT' THEN
    NEW.tsvectors = to tsvector('portuguese', NEW.content);
END IF:
IF TG OP = 'UPDATE' THEN
   IF (NEW.content <> OLD.content) THEN
      NEW.tsvectors = to tsvector('portuguese', NEW.content);
   END IF:
END IF:
 RETURN NEW:
END $$
```

```
LANGUAGE plpgsql;
-- Create a trigger before insert or update on post
CREATE TRIGGER post search update
BEFORE INSERT OR UPDATE ON post
FOR EACH ROW
EXECUTE PROCEDURE post search update();
-- Create a GIN index for ts_vectors.
CREATE INDEX search post ON post USING GIN (tsvectors);
```

Table 42: Post FTS index

Index	IDX08
Index relation	comment
Index attributes	content
Index type	GIN
Clustering	No
Justification	To provide full-text search features to look for comments based on matching content. The index type is GIN because the indexed fields are not expected to change often.

```
SQL Code
-- Add column to comment to store computed ts vectors.
ALTER TABLE comment
ADD COLUMN tsvectors TSVECTOR;
-- Create a function to automatically update ts_vectors.
CREATE FUNCTION comment_search_update() RETURNS TRIGGER AS $$
BEGIN
IF TG OP = 'INSERT' THEN
    NEW.tsvectors = to tsvector('portuguese', NEW.content);
 END IF:
IF TG OP = 'UPDATE' THEN
   IF (NEW.content <> OLD.content) THEN
      NEW.tsvectors = to_tsvector('portuguese', NEW.content);
   END IF:
END IF:
 RETURN NEW:
END $$
LANGUAGE plpgsql;
```

```
-- Create a trigger before insert or update on comments
CREATE TRIGGER comment_search_update
BEFORE INSERT OR UPDATE ON comment
FOR EACH ROW
EXECUTE PROCEDURE comment_search_update();
-- Create a GIN index for ts_vectors.
CREATE INDEX search_comment ON comment USING GIN (tsvectors);
```

Table 43: Comment FTS index

3. Triggers

To enforce integrity rules that cannot be achieved in a simpler way, the necessary triggers are identified and described by presenting the event, the condition, and the activation code. Triggers are also used to keep full-text indexes updated.

Trigger	TRIGGER01
Description	A user can only like a post once, or like posts from groups to which they belong or like comments in posts from public users or users they follow (business rule BR07).

SQL Code

```
CREATE FUNCTION verify_post_likes() RETURNS TRIGGER AS
$BODY$
BEGIN
 IF EXISTS (SELECT * FROM post likes WHERE NEW.user id = user id AND
NEW.post id = post id) THEN
   RAISE EXCEPTION 'A user can only like a post once';
 IF EXISTS (SELECT * FROM post WHERE NEW.post id = post.id AND post.group id IS
NOT NULL)
   AND NOT EXISTS (SELECT * FROM post, member WHERE NEW.post id = post.id AND
post.group id = member.group id AND NEW.user id = member.user id) THEN
   RAISE EXCEPTION 'A user can only like posts from groups to which they belong';
 END IF:
 IF EXISTS (SELECT * FROM users, post WHERE NEW. post id = post.id AND
post.owner id = users.id AND NOT users.is public AND post.group id IS NULL)
   AND NOT EXISTS (SELECT * FROM post, follows WHERE NEW.post_id = post.id AND
NEW.user id = follows.follower id AND follows.followed id = post.owner id) THEN
   RAISE EXCEPTION 'A user can only like comment posts from public users or users they
follow';
```

```
END IF;
RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER verify_post_likes
BEFORE INSERT OR UPDATE ON post_likes
FOR EACH ROW
EXECUTE PROCEDURE verify_post_likes();
```

Table 44: Verify post likes trigger

Trigger	TRIGGER02	
Description	A user can only like a comment once (business rule BR08).	
SQL Code		
CREATE FUNCTION verify_comment_likes() RETURNS TRIGGER AS \$BODY\$ BEGIN IF EXISTS		
(SELECT * FROM NEW.comment id = 0	// comment_likes WHERE NEW.user_id = user_id AND	
	CEPTION 'A user can only like a comment once';	
IF EXISTS (SELECT * FROM post,comment WHERE NEW.comment_id = comment.id AND comment.post_id = post.id AND post.group_id IS NOT NULL)		
AND NOT EXISTS (SELECT * FROM post,member,comment WHERE NEW.comment_id = comment.id AND comment.post_id = post.id AND post.group_id = member.group_id AND NEW.user_id =		
member.user_id) THEN RAISE EXCEPTION 'Can not like a comment of a post of a group you do not belong		
to'; END IF;		
comment.post_id = p	// users,post,comment WHERE NEW.comment_id = comment.id AND ost.id AND post.owner_id = users.id AND NOT users.is_public AND .L AND comment.owner_id <> post.owner_id)	

```
(SELECT * FROM post,follows,comment WHERE NEW.comment_id = comment.id AND comment.post_id = post.id AND NEW.user_id = follows.follower_id AND follows.followed_id = post.owner_id)

THEN RAISE EXCEPTION 'Can not like comments in posts from private users you do not follow';

END IF;

RETURN NEW;
END

$BODY$

LANGUAGE plpgsql;

CREATE TRIGGER verify_comment_likes

BEFORE INSERT OR UPDATE ON comment_likes

FOR EACH ROW

EXECUTE PROCEDURE verify_comment_likes();
```

Table 45: Verify comment likes trigger

Trigger	TRIGGER03	
Description	A user can only post to a group that they belong to (business rule BR09).	
SQL Code		
CREATE FUNCTION verify_group_post() RETURNS TRIGGER AS \$BODY\$ BEGIN		
IF NOT EXISTS (SELECT * FROM member WHERE NEW.owner_id = user_id AND NEW.group_id = group_id) AND NEW.group_id IS NOT NULL THEN RAISE EXCEPTION 'A user can only post to a group that they belong to'; END IF;		
RETURN NEW; END \$BODY\$ LANGUAGE plpgsql;		
CREATE TRIGGER verify_group_post BEFORE INSERT OR UPDATE ON post FOR EACH ROW EXECUTE PROCEDURE verify_group_post();		

Table 46: Verify group post trigger

Trigger	TRIGGER04
Description	A user cannot follow themselves (business rule BR10).
SQL Code	
CREATE FUNCTION verify self_follow() RETURNS TRIGGER AS	

```
CREATE FUNCTION verify_self_follow() RETURNS TRIGGER AS
$BODY$
BEGIN

IF NEW.follower_id = NEW.followed_id THEN

RAISE EXCEPTION 'A user can not follow itself';
END IF;
RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER verify_self_follow
BEFORE INSERT OR UPDATE ON follows
FOR EACH ROW
```

EXECUTE PROCEDURE verify_self_follow();

Table 47: Verify self follow trigger

Trigger	TRIGGER05
Description	A user can only comment on posts from public users, posts from users they follow or on posts from groups to which they belong (business rule BR12).
SQL Code	
\$BODY\$ BEGIN IF EXISTS (SELECTION NOT NULL) AND NOT EXIST post.group_id = mem RAISE EXCEPTI belong'; END IF; IF EXISTS (SELECTION NOT EXISTION NOT EXISTING NOT EXISTION NOT EXISTION NOT EXISTING NOT E	T * FROM post WHERE NEW.post_id = post.id AND post.group_id IS S (SELECT * FROM post,member WHERE NEW.post_id = post.id AND ober.group_id AND NEW.owner_id = member.user_id) THEN ON 'A user can only comment on posts from groups to which they ST * FROM users,post WHERE NEW.post_id = post.id AND ost.id AND post.group_id IS NULL) S (SELECT * FROM post,follows WHERE NEW.post_id = post.id AND ows.follower_id AND follows.followed_id = post.owner_id) THEN

```
RAISE EXCEPTION 'A user can only comment posts from public users or users they follow';
END IF;
RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER verify_comment
BEFORE INSERT OR UPDATE ON comment
FOR EACH ROW
EXECUTE PROCEDURE verify_comment();
```

Table 48: Verify comment trigger

Trigger	TRIGGER06
Description	A group owner is also a member of your group (business rule BR13).
SQL Code	
CREATE FUNCTION group_owner() RETURNS TRIGGER AS \$BODY\$ BEGIN INSERT INTO member (user_id, group_id, is_favorite) VALUES (NEW.owner_id, NEW.id, True); RETURN NEW; END \$BODY\$ LANGUAGE plpgsql;	
CREATE TRIGGER group_owner AFTER INSERT ON groups FOR EACH ROW EXECUTE PROCEDURE group_owner();	

Table 49: Group owner trigger

Trigger	TRIGGER07
Description	A user cannot request to follow a user that he/she already follow (business rule BR14).

```
SQL Code
CREATE FUNCTION check_follow_request() RETURNS TRIGGER AS
$BODY$
BEGIN
IF EXISTS
  (SELECT * FROM follows WHERE NEW.req_id = follower_id AND NEW.rcv_id =
followed id)
  THEN RAISE EXCEPTION 'Can not make a follow request to someone you already
follow';
 END IF:
RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER check_follow_request
 BEFORE INSERT ON follow_request
 FOR EACH ROW
 EXECUTE PROCEDURE check_follow_request();
```

Table 50: Follow request trigger

Trigger	TRIGGER08
Description	A user cannot request to follow themselves (business rule BR15).
SQL Code	
\$BODY\$ BEGIN IF NEW.req_id = NE RAISE EXCEPT END IF; RETURN NEW; END	verify_self_follow_req() RETURNS TRIGGER AS EW.rcv_id THEN ION 'A user can not request to follow themselves';
\$BODY\$ LANGUAGE plpgsql;	
CREATE TRIGGER verify_self_follow_req BEFORE INSERT OR UPDATE ON follow_request FOR EACH ROW EXECUTE PROCEDURE verify_self_follow_req();	

Table 51: Self Follow request trigger

Trigger	TRIGGER09
Description	A user cannot request to join a group that he/she is already a part of (business rule BR16).
SQL Code	
\$BODY\$ BEGIN IF EXISTS (SELECT * FROM group_id)	check_group_join_req() RETURNS TRIGGER AS I member WHERE NEW.user_id = user_id AND NEW.group_id = CEPTION 'Can not request to join a group you are already a part of';

Table 52: Request join trigger

CREATE TRIGGER check_group_join_req BEFORE INSERT ON group_join_request FOR EACH ROW

EXECUTE PROCEDURE check_group_join_req();

Trigger	TRIGGER10
Description	When deleting a post it also deletes its comments, subcomments, likes and notifications (business rule BR17).
SQL Code	
\$BODY\$ BEGIN DELETE FROM po DELETE FROM po	st_likes WHERE OLD.id = post_likes.post_id; st_notification WHERE OLD.id = post_notification.post_id; mment WHERE OLD.id = comment.post_id;
CREATE TRIGGER delete_post_action BEFORE DELETE ON post	

FOR EACH ROW EXECUTE PROCEDURE delete_post_action();

Table 53: Delete post data trigger

Trigger	TRIGGER11
Description	When deleting a comment it also deletes its likes, subcomments and notifications (business rule BR18).
SQL Code	
\$BODY\$ BEGIN DELETE FROM COLDELETE FROM COLDELETE FROM COLDELETE FROM COLDETE FROM COLDETE FROM SBODY\$ LANGUAGE plpgsql; CREATE TRIGGER COLDETE	mment WHERE OLD.id = comment.previous; delete_comment_action
BEFORE DELETE FOR EACH ROW EXECUTE PROCE	ON comment DURE delete_comment_action();

Table 54: Delete comment data trigger

Trigger	TRIGGER12
Description	When deleting a group it also deletes its posts, members, likes, comments, subcomments, notifications and group_notifications (business rule BR19).
SQL Code	
CREATE FUNCTION delete_group_action() RETURNS TRIGGER AS \$BODY\$ BEGIN	
DELETE FROM post WHERE OLD.id = post.group_id; DELETE FROM member WHERE OLD.id = member.group_id;	

```
DELETE FROM group_join_request WHERE OLD.id = group_join_request.group_id;
DELETE FROM group_notification WHERE OLD.id = group_notification.group_id;
RETURN OLD;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER delete_group_action
BEFORE DELETE ON groups
FOR EACH ROW
EXECUTE PROCEDURE delete_group_action();
```

Table 55: Delete group data trigger

Trigger	TRIGGER13	
Description	After deleting a subnotification, delete main notification table entry	
SQL Code		
CREATE FUNCTION \$BODY\$ BEGIN		
	tification WHERE OLD.id = notification.id;	
\$BODY\$ LANGUAGE plpgsql;		
AFTER DELETE O FOR EACH ROW	delete_main_post_notification_action N post_notification DURE delete_mainnotification_action();	
AFTER DELETE O FOR EACH ROW	delete_main_comment_notification_action N comment_notification DURE delete_mainnotification_action();	
AFTER DELETE O FOR EACH ROW	delete_main_group_notification_action N group_notification DURE delete_mainnotification_action();	
CREATE TRIGGER (AFTER DELETE O FOR EACH ROW	delete_main_user_notification_action N user_notification	

EXECUTE PROCEDURE delete_mainnotification_action();

Table 56: Delete notifications trigger

Trigger	TRIGGER14
Description	When a new user appears, he initially gets all kinds of notification (business rule BR20).
SQL Code	
\$BODY\$ BEGIN INSERT INTO conf (NEW.id, 'reques' (NEW.id, 'accepte (NEW.id, 'accepte (NEW.id, 'joined_ (NEW.id, 'joined_ (NEW.id, 'invite'), (NEW.id, 'invite'), (NEW.id, 'ban'), (NEW.id, 'group_ (NEW.id, 'liked_p (NEW.id, 'liked_c (NEW.id, 'reply_c (NEW.id, 'reply_c (NEW.id, 'comme (NEW.id, 'comme (NEW.id, 'reply_c (NEW.id, 'comme (NEW.id, 'comme RETURN NEW; END \$BODY\$ LANGUAGE plpgsql; CREATE TRIGGER (AFTER INSERT OF FOR EACH ROW	_following'), ed_follow'), ted_join'), group'), ed_join'), group'), ownership'), ost'), egging'), omment'), ent_post'), ent_tagging'); configuration_action

Table 57: User configurations trigger

4. Transactions

The transactions below are used to assure the integrity of data when more than one operation is performed and necessary.

All transactions below are written in PHP language:

Transaction	TRAN01
Description	New comment notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table post_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
'notified_user' = 'date' => date('Y 'viewed' => false]); \$newNotification ->w ->w CommentNotifica 'id' => \$newN	> Auth::user()->id, > \$post->owner_id, '-m-d H:i'), e, = Notification::select('notification.id') /here('emitter_user', Auth::user()->id) /here('notified_user', \$post->owner_id)->get()->last(); ution::insert([lotification->id,
	=> \$comment->id, ype' => 'comment_post'
if (!\$previous \$p	ment::find(\$comment->previous); previous->owner_id == Auth::user()->id) ()->back()->with('success', 'Comment successfully created');
	> Auth::user()->id, > \$previous->owner_id, /-m-d H:i'),
\$newNotification	= Notification::select('notification.id') /here('emitter_user', Auth::user()->id) /here('notified_user', \$previous->owner_id)->get()->last();

```
CommentNotification::insert([
    'id' => $newNotification->id,
    'comment_id' => $comment->id,
    'notification_type' => 'reply_comment'
]);
```

Table 58: New comment notification transaction

Transaction	TRAN02
Description	New comment like notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table comment_notification and comment_like tables committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ

```
If (CommentLike::where([
 'user_id' => Auth::user()->id,
 'comment id' => $comment->id,
])->exists()) return;
CommentLike::insert([
 'user id' => Auth::user()->id,
 'comment id' => $comment->id,
]);
if (Auth::user()->id == $comment->owner_id) return;
DB::beginTransaction();
Notification::insert([
 'emitter_user' => Auth::user()->id,
 'notified user' => $comment->owner id,
 'date' => date('Y-m-d H:i'),
 'viewed' => false,
]);
$newNotification = Notification::select('notification.id')
              ->where('emitter_user', Auth::user()->id)
              ->where('notified user', $comment->owner id)->get()->last();
CommentNotification::insert([
```

```
'id' => $newNotification->id,
'comment_id' => $comment->id,
'notification_type' => 'liked_comment'
]);
```

Table 59: New comment like notification transaction

	
Transaction	TRAN03
Description	Remove comment like notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an delete in the table comment_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTransaction	า();
CommentLike::where(['user_id' => Auth::user()->id, 'comment_id' => \$comment->id,])->delete(); \$oldNotification = Notification::leftJoin('comment_notification', 'notification.id', '=', 'comment_notification.id') ->select('notification.id') ->where('notification.emitter_user', Auth::user()->id) ->where('notification.notified_user', \$comment->owner_id) ->where('comment_notification.comment_id', \$comment->id) ->where('comment_notification.notification_type',	
'liked_comment')	->get()->last();
<pre>if (\$oldNotification) { CommentNotification::where('id', \$oldNotification->id)->delete(); Notification::where('id', \$oldNotification->id)->delete(); }</pre>	
DB::commit();	

Table 60: Remove comment like notification transaction

Transaction	TRAN04
Description	Remove member from group notification
Justification	The isolation level is Repeatable Read, because, otherwise, an delete of the notification table or member table could happen, due to an delete in the table group_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTransa	action();
<pre>Member::where('group_id', \$group->id) ->where('user_id', \$member->id) ->delete(); Notification::insert(['emitter_user' => \$group->owner_id, 'notified_user' => \$member->id, 'date' => date('Y-m-d H:i'), 'viewed' => false,]);</pre>	
<pre>\$newNotification = Notification::select('notification.id')</pre>	
GroupNotification::insert(['id' => \$newNotification->id, 'group_id' => \$group->id, 'notification_type' => 'ban',]);	

Table 61: Remove member from group notification transaction

DB::commit();

Transaction	TRAN05
Description	Join group notification

Justification	The isolation level is Repeatable Read, because, otherwise, an insert of the group_notification table could happen, due to an	
	insert of the group_nothication table could happen, due to an insert in the table member committed by a concurrent transaction, and as a result, inconsistent data would be stored.	
Isolation level	REPEATABLE READ	
DB::beginTransaction();		
Member: insert(Member: insert([

```
'user_id' => Auth::user()->id,
  'group id' => $group->id,
  'is favorite' => false
]);
Notification::insert([
  'emitter_user' => Auth::user()->id,
  'notified_user' => $group->owner_id,
  'date' => date('Y-m-d H:i'),
  'viewed' => false,
]);
$newNotification = Notification::select('notification.id')
                  ->where('emitter_user', Auth::user()->id)
                  ->where('notified_user', $group->owner_id)->get()->last();
GroupNotification::insert([
   'id' => $newNotification->id,
   'group_id' => $group->id,
  'notification_type' => 'joined_group',
]);
DB::commit();
```

Table 62: Join group notification transaction

Transaction	TRAN06
Description	Leave group notification
Justification	The isolation level is Repeatable Read, because, otherwise, an delete/insert of the notification or group_notification tables could happen, due to an insert in the table group_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.

```
Isolation level
                       REPEATABLE READ
     DB::beginTransaction();
     Member::where('group id', $group->id)
         ->where('user_id', Auth::user()->id)->delete();
     $oldNotification = Notification::leftJoin('group notification', 'notification.id', '=',
'group notification.id')
        ->select('notification.id')
        ->where('notification.emitter user', Auth::user()->id)
        ->where('notification.notified_user', $group->owner_id)
        ->where('group_notification.notification_type', 'joined group')
        ->get()->last();
     if ($oldNotification) {
       GroupNotification::where('id', $oldNotification->id)->delete();
       Notification::where('id', $oldNotification->id)->delete();
    }
    Notification::insert([
       'emitter user' => Auth::user()->id,
       'notified user' => $group->owner id,
       'date' => date('Y-m-d H:i'),
       'viewed' => false.
    ]);
     $newNotification = Notification::select('notification.id')
                       ->where('emitter user', Auth::user()->id)
                       ->where('notified user', $group->owner id)->get()->last();
     GroupNotification::insert([
       'id' => $newNotification->id.
       'group id' => $group->id,
       'notification type' => 'leave group',
    ]);
     DB::commit();
```

Table 63: Leave group notification transaction

Transaction	TRAN07
Description	Do join request notification

Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table group_notification or group_join_request table committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTrans	action();
GroupJoinRequest::insert(['user_id' => Auth::user()->id, 'group_id' => \$group->id]); Notification::insert(['emitter_user' => Auth::user()->id, 'notified_user' => \$group->owner_id, 'date' => date('Y-m-d H:i'), 'viewed' => false,]);	
<pre>\$newNotification = Notification::select('notification.id') ->where('emitter_user', Auth::user()->id) ->where('notified_user', \$group->owner_id)->get()->last();</pre>	
GroupNotification::insert(['id' => \$newNotification->id, 'group_id' => \$group->id, 'notification_type' => 'requested_join',]);	

Table 64:Do join request notification transaction

DB::commit();

Transaction	TRAN08
Description	Cancel join request
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an delete in the table group_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.

```
Isolation level
                       REPEATABLE READ
    DB::beginTransaction();
     GroupJoinRequest::where([
       'user id' => Auth::user()->id,
       'group_id' => $group->id
    ])->delete();
     $oldNotification = Notification::leftJoin('group_notification', 'notification.id', '=',
'group_notification.id')
        ->select('notification.id')
        ->where('notification.emitter_user', Auth::user()->id)
        ->where('notification.notified_user', $group->owner_id)
        ->where('group notification.notification type', 'requested join')
        ->get()->last();
     GroupNotification::where('id', $oldNotification->id)->delete();
    Notification::where('id', $oldNotification->id)->delete();
     DB::commit();
```

Table 65: Cancel join request transaction

Transaction	TRAN09
Description	Accept join request
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table group_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTransaction();	
GroupJoinRequest::where(['user_id' => \$request->user_id, 'group_id' => \$group->id])->delete();	
\$oldNotification = Notification::leftJoin('group_notification', 'notification.id', '=', 'group_notification.id') ->select('notification.id') ->where('notification.emitter_user', \$request->user_id) ->where('notification.notified_user', Auth::user()->id)	

```
->where('group_notification.notification_type', 'requested_join')
    ->get()->last();
GroupNotification::where('group notification.id', $oldNotification->id)
     ->update(['group_notification.notification_type' => 'joined_group']);
Notification::insert([
  'emitter user' => Auth::user()->id,
  'notified user' => $request->user id,
  'date' => date('Y-m-d H:i'),
  'viewed' => false,
1);
$newNotification = Notification::select('notification.id')
     ->where('emitter_user', Auth::user()->id)
     ->where('notified user', $request->user id)->get()->last();
GroupNotification::insert([
  'id' => $newNotification->id,
  'group_id' => $group->id,
  'notification_type' => 'accepted_join',
]);
Member::insert([
  'group_id' => $group->id,
  'user id' => $request->user id,
1);
DB::commit();
```

Table 66: Accept join request transaction

Transaction	TRAN10
Description	Reject Join Request Notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an delete in the table group_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ

```
DB::beginTransaction();
     GroupJoinRequest::where([
       'user id' => $request->user id,
       'group_id' => $group->id
    ])->delete();
     $oldNotification = Notification::leftJoin('group_notification', 'notification.id', '=',
'group_notification.id')
       ->select('notification.id')
       ->where('notification.emitter_user', $request->user_id)
       ->where('notification.notified user', $group->owner id)
       ->where('group_notification.notification_type', 'requested_join')
       ->get()->last();
    if ($oldNotification) {
       GroupNotification::where('id', $oldNotification->id)->delete();
       Notification::where('id', $oldNotification->id)->delete();
    }
     DB::commit();
```

Table 67: Reject Join Request Notification transaction

Transaction	TRAN11
Description	Invite notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table group_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTransaction();	
Notification::insert(['emitter_user' => \$group->owner_id, 'notified_user' => \$request->user_id, 'date' => date('Y-m-d H:i'), 'viewed' => false,]);	
<pre>\$newNotification = Notification::select('notification.id') ->where('emitter_user', \$group->owner_id) ->where('notified_user', \$request->user_id)->get()->last();</pre>	

```
GroupNotification::insert([
    'id' => $newNotification->id,
    'group_id' => $group->id,
    'notification_type' => 'invite',
]);

DB::commit();
```

Table 68: Invite notification transaction

Transaction	TRAN12
Description	Cancel Invite Notification
Justification	The isolation level is Repeatable Read, because, otherwise, delete of the notification table could happen, due to an delete in the table group_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
'group_notification.id' ->select('notification.id') ->select('notification.id') ->where('notification.id') ->where('notification.id') ->where('notification.id') ->where('group>get()->last()); if (\$oldNotification.id') GroupNotification.id	= Notification::leftJoin('group_notification', 'notification.id', '=', ') ation.id') ation.emitter_user', \$group->owner_id) ation.notified_user', \$request->user_id) _notification.notification_type', 'invite')
DB::commit();	

Table 69: Cancel Invite Notification transaction

Transaction	TRAN13
Description	Reject Invite Request

```
Justification
                       The isolation level is Repeatable Read, because, otherwise, an
                       update of the notification table could happen, due to an delete in
                       the table group_notification committed by a concurrent
                       transaction, and as a result, inconsistent data would be stored.
Isolation level
                       REPEATABLE READ
     DB::beginTransaction();
     $oldNotification = Notification::leftJoin('group_notification', 'notification.id', '=',
'group_notification.id')
            ->select('notification.id')
            ->where('notification.emitter user', $group->owner id)
            ->where('notification.notified user', Auth::user()->id)
            ->where('group notification.notification type', 'invite')
            ->get()->last();
    if ($oldNotification) {
       GroupNotification::where('id', $oldNotification->id)->delete();
       Notification::where('id', $oldNotification->id)->delete();
    }
     DB::commit();
```

Table 70: Reject Invite Request transaction

Transaction	TRAN14
Description	Accept Invite
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table member or group_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTransaction(); \$oldNotification = Notification::leftJoin('group_notification', 'notification.id', '=', 'group_notification.id') ->select('notification.id') ->where('notification.emitter_user', \$group->owner_id) ->where('notification.notified_user', Auth::user()->id) ->where('group_notification.notification_type', 'invite') ->get()->last();	

```
GroupNotification::where('id', $oldNotification->id)->delete();
Notification::where('id', $oldNotification->id)->delete();
Member::insert([
  'group_id' => $group->id,
  'user id' => Auth::user()->id
]);
Notification::insert([
  'emitter_user' => Auth::user()->id,
  'notified user' => $group->owner id,
  'date' => date('Y-m-d H:i'),
  'viewed' => false,
]);
$newNotification = Notification::select('notification.id')
     ->where('emitter user', Auth::user()->id)
     ->where('notified_user', $group->owner_id)->get()->last();
GroupNotification::insert([
  'id' => $newNotification->id,
  'group_id' => $group->id,
  'notification_type' => 'joined_group',
]);
DB::commit();
```

Table 71: Accept Invite transaction

Transaction	TRAN15
Description	Give ownership notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table and member table could happen, due to an insert in the table group_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTransaction(); \$group->owner_id = \$request->input('member_id'); \$group->save();	

```
Notification::insert([
    'emitter_user' => Auth::user()->id,
    'notified_user' => $request->member_id,
    'date' => date('Y-m-d H:i'),
    'viewed' => false,
]);

$newNotification = Notification::select('notification.id')
    ->where('emitter_user', Auth::user()->id)
    ->where('notified_user', $request->member_id)->get()->last();

GroupNotification::insert([
    'id' => $newNotification->id,
     'group_id' => $group->id,
     'notification_type' => 'group_ownership',
]);

DB::commit();
```

Table 72: Give ownership notification transaction

Transaction	TRAN16
Description	Like post notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table post_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
<pre>If (PostLike::where(['user_id' => Auth::user()->id, 'post_id' => \$post->id,])->exists()) return; PostLike::insert(['user_id' => Auth::user()->id, 'post_id' => \$post->id,]); if (Auth::user()->id == \$post->owner_id) return; DB::beginTransaction(); Notification::insert(['emitter_user' => Auth::user()->id, 'notified_user' => \$post->owner_id,</pre>	

Table 73: Like post notification transaction

Transaction	TRAN17
Description	Unlike post notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table post_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTransaction(); PostLike::where(['user_id' => Auth::user()->id, 'post_id' => \$post->id,])->delete(); \$oldNotification = Notification::leftJoin('post_notification', 'notification.id', '=', 'post_notification.id') ->select('notification.id') ->where('notification.emitter_user', Auth::user()->id) ->where('notification.notified_user', \$post->owner_id) ->where('post_notification.post_id', \$post->id) ->where('post_notification.notification_type', 'liked_post') ->get()->last();	
if (\$oldNotification) {	

```
PostNotification::where('id', $oldNotification->id)->delete();
Notification::where('id', $oldNotification->id)->delete();
}
DB::commit();
```

Table 74: Unlike post notification transaction

Transaction	TRAN18
Description	Delete user
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an delete in many tables committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ

```
DB::beginTransaction();
// Update user information
$user->name = "deleted";
$user->username = "deleted" . $id;
$user->password = "deleted" . $id;
$user->email = "deleted" . $id;
$user->description = "";
$user->is public = false;
// Block user
Blocked::insert(['id' => $id]);
// Delete user photo
ImageController::delete($id, 'profile');
// Delete follows
Follow::where('followed id', $id)->orWhere('follower id', $id)->delete();
ReguestFollow::where('rcv id', $id)->delete();
// Delete Notifications
Notification::where('notified user', $id)->delete();
// Delete Configurations
Configuration::where('user id', $id)->delete();
// Delete groups (and members, photos, posts, comments, subcomments, invites)
$groups = Group::where('owner_id', $id)->get();
foreach ($groups as $group) {
```

```
$group->delete();
ImageController::delete($group->id, 'groups');
}
$user->save();
DB::commit();
```

Table 75: Delete user transaction

```
      Transaction
      TRAN19

      Description
      Follow notification

      Justification
      The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table user_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.

      Isolation level
      REPEATABLE READ
```

```
DB::beginTransaction();
     Follow::insert([
       'follower id' => Auth::user()->id,
       'followed id' => $request->id,
    ]);
     Notification::insert([
       'emitter_user' => Auth::user()->id,
       'notified_user' => $request->id,
       'date' => date('Y-m-d H:i'),
       'viewed' => false,
    ]);
     $newNotification = Notification::select('notification.id')
                       ->where('emitter user', Auth::user()->id)
                       ->where('notified user', $request->id)->get()->last();
     UserNotification::insert([
       'id' => $newNotification->id,
       'notification_type' => 'started_following',
    1);
     DB::commit();
```

Table 76: Follow notification transaction

Transaction	TRAN20
Description	Unfollow notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table user_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTransaction();	
Follow::where('followed_id', \$request->id) ->where('follower_id', Auth::user()->id)->delete();	
\$oldNotification = Notification::join('user_notification', 'notification.id', '=', 'user_notification.id') ->select('notification.id') ->where('notification.emitter_user', Auth::user()->id) ->where('notification.notified_user', \$request->id) ->where('user_notification.notification_type', 'started_following') ->get()->last();	
<pre>if (\$oldNotification) { UserNotification::where('id', \$oldNotification->id)->delete(); Notification::where('id', \$oldNotification->id)->delete(); }</pre>	

Table 77: Unfollow notification transaction

DB::commit();

Transaction	TRAN21
Description	Do follow request notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table user_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ

```
DB::beginTransaction();
RequestFollow::insert([
   'req id' => Auth::user()->id,
   'rcv_id' => $request->id,
]);
Notification::insert([
   'emitter_user' => Auth::user()->id,
   'notified_user' => $request->id,
   'date' => date('Y-m-d H:i'),
   'viewed' => false,
]);
$newNotification = Notification::select('notification.id')
                   ->where('emitter_user', Auth::user()->id)
                   ->where('notified user', $request->id)->get()->last();
UserNotification::insert([
   'id' => $newNotification->id,
   'notification_type' => 'request_follow',
]);
DB::commit();
```

Table 78: Do follow request notification transaction

Transaction	TRAN22
Description	Cancel follow request notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table user_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ
DB::beginTransaction();	
RequestFollow::where('req_id', Auth::user()->id) ->where('rcv_id', \$request->id)->delete();	
\$oldNotification = Notification::join('user_notification', 'notification.id', '=', 'user_notification.id') ->select('notification.id')	
->where('notification.emitter_user', Auth::user()->id) ->where('notification.notified_user', \$request->id)	

```
->where('user_notification.notification_type', 'request_follow')
->get()->last();

UserNotification::where('id', $oldNotification->id)->delete();

DB::commit();
```

Table 79: Cancel follow request notification transaction

Transaction	TRAN23
Description	Accept follow request notification
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table user_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.
Isolation level	REPEATABLE READ

```
DB::beginTransaction();
     RequestFollow::where('req_id', Auth::user()->id)
               ->where('rcv id', $request->id)->delete();
     Follow::insert([
       'follower id' => $request->id,
       'followed id' => Auth::user()->id,
    ]);
     $oldNotification = Notification::join('user notification', 'notification.id', '=',
'user notification.id')
                     ->select('notification.id')
                     ->where('notification.emitter_user', $request->id)
                     ->where('notification.notified user', Auth::user()->id)
                     ->where('user notification.notification type', 'request follow')
                     ->get()->last();
     UserNotification::where('user_notification.id', $oldNotification->id)
                ->update(['user notification.notification type' => 'started following']);
     Notification::insert([
       'emitter user' => Auth::user()->id,
       'notified user' => $request->id,
       'date' => date('Y-m-d H:i'),
       'viewed' => false,
    ]);
```

Table 80: Accept follow request notification transaction

Transaction	TRAN24	
Description	Reject Follow Request	
Justification	The isolation level is Repeatable Read, because, otherwise, an update of the notification table could happen, due to an insert in the table user_notification committed by a concurrent transaction, and as a result, inconsistent data would be stored.	
Isolation level	REPEATABLE READ	
DB::beginTrans	action();	
RequestFollow::where('req_id', \$request->id) ->where('rcv_id', Auth::user()->id)->delete();		
<pre>\$oldNotification = Notification::join('user_notification', 'notification.id', '=', 'user_notification.id')</pre>		
UserNotification	UserNotification::where('id', \$oldNotification->id)->delete();	
DB::commit();		

Table 81: Reject Follow Request transaction

Transaction	TRAN25	
Description	Delete main notification	
Justification	The isolation level is Repeatable Read, because, otherwise, an update or insert of the notification table could happen, due to a delete in the main table notification or others generalization committed by a concurrent transaction, and as a result, inconsistent data would be stored.	
Isolation level	REPEATABLE READ	
DB::beginTrans	DB::beginTransaction();	
CommentNotification::where('id', \$request->id)->delete(); UserNotification::where('id', \$request->id)->delete(); GroupNotification::where('id', \$request->id)->delete(); PostNotification::where('id', \$request->id)->delete(); Notification::where('id', \$request->id)->delete();		
DB::commit();		

Table 83: Delete main notification transaction

5. Database Schema

OnlyFEUP Database Schema is available in Annexes and in the main code repository.

6. Database Population

OnlyFEUP Database Population is available in Annexes and in the main code <u>repository</u>.

A7: Web Resources Specification

This artifact describes the web api that will be developed, remarking the resources needed, Its properties and JSON responses. This api includes creating, reading, updating and deleting operations (if it exists) for each resource.

1. Overview

Modules	Description
M01: Authentication	Web resources associated with user authentication and registration, with features such as login/logout and registration.
M02: Users	Web resources related to viewing user information, such as home page, profile page and edit profile information, chatting with other users and manipulating their own notifications.
M03: Posts	Web resources associated with posts, with features such as post creation, editing, deletion and visualization.
M04: Search	Web resources correspond to search features. Including searching users, groups, posts and comments with different types of privilege.
M05: Administration	Web resources associated with enforcing terms of service, blocking, unblocking and banning users, deleting posts/comments and updating static pages.
M06: Comments	Web resources associated with comments, with features such as comment creation, editing, deletion and visualization.
M07: Groups	Web resources associated with groups, like group creation, edition and deletion and interactions with groups.

Table 62: OnlyFEUP resources overview

2. Permissions

This segment describes the permissions used in the last section (modules) to settle the conditions of access to resources.

Identifier	Name	Description
VST	Visitor	An unauthenticated user.
USR	User	An authenticated user.
OWN	Owner	The owner of a post, comment, profile.
ADM	Administrator	Platform administrator.

Table 63: OnlyFEUP permissions

3. OpenAPI Specification

OnlyFEUP OpenAPI Specification for A7 Artifact is available in Annexes and in main code <u>repository</u>.

A8: Vertical Prototype

The Vertical Prototype includes the implementation of the features marked as necessary in the common and theme requirements documents. By that information, we implemented all the user stories with priority high as we can see in the sections below.

The objective of this artifact is to validate the architecture presented and for us to get basic knowledge of the technologies used in the project.

As recommended, the implementation is based on the code of <u>LBAW Framework</u> and includes work on all layers of the architecture of the solution to implement. The prototype includes the implementation of the visualization of pages (as home, profile, admin and search pages), insertion, edition and removal of content (posts) and some error and success messages.

1. Implemented Features

1.1. Implemented User Stories

User Story	Name	Priority	Description
US01	See Home Page	high	As a User, I want to see the Home Page so that I can start navigating the site.
US02	View Public Timeline	high	As a User, I want to be able to view thePublic Timeline so that I can keep up with what's happening.
US03	View Public Profiles	high	As a User, I want to be able to view public profiles so that I can see their posts and information.
US04	Search Public Users	high	As a User, I want to be able search for public users so that I can view their profiles.
US08	Sign-up	high	As a <i>Visitor</i> , I want to register myself into the system, so that I can

			authenticate myself into the system
US09	Sign-in	high	As a <i>Visitor</i> , I want to authenticate into the system, so that I can access privileged information
US10	Sign-out	high	As an Authenticated User, I want to sign out, so that I am not logged in anymore.
US11	View personalized timeline	high	As an Authenticated User, I want to view a personalized timeline, so that I can view posts that I actually have an interest in.
US12	Create Post	high	As an Authenticated User, I want to create posts, so that I can share information to my followers.
US40	Edit post	high	As a Post Author, I want to edit my post, so that I can correct a mistake I made.
US41	Delete post	high	As a Post Author, I want to delete a post, so that I can remove something that I put by mistake.
US45	Special Search privileges	high	As an Administrator, I want to search for profiles and groups even if they are private, so that I can investigate if there is something against the guidelines.

Table 83: Vertical Prototype implemented user stories

1.2. Implemented Web Resources

Module M01: Authentication

Web Resource Reference	URL
R101: Login Form	GET /login
R102: Login Action	POST /login
R103: Logout Action	GET /logout
R104: Register Form	GET <u>/register</u>
R105: Register Action	POST /register

Table 84: Authentication implementation

Module M02: Users

Web Resource Reference	URL
R201: View user profile	GET /user/{id}
R202: View user home page	GET /home
R203: Edit user profile page	GET /user/edit
R204: Edit user profile action	POST /user/edit

Table 85: Users implementation

Module M03: Posts

Web Resource Reference	URL
R301: Create post action	POST /post/create
R302: Delete post action	POST /post/delete
R303: Delete post media action	POST /post/deletemedia
R304: Edit post action	POST /post/edit

Table 86: Posts implementation

Module M04: Search

Web Resource Reference	URL
R401: View user search page	GET /home/search
R402: Search users	GET /api/user
R403: Search posts	GET /api/post

Table 87: Search implementation

Module M05: Administration

Web Resource Reference	URL
R501: View admin page	GET <u>/admin</u>
R502: Block a user from logging in action	POST /admin/user/block
R503: Unblocking a user from logging in action	POST /admin/user/unblock
R504: Ban a user action	POST /admin/user/ban

Table 88: Administration implementation

2. Changes to database

- 2 Columns added to users table: 'description' and 'remember token'.
- Changed passwords encryption method to bcrypt.
- Media table and its references deleted.
- Removed triggers related to *media*.
- 2 new triggers: 'delete_post_action' and 'delete_comment_action'.
- New table for blocked users: 'blocked'.

3. Prototype

For this prototype we focused our efforts in developing the main functionalities of the project. We did not focus too much on the visual aspect, so the design is not perfected, but enough to get an idea of the general layout and easily navigate through the website.

The prototype is available at http://lbaw2255.lbaw.fe.up.pt

Credentials:

- admin user: eduardanascimento@gmail.com | eduardalbaw2255
- regular user: <u>laravel@hotmail.com</u> | password

The code is available at https://git.fe.up.pt/lbaw/lbaw2223/lbaw2255

A9: Product

The OnlyFEUP final product is the result of the implementation of the information system designed in the previous stages (A1 to A7), using PHP and Laravel Framework to produce dynamic web pages, AJAX for a better user experience and PostgreSQL as a database.

The main goal of the OnlyFEUP project is the development of a web-based social network with the purpose of creating connections between students and staff, sharing resources about courses and subjects. This is a tool that can be used by anyone from FEUP. After signing up and verifying the user is related to the university (students/teachers), they can start using it for a better experience at FEUP.

Installation

The release with the final version of the source code in the group's Git repository is available here, in PA tag.

Full Docker command to launch the image available in the group's GitLab Container Registry using the production database:

```
docker run -it -p 8000:80 --name=lbaw2255 -e DB_DATABASE="lbaw2255" -e
DB_SCHEMA="lbaw2255" -e DB_USERNAME="lbaw2255" -e DB_PASSWORD="reWisDQE"
git.fe.up.pt:5050/lbaw/lbaw2223/lbaw2255
```

Usage

The final product is available online on https://lbaw2255.lbaw.fe.up.pt

Administration Credentials

Email	Password
eduardanascimento@gmail.com	eduardalbaw2255

Table 89: OnlyFEUP Administration Credentials

User Credentials

Email	Password	
laravel@hotmail.com	password	

Table 90: OnlyFEUP User Credentials

Application Help

Features related to Help were implemented as long as the rest of the main features. It can be visualized on alert messages on some actions and on some static pages, like "HELP", "About us" and "Features".

You can access these pages by their url path, like "/help", "/about" and "/features" or by pressing the buttons that we created to access these pages. These buttons are always placed in the sidebar.

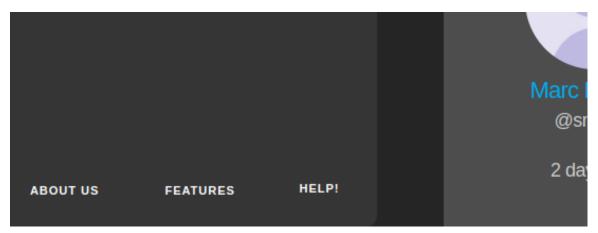


Figure 7: OnlyFEUP static pages

On the "HELP!" page we have two main sections. The "frequently asked questions" section presents some usual questions asked and their answers and the "contacts" section shows the administrators' information so that users may contact them.

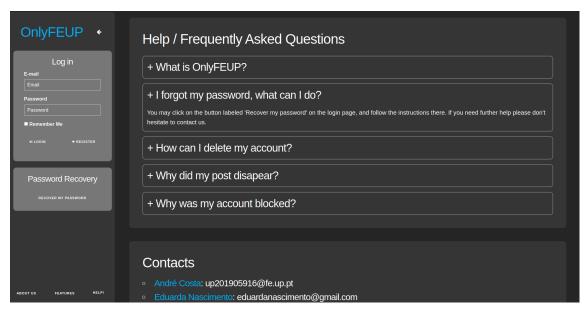


Figure 8: OnlyFEUP help page

The "About us" page is useful to give some knowledge about our Social Media and about our staff.

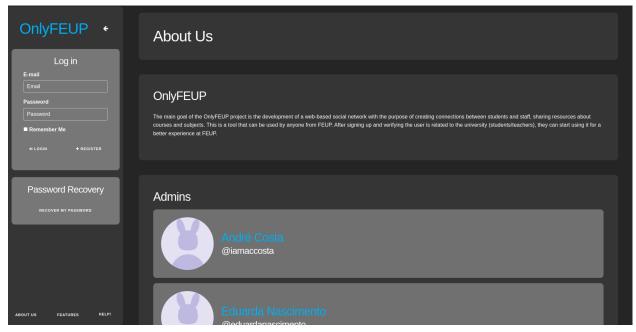


Figure 9: OnlyFEUP AboutUs page

The "Features" page, like the name says, presents the main features implemented divided by topics.

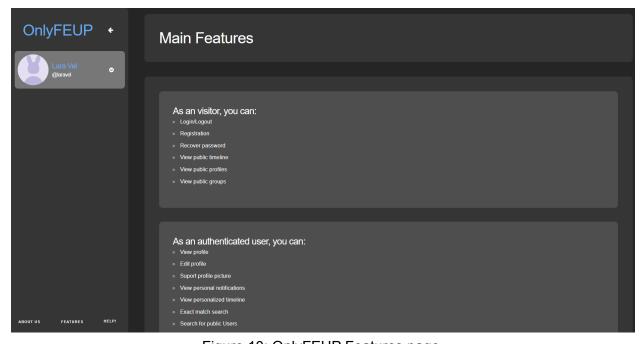


Figure 10: OnlyFEUP Features page

As alert messages, we decided to implement error/success messages on actions like creating posts/comments and groups and some confirmation messages on relevant actions like deleting a group/account.

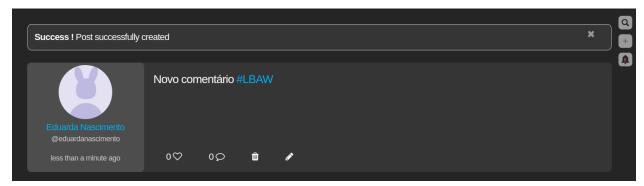


Figure 11: Example of success messages

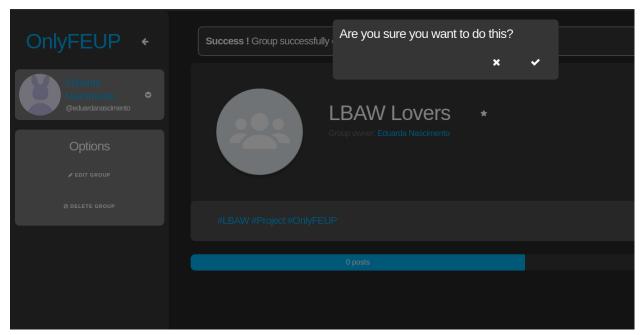


Figure 12: Group deletion confirmation message

Input Validation

As the back-end input validation we used the Illuminate\Http\Request granting us access to a function called "validate" that has different types of validation. We used this feature to validate the inputs of our forms, like the login/register form, and the edit user/group profile form as we can see in the next examples:

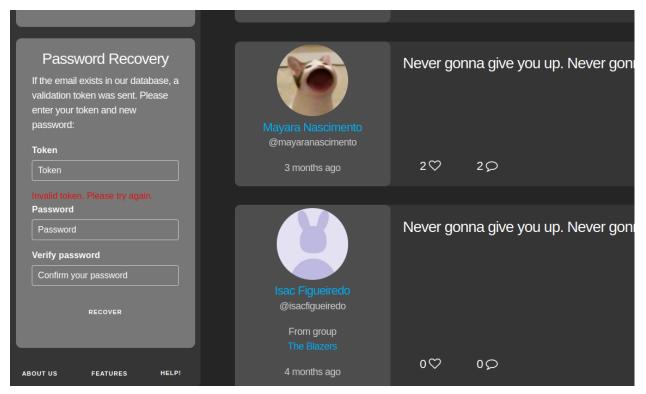


Figure 13: Token validation in password recovery

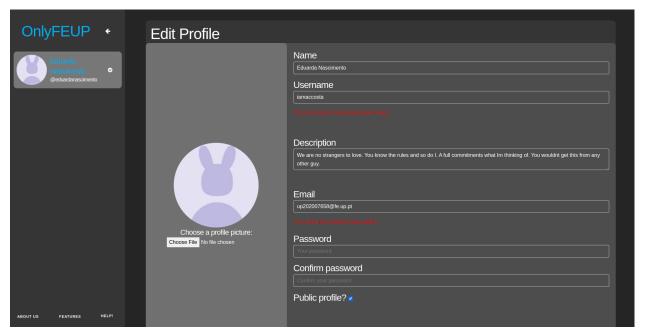


Figure 14: Back-end input validation in edit user profile page

As the front-end input validation we used javascript. For example, when we edit an existing comment or post but remove the text completely, there is a warning:

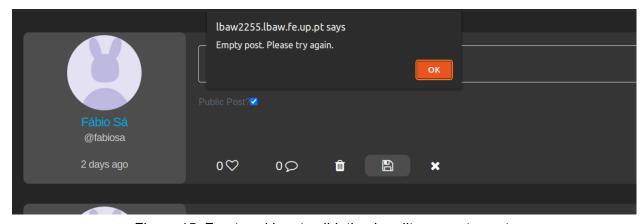


Figure 15: Front-end input validation in edit an empty post

Check Accessibility and Usability

Accessibility Checklist, 18/18
Usability Checklist, 27/28

HTML and CSS Validation

<u>HTML Validation</u>, here the warnings and errors are the result of the bootstrap framework and because of the many posts and comments that repeats then.

<u>CSS Validation</u>

Revisions of the Project

There are many revisions made to the project since the requirements specification stage:

Database Schema

- Two attributes added to users table: 'description' and 'remember_token';
- Changed passwords encryption method to bcrypt;
- Media table and its references (in tables or triggers) deleted;
- New table for blocked users: 'blocked';
- New table for user notification configurations: 'configuration';
- New table for user private messages: 'message';
- New attribute for posts privacy: 'is public';
- New attribute for comments replies: 'previous';
- Eight new types of notifications: 'leave_group', 'invite', 'ban', 'group_ownership', 'post_tagging', 'comment_post', 'reply_comment', 'comment_tagging';

Triggers

- Update trigger 10 'delete_post_action': when deleting a post it also deletes its comments, subcomments, likes and notifications (business rule BR17);
- Update trigger 11 'delete_comment_action': when deleting a comment it also deletes its likes, subcomments and notifications (business rule BR18);
- New trigger 12 'delete_group_action': when deleting a group it also deletes its posts, members, likes, comments, subcomments, notifications and group_notifications (business rule BR19)
- New trigger 13 'delete_mainnotification_action': after deleting a subnotification, delete main notification table entry;
- New trigger 14 'configuration_action': When new user appears, he initially gets all kinds of notification (business rule BR20);

Routes

- /messages, for user private messages;
- /sendEmail, for sending email with recover password token;
- /recoverPassword, for recover password action;
- /user/doFollowRequest, /user/cancelFollowRequest,
 /user/acceptFollowRequest, /user/rejectFollowRequest, for user following manipulation;
- /api/comment, for comment searching;
- /api/notifications, for notification management;
- /api/context, to get notification context;
- /comment/like, /comment/dislike, /comment/create, /comment/delete, /comment/edit, for comment management;
- /message/{id} and /message/create for private messages management;
- /notification/delete and /notification/update for user notifications management;
- /images/{type} for image privacy and visibility;

User Stories

About 30 new low-priority User Stories were added:

- **User functionalities**: 'started following' and 'accepted follow request' notifications, manage and delete notifications, see notification context,
- Group functionalities: 'invited to group', 'ban', 'join' and 'new ownership'
 notifications, join public and private groups, request to join in private groups,
 remove posts/comments from groups, change group visibility, manage group
 invitations, delete group, give group ownership, accept invites and leave group.
 Mark group as favorites,
- **Comment functionalities:** reply to comments, tag users in comments, new tagging user notification, edit comment, delete comment

- **Post functionalities:** post tagging notification, hashtags and searching for hashtags, manage post visibility, post media (images and videos),
- **Message functionalities:** see messages status, send private messages with text and/or media (images, videos and audios);

Web Resources Specification

Implemented Web Resources

Module M01: Authentication

Web Resource Reference	URL
R101: Login Form	GET <u>/login</u>
R102: Login Action	POST /login
R103: Logout Action	GET /logout
R104: Register Form	GET /register
R105: Register Action	POST /register
R106: Send Email Action	POST /sendEmail
R107: Recover Password Action	POST /recoverPassword

Table 91: Authentication implementation

Module M02: Users

Web Resource Reference	URL
R201: View user profile	GET /user/{id}
R202: View user home page	GET /home
R203: Edit user profile page	GET /user/edit
R204: Edit user profile action	POST /user/edit
R205: Profile Delete	POST /user/profileDelete
R206: Delete User	POST /user/delete
R207: Remove follower	POST /user/removeFollower

R208: Follow	POST /user/follow
R209: Unfollow	POST /user/unfollow
R210: Do Follow Request	POST /user/doFollowRequest
R211: Cancel Follow Request	POST /user/cancelFollowRequest
R212: Accept Follow Request	POST /user/acceptFollowRequest
R213: Reject Follow Request	POST /user/rejectFollowRequest
R214: User Notifications	GET /home/notifications
R215: Delete Notification	POST /notification/delete
R216: Update Notification	POST /notification/update
R217: Messages	GET /messages
R218: Private Messages	GET /message/{id}
R219: Create Message	POST /message/create
R220: About page	GET /about
R221: Help page	GET_/help
R222: Features page	GET /features
R223: Images	GET /images/{type}

Table 92: Users implementation

Module M03: Posts

Web Resource Reference	URL
R301: Create post action	POST /post/create
R302: Delete post action	POST /post/delete
R303: Edit post action	POST /post/edit
R304: Like post action	POST /post/like
R305: Unlike post action	POST /post/unlike

Table 93: Posts implementation

Module M04: Search

Web Resource Reference	URL
R401: View user search page	GET /home/search
R402: Search users	GET /api/user
R403: Search posts	GET /api/post
R404: Search comments	GET /api/comment
R405: Search groups	GET /api/group

Table 94: Search implementation

Module M05: Administration

Web Resource Reference	URL
R501: View admin page	GET <u>/admin</u>
R502: Block a user from logging in action	POST /admin/user/block
R503: Unblocking a user from logging in action	POST /admin/user/unblock

Table 95: Administration implementation

Module M06: Comments

Web Resource Reference	URL
R601: Create comment action	POST /comment/create
R602: Delete comment action	POST /comment/edit
R603: Edit comment action	POST /comment/edit
R604: Like comment action	POST /comment/like
R605: Unlike comment action	POST /comment/unlike

Table 96: Comments implementation

Module M07: Comments

Web Resource Reference	URL
R701: Group page	GET /group/{id}
R702: All groups page	GET /groups
R703: Edit group page	GET /group/{id}/edit
R704: Edit group action	POST /group/edit
R705: Create group	POST /group/create
R706: Joining group	POST /group/join
R707: Group leave	POST /group/leave
R708: Group delete	POST /group/delete
R709: Give group ownership	POST /group/makeOwner
R710: Group join request	POST /group/doJoinRequest
R711: Cancel group join request	POST /group/cancelJoinRequest
R712: Accept Join Request	POST /group/acceptJoinRequest
R713: Reject Join Request	POST /group/rejectJoinRequest
R714: Remove member	POST /group/removeMember
R715: Invite	POST /group/invite
R716: Cancel Invite	POST /group/cancelInvite
R717: Reject Invite	POST /group/cancelInvite
R718: Accept Invite	POST /group/acceptInvite
R719: Favorite group	POST /group/favorite
R720: Unfavorite group	POST /group/unfavorite
R721: Delete group media	POST /group/deleteMedia

Table 97: Groups implementation

Module M08: API

Web Resource Reference	URL
R801: Verify username	GET /api/userVerify
R802: Notifications	GET_/api/notifications
R803: Notification context	GET_/api/context
R804: Private messages	GET /api/messages

Table 98: Comments implementation

OpenAPI Specification

Full OpenAPI documentation for OnlyFEUP is available in the annexes to this document and in the <u>main repository</u>.

Implementation Details

Libraries and Frameworks Used

- <u>Laravel</u>, for server-side management
- Bootstrap, for frontend responsive and intuitive
- FontAwesome, for icons and buttons

User Stories

ID	Name	Priority	Module	Team Members	State
US01	See Home Page	high	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US02	View Public Timeline	high	M02	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US03	View Public Profiles	high	M02	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US04	Search Public Users	high	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%

US05	See About Us	medium	M02	Lourenço Gonçalves, André Costa	100%
US06	Consult FAQ / Help / Contacts	medium	M02	Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US07	See Main Features	medium	M02	Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US08	Sign-up	high	M01	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US09	Sign-in	high	M01	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US10	Sign-out	high	M01	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US11	View User Profiles	high	M02	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US12	View personalized timeline	high	M02	Fábio Sá , Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US13	Create Post	high	M03	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US14	View Own Profile	medium	M02	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US15	Support Profile Picture	medium	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US16	Recover Password	medium	M01	Fábio Sá, Marcos Ferreira	100%
US17	Delete Account	medium	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US18	Send Follow Request	medium	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US19	View profiles followed	medium	M02	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US20	Search for Posts, Comments,	medium	M04	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%

	Groups and Users				
US21	Exact Match Search	medium	M04	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US22	Full-Text Search	medium	M04	Fábio Sá , Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US23	Search filters	medium	M04	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US24	Search over Multiple Attributes	medium	M04	Fábio Sá , Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US25	Follow someone	medium	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US26	Manage Received Follow Requests	medium	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US27	Manage Followers	medium	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US28	Comment on Posts	medium	M06	Fábio Sá, Marcos Ferreira	100%
US29	React to post	medium	M03	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US30	React to comment	medium	M05	Fábio Sá, Marcos Ferreira	100%
US31	Create Groups	medium	M07	Lourenço Gonçalves , André Costa	100%
US32	Manage Group Invitations	medium	M07	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US33	Edit profile	medium	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US34	View Personal notifications	medium	M02	Fábio Sá	100%

US35	Placeholders in Form Inputs	medium	M02	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US36	Contextual Error Messages	medium	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US37	Contextual Help	medium	M02	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US38	Follow Requests Notification	medium	M02	Fábio Sá	100%
US39	Started Following Notification	low	M02	Fábio Sá	100%
US40	Accepted Follow Notification	low	M02	Fábio Sá	100%
US41	Invite Group Notification	low	M07	Fábio Sá	100%
US42	Reply to Comments	low	M06	Marcos Ferreira, Fábio Sá	100%
US43	Tag Users in Posts	low	M03	Marcos Ferreira , Fábio Sá	100%
US44	Post Tagging Notification	low	M03	Fábio Sá	100%
US45	Comment and Reply Tagging Notification	low	M06	Fábio Sá	100%
US46	Join Public Group	low	M07	Lourenço Gonçalves , André Costa, Fábio Sá	100%
US47	Request to Join Private Group	low	M07	Lourenço Gonçalves, André Costa , Fábio Sá	100%
US48	Manage my notifications	low	M02	Fábio Sá	100%
US49	Delete notifications	low	M02	Fábio Sá, Marcos Ferreira	100%

US50	Hashtags	low	M02	Marcos Ferreira, Fábio Sá	100%
US51	Notification context	low	M02	Marcos Ferreira, Fábio Sá	100%
US52	Send Private Messages	low	M08	Marcos Ferreira , Fábio Sá	100%
US53	Private Messages Status	low	M08	Marcos Ferreira , Fábio Sá	100%
US54	Send Private Media	low	M08	Marcos Ferreira	100%
US55	Edit Group Information	medium	M07	Lourenço Gonçalves, André Costa, Marcos Ferreira	100%
US56	Remove member	medium	M07	Lourenço Gonçalves, André Costa , Marcos Ferreira	100%
US57	Add to group	medium	M07	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US58	Remove post from group	low	M07	Fábio Sá , Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US59	Change group visibility	low	M07	Lourenço Gonçalves, André Costa	100%
US60	Manage Group invitations	low	M07	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US61	Manage Join Requests	low	M07	Fábio Sá , Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US62	Delete my group	low	M07	Lourenço Gonçalves, André Costa, Marcos Ferreira	100%
US63	Give Ownership	low	M07	Lourenço Gonçalves, A ndré Costa , Marcos Ferreira	100%
US64	Request Join Notification	low	M07	Fábio Sá	100%
US65	Joined Notification	low	M07	Fábio Sá	100%
US66	Accepted Invite Notification	low	M07	Fábio Sá	100%

US67	Leave Group Notification	low	M07	Fábio Sá	100%
US68	View group members	medium	M07	Lourenço Gonçalves, André Costa, Marcos Ferreira	100%
US69	Post on group	medium	M07	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US70	Leave group	medium	M07	Lourenço Gonçalves, André Costa	100%
US71	Favorite	low	M07	Fábio Sá, Marcos Ferreira	100%
US72	Ban Notification	low	M07	Fábio Sá	100%
US73	Ownership Notification	low	M07	Fábio Sá	100%
US74	Edit post	high	M03	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US75	Delete post	high	M03	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US76	Likes on Own Post Notification	medium	M03	Fábio Sá	100%
US77	Comments on Own Posts Notification	medium	M06	Fábio Sá	100%
US78	Manage post visibility	low	M03	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US79	Post media	low	M03	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US80	Edit comment	medium	M06	Fábio Sá, Marcos Ferreira	100%
US81	Delete comment	medium	M06	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US82	Likes on Own Comment Notification	low	M06	Fábio Sá	100%

US83	Replies on Own Comment Notification	low	M06	Fábio Sá	100%
US84	Special Search privileges	high	M05	Fábio Sá , Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US85	Administrator Account	medium	M05	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US86	Administer user accounts	medium	M05	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US87	Block and unblock user accounts	medium	M05	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira , André Costa	100%
US88	Delete user account	medium	M05	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%
US89	Delete posts and comments	medium	M05	Fábio Sá, Lourenço Gonçalves, Marcos Ferreira, André Costa	100%
US90	Delete groups	low	M05	Fábio Sá, Lourenço Gonçalves , Marcos Ferreira, André Costa	100%

Table 99: OnlyFEUP implemented features

A10: Presentation

Product Presentation

OnlyFEUP is the first FEUP centered social network! With the purpose of facilitating students and teachers to share and discuss ideas and resources about subjects by posting and/or commenting, bringing closeness between them by creating connection and ease of communication.

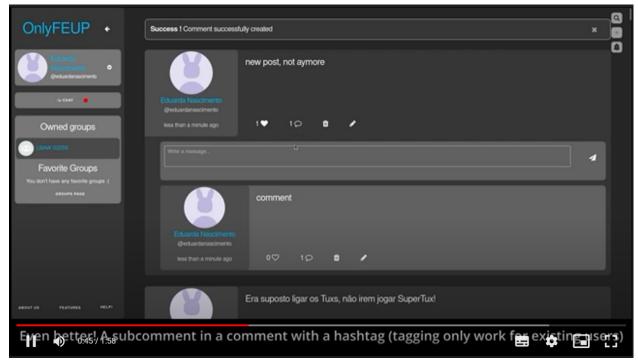
With **OnlyFEUP** you can create groups to gather people with the same interests, send private messages and much more. Even if you are more conscious about your privacy, there are options to make a private profile, a private group and private posts.

OnlyFEUP is made with HTML5, JavaScript, CSS. The Bootstrap framework was used to improve the user interface and the Laravel framework, which uses PHP, was used for the back-end and content of the pages.

The platform also features an adaptive design and a simple navigation system with relevant information always on the same place, the sidebar. In there you can find the most important actions of a particular page. But even if you have questions, just check the static page.

URL to the product: https://lbaw2255.lbaw.fe.up.pt

Video Presentation



https://git.fe.up.pt/lbaw/lbaw2223/lbaw2255/-/blob/main/docs/lbaw2255.mp4

Revision history

Artifact A1 - Editor: Fábio Sá

September 22:

Context of project, stakeholders, motivation

by:

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

September 25:

Main features, groups, relation between groups, goals and objectives

by:

André Costa

Lourenço Gonçalves

Marcos Ferreira Pinto

Artifact A2 - Editor: Marcos Ferreira

September 25:

Identifying actors and their descriptions, started user stories; business rules 1,2,3

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

September 26:

Started formatting tables for user stories

by:

Fábio Sá

Marcos Ferreira Pinto

September 27:

Finished user stories, business rules, technical requirements, restrictions.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

October 02:

Text reformatting and some corrections

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 04:

Corrections to user stories, business rules and technical requirements

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

Artifact A3 - Editor: Lourenço Gonçalves

September 27:

Started and finished sitemap.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

September 29:

Corrections to sitemap. Started working on wireframes

by:

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 02:

Finished wireframes.

by:

André Costa

Lourenço Gonçalves

Marcos Ferreira Pinto

October 04:

Sitemap labels. Final corrections to sitemap.

by:

André Costa

Fábio Sá Lourenço Gonçalves Marcos Ferreira Pinto

Artifact A4 - Editor: André Costa

October 6:

Started class diagram

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 7:

Continued class diagram. Started additional business rules

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 13:

Finished the class diagram and business rules

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

Artifact A5 - Editor: Fábio Sá

October 7:

Started relational schema

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 15:

Finished relational schema. Schema validation and domains.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 18:

Started SQL schema.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

Artifact A6 - Editor: Marcos Ferreira

October 18:

Continue SQL schema. Indexes. Started database population.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 19:

More population.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 20:

More population. Started performance indexes and FTS indexes.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 24:

Even more population. Continued triggers.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

October 27:

Finished population (except transactions). Finished triggers.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 29:

Finished all indexes and worked on transactions.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

October 30:

Finished transactions and report.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

Artifact A7 - Editor: Lourenço Gonçalves

November 3:

Resources overview and permissions. Started working on OpenAPI resource documentation.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

November 10:

A7 finished.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

November 21:

Corrections of A7.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

Artifact A8 - Editor: André Costa

November 14:

Login and Logout features implemented. Showing public feed.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

November 15:

Added "remember me" to login form. Register done. Create and delete post done.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

November 16:

Edit post done. User profile page started.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

November 17:

Default picture added. Remove table media.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

November 18:

Profile now show number of followers, followed users and posts. Posts show number of likes and comments.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

November 19:

Upload and delete images in posts. Image routes. Edit user done. Started working on admin features.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

November 20:

Admin search finished. Admin can block user and delete posts. User search done.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

November 21:

Bug fixes. Some CSS corrections. Deployed image.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

Artifact A9 - Editor: Fábio Sá

November 30:

Delete post with ajax request, https version, fixed post query in feed.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

December 1:

Delete account, work on static pages

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 2:

Delete account modification to use transactions

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 3:

Started working on unfollow and following with request (for private accounts), work on notification and new features for groups and groups' page, work on password recovery by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 4:

Likes and unliking (remove likes), sidebar update, added edit group page by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 5:

Bug fixes in notification, follows and unfollows and deleting a user

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 6:

Notification with ajax request and real time notifications

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 7:

Edit group action, buttons to join group (including request in private groups), admin features for groups

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 9:

Like's restrictions, modification in queries for various information.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 10:

Group notifications, optimizations on search.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 11:

Comments and subcomments

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 12:

Added feature to remove member from group, likes and unliking for comments

by:

André Costa

Fábio Sá

Lourenço Gonçalves Marcos Ferreira Pinto

December 13:

Edit comment; counter for comments, subcomments and replies by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 14:

Groups' invites, deleting a group, bootstrap setup, started work on group ownership transfer, css changes and adaptation with bootstrap.

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 15:

Posting in groups, finished group ownership transfer, counter for notifications, bootstrap changes

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 16:

Line breaks in textfields, relative timestamps, fixed create post to not accept empty posts by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 17:

Notifications' settings, chat section created, css changes, added more media formats by:

André Costa

Fábio Sá

Lourenço Gonçalves

December 18:

Major visual redesign of onlyFEUP (posts, comments, buttons, profile page)

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 19:

Continuation of visual design changes (favicon, sidebar adaptive size, login and register pages, scroll bars, search page)

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 20:

Design changes (edit group page, profile edit page, work on tagging users

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 21:

Comments are now forms, counter now work correctly, bug fixes

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 22:

Addition of chat system

by:

André Costa

Fábio Sá

Lourenço Gonçalves

December 23:

Messages in chat now in real time (not reloading needed), added confirmation for important actions, chat design changes, searching comments now fixed

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 24:

Support for images, videos and audio in chat messages

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 27:

Static pages, design changes

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 29:

Added a features page, fixes in general

by:

André Costa

Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

December 30:

Html and css validation (and changes if necessary), update in open api documentation by:

André Costa

Fábio Sá

Lourenço Gonçalves

January 1:

Fixes in general, database now in contextual to FEUP by:

André Costa Fábio Sá

Lourenço Gonçalves

Marcos Ferreira Pinto

Artifact A10 - Editor: Marcos Ferreira

January 2:

Product Presentation text, Video presentation, update wiki by:

André Costa Fábio Sá

Lourenço Gonçalves

Annexes

Database schema

```
create schema if not exists lbaw2255;
SET DateStyle TO European;
-- Drop old schema
DROP TABLE IF EXISTS group join request CASCADE;
DROP TABLE IF EXISTS comment_notification CASCADE;
DROP TABLE IF EXISTS user_notification CASCADE;
DROP TABLE IF EXISTS group notification CASCADE;
DROP TABLE IF EXISTS post notification CASCADE;
DROP TABLE IF EXISTS member CASCADE;
DROP TABLE IF EXISTS blocked CASCADE;
DROP TABLE IF EXISTS follow request CASCADE;
DROP TABLE IF EXISTS follows CASCADE;
DROP TABLE IF EXISTS post_likes CASCADE;
DROP TABLE IF EXISTS comment likes CASCADE;
DROP TABLE IF EXISTS admin CASCADE;
DROP TABLE IF EXISTS notification CASCADE;
DROP TABLE IF EXISTS comment CASCADE;
DROP TABLE IF EXISTS post CASCADE;
DROP TABLE IF EXISTS groups CASCADE;
DROP TABLE IF EXISTS users CASCADE;
DROP TABLE IF EXISTS configuration CASCADE;
DROP TABLE IF EXISTS message CASCADE;
DROP TYPE IF EXISTS user_notification_types;
DROP TYPE IF EXISTS group_notification_types;
DROP TYPE IF EXISTS post notification types;
DROP TYPE IF EXISTS comment notification types;
DROP FUNCTION IF EXISTS group_search_update CASCADE;
DROP FUNCTION IF EXISTS user_search_update CASCADE;
DROP FUNCTION IF EXISTS comment search update CASCADE;
DROP FUNCTION IF EXISTS post_search_update CASCADE;
```

```
DROP FUNCTION IF EXISTS verify post likes CASCADE;
DROP FUNCTION IF EXISTS verify_comment_likes CASCADE;
DROP FUNCTION IF EXISTS verify_group_post CASCADE;
DROP FUNCTION IF EXISTS verify comment CASCADE;
DROP FUNCTION IF EXISTS group_owner CASCADE;
DROP FUNCTION IF EXISTS check_follow_request CASCADE;
DROP FUNCTION IF EXISTS verify self follow reg CASCADE;
DROP FUNCTION IF EXISTS check group join req CASCADE;
DROP FUNCTION IF EXISTS verify self follow CASCADE;
DROP FUNCTION IF EXISTS delete_post_action CASCADE;
DROP FUNCTION IF EXISTS delete comment action CASCADE;
DROP FUNCTION IF EXISTS delete group action CASCADE;
DROP FUNCTION IF EXISTS delete user action CASCADE;
DROP FUNCTION IF EXISTS delete mainnotification action CASCADE;
DROP FUNCTION IF EXISTS configuration_action CASCADE;
_____
-- Types
-----
CREATE TYPE user_notification_types AS ENUM ('request_follow', 'started_following',
'accepted_follow');
CREATE TYPE group_notification_types AS ENUM ('requested_join', 'joined_group',
'accepted_join', 'leave_group', 'invite', 'ban', 'group_ownership');
CREATE TYPE post_notification_types AS ENUM ('liked_post', 'post_tagging');
CREATE TYPE comment_notification_types AS ENUM ('liked_comment', 'comment_post',
'reply_comment', 'comment_tagging');
-- Tables
CREATE TABLE users (
  id SERIAL PRIMARY KEY,
  username VARCHAR(256) UNIQUE NOT NULL,
   password VARCHAR(256) NOT NULL,
  email VARCHAR(256) UNIQUE NOT NULL,
  name VARCHAR(256) NOT NULL,
  description VARCHAR(512),
   is public BOOLEAN NOT NULL DEFAULT TRUE,
  remember_token VARCHAR(256) DEFAULT NULL
);
```

```
CREATE TABLE admin (
  id INTEGER PRIMARY KEY REFERENCES users (id) ON UPDATE CASCADE
);
CREATE TABLE groups (
   id SERIAL PRIMARY KEY,
  owner_id INTEGER NOT NULL REFERENCES users (id) ON UPDATE CASCADE,
   name VARCHAR(256) UNIQUE NOT NULL,
  description VARCHAR(256),
  is public BOOLEAN NOT NULL DEFAULT FALSE
);
CREATE TABLE post (
   id SERIAL PRIMARY KEY,
  owner_id INTEGER NOT NULL REFERENCES users (id) ON UPDATE CASCADE,
   group id INTEGER REFERENCES groups (id) ON UPDATE CASCADE,
  is public BOOLEAN NOT NULL DEFAULT TRUE,
  content VARCHAR(256),
  date TIMESTAMP NOT NULL CHECK (date <= now())</pre>
);
CREATE TABLE comment (
   id SERIAL PRIMARY KEY,
  owner id INTEGER NOT NULL REFERENCES users (id) ON UPDATE CASCADE,
   post id INTEGER NOT NULL REFERENCES post (id) ON UPDATE CASCADE,
  previous INTEGER DEFAULT NULL REFERENCES comment (id) ON UPDATE CASCADE,
  content VARCHAR(256) NOT NULL,
  date TIMESTAMP NOT NULL CHECK (date <= now())</pre>
);
CREATE TABLE notification (
   id SERIAL PRIMARY KEY,
  date TIMESTAMP NOT NULL CHECK (date <= now()),</pre>
  notified_user INTEGER NOT NULL REFERENCES users (id) ON UPDATE CASCADE,
  emitter_user INTEGER NOT NULL REFERENCES users (id) ON UPDATE CASCADE,
  viewed BOOLEAN NOT NULL DEFAULT FALSE
);
CREATE TABLE comment_notification (
   id SERIAL PRIMARY KEY REFERENCES notification (id) ON UPDATE CASCADE,
  comment id INTEGER NOT NULL REFERENCES comment (id) ON UPDATE CASCADE,
  notification type comment notification types NOT NULL
);
```

```
CREATE TABLE user_notification (
   id INTEGER PRIMARY KEY REFERENCES notification (id) ON UPDATE CASCADE,
  notification type user notification types NOT NULL
);
CREATE TABLE group notification (
   id INTEGER PRIMARY KEY REFERENCES notification (id) ON UPDATE CASCADE,
   group id INTEGER NOT NULL REFERENCES groups (id) ON UPDATE CASCADE,
  notification type group notification types NOT NULL
);
CREATE TABLE post notification (
   id INTEGER PRIMARY KEY REFERENCES notification (id) ON UPDATE CASCADE,
   post_id INTEGER NOT NULL REFERENCES post (id) ON UPDATE CASCADE,
  notification type post notification types NOT NULL
);
CREATE TABLE member (
   user id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
   group id INTEGER REFERENCES groups (id) ON UPDATE CASCADE,
  is favorite BOOLEAN NOT NULL DEFAULT FALSE,
  PRIMARY KEY (user_id, group_id)
);
CREATE TABLE follow request (
   req id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  rcv_id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  PRIMARY KEY (req id, rcv id)
);
CREATE TABLE follows (
  follower id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  followed_id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  PRIMARY KEY (follower_id, followed_id)
);
CREATE TABLE group_join_request (
   user id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  group id INTEGER REFERENCES groups (id) ON UPDATE CASCADE,
  PRIMARY KEY (user_id, group_id)
);
```

```
CREATE TABLE post likes (
  user_id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  post_id INTEGER REFERENCES post (id) ON UPDATE CASCADE,
  PRIMARY KEY (user id, post id)
);
CREATE TABLE comment likes (
  user id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  comment id INTEGER REFERENCES comment (id) ON UPDATE CASCADE,
  PRIMARY KEY (user_id, comment_id)
);
CREATE TABLE blocked (
   id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  PRIMARY KEY (id)
);
CREATE TABLE configuration (
  user id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  notification type VARCHAR(20) NOT NULL,
  active BOOLEAN NOT NULL DEFAULT TRUE
);
CREATE TABLE message (
   id SERIAL PRIMARY KEY,
   emitter_id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  receiver id INTEGER REFERENCES users (id) ON UPDATE CASCADE,
  content VARCHAR(256) NOT NULL,
  date TIMESTAMP NOT NULL CHECK (date <= now()),</pre>
  viewed BOOLEAN NOT NULL DEFAULT FALSE
);
-- INDEXES
CREATE INDEX notified user notification ON notification USING btree (notified user);
CLUSTER notification USING notified_user_notification;
CREATE INDEX emitter user notification ON notification USING btree (emitter user);
CLUSTER notification USING emitter_user_notification;
CREATE INDEX owner_id_post ON post USING hash (owner_id);
```

```
CREATE INDEX owner_id_comment ON comment USING hash (owner_id);
-- FTS INDEXES
-----
-- Add column to group to store computed ts vectors.
ALTER TABLE groups
ADD COLUMN tsvectors TSVECTOR;
-- Create a function to automatically update ts_vectors.
CREATE FUNCTION group_search_update() RETURNS TRIGGER AS $$
BEGIN
IF TG_OP = 'INSERT' THEN
       NEW.tsvectors = (
        setweight(to tsvector('simple', NEW.name), 'A') ||
        setweight(to_tsvector('simple', NEW.description), 'B')
       );
 END IF;
 IF TG_OP = 'UPDATE' THEN
        IF (NEW.name <> OLD.name OR NEW.description <> OLD.description) THEN
          NEW.tsvectors = (
            setweight(to_tsvector('simple', NEW.name), 'A') ||
            setweight(to_tsvector('simple', NEW.description), 'B')
          );
        END IF;
 END IF;
 RETURN NEW;
END $$
LANGUAGE plpgsql;
-- Create a trigger before insert or update on group
CREATE TRIGGER group_search_update
BEFORE INSERT OR UPDATE ON groups
FOR EACH ROW
 EXECUTE PROCEDURE group search update();
-- Create a GIN index for ts_vectors.
CREATE INDEX search group ON groups USING GIN (tsvectors);
-- Add column to user to store computed ts_vectors.
ALTER TABLE users
```

```
ADD COLUMN tsvectors TSVECTOR;
-- Create a function to automatically update ts_vectors.
CREATE FUNCTION user search update() RETURNS TRIGGER AS $$
BEGIN
IF TG_OP = 'INSERT' THEN
       NEW.tsvectors = (
         setweight(to tsvector('simple', NEW.name), 'A') ||
         setweight(to tsvector('simple', NEW.username), 'B')
        );
 END IF;
 IF TG OP = 'UPDATE' THEN
         IF (NEW.name <> OLD.name OR NEW.username <> OLD.username) THEN
           NEW.tsvectors = (
             setweight(to_tsvector('simple', NEW.name), 'A') ||
             setweight(to_tsvector('simple', NEW.username), 'B')
           );
         END IF;
 END IF;
 RETURN NEW;
END $$
LANGUAGE plpgsql;
-- Create a trigger before insert or update on user
CREATE TRIGGER user search update
 BEFORE INSERT OR UPDATE ON users
 FOR EACH ROW
 EXECUTE PROCEDURE user_search_update();
-- Create a GIN index for ts vectors.
CREATE INDEX search_user ON users USING GIN (tsvectors);
-- Add column to post to store computed ts_vectors.
ALTER TABLE post
ADD COLUMN tsvectors TSVECTOR;
-- Create a function to automatically update ts vectors.
CREATE FUNCTION post_search_update() RETURNS TRIGGER AS $$
  IF TG OP = 'INSERT' THEN
       NEW.tsvectors = to_tsvector('simple', NEW.content);
  END IF;
  IF TG_OP = 'UPDATE' THEN
```

```
IF (NEW.content <> OLD.content) THEN
           NEW.tsvectors = to_tsvector('simple', NEW.content);
      END IF;
 END IF;
   RETURN NEW;
END $$
LANGUAGE plpgsql;
-- Create a trigger before insert or update on post
CREATE TRIGGER post_search_update
 BEFORE INSERT OR UPDATE ON post
 FOR EACH ROW
 EXECUTE PROCEDURE post_search_update();
-- Create a GIN index for ts_vectors.
CREATE INDEX search post ON post USING GIN (tsvectors);
-- Add column to comment to store computed ts_vectors.
ALTER TABLE comment
ADD COLUMN tsvectors TSVECTOR;
-- Create a function to automatically update ts_vectors.
CREATE FUNCTION comment_search_update() RETURNS TRIGGER AS $$
BEGIN
  IF TG OP = 'INSERT' THEN
        NEW.tsvectors = to_tsvector('simple', NEW.content);
  END IF;
  IF TG_OP = 'UPDATE' THEN
      IF (NEW.content <> OLD.content) THEN
           NEW.tsvectors = to_tsvector('simple', NEW.content);
      END IF;
 END IF;
   RETURN NEW;
END $$
LANGUAGE plpgsql;
-- Create a trigger before insert or update on comments
CREATE TRIGGER comment_search_update
 BEFORE INSERT OR UPDATE ON comment
 FOR EACH ROW
 EXECUTE PROCEDURE comment_search_update();
-- Create a GIN index for ts_vectors.
```

```
CREATE INDEX search comment ON comment USING GIN (tsvectors);
_____
-- TRIGGERS
-- TRIGGER01
-- A user can only like a post once, or like posts from groups to which they belong or
like comment in posts from public users or users they follow (business rule BR07)
CREATE FUNCTION verify post likes() RETURNS TRIGGER AS
$BODY$
BEGIN
  IF EXISTS (SELECT * FROM post likes WHERE NEW.user id = user id AND NEW.post id =
post id) THEN
     RAISE EXCEPTION 'A user can only like a post once';
  END IF:
  IF EXISTS (SELECT * FROM post WHERE NEW.post_id = post.id AND post.group_id IS NOT
NULL)
     AND NOT EXISTS (SELECT * FROM post, member WHERE NEW. post id = post.id AND
post.group id = member.group id
                 AND NEW.user_id = member.user_id) THEN
     RAISE EXCEPTION 'A user can only like posts from groups to which they belong';
  END IF;
  IF EXISTS (SELECT * FROM users, post WHERE NEW. post id = post.id AND post.owner id =
users.id AND NOT users.is_public AND post.group_id IS NULL AND NEW.user_id <>
post.owner id)
     AND NOT EXISTS (SELECT * FROM post, follows WHERE NEW.post_id = post.id AND
NEW.user id = follows.follower id AND follows.followed id = post.owner id) THEN
     RAISE EXCEPTION 'A user can only like posts from public users or users they
follow';
  END IF;
  RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER verify_post_likes
  BEFORE INSERT OR UPDATE ON post likes
  FOR EACH ROW
  EXECUTE PROCEDURE verify_post_likes();
-- TRIGGER02
```

```
-- A user can only like a comment once (business rule BR08)
CREATE FUNCTION verify comment likes() RETURNS TRIGGER AS
$BODY$
BEGIN
   IF EXISTS
      (SELECT * FROM comment likes WHERE NEW.user id = user id AND NEW.comment id =
comment id)
      THEN RAISE EXCEPTION 'A user can only like a comment once';
   END IF;
   IF EXISTS
      (SELECT * FROM post, comment WHERE NEW.comment id = comment.id AND
comment.post id = post.id AND post.group id IS NOT NULL)
   AND NOT EXISTS
      (SELECT * FROM post, member, comment WHERE NEW.comment id = comment.id AND
comment.post id = post.id AND post.group id = member.group id AND NEW.user id =
member.user_id)
   THEN RAISE EXCEPTION 'Can not like a comment of a post of a group you do not belong
to';
   END IF;
   IF EXISTS
      (SELECT * FROM users, post, comment WHERE NEW.comment id = comment.id AND
comment.post id = post.id AND post.owner id = users.id AND NOT users.is public AND
post.group id IS NULL AND comment.owner id <> post.owner id)
   AND NOT EXISTS
      (SELECT * FROM post, follows, comment WHERE NEW.comment_id = comment.id AND
comment.post id = post.id AND NEW.user id = follows.follower id AND
follows.followed id = post.owner id)
   THEN RAISE EXCEPTION 'Can not like comments in posts from private users you do not
follow';
   END IF;
   RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER verify comment likes
   BEFORE INSERT OR UPDATE ON comment_likes
   FOR EACH ROW
   EXECUTE PROCEDURE verify_comment_likes();
```

```
-- TRIGGER03
-- A user can only post to a group that they belong to (business rule BR09)
CREATE FUNCTION verify_group_post() RETURNS TRIGGER AS
$BODY$
BEGIN
   IF NOT EXISTS (SELECT * FROM member WHERE NEW.owner_id = user_id AND NEW.group_id =
group id)
      AND NEW.group_id IS NOT NULL THEN
         RAISE EXCEPTION 'A user can only post to a group that they belong to';
   END IF;
   RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER verify_group_post
   BEFORE INSERT OR UPDATE ON post
   FOR EACH ROW
   EXECUTE PROCEDURE verify group post();
-- TRIGGER04
-- A user cannot follow themselves (business rule BR10)
CREATE FUNCTION verify_self_follow() RETURNS TRIGGER AS
$BODY$
BEGIN
   IF NEW.follower id = NEW.followed id THEN
         RAISE EXCEPTION 'A user can not follow themselves';
   END IF;
   RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER verify self follow
   BEFORE INSERT OR UPDATE ON follows
   FOR EACH ROW
   EXECUTE PROCEDURE verify self follow();
-- TRIGGER05
-- A user can only comment on posts from public users, posts from users they follow or
```

```
on posts from groups to which they belong (business rule BR12)
CREATE FUNCTION verify comment() RETURNS TRIGGER AS
$BODY$
BEGIN
   IF EXISTS (SELECT * FROM post WHERE NEW.post_id = post.id AND post.group id IS NOT
NULL)
     AND NOT EXISTS (SELECT * FROM post, member WHERE NEW. post id = post.id AND
post.group id = member.group id
                  AND NEW.owner id = member.user id) THEN
      RAISE EXCEPTION 'A user can only comment on posts from groups to which they
belong';
  END IF:
  IF EXISTS (SELECT * FROM users, post WHERE NEW. post id = post.id AND post.owner id =
users.id AND NOT users.is_public AND post.group_id IS NULL AND NEW.owner_id <>
post.owner id)
      AND NOT EXISTS (SELECT * FROM post, follows WHERE NEW.post id = post.id AND
NEW.owner_id = follows.follower_id AND follows.followed_id = post.owner_id)
     THEN RAISE EXCEPTION 'A user can only comment posts from public users or users
they follow';
  END IF;
  RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER verify comment
   BEFORE INSERT OR UPDATE ON comment
  FOR EACH ROW
  EXECUTE PROCEDURE verify comment();
-- TRIGGER06
-- A group owner is also a member of your group (business rule BR13)
CREATE FUNCTION group_owner() RETURNS TRIGGER AS
$BODY$
BEGIN
  INSERT INTO member (user_id, group_id, is_favorite) VALUES (NEW.owner_id, NEW.id,
True);
  RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
```

```
CREATE TRIGGER group_owner
   AFTER INSERT ON groups
   FOR EACH ROW
   EXECUTE PROCEDURE group_owner();
-- TRIGGER07
-- A user cannot request to follow a user that he/she already follow (business rule
BR14)
CREATE FUNCTION check follow request() RETURNS TRIGGER AS
$BODY$
BEGIN
   IF EXISTS
      (SELECT * FROM follows WHERE NEW.req_id = follower_id AND NEW.rcv_id =
followed id)
      THEN RAISE EXCEPTION 'Can not make a follow request to someone you already
follow';
   END IF;
   RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER check_follow_request
   BEFORE INSERT ON follow_request
   FOR EACH ROW
   EXECUTE PROCEDURE check_follow_request();
-- TRIGGER08
-- A user cannot request to follow themselves (business rule BR15)
CREATE FUNCTION verify self follow req() RETURNS TRIGGER AS
$BODY$
BEGIN
   IF NEW.req_id = NEW.rcv_id THEN
         RAISE EXCEPTION 'A user can not request to follow themselves';
   END IF;
   RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
```

```
CREATE TRIGGER verify self follow req
   BEFORE INSERT OR UPDATE ON follow_request
  FOR EACH ROW
  EXECUTE PROCEDURE verify self follow req();
-- TRIGGER09
-- A user cannot request to join a group that he/she is already a part of (business
rule BR16)
CREATE FUNCTION check group join reg() RETURNS TRIGGER AS
$BODY$
BEGIN
  IF EXISTS
      (SELECT * FROM member WHERE NEW.user id = user id AND NEW.group id = group id)
     THEN RAISE EXCEPTION 'Can not request to join a group you are already a part
of';
  END IF:
  RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER check_group_join_req
  BEFORE INSERT ON group_join_request
  FOR EACH ROW
  EXECUTE PROCEDURE check_group_join_req();
-- TRIGGER10
-- When deleting a post it also deletes its comments, subcomments, likes and
notifications (business rule BR17)
CREATE FUNCTION delete post action() RETURNS TRIGGER AS
$BODY$
BEGIN
  DELETE FROM post_likes WHERE OLD.id = post_likes.post_id;
  DELETE FROM post notification WHERE OLD.id = post notification.post id;
  DELETE FROM comment WHERE OLD.id = comment.post id;
  RETURN OLD;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER delete_post_action
```

```
BEFORE DELETE ON post
  FOR EACH ROW
  EXECUTE PROCEDURE delete_post_action();
-- TRIGGER11
-- When deleting a comment it also deletes its likes, subcomments and notifications
(business rule BR18)
CREATE FUNCTION delete comment action() RETURNS TRIGGER AS
$BODY$
BEGIN
  DELETE FROM comment_likes WHERE OLD.id = comment_likes.comment_id;
  DELETE FROM comment notification WHERE OLD.id = comment notification.comment id;
  DELETE FROM comment WHERE OLD.id = comment.previous;
  RETURN OLD;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER delete comment action
  BEFORE DELETE ON comment
  FOR EACH ROW
  EXECUTE PROCEDURE delete_comment_action();
-- TRIGGER12
-- When deleting a group it also deletes its posts, members, likes, comments,
subcomments, notifications and group notifications (business rule BR19)
CREATE FUNCTION delete group action() RETURNS TRIGGER AS
$BODY$
BEGIN
  DELETE FROM post WHERE OLD.id = post.group id;
  DELETE FROM member WHERE OLD.id = member.group id;
  DELETE FROM group_join_request WHERE OLD.id = group_join_request.group_id;
  DELETE FROM group_notification WHERE OLD.id = group_notification.group_id;
  RETURN OLD;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER delete_group_action
   BEFORE DELETE ON groups
  FOR EACH ROW
```

```
EXECUTE PROCEDURE delete group action();
-- TRIGGER13
-- After deleting a subnotification, delete main notification table entry
CREATE FUNCTION delete mainnotification action() RETURNS TRIGGER AS
$BODY$
BEGIN
   DELETE FROM notification WHERE OLD.id = notification.id;
   RETURN OLD;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER delete_main_post_notification_action
   AFTER DELETE ON post notification
   FOR EACH ROW
   EXECUTE PROCEDURE delete_mainnotification_action();
CREATE TRIGGER delete main comment notification action
   AFTER DELETE ON comment notification
   FOR EACH ROW
   EXECUTE PROCEDURE delete_mainnotification_action();
CREATE TRIGGER delete main group notification action
   AFTER DELETE ON group notification
   FOR EACH ROW
   EXECUTE PROCEDURE delete_mainnotification_action();
CREATE TRIGGER delete main user notification action
   AFTER DELETE ON user_notification
   FOR EACH ROW
   EXECUTE PROCEDURE delete mainnotification action();
-- TRIGGER14
-- When new user appears, he initially gets all kinds of notification (business rule
BR20)
CREATE FUNCTION configuration_action() RETURNS TRIGGER AS
$BODY$
BEGIN
   INSERT INTO configuration (user_id, notification_type) VALUES
      (NEW.id, 'request_follow'),
```

```
(NEW.id, 'started_following'),
      (NEW.id, 'accepted_follow'),
      (NEW.id, 'requested_join'),
      (NEW.id, 'joined group'),
      (NEW.id, 'accepted_join'),
      (NEW.id, 'leave_group'),
      (NEW.id, 'invite'),
      (NEW.id, 'ban'),
      (NEW.id, 'group ownership'),
      (NEW.id, 'liked_post'),
      (NEW.id, 'post_tagging'),
      (NEW.id, 'liked_comment'),
      (NEW.id, 'comment_post'),
      (NEW.id, 'reply comment'),
      (NEW.id, 'comment_tagging');
   RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;
CREATE TRIGGER configuration action
  AFTER INSERT ON users
  FOR EACH ROW
   EXECUTE PROCEDURE configuration action();
```

Database population

```
INSERT INTO users (username, password, email, description, name, is_public)
VALUES
    ('eduardanascimento',
'$2a$12$1d1oU6vrjLpCuxqx3e8ihuJxJQIV81ZLnpPRYNIQnoIK.fq5ai44a',
'eduardanascimento@gmail.com', 'Ola sou a Eduarda. Admin do Only Feup.
Qualquer dúvida dm me.', 'Eduarda Nascimento', TRUE),
    ('sneinhz',
'$2a$12$a4aOzfXYxuVpYp/lfgnJ8.6quo2jPvHf.4TTqh.ldqSNWS0LHskHu',
'up201800177@fe.up.pt', 'I am the eggman, they are the eggmen I am the walrus, goo-goo goojoo', 'Marc Ferreira', TRUE),
    ('iamaccosta',
'$2a$12$1u7wgn1d35oBuecNAs5vjO3KpJF4Gjh2AD/5tmCwMkLkUSub1QsLC',
'up201905916@fe.up.pt', 'They dont know that we know they know we know',
```

```
'André Costa', FALSE),
    ('fabiosa',
'$2a$12$KkGKF7W94uVf92diV4uRhuEYiKf0to/aA5w9Tugam8WnCKeyg4Pdi',
'up202007658@fe.up.pt', 'O caminho é longo mas a derrota é certa', 'Fábio
Sá', TRUE),
    ('lourenco',
'$2a$12$51y51W9rx//ju2xPPiezw.G6FM/n1WRbXoPpC3dBUpiiFRjXx8C4q',
'up202004816@fe.up.pt', 'Boss makes a dollar, I make a dime. Thats why my
algorithms run in exponential time.', 'Lourenc Goncal', TRUE),
    ('yasminteixeira',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'yasminteixeira@hotmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Yasmin Teixeira', TRUE),
    ('pedrosalto',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'pedrosalto@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Pedro Salto', TRUE),
    ('joanaoliveira',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'joanaoliveira@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Joana Oliveira', TRUE),
    ('victoriamoreira',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'victoriamoreira@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Victoria Moreira', TRUE),
    ('mayaraborges',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'mayaraborges@hotmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Mayara Borges', TRUE),
    ('eliasloureiro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'eliasloureiro@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Elias Loureiro', TRUE),
    ('lucaribeiro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'lucaribeiro@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
```

```
from any other guy.', 'Luca Ribeiro', TRUE),
    ('manelpinho',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'manelpinho@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Manel Pinho', TRUE),
    ('marcossantos',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'marcossantos@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Marcos Santos', TRUE),
    ('gasparsimoes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'gasparsimoes@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Gaspar Simoes', TRUE),
    ('jaimeferreira',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'jaimeferreira@hotmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Jaime Ferreira', TRUE),
    ('franciscasa',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'franciscasa@hotmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Francisca Sa', TRUE),
    ('vitorianeto',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'vitorianeto@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Vitoria Neto', TRUE),
    ('matildegaspar',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'matildegaspar@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Matilde Gaspar', TRUE),
    ('matiascorreia',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'matiascorreia@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Matias Correia', TRUE),
    ('naiararodrigues',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
```

```
'naiararodrigues@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Naiara Rodrigues', TRUE),
    ('mateusneves',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'mateusneves@hotmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Mateus Neves', TRUE),
    ('josemaia',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'josemaia@fe.up.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldn't get this from
any other guy.', 'Jose Maia', TRUE),
    ('andrefernandes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'andrefernandes@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Andre Fernandes', TRUE),
    ('isacfigueiredo',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'isacfigueiredo@hotmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Isac Figueiredo', TRUE),
    ('barbaramaia',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'barbaramaia@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Barbara Maia', TRUE),
    ('leonorvaz',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'leonorvaz@gmail.com', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Leonor Vaz', TRUE),
    ('anaramos',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'anaramos@hotmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Ana Ramos', TRUE),
    ('fredericoanjos',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'fredericoanjos@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Frederico Anjos', TRUE),
```

```
('biancaraposo',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'biancaraposo@hotmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Bianca Raposo', TRUE),
    ('anitaguerreiro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'anitaguerreiro@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Anita Guerreiro', TRUE),
    ('noaabreu',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'noaabreu@sapo.pt', 'We are no strangers to love. You know the rules and so
do I. A full commitments what Im thinking of. You wouldnt get this from any
other guy.', 'Noa Abreu', TRUE),
    ('pedrosimoes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'pedrosimoes@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Pedro Simoes', TRUE),
    ('victoriasimoes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'victoriasimoes@gmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Victoria Simoes', TRUE),
    ('vascolourenco',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'vascolourenco@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Vasco Lourenco', TRUE),
    ('raqueltorres',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'raqueltorres@hotmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Raquel Torres', TRUE),
    ('catarinaantunes',
'$2a$12$TuEIj410BhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'catarinaantunes@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Catarina Antunes', TRUE),
    ('samirapinho',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'samirapinho@gmail.com', 'We are no strangers to love. You know the rules
```

```
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Samira Pinho', TRUE),
    ('afonsosousa',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'afonsosousa@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Afonso Sousa', TRUE),
    ('sebastiaogaspar',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'sebastiaogaspar@hotmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Sebastiao Gaspar', TRUE),
    ('teresarocha',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'teresarocha@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Teresa Rocha', TRUE),
    ('mayaranascimento',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'mayaranascimento@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Mayara Nascimento', TRUE),
    ('deboramadeira',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'deboramadeira@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Debora Madeira', TRUE),
    ('xavierreis',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'xavierreis@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldn't get this from
any other guy.', 'Xavier Reis', TRUE),
    ('dilanferreira',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'dilanferreira@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Dilan Ferreira', TRUE),
    ('liaguerreiro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'liaguerreiro@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Lia Guerreiro', TRUE),
    ('marcosfigueiredo',
```

```
'$2a$12$TuEIj410BhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEev',
'marcosfigueiredo@sapo.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Marcos Figueiredo', TRUE),
    ('vascoaraujo',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'vascoaraujo@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Vasco Araujo', TRUE),
    ('raquelanjos',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'raquelanjos@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Raquel Anjos', TRUE),
    ('alicemachado',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'alicemachado@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Alice Machado', TRUE),
    ('alicedomingues',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'alicedomingues@gmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Alice Domingues', TRUE),
    ('cristianopinto',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'cristianopinto@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Cristiano Pinto', TRUE),
    ('tatianaloureiro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'tatianaloureiro@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Tatiana Loureiro', TRUE),
    ('ivoassuncao',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'ivoassuncao@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Ivo Assuncao', TRUE),
    ('danielcarneiro'.
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'danielcarneiro@gmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
```

```
this from any other guy.', 'Daniel Carneiro', TRUE),
    ('biancaantunes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'biancaantunes@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Bianca Antunes', TRUE),
    ('saraaraujo',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'saraaraujo@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Sara Araujo', TRUE),
    ('evaanjos',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'evaanjos@hotmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Eva Anjos', TRUE),
    ('lararamos',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'lararamos@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Lara Ramos', TRUE),
    ('miguelcastro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'miguelcastro@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Miguel Castro', TRUE),
    ('nicoleamaral',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'nicoleamaral@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Nicole Amaral', TRUE),
    ('lunalourenco',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'lunalourenco@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Luna Lourenco', TRUE),
    ('joaopaiva',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'joaopaiva@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Joao Paiva', TRUE),
    ('caetanacorreia',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
```

```
'caetanacorreia@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Caetana Correia', TRUE),
    ('beneditanunes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'beneditanunes@hotmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Benedita Nunes', TRUE),
    ('martaleite',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'martaleite@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Marta Leite', TRUE),
    ('tomasmaia',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'tomasmaia@gmail.com', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Tomas Maia', TRUE),
    ('carlotapinheiro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'carlotapinheiro@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Carlota Pinheiro', TRUE),
    ('ericmagalhaes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'ericmagalhaes@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Eric Magalhaes', TRUE),
    ('tomasbatista',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'tomasbatista@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Tomas Batista', TRUE),
    ('pedronunes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'pedronunes@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Pedro Nunes', TRUE),
    ('igorleal',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'igorleal@sapo.pt', 'We are no strangers to love. You know the rules and so
do I. A full commitments what Im thinking of. You wouldnt get this from any
other guy.', 'Igor Leal', TRUE),
```

```
('hugocardoso',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'hugocardoso@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Hugo Cardoso', TRUE),
    ('rubenmiranda',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'rubenmiranda@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Ruben Miranda', TRUE),
    ('sofianunes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'sofianunes@hotmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Sofia Nunes', TRUE),
    ('emanuelsa',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'emanuelsa@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Emanuel Sa', TRUE),
    ('beatrizpires',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'beatrizpires@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Beatriz Pires', TRUE),
    ('margaridapinho',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'margaridapinho@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Margarida Pinho', TRUE),
    ('ricardobarbosa',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'ricardobarbosa@gmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Ricardo Barbosa', TRUE),
    ('deboramoreira',
'$2a$12$TuEIj410BhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'deboramoreira@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Debora Moreira', TRUE),
    ('franciscacruz',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'franciscacruz@hotmail.com', 'We are no strangers to love. You know the
```

```
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Francisca Cruz', TRUE),
    ('leonardoborges',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'leonardoborges@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Leonardo Borges', TRUE),
    ('alicepacheco',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'alicepacheco@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Alice Pacheco', TRUE),
    ('davidneves',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'davidneves@fe.up.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'David Neves', TRUE),
    ('vascomatias',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'vascomatias@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Vasco Matias', TRUE),
    ('rafaelbaptista',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'rafaelbaptista@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Rafael Baptista', TRUE),
    ('eduardobatista',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'eduardobatista@gmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Eduardo Batista', TRUE),
    ('lorenzocastro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'lorenzocastro@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Lorenzo Castro', TRUE),
    ('lorenzotorres',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'lorenzotorres@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Lorenzo Torres', TRUE),
    ('juliacunha',
```

```
'$2a$12$TuEIj410BhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEev',
'juliacunha@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Julia Cunha', TRUE),
    ('anitamagalhaes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'anitamagalhaes@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Anita Magalhaes', TRUE),
    ('kevinribeiro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'kevinribeiro@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Kevin Ribeiro', TRUE),
    ('teresamachado',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'teresamachado@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Teresa Machado', TRUE),
    ('eduardoborges',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'eduardoborges@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Eduardo Borges', TRUE),
    ('noahmachado',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'noahmachado@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Noah Machado', TRUE),
    ('antoniofernandes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'antoniofernandes@hotmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Antonio Fernandes', TRUE),
    ('kellyanjos',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'kellyanjos@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Kelly Anjos', TRUE),
    ('tomasantunes'.
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'tomasantunes@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
```

```
from any other guy.', 'Tomas Antunes', TRUE),
    ('mateuspires',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'mateuspires@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Mateus Pires', TRUE),
    ('beneditaribeiro',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'beneditaribeiro@fe.up.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Benedita Ribeiro', TRUE),
    ('angeloandrade',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'angeloandrade@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Angelo Andrade', TRUE),
    ('lialopes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'lialopes@fe.up.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Lia Lopes', FALSE),
    ('juliaamorim',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'juliaamorim@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Julia Amorim', FALSE),
    ('samuelsimoes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'samuelsimoes@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Samuel Simoes', FALSE),
    ('liaantunes',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'liaantunes@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Lia Antunes', FALSE),
    ('jaimeneto',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'jaimeneto@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Jaime Neto', FALSE),
    ('pilarpacheco',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
```

```
'pilarpacheco@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Pilar Pacheco', FALSE),
    ('alexandramorais',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'alexandramorais@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Alexandra Morais', FALSE),
    ('anitamoura',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'anitamoura@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldn't get this from
any other guy.', 'Anita Moura', FALSE),
   ('vitorabreu',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'vitorabreu@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Vitor Abreu', FALSE),
    ('arianaraposo',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'arianaraposo@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Ariana Raposo', FALSE),
    ('franciscocorreia',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'franciscocorreia@gmail.com', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Francisco Correia', FALSE),
    ('franciscobatista',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'franciscobatista@outlook.pt', 'We are no strangers to love. You know the
rules and so do I. A full commitments what Im thinking of. You wouldnt get
this from any other guy.', 'Francisco Batista', FALSE),
    ('caioabreu',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'caioabreu@fe.up.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Caio Abreu', FALSE),
    ('soraiaabreu',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'soraiaabreu@hotmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Soraia Abreu', FALSE),
```

```
('caiocunha',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'caiocunha@gmail.com', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Caio Cunha', FALSE),
    ('yarasantos',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'yarasantos@hotmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Yara Santos', FALSE),
    ('danielgarcia',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'danielgarcia@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Daniel Garcia', FALSE),
    ('liaraposo',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'liaraposo@outlook.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Lia Raposo', FALSE),
    ('gabrielamaia',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'gabrielamaia@sapo.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Gabriela Maia', FALSE),
    ('laraborges',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'laraborges@gmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Lara Borges', FALSE),
    ('danielvicente',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'danielvicente@fe.up.pt', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Daniel Vicente', FALSE),
    ('isacpacheco',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh6lXEey',
'isacpacheco@hotmail.com', 'We are no strangers to love. You know the rules
and so do I. A full commitments what Im thinking of. You wouldnt get this
from any other guy.', 'Isac Pacheco', FALSE),
    ('laravel',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'laravel@hotmail.com', 'We are no strangers to love. You know the rules and
```

```
so do I. A full commitments what Im thinking of. You wouldnt get this from
any other guy.', 'Lara Vel', FALSE),
    ('aureapinto',
'$2a$12$TuEIj41QBhqJt2dWEvMH.ODnBHq741MiKzTek1HVcX22Ekh61XEey',
'aureapinto@sapo.pt', 'We are no strangers to love. You know the rules and
so do I. A full commitments what Im thinking of. You wouldn't get this from
any other guy.', 'Aurea Pinto', FALSE);
INSERT INTO admin (id) VALUES
    (1),
    (<sup>2</sup>),
    (3),
    (4)
    (5);
INSERT INTO groups (owner id, name, is public, description) VALUES
    (1, 'LBAW G2255', True, 'Work group for lbaw'),
    (2, 'Projeto FEUP 22/23', False, 'Engenharia Social'),
    (3, 'FSI hackers newbies', False, 'Educational purpose only'),
    (4, 'Grill', True, 'Introduce to cooking'),
    (5, 'RCOM', True, 'Same project since 1999'),
    (124, 'BD T01G06', True, 'Conceptual Model'),
    (7, 'LCOM', False, 'MEMORY game in C'),
    (8, 'PROG 22/23', True, 'Please join the gitlab. You can find the link
in the moodle.'),
    (9, 'ESOF 18/19', False, ''),
    (10, 'MEIC UC OPTIONALS', True, 'You can talk about your options here
and discuss it with other members'),
    (11, 'Praxis Touris', False, 'Cascou'),
    (12, 'LBAW G2212', False, 'NewsPaper'),
    (13, 'OnlyFeup Comunity', True, 'You can find friends here.'),
    (14, 'Admins Only', False, 'Obey the Rules'),
    (15, 'The Best Group', False, 'Founded by
André/Fábio/Lourenço/Marcos');
INSERT INTO member (user id, group id) VALUES
    (1
                2),
    (1
                3),
            , 3),
    (124
    (1
            , 4),
    (1
           , 5),
    (1
               6),
    (1
            , 7),
```

```
(1
                           8),
                           10),
(1
(1
                           11),
(1
                           12),
(1
                           13),
(2
                           1),
(3
                           <mark>2</mark>),
(4
                           3),
(5
                           <mark>3</mark>),
(6
                           3),
(7
                           <mark>3</mark>),
(8
                           4),
(9
                           5),
(10
                           <mark>5</mark>),
(11
                           5),
(12
                           5),
(12
                           <mark>6</mark>),
(13
                           <mark>6</mark>),
(14
                           <mark>5</mark>),
(14
                           <mark>8</mark>),
                           <mark>8</mark>),
(15
(16
                           <mark>9</mark>),
(17
                           11),
(8
                           3),
(9
                           3),
(9
                           <mark>4</mark>),
(10
                           <mark>4</mark>),
(11
                           4),
(<mark>11</mark> ,
                  6),
(13
                           <mark>5</mark>),
                           <mark>6</mark>),
(15
                           <mark>6</mark>),
(16
(17
                           <mark>6</mark>),
(18
                           <mark>6</mark>),
(18
                           7),
                           <mark>8</mark>),
(18
(19
                           <mark>8</mark>),
(20
                           <mark>8</mark>),
(21
                           <mark>8</mark>),
(22
                           <mark>9</mark>),
(23
                           <mark>9</mark>),
                           <mark>9</mark>),
(24
(25
                           <mark>9</mark>),
```

```
(25
               10),
(26
               10),
(26
               11),
(27
               11),
(28
               11),
(29
               11),
               12),
(29
(30
               12),
               12),
(31
               12),
(32
(33
               5),
               6),
(34
               13),
(35
               5),
(36
               4),
(37
               11),
(38
               4),
(39
(40
               4),
(41
               4),
(42
               15),
(43
               2),
(44
               12),
(45
               1),
(46
               <mark>6</mark>),
(47
               4),
(48
               <mark>8</mark>),
(49
               15),
               1),
(50
(51
               7),
               4),
(52
               13),
(53
               2),
(54
               14),
(55
               10),
(56
(57
               6),
(58
               14),
(59
               13),
(60
               10),
               15),
(61
(62
               4),
(63
               13),
               <mark>8</mark>),
(64
(13
               <mark>7</mark>),
```

```
, 10),
    (16
             12),
    (17
    (65
           , 12),
    (15, 9);
INSERT INTO post (owner_id, group_id, content, date) VALUES
    (1,
              1,
                   'I like FEUP!', '8/10/17 0:00'),
                   'When is the PFL exam, does someone know???',
    (1,
              1,
'4/5/19 0:00'),
                  'Is moodle working for you?', '29/10/16 0:00'),
    (1,
              1,
                  'Dont talk about this subject pls, I hate it!!!!',
    (1,
              1,
'1/8/20 0:00'),
                  'Do we have classes today?', '8/11/20 0:00'),
   (1,
              1,
                   'Vamos ao café @fabiosa, @lourenco?', '2/11/16
              1,
    (<sup>2</sup>,
0:00'),
              2, 'FEUP vs ISEP, this is going to be nice!', '11/9/21
   (3,
0:00'),
   (4,
              3, 'Studying for RCOM right now...:(', '17/4/17
0:00'),
                   '<a href="../user/4">@fabiosa</a> vamos ao chocolate?',
    (5,
              3,
'10/9/19 0:00'),
                  'FEUP my beloved <3 <3 S2', '28/6/19 0:00'),
    (<mark>6</mark>,
              3,
                  'why is @FEUP not a thing?', '30/4/19 0:00'),
    (7,
              3,
                  'ah 127.0.0.1/24 sweet 127.0.0.1/24', '3/5/22
    (8,
              3,
0:00'),
              3, '<a href="../home/search?query=#tires">#tired</a>, send
    (9,
help', '20/9/17 0:00'),
              3, 'LBAW is my favorite subject <3. Everyone who does not
agree should be banned!!', '24/10/16 0:00'),
                   'Why did MIEIC have to end, <a
    (9,
              3,
href="../home/search?query=#sad">#sad</a> <a</pre>
href="../home/search?query=#4ever">#4ever</a>',
                                                '26/10/18 0:00'),
                  'Capybaras room is noice',
                                               '23/4/20 0:00'),
   (9,
             4,
           4,
                  'What', '13/7/17 0:00'),
    (10,
                   'Do we have classes today?', '24/4/20 0:00'),
    (12,
           5,
                 '<3<3<3 <a href=".../home/search?query=#LBAW">#LBAW</a>
   (12,
           5,
<3<3<3',
          '7/9/16 0:00'),
   (13,
                  'Passo a maior parte do meu dia no localhost:8000',
           5,
'26/5/21 0:00'),
                   'Eu gosto de <a
    (14,
           5,
href="../home/search?query=#RCOM">#RCOM</a>. Alguem para estudar comigo?',
'2/2/17 0:00'),
   (15, 6, '<a href="../user/124">@laravel</a>, my beloved <3',</pre>
```

```
'3/10/19 0:00'),
                   'Onde se liga o TuxS3?', '18/10/20 0:00'),
    (16,
           6,
                   'Fiquei sem cabos para <a
    (17,
           6,
href="../home/search?query=#RCOM">#RCOM</a> <a</pre>
href="../home/search?query=#1111">#1111</a>', '3/7/17 0:00'),
    (18,
                   'Era suposto ligar os Tuxs, não irem jogar SuperTux!',
'9/12/16 0:00'),
    (18,
                   'Era suposto ligar os Tuxs, não irem jogar SuperTux!',
           6,
'9/12/22 0:00'),
                   'Do we have classes today?', '26/10/16 0:00'),
    (18,
           7,
                   'Do we have classes tomorrow?', '5/7/21 0:00'),
    (18,
           7,
           7,
                   'I just realized we have an exam tomorrow. <a
    (18,
href="../home/search?query=#1111">#1111</a>', '24/3/22 0:00'),
                           '1/12/20 0:00'),
    (18,
           8,
                    NULL,
                   'Had lovely time at <a
    (18,
           8,
href="../home/search?query=#FEUP">#FEUP</a> during <a</pre>
href="../home/search?query=#eramus">#erasmus</a>', '14/1/20 0:00'),
    (18,
           8,
                    NULL,
                            '21/2/18 0:00'),
    (18,
                   'Adicionar um printf(), o codigo quebra, git commit
           8,
:D', '12/2/20 0:00'),
    (19,
           8,
                             '27/10/20 0:00'),
                    NULL,
    (20,
           8,
                   'The exam was so weird, why was Google not blocked??',
'6/5/21 0:00'),
                   NULL, '18/7/20 0:00'),
    (21,
           8,
    (22,
                   'pq eu nao tenho uma arroba? alguem? pls', '24/5/20
           9,
0:00'),
    (23,
           9,
                   NULL,
                           '6/2/20 0:00'),
    (24,
           9,
                   'I have put some things in my github, go check it out',
'16/4/16 0:00'),
                   NULL, '18/3/21 0:00'),
    (25)
           9,
                  'Ja deram push das alterações?', '6/12/17 0:00'),
    (25)
           9,
    (25,
           10,
                         '6/11/18 0:00'),
                 NULL,
                 'Em vez de passar o natal com a familia, passo o natal
    (25,
           10,
com o localhost:8000', '10/8/17 0:00'),
    (25)
            10,
                 NULL,
                          '14/11/20 0:00'),
                 'Never gonna give you up. Never gonna let you down. Never
    (25,
           10,
gonna run around and desert you', '27/4/18 0:00'),
    (25,
            10,
                 NULL, '18/4/22 0:00'),
                 'Meu colega deu push direto na main. Agora isso está com
    (25,
           10,
merge conflicts',
                    '9/9/22 0:00'),
                 NULL, '10/3/18 0:00'),
    (26,
           10,
                 'Alguém sabe quando é o recurso de LBAW?', '26/9/18
    (26,
            11,
0:00'),
```

```
NULL, '6/3/19 0:00'),
    (27,
           11.
           11, 'Feliz ano novo, maltinha', '5/3/16 0:00'),
    (28)
                 NULL, '16/8/21 0:00'),
    (28)
           11,
                 'Passei o natal, mas não o pinguim <a
    (29,
           11,
href="../home/search?query=#RCOM">#RCOM</a> :(', '17/1/16 0:00'),
   (29,
           12,
                 NULL, '12/8/18 0:00'),
    (29,
           12,
                 'Siga gente, recurso de <a
href="../home/search?query=#DA">#DA</a>',
                                          '26/8/17 0:00'),
    (29,
           12,
                 NULL,
                       '8/1/18 0:00'),
    (30,
           12,
                 '<a
href="../home/search?query=#FEUPAT12AM">#FEUPAT12AM</a>', '25/11/20
0:00'),
                 NULL, '23/3/17 0:00'),
   (31,
           12,
           12, 'O meu codigo esta cheio de cheiros :(', '27/10/17
   (32,
0:00'),
           NULL, 'Why cant the penguin just go through???????? :(',
   (33,
'27/5/18 0:00'),
           NULL, 'É feioso, by Restaldo.',
   (33,
'12/10/19 0:00'),
           NULL, 'What even was this DA exam?', '21/8/19 0:00'),
   (33,
           NULL, '<a href="../home/search?query=#depressed">#depressed</a>
after this last DA exam', '10/6/18 0:00'),
           NULL, 'where is the second MEST proj? still waiting...',
   (34,
'2/4/22 0:00'),
   (35,
           NULL, 'O que estão a dizer? Eu não sei ingles :(', '28/10/20
0:00'),
         NULL, 'Dizem que D.Sebastião vai voltar um dia com o enunciado
do <a href="../home/search?query=#2projetoMEST">#2projetoMEST</a>',
'21/5/20 0:00'),
           NULL, 'Alguém tem as respostas do exercicio 5?', '23/5/22
   (37,
0:00'),
           NULL, 'Passei o natal, mas não o pinguim <a
href="../home/search?query=#RCOM">#RCOM</a>:(', '1/11/20 0:00'),
           NULL, 'Had lovely time at <a
href="../home/search?query=#FEUP">#FEUP</a> during <a</pre>
href="../home/search?query=#eramus">#erasmus</a>', '11/7/21 0:00'),
           NULL, 'What is the email of the LEIC department?', '28/3/21
    (40,
0:00'),
           NULL, 'The exam was so weird, why was Google not blocked??',
    (41,
'16/6/17 0:00'),
           NULL, 'DDOS, can we do this guys?', '19/9/22 0:00'),
   (42,
           NULL, 'Sabiam que o GL joga minecraft?', '23/8/20 0:00'),
   (42,
           NULL, 'I have put some things in my github, go check it out',
   (42,
```

```
'8/10/20 0:00'),
           NULL, 'Alguem para estudar <a
href="../home/search?query=#RCOM">#RCOM</a> amanha à tarde na <a</pre>
href="../home/search?query=#biblio">#biblio</a>', '6/1/18 0:00'),
           NULL, 'Here is my grades: <br/> <br/> ESOF - 19 <br/> SOPE - 20 <br/> DA
- 9.4',
           '28/1/22 0:00'),
           NULL, 'Wait, pg a tuna esta a tocar Never gonna give u up?',
'25/6/18 0:00'),
    (43,
           NULL, '<a
href="../home/search?query=#FEUPAT12AM">#FEUPAT12AM</a>', '5/9/18
0:00'),
    (44,
           NULL, '"voces de informática é que adoram computadores. Voces
são aquele tipo de pessoa que à noite em vez de ir às meninas (ou meninos,
é claro), ficam no computador" #sad', '22/12/18 0:00'),
           NULL, 'O software pirateado não é feito pela madre teresa de
calcutá!', '13/4/18 0:00'),
           NULL, 'Dizemos ao utilizador que tem X peças disponíveis,
porque ele sabe quantas peças tem no tabuleiro. Depois é só fazer as
contas. Good job', '8/1/18 0:00'),
           NULL, 'Someone at FEUP rn? Is the wifi working for you?',
    (45,
'29/6/20 0:00'),
    (46,
           NULL, 'Tá calado, <a href="../user/4">@fabiosa</a>', '5/1/20
0:00'),
           NULL, 'Ele foi a FMUP fazer <a
href="../home/search?query=#RCOM">#RCOM</a>;)', '23/9/18 0:00'),
           NULL, 'Quem é que mora em Santiago do Cacém e depois vai mudar
o mundo? Ninguém',
                  '23/1/20 0:00'),
           NULL, 'Passei o natal, mas não o pinguim <a
href="../home/search?query=#RCOM">#RCOM</a> :(', '17/3/19 0:00'),
           NULL, 'Wait, pq a tuna esta a tocar Never gonna give u up?',
'21/9/18 0:00'),
           NULL, 'Never gonna give you up. Never gonna let you down. Never
gonna run around and desert you', '27/10/20 0:00'),
           NULL, 'Isso é trivial mas vcs não estão preparados para essa
conversa smh', '4/12/19 0:00'),
           NULL, 'Dont worry, be happy - <a
href="../home/search?query=#1111">#1111</a>', '2/4/19 0:00'),
   (51,
           NULL, 'Dizem que D.Sebastião vai voltar um dia com o enunciado
href="../home/search?query=#SegundoProjetoMEST">#SegundoProjetoMEST</a>',
'8/5/19 0:00'),
                        '3/6/21 0:00'),
   (52,
           NULL, NULL,
           NULL, 'Never gonna give you up. Never gonna let you down. Never
    (53,
```

```
gonna run around and desert you', '8/6/21 0:00'),
           NULL, NULL,
                        '13/5/22 0:00'),
    (54)
           NULL, 'o gitlab está funcionar? eu não consigo fazer pull',
    (55,
'15/5/18 0:00'),
    (56,
           NULL, NULL, '1/4/22 0:00'),
           NULL, 'Github é melhor que gitlab, pq não podemos usar
    (57,
ele??????',
              '19/3/21 0:00'),
                        '28/3/18 0:00'),
    (58,
           NULL, NULL,
    (59,
           NULL, 'Tux é lindo S2', '29/8/21 0:00'),
    (60,
           NULL, NULL,
                         '6/2/16 0:00'),
           NULL, '<a href="../user/124">@laravel</a>, my beloved <3',
    (61,
'2/2/17 0:00'),
           NULL, NULL, '28/5/20 0:00'),
    (62,
           NULL, 'Onde esta o enunciado do <a
    (63,
href="../home/search?query=#SegundoProjetoMEST">#SegundoProjetoMEST</a>, ja
era suposto entregar o projeto ha 2 semanas!', '4/9/16 0:00'),
                         '3/12/17 0:00'),
           NULL, NULL,
    (64,
           NULL, 'Studying for #IADE :(',
                                           '24/12/20 0:00'),
   (64,
           NULL, NULL, '11/7/17 0:00'),
    (64)
           NULL, 'Feliz ano novo para quem não mencionar aquele
    (64,
professor!', '1/1/16 0:10'),
                         '28/11/18 0:00'),
    (65,
           NULL, NULL,
    (66,
           NULL, 'Feliz ano novo, maltinha', '31/12/15 02:34'),
           NULL, NULL, '31/7/18 0:00'),
    (67,
           NULL, 'Em vez de passar o natal com a familia, passo o natal
   (68,
com o localhost:8000', '31/5/18 0:00'),
    (68,
           NULL, NULL, '19/11/18 0:00'),
    (68)
           NULL, 'Mas tu não tás vacinado? Que eu saiba, a vacina tem 5G',
'24/12/19 0:00'),
           NULL, NULL, '20/2/18 0:00'),
    (69,
           NULL, 'LBAW e PFL é pra entregar até dia 2 às 23:59 certo?',
'27/12/22 14:53'),
           NULL, NULL, '13/8/22 0:00'),
    (69,
           NULL, 'Petição dos estudantes do Ensino Superior do Porto pelo
reforço da Ação Social Escolar - CANTINAS 1 ALOJAMENTO
https://peticaopublica.com/?pi=PT114509', '13/12/17 0:00'),
           NULL, NULL,
                        '30/10/19 0:00'),
    (69,
    (70,
           NULL, 'se parece demasiado bom para ser verdade, é porque é
<br> stay safe', '7/11/21 0:00'),
           NULL, NULL, '10/4/20 0:00'),
    (70,
           NULL, 'Exames aos sabados, FEUP being jenius again <a
href="../home/search?query=#innovative">#innovative</a>', '19/4/18
0:00'),
```

```
NULL, NULL, '13/3/20 0:00'),
    (70,
           NULL, 'My code is not working, can someone help: <br>
    (70,
while(true){return "it works":}', ^{19/4/18} 0:00'),
           NULL, NULL, '13/3/20 0:00'),
    (70,
           NULL, 'TUNA, just like the fish??', '19/4/18 0:00'),
    (70,
           NULL, 'TUNA é atum', '19/4/22 0:00');
    (70,
INSERT INTO comment (owner_id, post_id, content, date) VALUES
                      'Great stuff here. Good job', '31/12/22 0:00'),
    (1,
                      'Great stuff here. Good job', '31/12/22 0:00'),
    (<sup>2</sup>,
             3,
                      'Great stuff here. Good job', '31/12/22 0:00'),
    (3,
            7,
                      'Wow! Awsome work', '31/12/22 0:00'),
            8,
    (4,
                      'Wow! Awsome work', '31/12/22 0:00'),
    (5,
            10,
                      'Wow! Awsome work', '31/12/22 0:00'),
    (6,
            11,
                      'Wow! Awsome work', '31/12/22 0:00'),
    (7,
            14,
                      'Wow! Awsome work', '31/12/22 0:00'),
    (8)
            17,
                      'Wow! Awesome work', '31/12/222 0:00'),
    (9,
            20,
                      'Wow! Awsome work', '31/12/22 0:00'),
    (10,
             20,
                      'Can we just appreciate how much effort they put
    (11,
             23,
                     '31/12/22 0:00'),
into these posts? ',
                     'Feup is awesome. Project Feup rules!', '31/12/22
    (12,
             24,
0:00'),
            27,
                     'Feup is awesome. Project Feup rules!', '31/12/22
    (13,
0:00'),
             35,
                     'Feup is awesome. Project Feup rules!', '31/12/22
    (14,
0:00'),
            36,
                     'Feup is awesome. Project Feup rules!', '31/12/22
    (15,
0:00'),
             42,
                     'Feup is awesome. Project Feup rules!', '31/12/22
    (16,
0:00'),
                      'BD is complicated.. please I need help ',
    (17,
             54,
'31/12/22 0:00'),
                      'BD is complicated.. please I need help ',
    (1,
             96,
'31/12/22 0:00'),
                      'BD is complicated.. please I need help ',
    (1,
            78,
'31/12/22 0:00'),
             114, '<a href="../user/1">@eduardanascimento</a> come see
    (<sup>2</sup>,
this post!', '31/12/22 0:00'),
                     '<a href="../user/1">@eduardanascimento</a> come see
    (3,
            122,
this post!', '31/12/22 0:00'),
            64,
                    'Hello do you like to be my friend and have lunch
    (4,
with me on Feup', '31/12/22 0:00'),
                     'Hello do you like to be my friend and have lunch
    (5,
           65,
```

```
'2/10/22 0:00'),
with me on Feup'.
                        'Hello do you like to be my friend and have lunch
    (6,
             67,
with me on Feup',
                     '10/10/22 0:00'),
                        'Hello do you like to be my friend and have lunch
    (7,
             115,
with me on Feup',
                     '7/10/22 0:00'),
                        'Hello do you like to be my friend and have lunch
    (8,
with me on Feup',
                     '13/10/22 0:00'),
             100,
                        'Hello do you like to be my friend and have lunch
    (9,
with me on Feup',
                     '12/10/22 0:00'),
    (10,
             100,
                        'Hello do you like to be my friend and have lunch
with me on Feup',
                     '10/10/22 0:00'),
                        'Rede social muito intuitiva. Muito fixe!',
    (11,
             109,
'16/10/22 0:00'),
                        'Rede social muito intuitiva. Muito fixe!',
    (12,
             100,
'10/10/22 0:00'),
                        'Rede social muito intuitiva. Muito fixe!',
    (12,
             77,
'8/10/22 0:00'),
                        'Rede social muito intuitiva. Muito fixe!',
             108,
    (13,
'3/10/22 0:00'),
                        'Rede social muito intuitiva. Muito fixe!',
    (14,
             124.
'4/10/22 0:00'),
    (15,
                        '<a href="../user/3">@iamaccosta</a>, <a</pre>
href="../user/4">@fabiosa</a>, <a href="../user/2">@sneinhz</a>, <a</pre>
href="../user/5">@lourenco</a> this post should be ban!', '4/10/22
0:00'),
                     '<a href="../user/3">@iamaccosta</a>, <a</pre>
    (16,
             82,
href="../user/4">@fabiosa</a>, <a href="../user/2">@sneinhz</a>, <a</pre>
href="../user/5">@lourenco</a> this post should be ban!', '14/10/22
0:00'),
                        '<a href="../user/3">@iamaccosta</a>, <a</pre>
    (17,
             78,
href="../user/4">@fabiosa</a>, <a href="../user/2">@sneinhz</a>, <a</pre>
href="../user/5">@lourenco</a> this post should be ban!', '15/10/22
0:00'),
                        '<a href="../user/3">@iamaccosta</a>, <a</pre>
    (18,
             108,
href="../user/4">@fabiosa</a>, <a href="../user/2">@sneinhz</a>, <a</pre>
href="../user/5">@lourenco</a> this post should be ban!', '18/10/22
0:00'),
    (19,
             64,
                        'Quem quer criar grupo comigo?',
                                                            '7/10/22 0:00'),
                        'Quem quer criar grupo comigo?',
                                                            '13/10/22 0:00'),
    (20,
             109,
                        'Quem quer criar grupo comigo?',
                                                            '8/10/22 0:00'),
    (21,
             86,
                        'Quem quer criar grupo comigo?',
    (22,
                                                           '12/10/22 0:00'),
             109,
                                                            '14/10/22 0:00'),
                        'Quem quer criar grupo comigo?',
    (23)
             70,
                        'Never gonna give you up. Never gonna let you down.
             77,
    (24)
```

```
Never gonna run around and desert you', '17/10/22 0:00'),
                       'Never gonna give you up. Never gonna let you down.
    (25)
             76,
Never gonna run around and desert you', '8/10/22 0:00'),
                       'Never gonna give you up. Never gonna let you down.
    (26,
             101.
Never gonna run around and desert you',
                                         '12/10/22 0:00'),
    (27,
                       'Never gonna give you up. Never gonna let you down.
             81,
Never gonna run around and desert you',
                                         '12/10/22 0:00'),
                       'Hoje comi arroz de pato!',
    (28,
             77,
                                                     '2/10/22 0:00'),
                                                    '16/10/22 0:00'),
    (29,
             102,
                       'Hoje comi arroz de pato!',
                       'Hoje comi arroz de pato!', '9/10/22 0:00'),
    (30,
             100,
                       'Hoje comi arroz de pato!', '5/10/22 0:00'),
    (31,
             120,
                       'Hoje comi arroz de pato!', '7/10/22 0:00'),
    (32,
            98,
                       'Máquinas de café são ótimas!',
    (33,
             117,
                                                         '12/10/22 0:00'),
                                                         '14/10/22 0:00'),
                       'Máquinas de café são ótimas!',
    (34,
            72,
                       'Máquinas de café são ótimas!',
                                                         '3/10/22 0:00'),
    (35,
            85,
                       'Máquinas de café são ótimas!',
    (36,
                                                         '5/10/22 0:00'),
             123,
                       'Máquinas de café são ótimas!',
                                                         '14/10/22 0:00'),
    (37,
             74,
                       'Máquinas de café são ótimas!', '13/10/22 0:00'),
    (38,
             89,
                       'Hoje faltei à aula, alguém me pode mandar os
    (39,
             77,
apontamentos de BD?',
                        '13/10/22 0:00'),
                       'Hoje faltei à aula, alguém me pode mandar os
    (40,
             102,
apontamentos de BD?',
                       '13/10/22 0:00'),
                       'Hoje faltei à aula, alguém me pode mandar os
    (41,
             64,
apontamentos de BD?',
                        '14/10/22 0:00'),
                       'Hoje faltei à aula, alguém me pode mandar os
    (42)
             78,
apontamentos de BD?',
                       '18/10/22 0:00'),
                       'Hoje faltei à aula, alguém me pode mandar os
    (43,
             125,
apontamentos de BD?',
                       '4/10/22 0:00'),
                       'Great profile picture mate!',
                                                        '18/10/22 0:00'),
    (44)
             86,
                       'Great profile picture mate!',
    (45)
             100,
                                                        '18/10/22 0:00'),
                                                       '3/10/22 0:00'),
                       'Great profile picture mate!',
    (46)
             105,
                                                      '10/10/22 0:00'),
                       'Great profile picture mate!',
    (47)
             113,
                       'Great profile picture mate!',
                                                        '7/10/22 0:00'),
    (48,
             118,
                                                      '11/10/22 0:00'),
                       'Great profile picture mate!',
    (49,
             106,
                       'Great profile picture mate!',
    (50,
             116,
                                                        '5/10/22 0:00'),
                       'Olá a todos', '4/10/22 0:00'),
    (51,
             78,
                                      '11/10/22 0:00'),
                       'Olá a todos',
    (52,
             95,
    (53,
             80,
                       'Olá a todos',
                                      '9/10/22 0:00'),
                                      '3/10/22 0:00'),
                       'Olá a todos',
    (54,
             69,
                       'Olá a todos',
                                        '9/10/22 0:00'),
    (55,
             69,
                       'Olá a todos', '17/10/22 0:00'),
    (56,
             63,
             117,
                       'Never gonna give you up. Never gonna let you down.
    (57,
Never gonna run around and desert you', '8/10/22 0:00'),
```

```
'Never gonna give you up. Never gonna let you down.
    (58,
             96.
Never gonna run around and desert you', '17/10/22 0:00'),
                       'Never gonna give you up. Never gonna let you down.
    (59,
             103,
Never gonna run around and desert you', '12/10/22 0:00'),
                       'Bom ano novo a todos!',
                                                 '6/10/22 0:00'),
    (60,
             97,
                       'Bom ano novo a todos!',
                                                 '3/10/22 0:00'),
    (61,
             104,
                       'Bom ano novo a todos!',
                                                 '14/10/22 0:00'),
    (62,
             80,
                                                 '3/10/22 0:00'),
    (63,
             119,
                       'Bom ano novo a todos!',
                       'Bom ano novo a todos!', '16/10/22 0:00'),
    (64,
             75,
                       'Como se utiliza o laravel?',
    (65)
             94,
                                                       '15/10/22 0:00'),
                       'Como se utiliza o laravel?',
                                                       '12/10/22 0:00'),
    (66,
             65,
                       'Como se utiliza o laravel?',
                                                       '14/10/22 0:00'),
    (66)
             69,
                       'Como se utiliza o laravel?',
    (66,
             80,
                                                       '11/10/22 0:00'),
                       'Como se utiliza o laravel?', '15/10/22 0:00'),
    (66,
             117,
                       'Good point there. Keep the good work', '6/10/22
             108,
    (67,
0:00'),
                       'Good point there. Keep the good work', '16/10/22
    (<del>67</del>,
             72,
0:00'),
                       'Good point there. Keep the good work',
    (67,
             80,
                                                                 '12/10/22
0:00'),
                       'Good point there. Keep the good work',
    (67,
             107,
                                                                 '18/10/22
0:00'),
             90,
                       'Good point there. Keep the good work',
    (67,
                                                                  '7/10/22
0:00'),
             104,
                       'Good point there. Keep the good work',
    (68)
                                                                  '10/10/22
0:00'),
             106,
                       'Good point there. Keep the good work', '6/10/22
    (69,
0:00'),
                       '<a href="../user/124">@laravel</a> anda ver isto!',
    (69,
             64,
'14/10/22 0:00'),
             64,
    (69,
                       '<a href="../user/124">@laravel</a> anda ver isto!',
'2/10/22 0:00'),
                       '<a
    (69,
             63.
href="../home/search?query=#roasted">#roasted</a>', '5/10/22 0:00'),
             69,
    (69,
href="../home/search?query=#roasted">#roasted</a>', '2/10/22 0:00');
INSERT INTO comment (owner_id, post_id, previous, content, date) VALUES
   (70, 119, 82, 'Um bom exemplo de resposta!', '2/10/22 0:00'),
   (70, 119, 82, 'Outro belo exemplo de resposta!', '2/10/22 0:00');
INSERT INTO follows (follower id, followed id) VALUES
    (25)
            124),
```

(77, 34), (16,3), (77, 48), (19, 25), <mark>7</mark>), (25,(⁷, 21), (43, <mark>8</mark>), 24), (93,(69, 78), (12, 58), (<mark>1</mark>, 65), (47, 91), (64, 43), (77, 43), (9, 56), (11, **3**), (48, 52), (59, 46), (<mark>1</mark>, 50), 48), (20, (88) 99), (44, 55), <mark>6</mark>), (86) (84, 70), (57, <mark>9</mark>), (94, 88), (23, **61**), (88) 90), (11, 69), (84, 36), 28), (24, <mark>42</mark>), (<mark>6</mark>, **4**), (71,(22, **62)**, (70, 23), (8) **16)**, 7), (36,<mark>8</mark>), (51,**12)**, (77, (10, 24), (22, 70), (75, 79), (33, 46),

(24, **3**), (77, 75), 83), (40, (58, 75), (54, 74), (80, 81), 71), (36, 58), (41,(39, 68), 17), (65,(25, 31), 36), (34, 50), (83) (95, 53), (68) 44), (88) 64), 22), (12, (90, 95), (29, 90), 25), (97, (31, 67), (98, 22), (26, 96), (18, 64), (60, 42), (18, 60), (10, 54), (25,52), (<mark>61</mark>, 90), (<mark>62</mark>, 89), (59, 82), (95, 74), 21), (18,(74, 33), 70), (<mark>6</mark>, 56), (95, (97, 71), 49), (59, (35,48), 77), (63, (11, 49), (<mark>27</mark>, **47)**,

(54,

(76, 49), (43, 24), <mark>8</mark>), (75, (98, **4**), (56, 78), (30, 37), (14, 19), 57), (80, (14, 37), (50, 74), **1**), (43, (93, 39), 30), (44,(67, 51), (58, 45), (49, 90), 30), (76,(17,31), (29, 16), (87, 12), (54, **15)**, 87), (14,(75,69), (38, 74), (90, 82), (78,81), (85, 10), (31,2), (11, 67), 78), (24, (<mark>1</mark>, 70), (29, 23), (5, 76), (16, 68), (54, **61**), 81), (88) (78, 17), 68), (86) (70, 35), (84, 7), (50, 46), <mark>97),</mark> (<mark>4</mark>,

(58,

19), (30,(93,27), (26, 50), (55, 91), (61,26), (89, 28), <mark>8</mark>), (79, (20, 77), (60, 2), 15), (11,(84, 40), 28), (10, 31), (72,(56, **61**), (56, 53), (71, 21), 78), (53,(29, 49), (⁷, 61), 12), (75,(18, 82), (97, 76), 5), (60, (84, 33), **75),** (53, 92), (20,(25, 78), (48)54), (70, 30), <mark>6</mark>), (92, (24, 38), (82, 72), (<mark>2</mark>, 74), (78, 51), (79, 16), 54), (44,(65, 57), 23), (18,92), (8, (83, 39), (77, 38), (54, 53),

(<mark>2</mark>,

(3, 12), (4, 94), **12)**, (65,(60, 92), 40), (53, (<mark>62</mark>, 37), <mark>61</mark>), (94, 72), (66, (13, 7), <mark>5</mark>), (16, (68) 96), (55, 35), (9, 81), (41, 76), (99, 93), (56, 13), 87), (<mark>2</mark>, (84, 58), (69, 13), 56), (32,(63, 76), (<mark>6</mark>, 24), 64), (30, (<mark>1</mark>, 41), (94, 64), (89, **5**), (73, 92), (35,<mark>9</mark>), (36, 45), (65, 7), (8, 59), (49, 10), 10), (62, (49, 93), (78, 90), (56, 67), 25), (<mark>1</mark>, (44, 46), (91, <mark>6</mark>), (23, 84), (25, 35), (18, **1**),

(73,

(79, 76), (84, 44), <mark>31</mark>), (45, (63, <mark>85</mark>), (98, 94), (15, **41**), (87, 76), <mark>51</mark>), (24,(98, 46), <mark>8</mark>), (24, (<mark>4</mark>, 39), (74, 55), 5), (79, (19, 13), (65, 74), (82, 32), (75, 38), (37, 27), (87, 29), 66), (59, (<mark>1</mark>, 98), (75, 5), (29, 89), (8) 57), (89, 19), 3), (58, (97, 12), <mark>7</mark>), (53,(44, 11), <mark>76),</mark> (<mark>3</mark>, 59), (58, (26, 94), (8) <mark>9</mark>), (86, 43), (57, 19), 48), (52,(90, 23), 17), (72,(<mark>62</mark>, 57), (12, 81), (<mark>2</mark>, 84), 39), (57,

(<mark>72</mark>,

(69, 23), (27, 35), (82, **15)**, (44, 26), (18,78), (51, 34), (51, 99), 3), (40,(39, 26), <mark>67),</mark> (32,(47, 36), (34,91), 25), (30,(70, **61**), (<mark>4</mark>, 87), (12_, 97), 76), (37,(33, 43), 98), (72,38), (55, (47, 40), (45, 57), 97), (<mark>72</mark>, (61, 97), <mark>21</mark>), (51, (<mark>72</mark>, 79), (88) 1), 81), (24,(<mark>61</mark>, 70), (38, 87), 29), (71,(19, 46), 81), (85) (79, 49), (68) <mark>8</mark>), (45, 98), (8) 56), 36), (37, (39, 24), (3, 99), (15, 92),

42),

44),

(24, (90,

(54, **1**), (58, 77), (79, 13), (60, 56), (71,85), **(77**, **68)**, (59, 24), 2), (65, (91, 30), 78), (33,(19, 79), <mark>69</mark>), (73,55), (81, (50, 64), (25,96), (58, 66), 37), (23,(80, 77), (25, 63), 58), (47, (64, 98), (29, 31), (24, 25), (20, **6**), (15, <mark>8</mark>), (88) 31), (59, 18), (46,72), (66, 80), (35, <mark>8</mark>), (19, 95), <mark>92</mark>), **(4**, 13), (68) (10, 57), (53, 47), (<mark>2</mark>, 51), (70, 77), (8) 54), (89, 41), (43, 60), (48) 64), 40), (<mark>4</mark>,

(84,

```
86),
(57,
(73,
          70),
(40,
          50),
(70,
           9),
(89)
          35),
(17,
          23),
(39,
          51),
(82,
          50),
(<sup>7</sup>,
          78),
(40,
          75),
(70,
          51),
(5,
          51),
(9,
          65),
(10,
          56),
(13,
          71),
(82,
          41),
(93,
          34),
(38,
          94),
(64,
          61),
(<del>71</del>,
          45),
(19,
          49),
(90,
          28),
(22,
          1),
(<del>67</del>,
          89),
(61,
          20),
(17,
          26),
(91,
          93),
          36),
(52,
(69,
          94),
(10,
          92),
(<del>11</del>,
          91),
          24),
(96,
(50,
          67),
(61,
           <mark>9</mark>),
          60),
(93,
(75,
          11),
(78,
          68),
           7),
(61,
(50,
           2);
```

-- follow_request
INSERT INTO follow_request (req_id, rcv_id) VALUES

```
(98,
         116),
<sup>(77</sup>,
         124),
(76,
         116),
(28,
         120),
(62,
         115),
(58,
         110),
         109),
(98,
         113),
(53,
(49,
         113),
              119),
(3,
         112),
(14,
(62,
         121),
         121),
(30,
(33,
         108),
         117),
(67,
(51,
         120),
(78,
         121),
(75,
         123),
(39,
         114),
         103),
(90,
(91,
         123),
         122),
(46,
(39,
         107),
(59,
         112),
(82,
         122),
(<mark>2</mark>,
              105),
(30,
         103),
(15,
         113),
(75,
         114),
(82,
         111),
(10,
         123),
         103),
(34,
(38,
         102),
(39,
         116),
         118),
(46,
(53,
         108),
(88)
         101),
         110),
(60,
(60,
         103),
         124),
(26,
(71,
         106),
(34,
         114),
(55,
         107),
```

```
(90,
         110),
(63,
         111),
(43,
         121),
(30,
         102),
(61,
         102),
(46,
         110),
(49,
         105),
(57,
         118),
(75,
         110),
(48)
         104),
(47,
         112),
(56,
         114),
(4,
             101),
(83)
         121),
(33,
         124),
(1,
              122),
(18,
         121),
(<del>63</del>,
         114),
(62,
         118),
(51,
         111),
(95,
         120),
(53,
         110),
(91,
         110),
(81,
         119),
(33,
         105),
(74,
         114),
(70,
         110),
(58,
         103),
(82,
         105),
(74,
         112),
(90,
         104),
(96,
         109),
(22,
         111),
(38,
         124),
(26,
         114),
(61,
         101),
(12,
         121),
         109),
(13,
(11,
         113),
         118),
(100,
(31,
         109),
(3,
             112),
(82,
         115),
```

```
104),
(35,
(36,
         101),
(17,
         114),
(71,
         119),
(100,
         124),
(94,
         109),
(74,
         103),
         110),
(87,
(4,
              115),
(94,
         120),
(83)
         107),
         101),
(81,
(66)
         111),
(71,
         108),
(96,
         105),
              101),
(<mark>2</mark>,
(73,
         117),
(28,
         123),
(80,
         112),
         116),
(59,
(35,
         113),
         109),
(38,
(82,
         120),
(81,
         106),
              117),
(9,
         104),
(73,
(44,
         122),
(82,
         108),
(99,
         115),
         104),
(32,
(10,
         114),
         122),
(48)
(79,
         102),
(56,
         121),
(92,
         123),
(56,
         120),
(40,
         109),
         124),
(32,
(<mark>6</mark>,
              106),
(50,
         111),
(61,
         110),
(99,
         120),
(29,
         118),
```

```
(3,
              123),
         116),
(75,
(5,
              119),
(97,
         115),
(91,
         109),
(93,
         124),
         115),
(31,
(18,
         108),
         106),
(61,
(49,
         119),
         104),
(96,
              113),
(8,
(54,
         120),
(<del>17</del>,
         120),
(54,
         115),
(79,
         118),
(85)
         104),
         120),
(97,
         119),
(30,
              102),
(3,
         105),
(95,
(71,
         101),
(70,
         113),
(79,
         114),
(50,
         121),
(93,
         110),
(22,
         107),
         103),
(32,
(91,
         106),
(69,
         119),
              114),
(<mark>6</mark>,
         113),
(93,
(64,
         102),
(50,
         119),
         120),
(60,
         122),
(40,
(42,
         123),
         123),
(66)
(72,
         115),
(55,
         116),
(10,
         120),
(80,
         106),
(10,
         119),
```

```
(45,
         117),
(57,
         115),
(54,
         121),
(80,
         123),
(18,
         114),
(95,
         113),
(88)
         111),
              121),
(<mark>2</mark>,
(98,
         122),
(45,
         102),
(31,
         112),
(84)
         102),
(59,
         101),
(73,
         106),
(4,
              110),
         110),
(84)
(37,
         104),
(72,
         113),
(40,
         105),
         101),
(39,
(100,
         115),
(50,
         106),
(86,
         108),
(35,
         121),
(98,
         117),
(16,
         109),
(28,
         105),
         104),
(78,
(10,
         122),
         116),
(25,
(54,
         117),
         118),
(15,
         116),
(83)
(73,
         111),
(4,
              104),
         112),
(43,
              112),
(8)
(52,
         114),
(83)
         123),
(49,
         109),
(37,
         101),
(80,
         110),
(64,
         117),
```

```
(54,
               113);
-- group_join_request
INSERT INTO group_join_request (user_id, group_id) VALUES
     (5,
                1),
               2),
     (34,
     (70,
                3),
     (23,
                3),
     (48,
                3),
     (69,
              15),
     (15,
               4),
     (22,
                5),
     (39,
                5),
     (97,
                5),
     (47,
                5),
     (22,
              13),
     (<mark>2</mark>,
                6),
     (38,
                5),
               <mark>8</mark>),
     (81,
     (16,
                8),
     (<mark>1</mark>,
               9),
     (13,
              11),
     (26,
               3),
     (75,
              12),
     (45)
               4),
     (55,
              12),
     (26,
               4),
     (45,
               6),
     (18,
                5),
     (20,
                6),
     (40,
                6),
     (93,
                6),
     (62,
                6),
     (56,
                7),
     (34,
                8),
     (<sup>2</sup>,
                8),
     (78,
                8),
     (32,
                8),
     (34,
                <mark>9</mark>),
     (37,
               <mark>9</mark>),
     (43,
                <mark>9</mark>),
     (47,
               9),
     (53,
                4),
```

```
15),
    (55,
    (63,
            12);
-- post_likes
INSERT INTO post_likes (user_id,post_id) VALUES
    (68)
              68),
    (10,
             119),
    (88,
              68),
              75),
    (63,
                   94),
    (4,
              72),
    (59,
    (86)
              70),
    (84)
              89),
    (89,
             121),
    (21,
             100),
    (31,
              59),
              96),
    (94,
    (89)
              60),
    (53,
             109),
    (63,
              71),
    (73,
              88),
    (56,
              60),
    (85)
              63),
    (15,
              78),
    (17,
              26),
                  73),
    (4,
    (95,
              64),
    (11,
              86),
    (37,
             106),
    (71,
              84),
    (99,
              78),
    (93,
              88),
    (99,
              68),
    (32,
             103),
    (66)
              66),
    (64,
             123),
    (30,
             109),
    (82,
             82),
    (62,
             114),
    (55,
              91),
    (39,
              74),
    (91,
              83),
              79),
    (57,
```

```
(<mark>1</mark>,
                  89),
(27<sub>,</sub>
            50),
            <del>69</del>),
(18,
(26,
            94),
(52,
            88),
(88)
            <del>9</del>7),
(97,
           120),
(<del>17</del>,
            96),
            75),
(26,
                 104),
(3,
(16,
           120),
                  <mark>74),</mark>
(5,
            73),
(58,
(73,
            71),
(75,
            81),
(52,
            65),
(82,
            98),
(20,
            92),
(12,
            87),
(44,
            91),
(54,
            90),
(<mark>2</mark>,
                 101),
(15,
            85),
(97,
            68),
(57,
           106),
(59,
            77),
(<mark>62</mark>,
           110),
(75,
            71),
(79,
            71),
(78,
           114),
            19),
(36,
(26,
            <del>62</del>),
            95),
(55,
(44,
            77),
(11,
            64),
(68,
           117),
            78),
(65,
           121),
(67,
(64,
            90),
(69,
           103),
(66,
            91),
(8,
                 122),
(41,
            88),
```

```
96),
(90,
(58,
           113),
(25,
            97),
(95,
            <del>69</del>),
(54,
           112),
(29,
            73),
            <mark>95),</mark>
(58,
(70,
            79),
(63,
            61),
            65),
(90,
(39,
           108),
                  87),
(1,
(<mark>2</mark>,
                 63),
                 107),
(<mark>1</mark>,
(44,
            74),
(85,
            <del>69</del>),
(75,
           102),
            <del>9</del>7),
(30,
(61,
            74),
(3,
                 87),
(66,
           116),
(20,
           99),
(85,
            99),
(49,
            82),
           112),
(99,
             <del>9</del>5),
(8,
           83),
(76,
(59,
           120),
(8)
               <del>66</del>),
(47,
            87),
            <del>60</del>),
(78,
(49,
            <del>95</del>),
                  91),
(4,
            70),
(10,
            68),
(53,
            26),
(16,
(64,
           110),
           <del>72</del>),
(31,
(49,
           104),
(75,
           <del>68</del>),
(73,
           113),
(48,
           124),
(8,
                  73),
```

```
(84)
                92),
     (35,
                61),
     (86)
                85),
     (46,
                23),
     (10,
               122),
     (95,
                61),
     (74,
                92),
     (26,
                46),
     (94,
                91);
-- comment_likes
INSERT INTO comment_likes (user_id, comment_id) VALUES
     (70,
               22),
              50),
     (56,
     (13,
               58),
     (21,
              41),
     (18,
               49),
                    25),
     (4,
              44),
     (91,
     (33,
               98),
     (73,
               19),
     (76,
               87),
     (91,
               63),
     (83)
               65),
              83),
     (100,
     (73,
               70),
     (37,
               60),
     (81)
               64),
              29),
     (85)
              <del>53</del>),
     (23,
     (18,
               92),
              98),
     (69,
     (10,
               89),
     (97,
               23),
     (57,
               50),
              <mark>95),</mark>
     (86)
                   84),
     (<mark>2</mark>,
     (3,
                   81),
     (<sup>2</sup>,
                    71),
              29),
     (22,
     (7,
                    60),
              49),
     (89,
     (30,
              <del>61</del>),
```

```
(<mark>27</mark>,
           20),
(32,
           83),
           <del>52</del>),
(96,
(100,
           53),
(75,
            60),
(49,
           36),
(75,
           27),
           <mark>87</mark>),
(32,
(<sup>7</sup>,
                  39),
           48),
(36,
(69,
           97),
                 <del>74</del>),
(5,
           <del>66</del>),
(74,
(63,
           78),
(62,
           37),
(48,
           22),
           49),
(34,
<sup>(72</sup>,
           94),
(<mark>27</mark>,
           51),
           63),
(75,
(38,
            33),
           91),
(15,
(64,
            15),
(99,
           67),
           <mark>44</mark>),
(<mark>27</mark>,
(20,
           48),
(30,
           89),
(44,
           36),
(86,
            87),
           70),
(83)
           <mark>62),</mark>
(41,
                  38),
(3,
(88)
            86),
(79,
           81),
(59,
           80),
           28),
(88)
(81,
           39),
           19),
(26,
(42,
            39),
           57),
(32,
(99,
           21),
(36,
           22),
(41,
           75),
```

```
(66,
          18),
(17,
          24),
(38,
          23),
(76,
          58),
(5,
                55),
          77),
(28,
          98),
(50,
          26),
(55,
(58,
          95),
(92,
          89),
          43),
(16,
          <mark>97),</mark>
(70,
          81),
(35,
(39,
          25),
(17,
          55),
(78,
          21),
(77,
          58),
(97,
          44),
(41,
          72),
          58),
(22,
(10,
           60),
          <del>69</del>),
(64,
(17,
           37),
(9,
           31),
          <mark>55</mark>),
(34,
(24,
           28),
(94,
          47),
(10,
           83),
(58,
           56),
          80),
(73,
          <del>69</del>),
(19,
(88)
          72),
          85),
(62,
(59,
          94),
(1,
          26),
(5,
           20),
(53,
          63),
(<sup>7</sup>,
           50),
          87),
(<mark>4</mark>,
          60),
(16,
(55,
           65),
          56),
(33,
(97,
          25),
```

(93, 76), (49, 25), (95, **18)**, (28, 73), (59, 28), (78, 76), (5, 80), 74), (91, <mark>97),</mark> (3, 64), (<mark>9</mark>, (29, 71), 22), (66, 38), (15,49), (100, (99, 20), (85, 49), 54), (43,(22, 48), (35, 92), 69), (63, (32, 63), 21), (46)(46, 47), (32, 27), (95, 64), (44, 72), (31, 28), (28, 78), 39), (3, <mark>55</mark>), (98, (30,64), (92, 28), 66), (91,(97, 50), (88) 38), 29), (53,(31, 98), 97), (40, (17, 86), (74, 97), (52, 25), (31, <mark>72),</mark>

(61,

```
33),
    (53,
    (31,
            38),
    (12,
            93),
    (16,
            79),
    (44)
            53),
    (64,
            93),
    (<sup>2</sup>,
            43),
    (59,
            47),
    (50,
            32),
    (77,
            31);
INSERT INTO message (emitter_id, receiver_id, content, date) VALUES
   (4, 1, 'Uma simples mensagem de teste!' ,'29/10/16 0:00'),
   (3, 1, 'Uma simples mensagem de teste!' ,'29/10/16 0:00'),
   (3, 1, 'EU sou repetida!', '29/10/16 0:00'),
   (2, 1, 'Uma simples mensagem de teste!' ,'29/10/16 0:00'),
   (2, 1, 'E eu sou mais nova!', '29/10/22 0:00');
```

OpenAPI Specification

```
openapi: 3.0.0
info:
    version: '2.0'
    title: 'OnlyFEUP Web API'
    description: 'Web Resources Specification (A9) for OnlyFEUP'

servers:
- url: https://lbaw2255.lbaw.fe.up.pt
    description: Production server

externalDocs:
    description: Find more info here.
    url: https://git.fe.up.pt/lbaw/lbaw2223/lbaw2255/-/wikis/eap

tags:
    name: 'M01: Authentication'
    name: 'M02: Users'
    name: 'M03: Posts'
```

```
- name: 'M04: Search'
 - name: 'M05: Administration'
 - name: 'M06: Comments'
 - name: 'M07: Groups'
 - name: 'M08: API'
paths:
########### AUTENTICATION
####### LOGIN ########
 /login:
   get:
     operationId: R101
     summary: 'R101: Login Form'
     description: 'Provide login form. Access: VST'
     tags:
       - 'M01: Authentication'
     responses:
       '200':
         description: 'OK. Show log-in UI'
   post:
     operationId: R102
     summary: 'R102: Login Action'
     description: 'Processes the login form submission. Access: VST'
     tags:
       - 'M01: Authentication'
     requestBody:
       required: true
       content:
         application/x-www-form-urllencoded:
          schema:
            properties:
              email:
                type: string
                format: email
              password:
```

```
type: string
                  format: password
              required:
                  - email
                  - password
      responses:
        '302':
          description: 'Redirect after processing the new user
information.'
          headers:
            Location:
              schema:
                type: string
              examples:
                302Success:
                  description: 'OK. You are in. Redirect to homepage.'
                  value: '/home'
                302Failure:
                  description: 'You shall not pass. Redirect again to login
form.'
                  value: '/login'
####### LOGOUT ########
  /logout:
    get:
      operationId: R103
      summary: 'R103 : Logout Action'
      description: 'Logout the current logged user. Access: USR, ADM'
      tags:
        - 'M01: Authentication'
      responses:
        '302':
          description: 'Redirect after processing logout.'
          headers:
            Location:
              schema:
                type: string
              examples:
                302Success:
```

```
description: 'Successful logout. Redirect to public
feed.'
                  value: '/'
####### REGISTER #######
  /register:
    get:
      operationId: R104
      summary: 'R104 : Register Form'
      description: 'Register a new user. Access: VST'
      tags:
        - 'M01: Authentication'
      responses:
        '200':
          description: 'Ok. Lets Sign-up.'
    post:
      operationId: R105
      summary: 'R105 : Register Action'
      description: 'Processes the new user registration form submission.
Access: VST'
      tags:
        - 'M01: Authentication'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                username:
                  type: string
                name:
                  type: string
                email:
                  type: string
                  format: email
                password:
                  type: string
```

```
format: password
                confirm_password:
                  type: string
                  format: password
              required:
                - username
                - name
                - email
                - password
                confirm_password;
      responses:
        '302':
          description: 'Redirect after processing the new user
information.'
          headers:
            Location:
              schema:
                type: string
              example:
                  302Success:
                    description: 'Successful registration. Redirect to home
page.'
                    value: '/home'
                  302Failure:
                    description: 'Failed registration. Redirect again to
register form.'
                    value: '/register'
######## SEND EMAIL #######
  /sendEmail:
    post:
      operationId: R106
      summary: 'R106 : Send Email Action'
      description: 'Sends an email with a validation token. Access: VST'
     tags:
        - 'M01: Authentication'
      requestBody:
        required: true
        content:
```

```
application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                e-mail:
                  type: string
              required:
                - email
      responses:
        '200':
          description: 'Success you received a token on your email.'
        '404':
          description: 'Error. Email doesnt exists.'
####### RECOVER PASSWORD ########
  /recoverPassword:
    post:
      operationId: R107
      summary: 'R107 : Recover Password Action'
      description: 'Changes the current password after receiving the
validation token. Access: VST'
      tags:
        - 'M01: Authentication'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                token:
                  type: string
                password:
                  type: string
                  format: password
                verify_password:
                  type: string
                  format: password
              required:
```

```
- token
              - password
              verify_password;
     responses:
       '200':
        description: 'Success. Your password has been changed
successfully.'
       '404':
        description: 'Error. Invalid token.'
######## PROFILE ########
 /user/{id}:
   get:
     operationId: R201
     summary: 'R201: View user profile'
     description: 'Show the profile for an individual user, Access: USR,
ADM, VST, OWN'
     tags:
       - 'M02: Users'
     parameters:
       - in: path
        name: id
         schema:
          type: integer
        required: True
     responses:
       '200':
        description: 'OK. Show the profile for an individual user'
       '302':
        description: 'Redirect if user is not logged in or other user
doesnt exists'
        headers:
          Location:
            schema:
              type: string
```

```
example:
                302Failure:
                  description: 'Failure.'
####### HOME PAGE ########
  /home:
    get:
      operationId: R202
      summary: 'R202: View user home page'
     description: 'Show user home page, Access: USR, ADM'
     tags:
        - 'M02: Users'
      responses:
        '200':
          description: 'OK. Show the home page for an individual user'
          description: 'Redirect after unauthorized request.'
          headers:
            Location:
              schema:
                type: string
              example:
                  302Success:
                    description: 'You need login first. Redirect to login
page.'
                    value: '/login'
####### EDIT PROFILE #######
 /user/edit:
   get:
      operationId: R203
      summary: 'R203: Edit user profile page.'
     description: 'Shows the edit profile page of the user. Access: OWN'
     tags:
        - 'M02: Users'
      responses:
        '200':
```

```
description: 'Ok. You can now edit. Show edit profile UI.'
        '401':
          description: 'Unauthorized. You cannot edit this profile.'
          headers:
            Location:
              schema:
                type: string
              examples:
                401Success:
                  description: 'Unauthorized. Redirect to user profile.'
                  value: '/user/{id}'
    post:
      operationId: R204
      summary: 'R204: Edit user profile action'
      description: 'Processes and saves the changes made by user. Access:
USR'
      tags:
        - 'M02: Users'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                name:
                  type: string
                username:
                  type: string
                email:
                  type: string
                  format: email
                description:
                  type: string
                  format: password
                password:
                  type: string
                  format: password
                confirm_password:
                  type: string
                  format: password
```

```
image:
                  type: string
                  format: binary
                is public:
                  type: boolean
              required:
              - name
              - username
              - email
              - description
              - is_public
      responses:
        '302':
          description: 'Redirect after processing the new user
information.'
          headers:
            Location:
              schema:
                type: string
              example:
                302Success:
                  description: 'Successful update. Redirect to user profile
page.'
                  value: '/user/{id}'
                302Failure:
                  description: 'Failed update. Redirect again to edit
profile page.'
                  value: '/user/edit'
####### PROFILE DELETE ########
 /user/profileDelete:
    post:
      operationId: R204
      summary: 'R204: Deletes an user.'
      description: 'Deletes an user while in the profile page. Access: OWN
ADM'
     tags:
        - 'M02: Users'
```

```
requestBody:
          required: true
          content:
            application/x-www-form-urlencoded:
              schema:
                type: object
                properties:
                  id:
                    type: integer
                required:
                  - id
      responses:
        '302':
          description: 'Redirect after deleting user information.'
          headers:
            Location:
              schema:
                type: string
              example:
                302Success:
                  description: 'Successful delete. Redirect to login page.'
        '403':
          description: 'Forbidden action.'
####### DELETE #######
 /user/delete:
   post:
      operationId: R205
      summary: 'R205: Deletes an user.'
      description: 'Deletes usero while on admin page. Access: ADM'
      tags:
        - 'M02: Users'
      requestBody:
          required: true
          content:
            application/x-www-form-urlencoded:
              schema:
                type: object
                properties:
```

```
id:
                    type: integer
                required:
                  - id
      responses:
        '200':
          description: 'Ok. You can delete your profile information.'
          description: 'Forbidden action.'
####### REMOVE FOLLOWER ########
  /user/removeFollower:
    post:
      operationId: R206
      summary: 'R206: Removes a follower.'
      description: 'Removes a follower from the user. Access: OWN'
     tags:
        - 'M02: Users'
      requestBody:
          required: true
          content:
            application/x-www-form-urlencoded:
              schema:
                type: object
                properties:
                  id:
                    type: integer
                required:
                  - id
      responses:
        '200':
          description: 'Ok. You can remove a follower from your profile.'
        '403':
          description: 'Forbidden action.'
####### FOLLOW ########
 /user/follow:
```

```
post:
      operationId: R207
      summary: 'R207: Follows another user.'
      description: 'Follows another user. Access: USR, ADM'
      tags:
        - 'M02: Users'
      requestBody:
          required: true
          content:
            application/x-www-form-urlencoded:
              schema:
                type: object
                properties:
                  id:
                    type: integer
                required:
                  - id
      responses:
        '200':
          description: 'Ok. You followed a user.'
        '403':
          description: 'Forbidden action.'
######## UNFOLLOW ########
  /user/unfollow:
   post:
      operationId: R208
      summary: 'R208: Unfollows another user.'
      description: 'Unfollows another user. Access: USR, ADM'
      tags:
        - 'M02: Users'
      requestBody:
          required: true
          content:
            application/x-www-form-urlencoded:
              schema:
                type: object
```

```
properties:
                  id:
                    type: integer
                required:
                  - id
      responses:
        '200':
          description: 'Ok. You unfollowed a user.'
        '403':
          description: 'Forbidden action.'
####### DO FOLLOW REQUEST ########
  /user/doFollowRequest:
    post:
      operationId: R209
      summary: 'R209: Sends a follow request to another user.'
      description: 'Sends a notification with a follow request to another
user. Access: USR, ADM'
     tags:
        - 'M02: Users'
      requestBody:
          required: true
          content:
            application/x-www-form-urlencoded:
              schema:
                type: object
                properties:
                  id:
                    type: integer
                required:
                  - id
      responses:
          description: 'Ok. You sent a follow request to a user.'
        '403':
          description: 'Forbidden action.'
####### CANCEL FOLLOW REQUEST ########
```

```
/user/cancelFollowRequest:
    post:
      operationId: R210
      summary: 'R210: Cancels a follow request to another user.'
      description: 'Removes the notification of the follow request to other
user. Access: USR, ADM'
      tags:
        - 'M02: Users'
      requestBody:
          required: true
          content:
            application/x-www-form-urlencoded:
              schema:
                type: object
                properties:
                  id:
                    type: integer
                required:
                  - id
      responses:
        '200':
          description: 'Ok. You canceled the follow request.'
        '403':
          description: 'Forbidden action.'
####### ACCEPT FOLLOW REQUEST ########
  /user/acceptFollowRequest:
    post:
      operationId: R211
      summary: 'R211: Accept a follow request.'
      description: 'Accepts a follow request from another user. Access:
USR, ADM'
      tags:
        - 'M02: Users'
      requestBody:
          required: true
```

```
content:
            application/x-www-form-urlencoded:
              schema:
                type: object
                properties:
                  id:
                    type: integer
                required:
                  - id
      responses:
        '200':
          description: 'Ok. You accepted a follow request.'
        '403':
          description: 'Forbidden action.'
####### REJECT FOLLOW REQUEST ########
  /user/rejectFollowRequest:
    post:
      operationId: R212
      summary: 'R212: Reject a follow request.'
      description: 'Rejects a follow request from another user. Access:
USR, ADM'
      tags:
        - 'M02: Users'
      requestBody:
          required: true
          content:
            application/x-www-form-urlencoded:
              schema:
                type: object
                properties:
                  id:
                    type: integer
                required:
                  - id
      responses:
        '200':
          description: 'Ok. You rejected a follow request.'
```

```
'403':
          description: 'Forbidden action.'
####### NOTIFICATIONS ########
  /home/notifications:
   get:
      operationId: R213
      summary: 'R213: User notifications page.'
      description: 'Show user notifications page. Access: USR, ADM'
     tags:
        - 'M02: Users'
      responses:
        '200':
          description: 'OK. Show the user notifications page.'
          description: 'Redirect if user is not logged in'
          headers:
            Location:
              schema:
                type: string
              example:
                302Failure:
                  description: 'Failure. User not logged in.'
####### NOTIFICATION DELETE #######
  /notification/delete:
    post:
      operationId: R214
      summary: 'R214: Delete a notification.'
      description: 'Deletes a notification per user request. Access: USR,
ADM'
     tags:
        - 'M02: Users'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
```

```
schema:
              type: object
              properties:
                id:
                  type: integer
              required:
                - id
      responses:
        '200':
          description: 'Ok. Notification successfully deleted.'
        '403':
          description: 'Forbidden action.'
####### NOTIFICATION UPDATE ########
  /notification/update:
    post:
      operationId: R215
      summary: 'R215: Updates a notification.'
      description: 'Updates the notification info. Access: USR, ADM'
      tags:
        - 'M02: Users'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                id:
                  type: integer
              required:
                - id
      responses:
        '200':
          description: 'Ok. Notification successfully deleted.'
        '403':
          description: 'Forbidden action.'
```

MESSAGES ######## /messages: get: operationId: R216 summary: 'R216: User chats page.' description: 'Show user chats page. Access: USR, ADM' tags: - 'M02: Users' responses: '200': description: 'OK. Show the user chats page.' description: 'Redirect if user is not logged in' headers: Location: schema: type: string example: 302Failure: description: 'Failure. User not logged in.' ######## MESSAGE ######## /message/{id}: get: operationId: R217 summary: 'R217: Show chat with a user.' description: 'Shows the chat with another user. Access: USR, ADM' tags: - 'M02: Users' parameters: - in: path name: id schema: type: integer required: True responses:

```
'200':
          description: 'OK. Show the chat for an individual user'
        '302':
          description: 'Redirect if user is not logged in or other user
doesnt exists'
          headers:
            Location:
              schema:
                type: string
              example:
                302Failure:
                  description: 'Failure.'
####### MESSAGE CREATE #######
  /message/create:
   post:
      operationId: R218
      summary: 'R218: Sends a new message to a user.'
      description: 'Sends a new message to a user. Access: USR, ADM'
      tags:
        - 'M02: Users'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                user_id:
                  type: integer
                content:
                  type: string
                media:
                  type: string
                  format: binary
              required:
                - user id
      responses:
        '302':
```

```
description: 'Redirect after processing the new message sent.'
          headers:
            Location:
              schema:
                type: string
              example:
                302Success:
                  description: 'Successful message create.'
                302Failure:
                  description: 'Error. No content and image found.'
####### ABOUT PAGE ########
  /about:
    get:
      operationId: R219
      summary: 'R219: About static page'
      description: 'Show About Page. Access USR, ADM, VST'
      tags:
        - 'M02: Users'
      responses:
        '200':
          description: 'OK. Show the about page.'
######## HELP PAGE ########
  /help:
    get:
      operationId: R220
      summary: 'R220: Help static page'
      description: 'Show Help Page. Access USR, ADM, VST'
      tags:
        - 'M02: Users'
      responses:
        '200':
          description: 'OK. Show the help page.'
####### FEATURES PAGE ########
```

```
/features:
   get:
     operationId: R220
     summary: 'R220: Main features static page'
     description: 'Show OnlyFEUP main features. Access USR, ADM, VST'
     tags:
       - 'M02: Users'
     responses:
       '200':
         description: 'OK. Show the features page.'
######## MEDIA ########
 /images/{type}:
   get:
     operationId: R221
     summary: 'R221: Get media'
     description: 'Show OnlyFEUP media type. Access USR, ADM'
     tags:
       - 'M02: Users'
     parameters:
     - in: path
       name: type
       schema:
         type: string
       required: True
     responses:
       '200':
         description: 'OK. Show this type of media'
         description: 'Forbidden action. You don't have permission to see
this media'
############# POSTS
######## CREATE POST ########
```

```
/post/create:
   post:
      operationId: R301
      summary: 'R301: Create post action'
      description: 'Create post. Access: USR'
      tags:
        - 'M03: Posts'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                content:
                  type: string
                media:
                  type: string
                  format: binary
                group_id:
                  type: integer
      responses:
        '302':
          description: 'Redirect after processing the new post
information.'
          headers:
            Location:
              schema:
                type: string
              example:
                302Success:
                  description: 'Successful post create. Redirect back.'
                302Failure:
                  description: 'Failed. Redirect back.'
####### DELETE POST ########
 /post/delete:
    post:
```

```
operationId: R302
      summary: 'R302 : Delete post action'
      description: 'Delete post. Access: OWN, ADM'
      tags:
        - 'M03: Posts'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                id:
                  type: integer
              required:
                  - id
      responses:
        '200':
          description: 'Redirect after processing the new post
information.'
        '403':
          description: 'Forbidden action.'
####### EDIT POST ########
 /post/edit:
   post:
      operationId: R303
      summary: 'R303: Edit post action'
      description: 'Edit post. Access: OWN'
      tags:
        - 'M03: Posts'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
```

```
id:
                  type: integer
                content:
                  type: string
                image:
                  type: string
                  format: binary
                is public:
                  type: boolean
              required:
                  - id
                  - content
      responses:
        '200':
          description: 'Edit successfully.'
        '403':
          description: 'Forbidden action.'
####### POST LIKE #######
  /post/like:
    post:
      operationId: R304
      summary: 'R304: Like post action'
      description: 'Like post. Access: OWN, USR, ADM'
      tags:
        - 'M03: Posts'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                id:
                  type: integer
              required:
                  - id
      responses:
```

```
'200':
         description: 'Like successfully.'
       '403':
         description: 'Forbidden action.'
####### POST DISLIKE #######
 /post/dislike:
   post:
     operationId: R305
     summary: 'R305: Unlike post action'
     description: 'Unlike post. Access: OWN, USR, ADM'
     tags:
       - 'M03: Posts'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
          schema:
            type: object
            properties:
              id:
                type: integer
            required:
                - id
     responses:
       '200':
         description: 'Unlike successfully.'
       '403':
         description: 'Forbidden action.'
############# SEARCH
####### SEARCH PAGE ########
 /home/search:
   get:
     operationId: R401
```

```
summary: 'R401: View user search page'
      description: 'Show user search page, Access: USR, ADM'
      tags:
        - 'M04: Search'
      responses:
        '200':
          description: 'OK. Show the search page UI'
        '302':
          description: 'Redirect after unauthorized request.'
          headers:
            Location:
              schema:
                type: string
              example:
                 - 302Success:
                    description: 'You need login first. Redirect to login
page.'
                    value: '/login'
####### SEARCH USER ########
  /api/user:
    get:
      operationId: R402
      summary: 'R402 : Search users'
      description: 'Search users. Access: USR, ADM'
      tags:
        - 'M04: Search'
      parameters:
        - in: query
          name: search
          description: 'Search content'
          schema:
            type: string
          required: true
      responses:
        '200':
          description: 'Success. Returns some HTML text containing a list
of users information'
```

```
'403':
          description: 'Forbidden action. You need to be logged in first'
####### SEARCH POST ########
 /api/post:
   get:
      operationId: R403
      summary: 'R403 : Search posts'
      description: 'Search posts. Access: USR, ADM'
     tags:
        - 'M04: Search'
     parameters:
        - in: query
          name: content
          description: 'Search content'
          schema:
            type: string
          required: true
      responses:
        '200':
          description: 'Success. Returns some HTML text containing a list
of posts information'
        '403':
          description: 'Forbidden action. You need to be logged in first'
####### SEARCH COMMENT ########
  /api/comment:
   get:
      operationId: R404
      summary: 'R404 : Search comments'
      description: 'Search comments. Access: USR, ADM'
     tags:
        - 'M04: Search'
     parameters:
        - in: query
          name: content
```

```
description: 'Search content'
         schema:
           type: string
         required: true
     responses:
       '200':
         description: 'Success. Returns some HTML text containing a list
of comments information'
       '403':
         description: 'Forbidden action. You need to be logged in first'
####### SEARCH GROUPS ########
 /api/group:
   get:
     operationId: R405
     summary: 'R405 : Search groups'
     description: 'Search groups. Access: USR, ADM'
     tags:
       - 'M04: Search'
     parameters:
       - in: query
         name: content
         description: 'Search content'
         schema:
           type: string
         required: true
     responses:
       '200':
         description: 'Success. Returns some HTML text containing a list
of groups information'
       '403':
         description: 'Forbidden action. You need to be logged in first'
########## ADMINISTRATION
######## ADMIN PAGE ########
```

207

```
/admin:
    get:
      operationId: R501
      summary: 'R501: View admin page'
      description: 'Show admin page UI, Access: ADM'
      tags:
        - 'M05: Administration'
      responses:
        '200':
          description: 'OK. Show the admin page UI'
        '403':
          description: 'This action is unauthorized.'
######## USER BLOCK ########
  /admin/user/block:
    post:
      operationId: R502
      summary: 'R502: Block a user from logging in action'
      description: 'Block a user. Access: ADM'
      tags:
        - 'M05: Administration'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                user_id:
                  type: integer
              required:
                - user_id
      responses:
        '200':
          description: 'Ok. User blocked.'
        '401':
          description: 'Unauthorized. You cannot block this user.'
```

```
####### USER UNBLOCK ########
 /admin/user/unblock:
   post:
     operationId: R503
     summary: 'R503: Unblocking a user from logging in action'
     description: 'Unblock a user. Access: ADM'
     tags:
       - 'M05: Administration'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
          schema:
            type: object
            properties:
              user id:
                type: integer
            required:
              user_id
     responses:
       '200':
         description: 'Ok. User unblocked.'
         description: 'Unauthorized. You cannot unblock this user.'
############# COMMENTS
######## CREATE COMMENT ########
 /comment/create:
   post:
     operationId: R601
     summary: 'R601: Create comment action'
     description: 'Create comment. Access: USR'
     tags:
       - 'M06: Comments'
```

```
requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                content:
                  type: string
                group_id:
                  type: integer
                previous:
                  type: integer
      responses:
        '302':
          description: 'Redirect after processing the new comment
information.'
          headers:
            Location:
              schema:
                type: string
              example:
                302Success:
                  description: 'Successful comment create. Redirect back.'
                302Failure:
                  description: 'Failed. Redirect back.'
####### DELETE COMMENT ########
  /comment/delete:
    post:
      operationId: R602
      summary: 'R602 : Delete comment action'
      description: 'Delete comment. Access: OWN, ADM'
      tags:
        - 'M06: Comments'
      requestBody:
        required: true
        content:
```

```
application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                id:
                  type: integer
              required:
                  - id
      responses:
        '200':
          description: 'Redirect after processing the old comment
information.'
        '403':
          description: 'Forbidden action.'
####### EDIT COMMENT #######
  /comment/edit:
    post:
      operationId: R603
      summary: 'R603: Edit comment action'
      description: 'Edit comment. Access: OWN'
      tags:
        - 'M06: Comments'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                id:
                  type: integer
                content:
                  type: string
      responses:
        '200':
          description: 'Edit successfully.'
        '403':
```

```
description: 'Forbidden action.'
######## LIKE COMMENT ########
  /comment/like:
   post:
      operationId: R604
      summary: 'R604: Like comment action'
      description: 'Like comment. Access: OWN, USR, ADM'
      tags:
        - 'M06: Comments'
      requestBody:
        required: true
        content:
          application/x-www-form-urlencoded:
            schema:
              type: object
              properties:
                id:
                  type: integer
              required:
                  - id
      responses:
        '200':
          description: 'Like successfully.'
          description: 'Forbidden action.'
######## COMMENT DISLIKE ########
  /comment/dislike:
    post:
      operationId: R605
      summary: 'R605: Unlike comment action'
      description: 'Unlike comment. Access: OWN, USR, ADM'
      tags:
        - 'M06: Comments'
      requestBody:
```

```
required: true
      content:
        application/x-www-form-urlencoded:
         schema:
           type: object
           properties:
             id:
              type: integer
           required:
              - id
    responses:
      '200':
        description: 'Unlike successfully.'
        description: 'Forbidden action.'
/group/{id}:
   get:
    operationId: R701
     summary: 'R701: View group page'
    description: 'Show the group page for an individual user, Access:
USR, ADM, VST, OWN'
    tags:
      - 'M07: Groups'
    parameters:
      - in: path
        name: id
        schema:
         type: integer
        required: True
    responses:
      '200':
        description: 'OK. Show the group page'
      '302':
```

```
description: 'Redirect if user is not logged in or group doesn't
exists'
        headers:
          Location:
            schema:
             type: string
            example:
              302Failure:
               description: 'Failure'
/groups:
   get:
     operationId: R702
     summary: 'R702: View all groups page'
     description: 'Show groups page. Access: USR, ADM'
       - 'M07: Groups'
     responses:
       '200':
        description: 'OK. Show the groups page for an individual user'
        description: 'Redirect after unauthorized request.'
        headers:
          Location:
            schema:
             type: string
            example:
               302Success:
                 description: 'You need login first. Redirect to login
page.'
                 value: '/login'
/group/{id}/edit:
   get:
     operationId: R703
     summary: 'R703: Edit group'
```

```
description: 'Shows the edit group page. Access: OWN'
     tags:
       - 'M07: Groups'
     parameters:
     - in: query
       name: id
       description: 'Group ID'
       schema:
         type: integer
       required: true
     responses:
        '200':
         description: 'Ok. You can now edit. Show edit group UI.'
        '401':
         description: 'Unauthorized. You cannot edit this group.'
         headers:
           Location:
             schema:
               type: string
             examples:
               401Success:
                 description: 'Unauthorized. Redirect to group page.'
                 value: '/group/{id}'
/group/edit:
   post:
     operationId: R704
     summary: 'R704: Edit group action'
     description: 'Processes and saves the changes made by group owner.
Access: OWN'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
```

```
type: object
             properties:
               name:
                 type: string
               description:
                 type: string
                 format: password
               image:
                 type: string
                 format: binary
               is public:
                 type: boolean
     responses:
       '302':
         description: 'Redirect after processing the new group
information.'
         headers:
           Location:
             schema:
               type: string
             example:
               302Success:
                 description: 'Successful update. Redirect to group page.'
                 value: '/group/{id}'
               302Failure:
                 description: 'Failed update. Redirect again to edit group
page.'
                 value: '/group/{id}/edit'
/group/create:
   post:
     operationId: R705
     summary: 'R705: Create group action'
     description: 'Processes and saves new group state. Access: USR'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
```

```
content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
               name:
                 type: string
               description:
                 type: string
                 format: password
               image:
                 type: string
                 format: binary
               is public:
                 type: boolean
     responses:
       '302':
         description: 'Redirect after processing the new group
information.'
         headers:
           Location:
             schema:
               type: string
             example:
               302Success:
                 description: 'Successful create. Redirect to group page.'
                 value: '/group/{id}'
               302Failure:
                 description: 'Failed. Redirect again to previous page'
/group/join:
   post:
     operationId: R706
     summary: 'R706: Group join request'
     description: 'Request to join group. Access: USR'
     tags:
       - 'M07: Groups'
     requestBody:
```

```
required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
               group_id:
                 type: integer
               user id:
                 type: integer
             required:
               - user_id
               - group_id
     responses:
       '200':
         description: 'Ok. Request complete.'
         description: 'Unauthorized. You cannot request to join this
group.'
/group/leave:
   post:
     operationId: R707
     summary: 'R707: Leave group'
     description: 'Leave group. Access: USR'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
               group id:
                 type: integer
               user_id:
                 type: integer
```

```
required:
             - user_id
             - group_id
     responses:
       '200':
        description: 'Ok. Leave group complete.'
        description: 'Unauthorized. You cannot leave this group'
/group/delete:
   post:
     operationId: R708
     summary: 'R708: Group delete action'
     description: 'Delete group. Access: OWN, ADM'
       - 'M07: Groups'
     requestBody:
      required: true
      content:
        application/x-www-form-urlencoded:
          schema:
            type: object
            properties:
             group_id:
               type: integer
            required:
             - group id
     responses:
       '200':
        description: 'Ok. Deleted complete.'
       '401':
        description: 'Unauthorized. You cannot delete this group.'
/group/makeOwner:
```

```
post:
     operationId: R709
     summary: 'R709: Give group ownership of a certain member'
     description: 'Give group ownership of a certain member. Access: OWN'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
               group_id:
                 type: integer
               user id:
                 type: integer
             required:
               - user id
               - group id
     responses:
       '302':
         description: 'Redirect after processing the new group ownership.'
         headers:
           Location:
             schema:
               type: string
             example:
               302Success:
                 description: 'Successful. Redirect to group page with new
owner.'
                 value: '/group/{id}'
               302Failure:
                 description: 'Failed. Redirect again to previous page
without changing anything'
/group/doJoinRequest:
   post:
```

```
operationId: R710
     summary: 'R710: Group join request'
     description: 'Group join request. Access: USR'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
               group_id:
                type: integer
               user_id:
                type: integer
             required:
               - user id
               - group id
     responses:
       '200':
         description: 'Ok. Join request complete.'
         description: 'Unauthorized. You cannot join request this group.'
/group/cancelJoinRequest:
   post:
     operationId: R711
     summary: 'R711: Cancel group join request'
     description: 'Cancel group join request. Access: USR'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
```

```
type: object
             properties:
              group_id:
                type: integer
              user_id:
                type: integer
             required:
              - user id
              - group id
     responses:
       '200':
         description: 'Ok. Cancel request complete.'
       '401':
         description: 'Unauthorized. You cannot cancel this join request'
/group/acceptJoinRequest:
   post:
     operationId: R712
     summary: 'R712: Accept group join request'
     description: 'Accept group join request. Access: OWN'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
              group_id:
                type: integer
              user id:
                type: integer
             required:
              - user id
              - group_id
     responses:
```

```
'200':
        description: 'Ok. Accepted request complete.'
       '401':
        description: 'Unauthorized. You cannot accept this join request'
/group/rejectJoinRequest:
   post:
     operationId: R713
     summary: 'R713: Reject group join request'
     description: 'Reject group join request. Access: OWN'
     tags:
      - 'M07: Groups'
     requestBody:
      required: true
      content:
        application/x-www-form-urlencoded:
          schema:
            type: object
            properties:
             group id:
               type: integer
             user_id:
               type: integer
            required:
             - user id
             - group_id
     responses:
       '200':
        description: 'Ok. Reject request complete.'
       '401':
        description: 'Unauthorized. You cannot reject this join request'
/group/removeMember:
   post:
     operationId: R714
```

```
summary: 'R714: Remove member action'
     description: 'Remove group member. Access: OWN'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
               group_id:
                type: integer
               user_id:
                 type: integer
             required:
               user_id
               - group_id
     responses:
       '200':
         description: 'Ok. Action complete.'
       '401':
         description: 'Unauthorized. You cannot remove this member'
/group/invite:
   post:
     operationId: R715
     summary: 'R715: Invite someone to the group'
     description: 'Invite request. Access: OWN'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
```

```
properties:
              group_id:
                type: integer
               user id:
                type: integer
             required:
               - user_id
               - group id
     responses:
       '200':
         description: 'Ok. Invitation complete.'
       '401':
         description: 'Unauthorized. You cannot invite this user'
/group/cancelInvite:
   post:
     operationId: R716
     summary: 'R716: Cancel Invitation'
     description: 'Cancel Invitation. Access: OWN'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
              group_id:
                type: integer
              user_id:
                type: integer
             required:
               user_id
               - group id
     responses:
       '200':
```

```
description: 'Ok. Invitation canceled.'
       '401':
        description: 'Unauthorized. You cannot cancel this invitation'
/group/rejectInvite:
   post:
     operationId: R717
     summary: 'R717: Reject invitation'
     description: 'Reject invitation. Access: USR'
     tags:
       - 'M07: Groups'
     requestBody:
      required: true
      content:
        application/x-www-form-urlencoded:
          schema:
            type: object
            properties:
             group_id:
               type: integer
             user_id:
               type: integer
            required:
             - user_id
             - group id
     responses:
       '200':
        description: 'Ok. Invitation rejected.'
       '401':
        description: 'Unauthorized. You cannot reject this invitation'
/group/acceptInvite:
   post:
     operationId: R718
     summary: 'R718: Accept invitation'
```

```
description: 'Accept invitation. Access: USR'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
               group_id:
                 type: integer
               user_id:
                 type: integer
             required:
               - user id
               - group_id
     responses:
       '200':
         description: 'Ok. Invitation accepted.'
       '401':
         description: 'Unauthorized. You cannot accept this invitation'
/group/favorite:
   post:
     operationId: R719
     summary: 'R719: Group favorite'
     description: 'Favorite a certain group. Access: USR, OWN'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
```

```
group_id:
                 type: integer
               user_id:
                 type: integer
             required:
               user_id
               - group_id
     responses:
       '200':
         description: 'Ok. This group is now one of favorites.'
       '401':
         description: 'Unauthorized. You cannot favorite this group'
/group/unfavorite:
   post:
     operationId: R720
     summary: 'R720: Group unfavorite'
     description: 'Undo group favorite. Access: USR, OWN'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
               group_id:
                 type: integer
               user_id:
                 type: integer
             required:
               user_id
               - group_id
     responses:
       '200':
         description: 'Ok. This group is not now one of favorites.'
```

```
'401':
         description: 'Unauthorized. You cannot unfavorite this group'
/group/deleteMedia:
   post:
     operationId: R721
     summary: 'R721: Delete group media'
     description: 'Delete group media. Access: OWN'
     tags:
       - 'M07: Groups'
     requestBody:
       required: true
       content:
         application/x-www-form-urlencoded:
           schema:
             type: object
             properties:
               group_id:
                 type: integer
             required:
               - group_id
     responses:
         description: 'Redirect after processing the new group
information.'
         headers:
           Location:
             schema:
               type: string
             example:
               302Success:
                 description: 'Successful. Redirect to group page without
picture.'
                 value: '/group/{id}'
               302Failure:
                 description: 'Failed. Redirect again to previous page
without changing anything'
```

```
/api/userVerify:
   get:
    operationId: R801
    summary: 'R801 : Verify username'
    description: 'Verify if username exists. Access: USR, ADM'
    tags:
      - 'M08: API'
    parameters:
      - in: query
       name: username
       description: 'Username attemp'
       schema:
         type: string
       required: true
    responses:
      '200':
       description: 'Success. Returns an ID of correspondent username'
       description: 'Forbidden action. You need to be logged in first'
/api/notifications:
   get:
    operationId: R802
    summary: 'R802 : Notifications'
    description: 'Get user notifications. Access: USR'
    tags:
      - 'M08: API'
    parameters:
      - in: query
       name: id
       description: 'Notification type: post, comment, user, group, all'
```

```
schema:
          type: string
        required: true
     responses:
       '200':
        description: 'Success. Returns some HTML text containing a list
of notifications information'
       '403':
        description: 'Forbidden action. You need to be logged in first'
/api/context:
   get:
     operationId: R803
     summary: 'R803 : Notification context'
     description: 'Get notification context. Access: USR, ADM'
     tags:
       - 'M08: API'
     parameters:
       - in: query
        name: id
        description: 'Notification id'
        schema:
          type: integer
        required: true
     responses:
       '200':
        description: 'Success. Returns some HTML text containing
notification context (post, comment, subcomment) information'
       '403':
        description: 'Forbidden action. You need to be logged in first'
/api/messages:
   get:
     operationId: R804
```

```
summary: 'R804 : Private messages'
      description: 'Get new private messages with certain user. Access:
USR, ADM'
      tags:
        - 'M08: API'
      parameters:
        - in: query
          name: id
          description: 'Target User ID'
          schema:
            type: integer
          required: true
      responses:
        '200':
          description: 'Success. Returns some HTML text containing a list
of new messages information'
        '403':
          description: 'Forbidden action. You need to be logged in first'
```