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My travel diary

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Abstract

The project work describes the “My Travel Diary” web application, designed to enhance travel experiences by allowing users to participate in location-based challenges created by companies at popular tourist landmarks. The application provides an engaging platform where users can complete travel challenges (such as photographing landmarks) and earn points that can be redeemed for rewards, like souvenirs or discounts. The document outlines the general description of the application, including database models, software requirements, restrictions, and user interface mockups. Additionally, it covers the primary modules—User Management, Challenge Management, Trip Log, Rewards Redemption, and Notifications—along with functional and non-functional requirements. This document serves as a mutual agreement between the client and the developer, structured in alignment with ISO/IEC/IEEE 29148:2018 standards.

Anotācija

Projekta darbā aprakstīta tīmekļa lietojumprogramma “Mana ceļojumu dienasgrāmata”, kas veidota, lai uzlabotu ceļošanas pieredzi, ļaujot lietotājiem piedalīties uz atrašanās vietu balstītos izaicinājumos, ko kompānijas radījušas populāros tūrisma orientieros. Aplikācija nodrošina saistošu platformu, kur lietotāji var pabeigt ceļojumu izaicinājumus (piemēram, fotografēt orientierus) un nopelnīt punktus, kurus var izpirkt par atlīdzību, piemēram, suvenīrus vai atlaides. Dokumentā ir izklāstīts lietojumprogrammas vispārīgais apraksts, tostarp datu bāzes modeļi, programmatūras prasības, ierobežojumi un lietotāja interfeisa ņirgāšanās. Turklat tas aptver primāros moduļus — lietotāju pārvaldību, izaicinājumu pārvaldību, ceļojumu žurnālu, atlīdzību izpirķšanu un paziņojumus —, kā arī funkcionālās un nefunkcionālās prasības. Šis dokuments kalpo kā klienta un izstrādātāja savstarpēja vienošanās, kas strukturēta atbilstoši IZO/IEC/IEEE 29148:2018 standartiem.

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Glossary

Acronym	Definition
<i>ISO</i>	International Organization for Standardization, which develops standards to ensure quality and safety.
<i>IEC</i>	International Electrotechnical Commission, focusing on international standards for electrical, electronic, and related technologies.
<i>IEEE</i>	Institute of Electrical and Electronics Engineers, a professional association for electronic engineering and electrical engineering.
<i>IT</i>	Information Technology, encompassing systems and networks for storing, retrieving, and sending information.
<i>GPS</i>	Global Positioning System, used for navigation and tracking geographic locations.
<i>GDPR</i>	General Data Protection Regulation
<i>API</i>	Application Programming Interface
<i>CRUD</i>	Create, Read, Update, Delete
<i>TOS</i>	Terms of Services
<i>UI</i>	User Interface
<i>UML</i>	Unified Modeling Language
<i>IOS</i>	Iphone operating system
<i>OS</i>	Operating System
<i>SMS</i>	Short message service

Introduction

Purpose

The document describes the "My Travel Diary" web application, providing an overview of the application's vision, its users and clients, software requirements, restrictions, and software design specifications with partial user interface mockups. The primary function of the app is to create an interactive travel experience where companies post challenges related to tourist landmarks or activities (for example, taking a photo next to the Eiffel Tower). Users complete challenges during their travels, and once a challenge is completed, it is added to their trip log. In return, users earn points that can be redeemed for vouchers/virtual items or physical items offered by the companies that created the challenges. This document serves as a mutual agreement between the customer and the contractor.

Scope

The "My Travel Diary" web application provides a fun and interactive way for travelers to engage with tourist attractions through challenges set by travel companies. The app aims to enhance the travel experience by encouraging users to complete location-based challenges (e.g., taking a photo next to the Eiffel Tower), which are then logged into their trip history. This system incentivizes exploration while creating opportunities for companies to promote their attractions through rewarding travelers with points for completing challenges. These

points can be redeemed for vouchers/virtual items or physical items offered by the companies.

Links with other documents

The document is created according to the ISO/IEC/IEEE 23026:2023 standard.

Overview

The document consists of 3 chapters, the requirements, list of pictures and tables, references and sources.

- Chapter 1 “Overall description” describes current situation, clients of the software, how developers see the product, business requirements, system user types and their interaction with the system, general restrictions and assumptions and dependencies.
- Chapter 2 “Software requirements specifications” contains conceptual database model, both functional and non-functional requirements. In this section are described such modules as:
 - User management module
 - Challenge module
 - Reward points module
 - Reward catalogue module
 - Order module
 - Social media module
 - Customer support module
 - Notification module
- Chapter 3 “Software design description” describes database design and shows the basic design of user interfaces.

1. Overall description

The software solution will introduce challenges provided by tourism attractions and companies, where the companies define the reward points and challenge criteria. End-users can visit these attractions to complete various challenges, which could include tasks like trivia or quests that require taking photos. To earn points, users must submit proof based on the challenge requirements, such as a picture, written description, or other media. After completing challenges, the submitted content is saved within the app and can be aggregated for social networking purposes.

In essence, the software serves as both a gamified experience and a social platform for sharing trip experience. The software will attract both individual users who want to have a more entertaining trip experience and enterprise users who want to increase their publicity etc. The application will work both as a web app and a mobile application for phones, ensuring accessibility across platforms.

1.1 Current situation

In Latvia there is currently no System that centralizes social features and gamification for travelling into one unified platform. Users must navigate different platforms to share experiences and interact with others.

These fragmented systems do not provide users with easy access to interactive features or real-time challenges during their travels, limiting the overall travelling experience. The current tools are not designed for collaborative and interactive experiences, which restricts user engagement.

1.2 Client

The primary clients for this project are organizations and institutions aiming to enhance engagement in the travel and tourism sector. This includes travel agencies, tourism locations, museums, tourism boards, and local businesses who can benefit from "My Travel Diary" by offering challenges, promoting destinations, and rewarding users for participation. The platform provides these stakeholders an opportunity to increase visibility, encourage exploration of new destinations, and boost customer interaction through gamified and social features.

1.3 Product vision

Our solution is a web and mobile application that enhances the travel experience by allowing users to track their progress and take part in gamified challenges. After its launch, the site will provide users with a simple way to participate in destination-specific challenges, earn rewards, and share their experiences with a wider audience.

Companies can promote their services by using the system to design personalized challenges that let travelers exchange points for rewards in the real world. This engagement raises customer involvement and brand visibility. To enhance accessibility, streamline the onboarding procedure, and ease user registration, the system will also communicate with external platforms such as Google and Facebook.

Post launch, the platform will keep developing to:

- Increase collaborations with tourist destinations to provide access to a wider variety of opportunities and challenges.
- Encourage the development of a thriving social network where people can exchange content, work together to plan travel, and learn new things.
- Incorporate fresh functionalities that capitalize on user input to guarantee that the platform stays user-friendly, captivating, and benefit-oriented for both tourists and enterprises.

Travelers seeking interactive experiences and organizations wishing to gamify their marketing efforts will find the system to be a great option.

1.4 Business requirements

To create a better user travelling experience, the system must provide users with gamified, location-based challenges that improve the travel engagement and earn points. The points earned from challenges should be able to be redeemed for digital or real-life rewards provided by companies. The user should also be able to track their progress, save their completed challenges and share their experiences through social features.

To support company users so they can achieve their goals, the system must be able to let companies create, manage, and promote customized challenges and rewards, enabling them to attract and engage more customers. And every month, the system will send the companies a detailed statistical report about their challenges and rewards so that they can analyze their campaign. The rewards system should allow the companies to provide individual users with both digital rewards like discounts and real-life rewards like souvenirs.

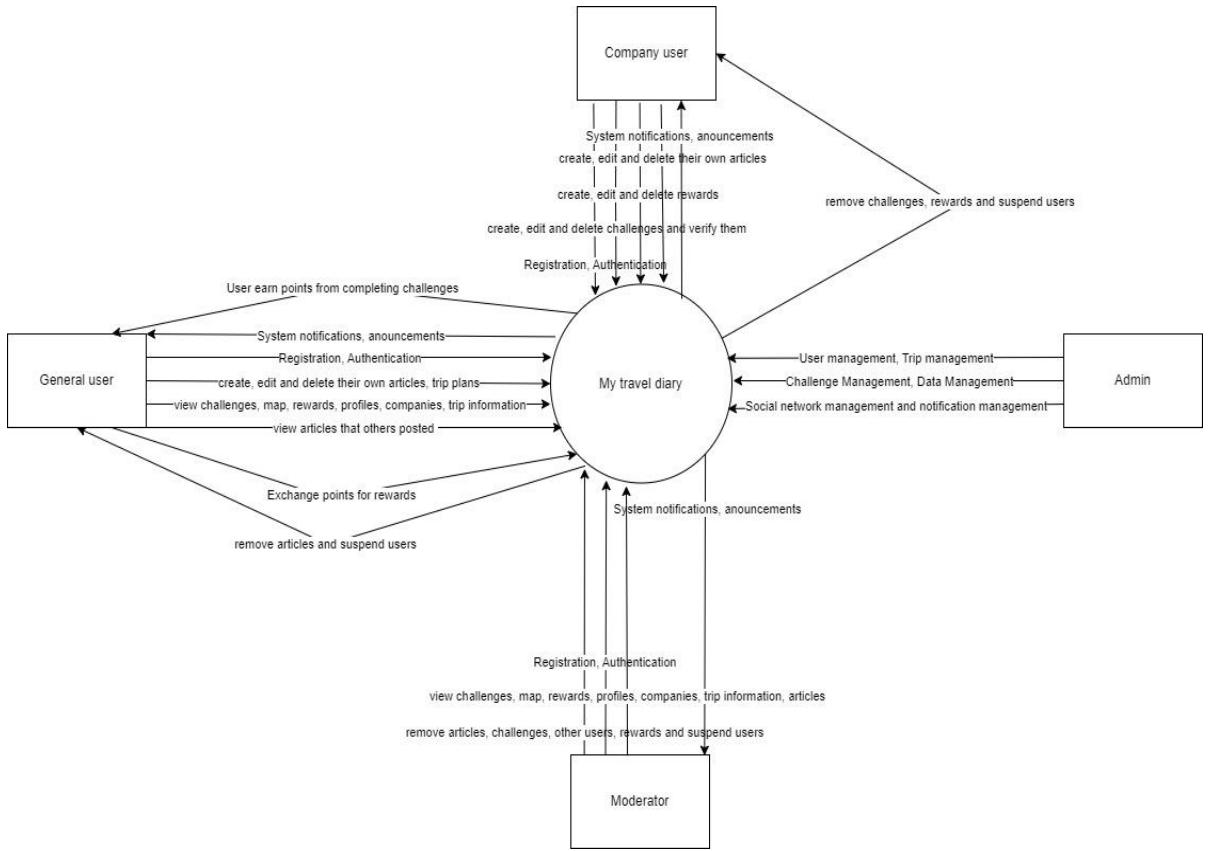
To create a friendly and unified user experience, the product

should support multilingual features to cater to the diverse global audience. The product must also follow GDPR regulations to ensure user data privacy and security, all interactions and content should adhere to community guidelines to prevent misuse, harassment or offensive behavior.

1.5. System Users

There will be 5 types of user roles provided by the developed system, as follows:

- General user – registered user, has the rights and ability to create, edit and delete their own articles, as well as view challenges, map, rewards, profiles, companies, trip information, trip plans and see articles that others post. Can also earn points by completing challenges and exchange points for rewards.
- Guest – a person that has entered the system and has the right and ability to register to become a general user.
- Company user – registered user from a company (a staff), has the rights and ability to create, edit and delete challenges and verify them, same applies to rewards (vouchers/virtual items or physical items). Create, edit, and delete their own articles and see articles that others post.
- Admin – The most privileged user of the system, which can modify it. From the system's staff team, responsible for User management, Trip management, Challenge Management, Data Management, Social network management and notification management.
- Moderator – a more privileged user than registered users, has all the abilities and rights as a general user, but can also remove articles, challenges, other users, rewards and suspend users for breaking terms of service. Responsible for moderating what other users post and do in the system, answering questions from users about the system.



1.5.1. dataflow diagram for system users

1.6 General restrictions

As the system is a web application, end-users must have a device connected to the internet with installed web browser and device with access to GPS. The managing company also must have a delegated internet domain as well as a server for storing the application data.

Post restrictions are as follows: no 18+ topics, for example, gore, nudity, sexual content, no racism, harassment, extremism, bullying, racial discrimination, or other offensive attitude towards any owner of the diary or other users. There are other restrictions, such as, the need to have appropriate usernames (no slurs, sexual, racist, or similar connotations).

The system relies on partnership with companies and locations, which are essential for providing challenges, rewards and for validating the user submissions.

The application must have approval of the device's camera, only way the end-user can create a post is if the photo is taken inside the app, it cannot be uploaded from the device library.

1.7 Assumptions and dependencies

During the initial system setup, it is assumed that essential data will be pre-seeded into the database to facilitate smooth operation and efficient user onboarding. The key components of this setup include:

1. Geographical Data Seeding

- The database will be populated with a comprehensive list of countries and their respective cities. This geographical data enables users to select relevant locations for challenges and posts and supports location-based functionalities, such as displaying challenges based on the user's current or selected location.

2. Admin User Initialization

- Initial admin users will be created during setup, ensuring that privileged users are available to manage and oversee system functionality from the outset. These admin accounts will have comprehensive access to system settings, user management, content moderation, and database maintenance.

3. Organization Identification Codes

- A file containing unique identification codes for each registered organization will be maintained. When signing up as a company user, representatives will use these codes to verify their association with their respective organization.
- This unique code will automatically link the user to the appropriate organization in the system, granting permissions to create challenges, manage rewards, and access organization-specific functionalities.
- This file serves as a central reference for validating and managing organizational associations, ensuring that only verified individuals have access to organization management features.

4. Notification Code Seeding

- Standard notification codes will be seeded into the database to support system-wide notifications, such as updates on new challenges, rewards, and user interactions. These codes define specific notification types and enable the system to send alerts based on predefined events, improving user engagement and keeping them informed of relevant updates.

5. Settings Seeding

- Default system settings will be pre-configured, allowing administrators to adjust system-wide preferences as needed. These settings provide baseline configurations for features such as user notifications, content visibility, and general system behavior, enabling immediate operability and a consistent experience across user roles.

6. Permission and Role Seeding

- Permissions and roles for different user types will be defined and seeded into the system. This includes:

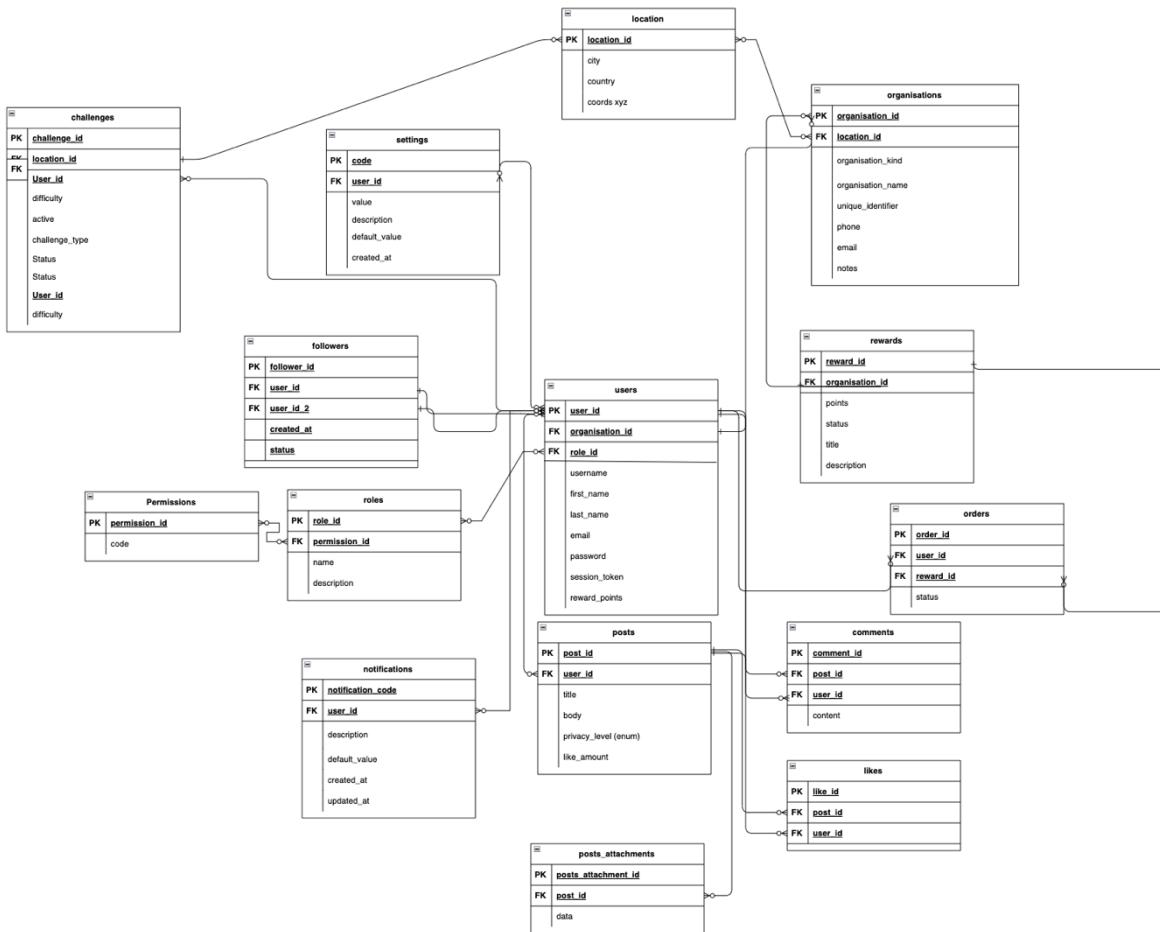
- o **Admin Role:** Full access to all system functionalities, including user management, content moderation, and settings adjustment.
- o **Company User Role:** Access to organization-specific functionalities, such as challenge creation, reward management, and member management within their organization.
- o **Mod Role:** Permissions focused on content moderation, including the ability to review, approve, or remove user-generated content, ensuring that community guidelines and standards are upheld.
- o **Standard(General) User Role:** Access to participate in challenges, view content, and manage personal settings.
- These predefined roles and permissions ensure that users have appropriate access from the start, aligning system functionalities with the user's responsibilities and requirements.

This setup of seeded elements establishes a well-structured database foundation, aligning roles, permissions, and location data essential for a smooth, location-aware, and role-specific user experience. By pre-seeding these key components, the system ensures that foundational data is ready for use, allowing users particularly company representatives and moderators to be assigned accurate roles and permissions based on verified identifiers. This approach minimizes setup time for new users, enhances system security, and maintains data integrity.

2. Software requirements specification

2.1 Conceptual database model

The Conceptual model of database reflects the database entities and their relationships. This model allows us to establish entities, their attributes, and relationships in a visual way (pic. 2.1.1).



2.1.1. Database conceptual model

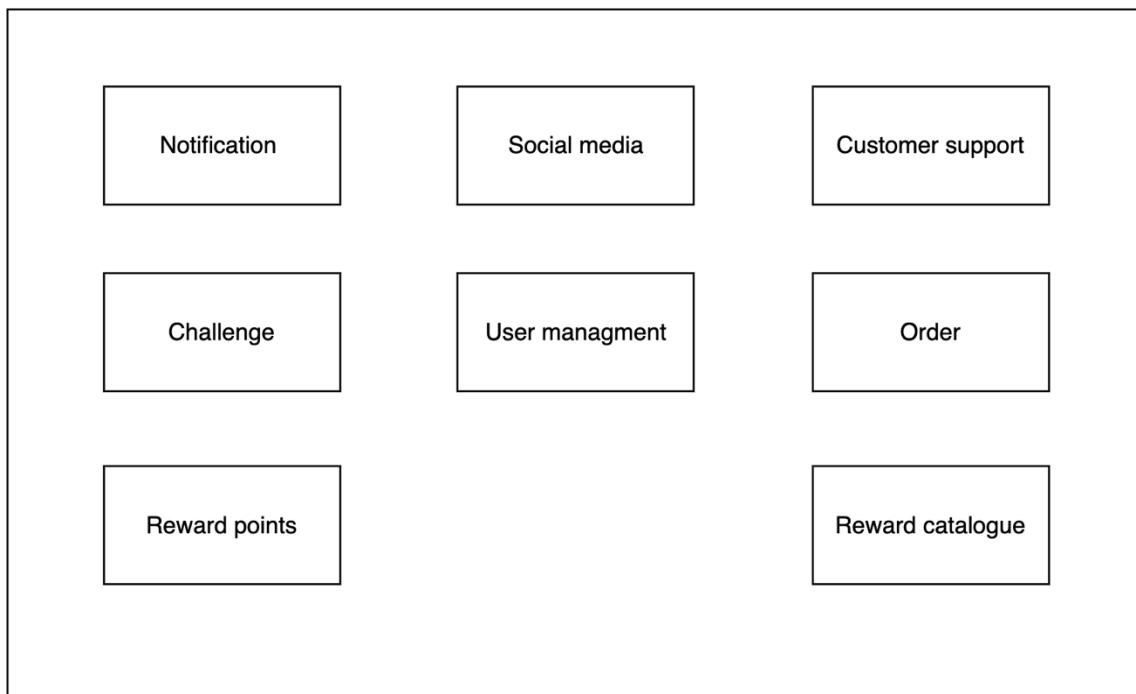
- ◆ Entity “users” contains information about user_id, username, first_name, last_name, email, password, session_token, and reward_points. It has one-to-many relationships with ‘posts’, ‘followers’, ‘user_challenges’, ‘comments’, ‘likes’, and ‘user_settings’, ‘user_roles’, ‘organisations’, ‘orders’.
- ◆ Entity “posts” contains information about post_id, user_id, organisation_id, title, body, privacy_level, and like_amount. It has one-to-many relationships with ‘comments’, ‘likes’, and ‘posts_attachments’. It has a many-to-one relationship with ‘users’.
- ◆ Entity “comments” contains information about comment_id, post_id, user_id, and content. It has a many-to-one relationship with ‘posts’ and ‘users’.
- ◆ Entity “followers” contains information about follower_id, user_id, created_at, and status. It has a many-to-one relationship with ‘users’.
- ◆ Entity “challenges” contains information about challenge_id, location_id, points, difficulty, active, and challenge_type. It has a one-to-many relationship with ‘user_challenges’.

- ◆ Entity “user_challenges” contains information about user_challenge_id, challenge_id, user_id, points, and status. It has many-to-one relationships with 'users' and 'challenges'.
- ◆ Entity “rewards” contains information about reward_id, organisation_id, points, status, title, and description. It has a one-to-many relationship with 'orders'.
- ◆ Entity “orders” contains information about order_id, user_id, reward_id, and status. It has many-to-one relationships with 'rewards' and 'users'.
- ◆ Entity “notifications” contains information about notification_code, description, default_value, created_at, and updated_at. It has a one-to-many relationship with 'user_notifications'.
- ◆ Entity “user_notifications” contains information about user_notification_id, notification_code, user_id, value, and data. It has many-to-one relationships with 'users' and 'notifications'.
- ◆ Entity “roles” contains information about role_id, name, and description. It has a one-to-many relationship with 'user_roles' and a many-to-many relationship with 'permissions' through the 'permission_roles' pivot table.
- ◆ Entity “user_roles” contains information about user_id and role_id. It has many-to-one relationships with 'roles' and 'users'.
- ◆ Entity “permissions” contains information about permission_id and code. It has a many-to-many relationship with 'roles' through the 'permission_roles' table.
- ◆ Entity “permission_roles” serves as a pivot table and contains information about role_id and permission_id. It establishes the many-to-many relationship between 'roles' and 'permissions'.
- ◆ Entity “settings” contains information about code, description, default_value, and created_at. It has a one-to-many relationship with 'user_settings'.
- ◆ Entity “user_settings” contains information about user_setting_id, user_id, setting_code, and value. It has many-to-one relationships with 'users' and 'settings'.
- ◆ Entity “likes” contains information about like_id, post_id, and user_id. It has many-to-one relationships with 'posts' and 'users'.
- ◆ Entity “posts_attachments” contains information about post_attachment_id, post_id, and data. It has a many-to-one relationship with 'posts'.
- ◆ Entity “organisations” contains information about organisation_id, location_id, organisation_kind, organisation_name, unique_identifier, phone, email, and notes. It has a one-to-many relationship with 'rewards' and 'organisation_location'.

- ◆ Entity “organisation_location” contains information about org_loc_id, organisation_id, and location_id. It has many-to-one relationships with 'organisations' and 'location'.
- ◆ Entity “location” contains information about location_id, country_id, city_id, and coords_xyz. It has many-to-one relationships with 'country', 'city', 'challenges', and one-to-many relationships with 'organisations'.
- ◆ Entity “city” contains information about city_id, country_id, and name. It has a many-to-one relationship with 'country'.
- ◆ Entity “country” contains information about country_id and name. It has a one-to-many relationship with 'city' and 'location'.

Each of these entities and relationships supporting user interactions, challenges, rewards, posts, orders, notifications, organisations, settings, permissions, and roles.

2.2 Functional requirements



2.2.0. *Block diagram of modules*

2.2.1 Breakdown by modules

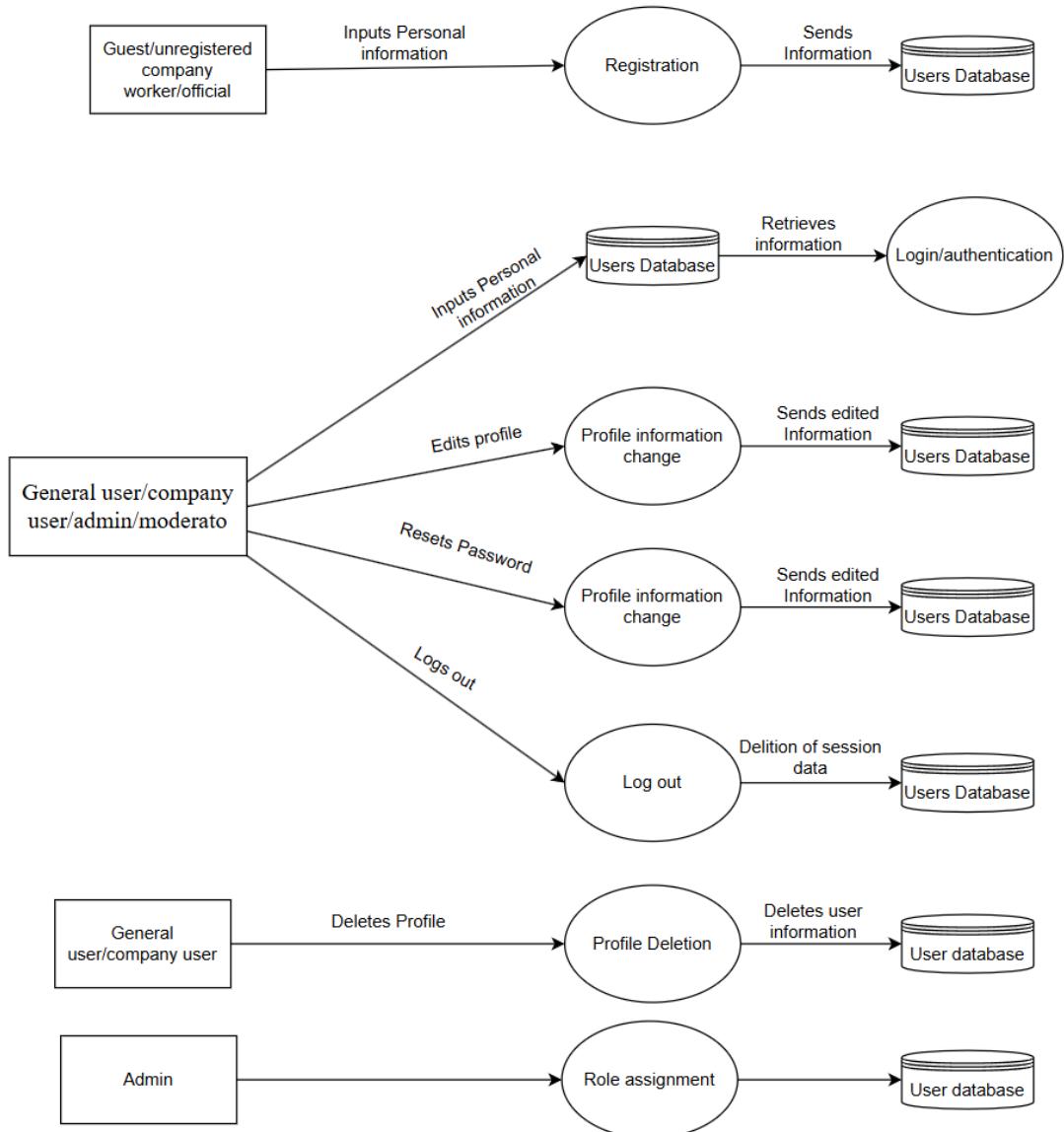
Module	Functionality	User group	User story number
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User management module	Registration	Guest	U-1
	Authentication/Log in	General user	U-2
	Edit profile	General user	U-3
	Reset password	General user	U-4
	Delete profile	General user	U-5
	Log out	General user	U-6
	Assign roles	Admin	U-7
Module	Functionality	User group	User story number
Challenge module	Create	Company user	C-1
	Edit	Company user	C-2
	Delete	Company user	C-3
	View	General user, company user, admin, moderator	C-4
	Accept	General user	C-5
	Verify	Company user	C-6
	Submit	General user	C-7
Module	Functionality	User group	User story number
Reward points module	Receive	General user	RP-1

	Spend	General user	RP-2
Module	Functionality	User group	User story number
Reward catalogue module	Create	Company user	RC-1
	View	Company user, General user	RC-2
	Purchase	General user	RC-3
	Edit	Company user	RC-4
	Delete	Company user, Moderator, Admin	RC-5
Module	Functionality	User group	User story number
Order module	Receive	Company user	O-1
	Verify	Company user	O-2
Module	Functionality	User group	User story number
Social media module	Create post	General user	SM-1
	Edit post	General user	SM-2
	Privacy control for the post	General user	SM-3
	Delete post	User, Moderator, Admin	SM-4

	Follow user	General user	SM-5
	Unfollow user	General user	SM-6
	Like the post	General user	SM-7
	Comment the post	General user	SM-8
	Share the post	General user	SM-9
	View the post	General, Company user	SM-10
	View the profile	General, Moderator ,Company User	SM-11
	View the comments	General, Moderator , Company User	SM-12
	Delete Comments	Moderator	SM-13
Module	Functionality	User group	User story number
Customer support module	Send message	General user, Moderator	CS-1
	Receive message	General user, Moderator	CS-2
	View message	General user, Moderator	CS-3
Module	Functionality	User group	User story number
Notification module	Allow receiving system notifications	General user, Company user (order notification)	N-1
	Allow receiving social media notifications	General user	N-2
	Disable notifications	General user	N-3
	Send notification	Moderator	N-4

2.2.2 User management module



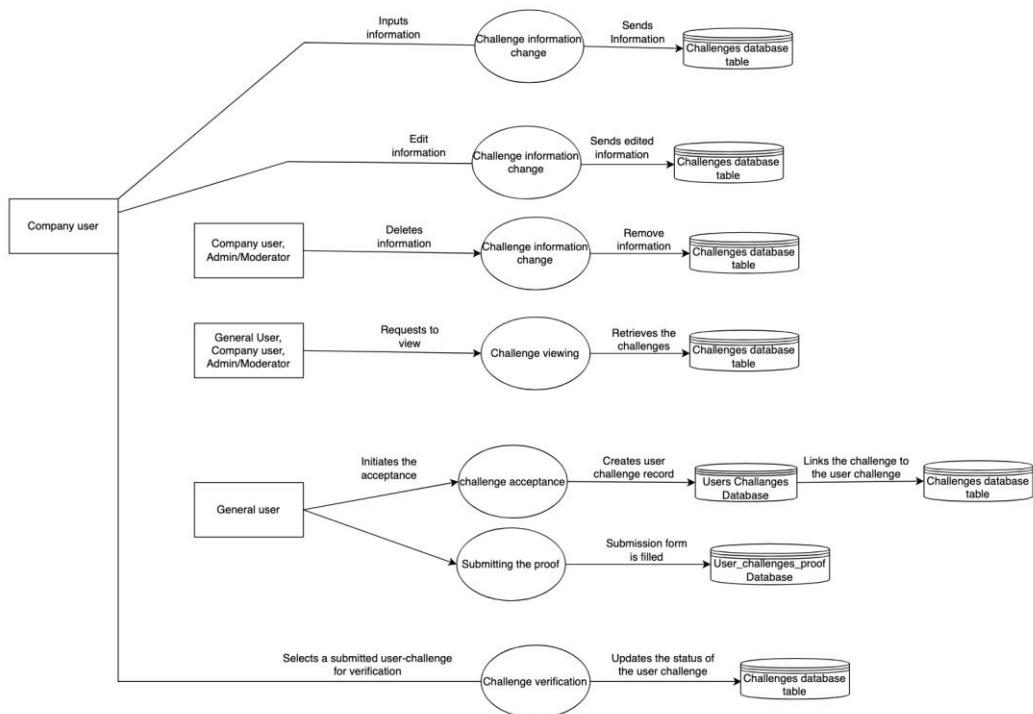
2.2.2.1. Dataflow diagram for the User management module

User story Number(title)	Description	Acceptance criteria
U-1 “Registration”	<p>As a guest, I want to be able to Register, to use the application.</p> <p>As a company official/worker, I want to be able to register the account with a special code for my role in the application so I can access the special functions for my specific role.</p>	<p>Given that I have opened the app</p> <p>When I click on “Register” button</p> <p>Then the registration form opens, and I can choose to be either traveler or company representative with toggle switch and fill in the following information: First name, Last name, E-mail, Username, Password</p>

		and, if I chose to be a company, then I must fill company's one time password.
U-2 “Authentication/Log in”	As a general user/company user/admin/moderato, I want to be able to Log in and authenticate using 2 factor authentication.	Given that I have opened the app When I click on “Log in” button Then the login screen opens, and I fill in the E-mail and password.
U-3 “Edit profile”	As a general user/company user/admin/moderato, I want to be able to Edit my profile so that I can change E-mail, Password, Username, Profile picture	Given that I have opened and logged in the app When I click on “Profile” and then “Settings” Then the profile settings screen opens, and I can change my first name, last name, username, E-mail, password or profile picture.
U-4 “Reset password”	As a general user/company user/admin/moderato I want to be able to Reset Password In case I forget my old password and cannot log in.	Given that I have opened the app/ and logged in the app When I click on “Login” “Reset password” / click “Profile” and “Settings” Then the reset password screen opens, and I can enter my E-mail, after Inputting, I get a pop-up requesting security code which has been sent to my E-mail. After inputting security code, I will be sent to create new password screen where I will be able to create new password.
U-5 “Delete profile”	As a general user/company user, I want to be able to Delete my profile, if I do not want to use my account anymore	Given that I have opened and logged in the app When I click on “Settings” Then there is button which enables me to delete my account.

U-6 "Log out"	As a general user/company user/admin/moderator, I want to be able to Log out of my account, so other people do not use my Profile	Given that I have opened and logged in the app When I click on "Log out" Then I am logged out of the app and sent to main page
U-7 "Assign roles"	As an admin, I want to be able to assign roles to general users/company users to become moderators.	Given that I have opened and logged in the app as an admin When I click on specific user, I have the option to edit their profile (only assigning roles)

2.2.3 Challenge module



2.2.3.1. Dataflow diagram for the challenge module

General acceptance criteria: Given that I have opened the application and logged in.

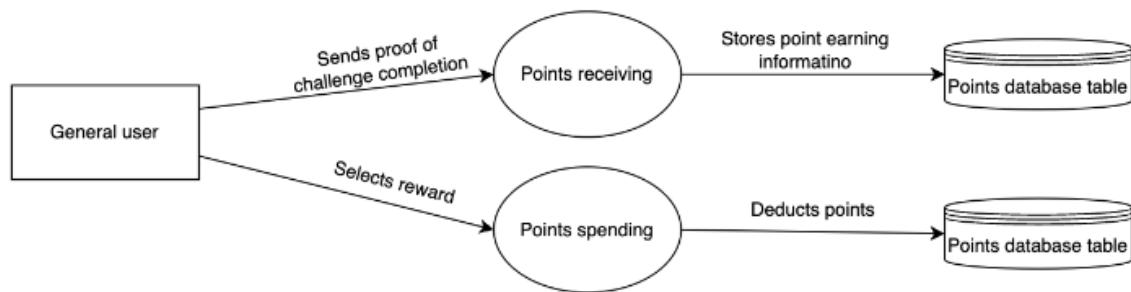
User story Number (Title)	Description	Acceptance criteria
C-1 "Create challenge"	As a company user, I want to be able to create new	Given that I have opened Profile tab

	<p>challenges, so it would be visible for other users.</p>	<p>When I click “My challenges” and "Add new challenge” button</p> <p>Then the creation screen opens, and I can fill in the following information about the challenge: location, title, type of challenge, challenge difficulty, description, number of points awarded for this challenge and add a photo(optional).</p>
C-2 "Edit challenge"	<p>As a company user, I want to be able to edit existing challenges, so that I can add/change information to the record (e.g., point amount change, location change etc.)</p>	<p>Given that I have opened Profile tab</p> <p>When I click “My challenges” and "Edit challenge” button</p> <p>Then the edit screen opens, and I can change the information that I have filled in while creating the challenge: location, title, type of challenge, challenge difficulty, description, number of points awarded for this challenge and change the photo (if it was added).</p>
C-3 "Delete challenge"	<p>As a company user, I want to be able to delete challenges, so that I can remove the challenge to make it not visible to other users.</p> <p>As an admin/moderator, I want to be able to delete challenges if they violate the terms and conditions.</p>	<p>Given that I have opened Profile tab</p> <p>When I click “My challenges” and "Edit challenge” button/ click on the challenge and "Edit challenge” button</p> <p>Then the edit screen opens/challenge description window, where I can click “Delete challenge”/ “Delete” button, which enables me to delete this challenge from “My challenges” and “Challenges” tab.</p>
C-4 "View Challenge"	<p>As a general user, I want to be able to view the challenges, so that I could be able to browse the list of</p>	<p>Given that I have opened the application</p>

	<p>challenges to choose which one to complete, as well as to see the progress of the challenges I have accepted.</p> <p>As an moderator, I want to view the challenges so that I can verify if the challenges violate the terms and conditions.</p> <p>As a company user, I want to be able to view my own created challenges so that I could edit and delete them, I want to be able view other challenges to analyze competition.</p>	<p>When I open Challenges tab / Profile tab and “My challenges”</p> <p>Then I can see all the existing challenges / the list of my accepted challenges/ my created challenges.</p>
<p>C-5 "Accept Challenge"</p>	<p>As a general user, I want to be able to accept challenges, so that I can complete them and earn points to exchange for rewards.</p>	<p>Given that I have opened Challenges tab</p> <p>When I click "See more" and "Accept"</p> <p>Then I see this challenge in “My challenges” list, see the status of it and interact with it.</p>
<p>C-6 "Verify Challenge"</p>	<p>As a company user, I want to be able to verify the challenges that the general users have done to know if the user has completed them.</p>	<p>Given that I have opened Profile page and “My challenges”</p> <p>When I click on "Challenge name"</p> <p>Then I can see the submitted completed challenges and see whether the user has completed the challenge, thus changing the status of the user-challenge to completed by clicking “Approve” button.</p>
<p>C-7 “Submit the proof”</p>	<p>As a general user, I want to be able to submit required proof (photo, answers to trivia, video) for the challenge I accepted.</p>	<p>Given that I have opened the profile tab and “My challenges” section,</p> <p>When I click on the specific challenge’s “Add submission” button,</p>

		Then the submission form is shown depending on the challenge type, photo and video -> attachment dropbox, trivia -> questionnaire, where I can attach a photo/video or fill in answers for questionnaire.
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2.2.4 Reward points module

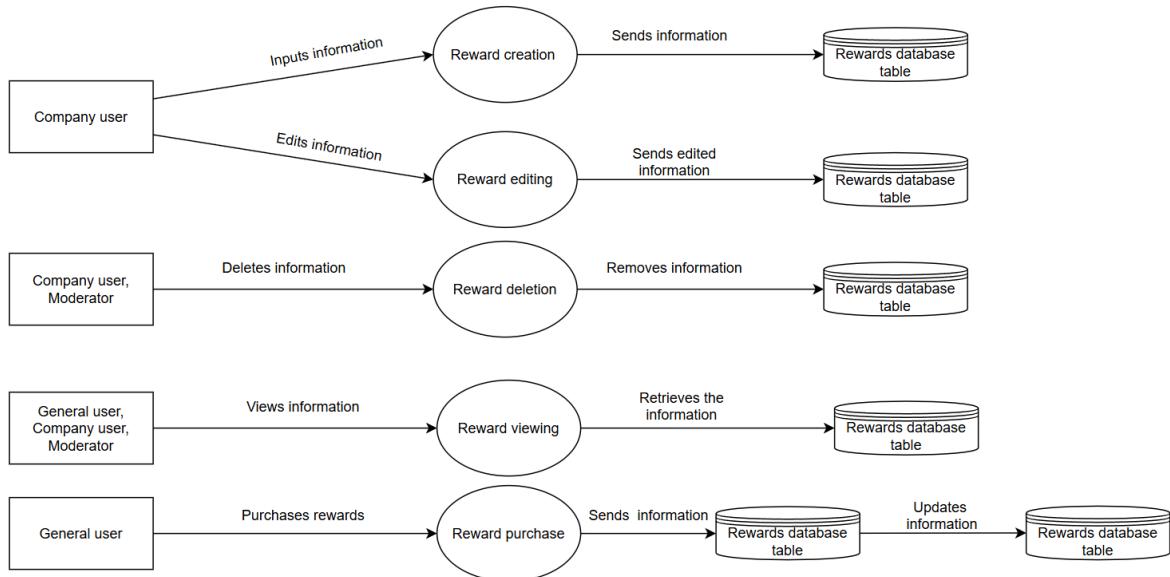


2.2.4.1. Dataflow diagram for the Rewards points module

User story Number (Title)	Description	Acceptance criteria
RP-1 "Receive"	As a general user, I want to be able to receive points upon completing a challenge.	Given that I have successfully completed a challenge, When I submit the required proof (photo, description) by clicking "Add submission" button in Profile tab, "My challenges" section, Then the system credits the corresponding points to my account.
RP-2 "Spend"	As a general user, I want to spend my points on rewards from the catalogue.	Given that I have accumulated enough points, When I select a reward from the Reward catalogue and click "Purchase" and confirm the purchase,

		Then the system deducts the points from my balance and confirms the purchase.
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2.2.5 Reward catalogue module



2.2.5.1. Dataflow diagram for the Reward catalogue module

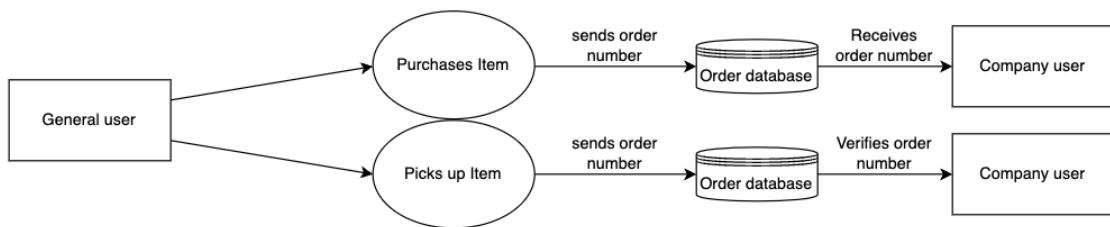
General acceptance criteria: Given that I have opened the application and logged in.

User story number (title)	Description	Acceptance criteria
RC-1 "Create reward"	As a company user, I want to create new rewards for users to redeem with points.	Given that I have opened the Profile tab When I click on "My rewards" and "Add new reward" button, Then the creation screen opens, and I can fill in the following information about the reward: title, location, price (in points), description and add a photo.
RC-2 "View rewards"	As a general user, I want to be able to view the rewards, so that I could be able to browse the list of rewards to choose which one to purchase. As a company user, I want to be able to view my own created rewards so that I could edit and delete them, I want to be able	Given that I have opened the Reward catalogue tab, When I browse through the available rewards of organizations whose challenges I finished / my created rewards. Then I can view all the existing rewards from the organizations which challenges I finished: their title,

	<p>view other rewards to analyze competition.</p> <p>As an admin/moderator, I want to view rewards, so that I could verify if the reward violates the terms and condition.</p>	<p>organization location where the reward can be redeemed, price (in points), description and photo.</p>
RC-3 "Purchase"	<p>As a general user, I want to use my points to purchase rewards.</p>	<p>Given that I have selected a reward from Reward catalogue tab,</p> <p>When I click “Purchase” for this specific reward,</p> <p>Then I am shown a confirmation form, displaying the price (in points) and my current number of points in my account, where I can confirm the purchase (in the case I confirmed the purchase, the confirmation message is shown, saying that detailed information will be sent via e-mail) or cancel it.</p>
RC-4 "Edit reward"	<p>As a company user, I want to edit existing rewards to update information.</p>	<p>Given that I have opened the Profile tab,</p> <p>When I click “My rewards” and “Edit reward” button,</p> <p>Then the edit screen opens, and I can change the information that I have filled in while creating the reward: title, location of organization, where the reward can be redeemed, price (in points), description and change the photo. Additionally, I can change the status of the reward (the default is “Active”, which is set while creation of the reward) between three values: “Active”, “Inactive”, “Out of stock”.</p>
RC-5 "Delete reward"	<p>As a company user, I want to delete rewards that are no longer available./ As a moderator I want to delete rewards that violate the terms and conditions</p>	<p>Given that I have opened Profile tab, / Given that I have opened the Reward catalogue tab,</p> <p>When I click “My rewards” and “delete reward” button, / When I browse through the available rewards,</p>

		Then the reward is removed from “My rewards” and in the Reward catalogue tab and no longer visible to users. / Then I can open the reward and click on delete reward button and erase the reward from the rewards catalogue.
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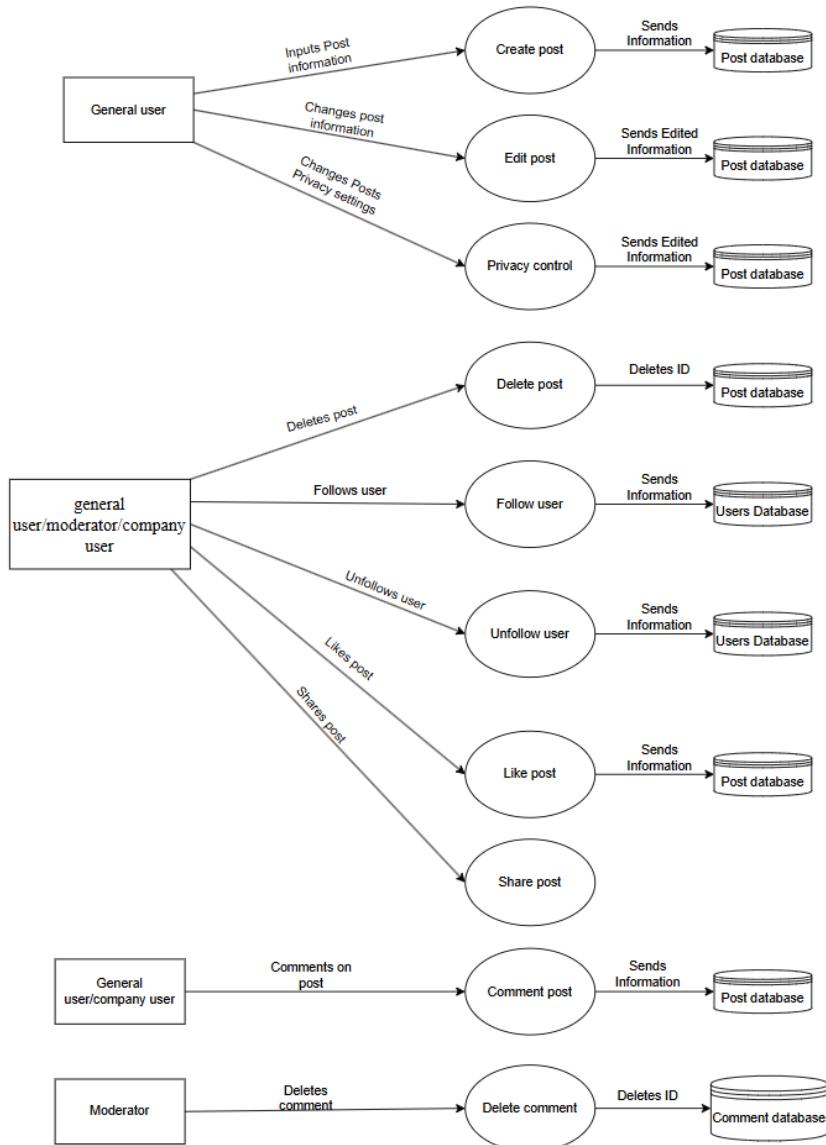
2.2.6 Order module



2.2.6.1. Dataflow diagram for the Order module

User story number (title)	Description	Acceptance criteria
O-1 “View orders”	As a company user, I want to be able to receive the order of the reward which general user has purchased	Given that I have opened the Profile tab, When I click on “Orders” Then I can see received orders with following information: order number, reward name, recipient username and status of the order (“Pending”, “Received”).
O-2 “Verify”	As a company user, I want to be able to Verify the order which has been purchased and then delivered/picked up by user	Given that I have opened the Profile tab, When I click on “Orders” and “Confirm” button, Then I confirm the receiving of this order, then the status changes to “Received”.

2.2.7 Social media module



2.2.7.1 Dataflow diagram for the social media module

General acceptance criteria: Given that I have opened the application and logged in.

User story number (title)	Description	Acceptance criteria
SM-1 “Create post”	As a general user, I want to create post which other users can see	Given that I have opened Profile tab and completed the challenge (for which I want to create a post), When I click on “My challenges” and “Create post” button on the challenge with status “Completed”

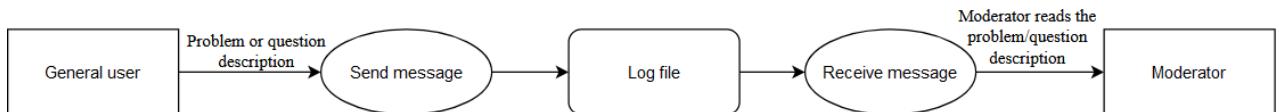
		Then the creation form is opened, which will have location and challenge name automatically inputted from the system, description field, “Add photo” button and privacy settings toggle switch (“Everybody” and “Only followers”).
SM-2 “Edit post”	As a general user, I want to edit my already created post To change name, photo, description, ETC.	<p>Given that I have opened Profile tab</p> <p>When I click on “My posts” and the “Edit post” button on my post</p> <p>Then the edit form opens, where I can change the information that I have filled in while creating the post: description, change the photo and privacy settings by using toggle switch.</p>
SM-3 “Privacy control for the post”	As a general user, I want to make my created or uncreated posts private, so only people who follow me can view my posts.	<p>Given that I have opened Profile tab and clicked “My challenges” / “My posts”,</p> <p>When I click on “Create post” button / “Edit profile” button for the post</p> <p>Then I can make the post visible to everyone or only my followers.</p>
SM-4 “Delete post”	As a general user, I want to Delete my already created post.	<p>Given that I have opened the Profile tab</p> <p>When I click on “My posts”, then “Edit post” and then “Delete post” button on my post</p> <p>Then I can fully delete this post from “My posts” and from everyone or my follower’s feed (depending on post’s privacy settings).</p>

SM-5 “Follow user”	As a general user/moderator/company user, I want to follow other users to see their posts	<p>Given that I have opened the application (Main page)</p> <p>When I click on post's username, (then I am transferred to this user's profile page) and click "Follow user" button</p> <p>Then I can see their posts (with privacy settings “Only followers”) and number of followers.</p>
SM-6 “Unfollow user”	As a general user/moderator/company user, I want to follow other users not to see their posts anymore.	<p>Given that I have opened the application (Main page) and follow some user</p> <p>When I click on post's username, (then I am transferred to this user's profile page) and click "Unfollow user" button</p> <p>Then I can no longer see their posts with privacy settings “Only followers” and number of followers.</p>
SM-7 “Like the post”	As a general user/company user, I want to like already created posts to show my support to other users	<p>Given that I have opened the application (main page) / user's profile page</p> <p>When I click on “Like” button on existing post of another user</p> <p>Then I can like this post.</p>
SM-8 “Comment the post”	As a general user/company user, I want to Comment already created posts for social purposes	<p>Given that I have opened the application (Main page) or another user's profile</p> <p>When I click on “Comment” button on already created mine or another user's post,</p> <p>Then the comment window is opened, where I can write a comment in the text field.</p>
SM-9 “Share the post”	As a general user/moderator/company user, I want to share already	<p>Given that I have opened the application (Main page) or another user's profile</p>

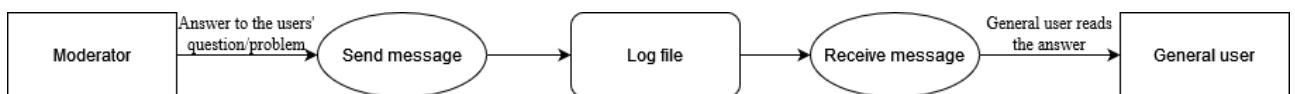
	created posts to other users or other platforms	When I click on “Share” button on already created post of other user, Then I can copy the link of this post and am able to share it with others.
SM-10 "View the post"	As a general user/company, I would want to be able to see the created posts that are public. As a moderator, I would want to be able to view the posts created by other users to see if it violates any terms and conditions.	Given that I have opened the application When I am at the home page, other user's profile page or my profile page, Then I can see all the posts that other user(s) or me has/have created.
SM-11 "View the profile"	As a general user/moderator/company user, I would want to be able to see the profiles of other users.	Given I have opened the application (Main page), When I click on specific post's username, Then I can click on the author of that post and view the user.
SM-12 "View the comments"	As a general user/company user, I would want to be able to see the comments that other users made to mine and other people's posts. As a moderator, I would want to be able to view the comments created by other users to see if it violates any terms and conditions.	Given I have opened the application (Main page), When I click on “Comment” button (icon) on the specific post, Then I can see all the comments that have been added to the post.
SM-13 "Delete post (moderator)"	As a moderator, I would want to be able to delete any post that violates the terms and conditions.	Given that I have opened the application (Main page) or another user's profile When I click on “Delete” button on already created post of another user, Then I can fully delete this post.
SM-14 "Delete comments (moderator)"	As a moderator, I would be able to delete any comment that violates the terms and conditions.	Given I have opened the application (Main page),

		<p>When I click on “Comment” button (icon) on the specific post,</p> <p>Then I can see all the comments that have been added to the post and delete them by clicking the "Delete button" in the overflow menu of the comment.</p>
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2.2.8 Customer support module



2.2.8.1. Data flow diagram from general user to moderator



2.2.8.2. Data flow diagram from moderator to general user

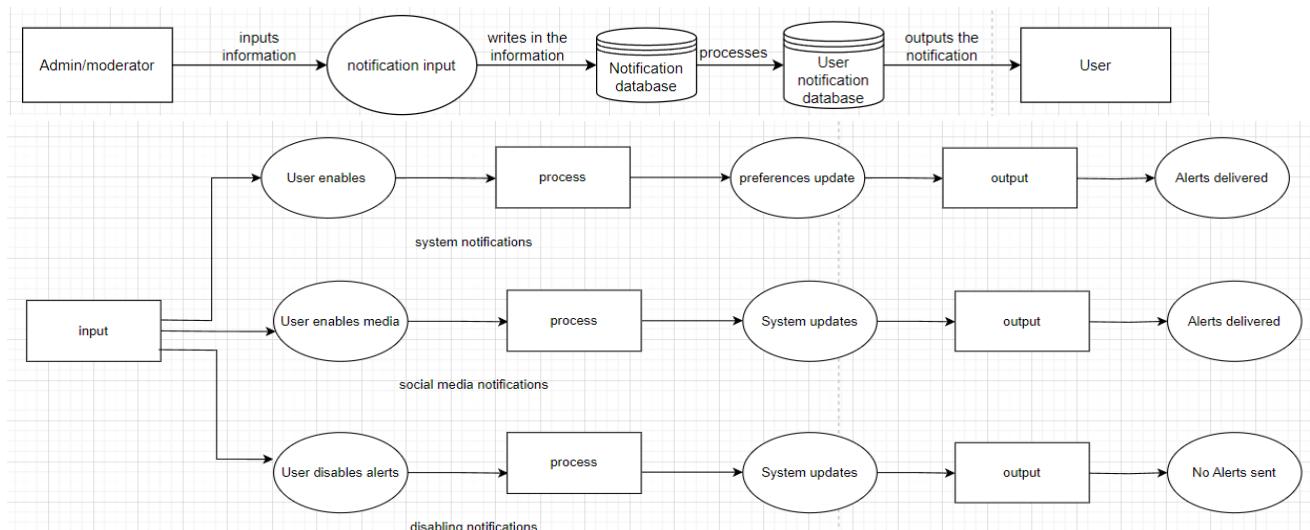


2.2.8.3. Data flow diagram for viewing chat history

User story number (title)	Description	Acceptance criteria
CS-1 “Send message”	<p>As a general/company user, I want to be able to send messages to the support if I have any questions or problems regarding the functionality.</p> <p>As a moderator, I want to be able to send messages to help general users and answer their questions or solve problems.</p>	<p>Given that I have opened the application and logged in,</p> <p>When I click “Customer support” / “Support chat”,</p> <p>Then the chat window is opened, where I can enter my message into the text field.</p>
CS-2 “Receive message”	<p>As a general/company user, I want to be able to receive messages from the support (moderator) regarding my questions or problems.</p> <p>As a moderator, I want to be able to receive users'</p>	<p>Given that I have opened the application and logged in,</p> <p>When I click "Customer support" in the navigation menu / “Open the chat” in the profile page in “Support</p>

	<p>messages to know about their questions or problems.</p>	<p>“requests” section for the specific request,</p> <p>Then the chat window is opened, where I can read the message that I have received from the support/specific user.</p>
CS-3 “View message”	<p>As a general/company user, I want to be able to see the chat history, my sent messages and support (moderator) sent messages.</p> <p>As a moderator, I want to be able to see the chat history, my sent messages and user’s sent messages.</p>	<p>Given that I have opened the application and logged in,</p> <p>When I click "Customer support" in the navigation menu / “Open the chat” in the profile page in “Support requests” section for the specific request,</p> <p>Then the chat window is opened, where I can see all the chat history – my and support’s/customer’s sent messages.</p>

2.2.9 Notification module



2.2.9.1. Dataflow diagram for the Notification module

User Story Number (title)	Description	Acceptance Criteria
N-1 "Allow receiving notifications"	As a general user/ company user/admin/moderator, I want to receive notification that the app sends to me.	Given that I have opened the Profile tab, When I click “Settings” and use toggle switch,

		Then I can allow the system to send me notifications (system notifications and new followers/orders).
N-2 "Disable notifications "	As a general user/company user/admin/moderator, I want the ability to disable notifications to avoid being interrupted.	Given that I have opened the Profile tab, When I click “Settings” and use toggle switch, Then I can prohibit the system from sending me notifications (system notifications and new followers/orders).
N-3 "Send notification (admin)"	As an admin, I would want the ability to send notifications for announcement purposes.	Given that I have opened the application When I click on “New notification” which is located on the dashboard. Then the pop up window opens up and I can write and send the notification to all the users.
N-4 "Send notification (moderator)"	As a moderator, I would want to be able to notify general and company users about their violation of the terms and conditions after I delete their posts/comments/challenges/rewards.	Given that I have clicked “Delete” on a post/comment/reward/challenge. When it happens Then there will be a pop-up window to write the reasons of the deletion and sends it to the corresponding user

2.3 Non-functional requirements

Performance

The Travel diary should serve 10, 000 users at the same time with latency for each request less than 2 seconds. Checked with k6.

Compatibility

The Travel diary is both compatible with iOS (minimum 15.1 v.) and Android (minimum 9.0 v.), as well as the Chromium browsers.

Security

Any sensitive data should be encrypted both in transit and in rest, using standard encryption protocols. We ensure that the app compiles with both international and local regulations (GDPR). All APIs that communicate with the backend systems both within web app and mobile app should be secured with proper authentication.

Availability

The travel diary must be available to install in Google Play Market for Android OS and AppStore for iOS.

As well as it must be available as web application on Chromium browsers.

Localization

The version 1.0 must support the following languages: English (International).

Accessibility

Native modules, when using web and mobile application, ensure support for camera, push notifications, GPS, Wi-Fi and mobile data for both iOS and Android.

Hardware Compatibility

Camera and Sensors: Ensure that the app works with different hardware components such as cameras, GPS, especially for location-based challenges or capturing photos at destinations.

Network and connectivity

The app should handle differences in network connectivity as the application is only supported in online mode.

3. Software design description

3.1 Database design

Based on the functional description with user stories and conceptual database model (*picture 2.1.1*) physical model was created (*picture 3.1.1*). It includes multiple additional entities – attachments tables for challenges, rewards, users. And additional associations between organizations and challenges (1 to many), posts and challenges (many to 1).

Based on the conceptual model – the physical database model was created. It contains 26 tables instead of the conceptual model 22 tables. Additionally, it includes the column datatypes and constraints.

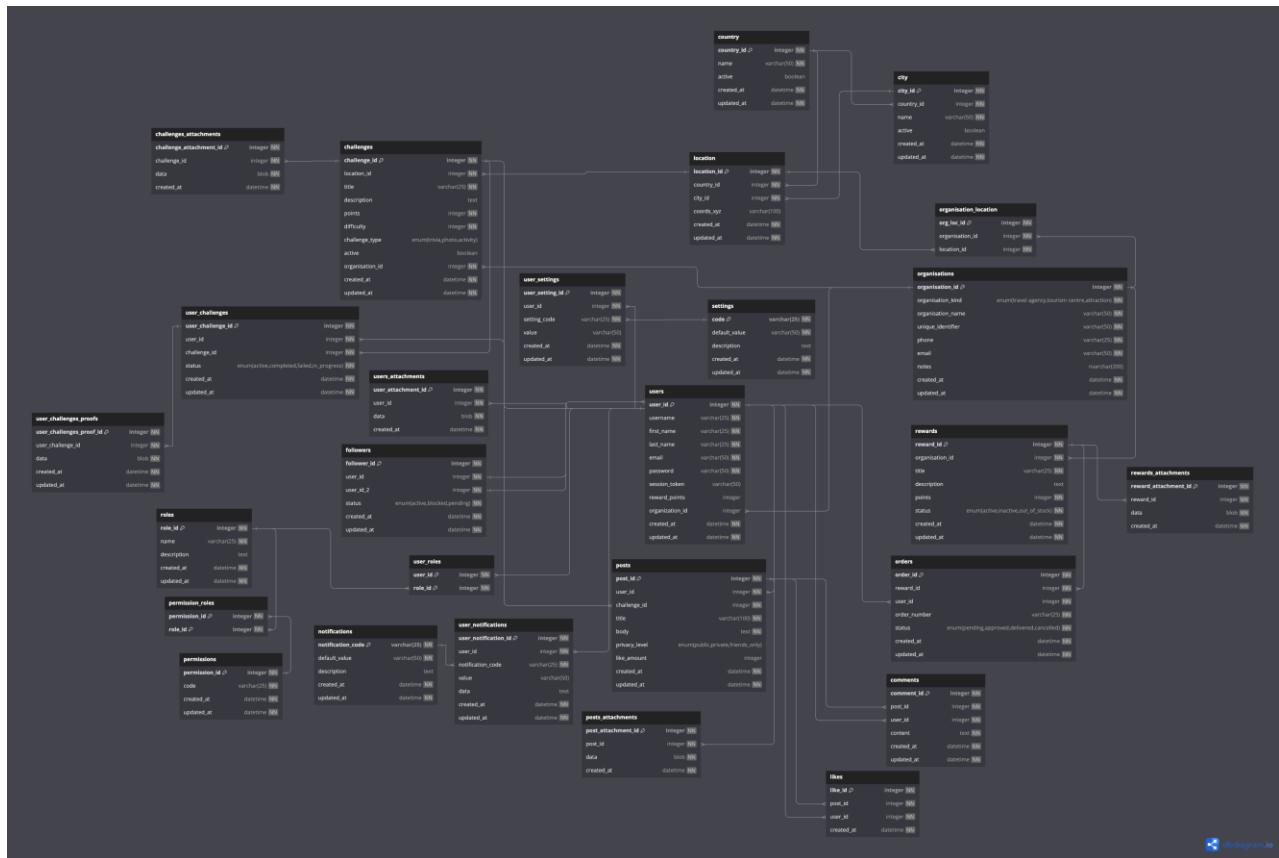
The description of database tables design is split into subsections starting with the ones regarding the modules breakdown shown in the section n-n. The subsections start with the corresponding pivot tables, if there are any.

- In subsection 3.1.1 described design of Users, user's attachments, roles and permissions entities for user management module.
- In subsection 3.1.2 described design of Notifications entity for notifications module.
- In subsection 3.1.3 described design of Challenges and challenges attachments entities for challenge module.
- In subsection 3.1.4 described design of posts, posts attachments, comments, likes, follower's entities for social media module.
- In subsection 3.1.5 described design of orders entity for order module.
- In subsection 3.1.6 described design of rewards and rewards attachments entities for reward catalogue module.

The following subsections contain entities useful for the core modules, such as organisations for posts, challenges and users. Location related entities are necessary for users and organisations. And settings entity is required for all core modules.

- In subsection 3.1.7 described design of organisation entity.
- In subsection 3.1.8 described design of location, country, city entities.
- In subsection 3.1.9 described design of Setting entity.

Initial seedings examples are shown in the Appendix according to assumptions and dependencies



3.1.0. Physical database model

3.1.1 Users, Roles, Permissions and their corresponding tables

This subsection contains detailed information about the table design of Users entity (*Table 1*), Users Attachments (*Table 2*), Permissions (*Table 3*), Roles (*Table 4*) and their related pivot tables.

The data from Users entity is used by user management module functions (*Section 2.2.2*) as well as in challenges module functions (*Section 2.2.3*), reward points module (*Section 2.2.4*), rewards catalogue module (*Section 2.2.5*), social media module with followers and posts functionality (*Section 2.2.7*), and notifications module (*Section 2.2.9*).

Table 1: Users entity – description

This table stores user information within the system, including identification, account details, and reward points.

Column Name	Data Type	Key	Other Parameters	Description
user_id	integer	PK	Not null	Primary key for identifying users
username	varchar(25)		not null	Username used by the user for login
first_name	varchar(25)		not null	First name of the user

last_name	varchar(25)		not null	Last name of the user
email	varchar(50)		not null, unique	Email address of the user, unique for each user
password	varchar(50)		not null	Hashed password for the user
session_token	varchar(50)		nullable	Token for user session management
reward_points	integer		nullable	Points accumulated by the user as rewards.
organization_id	integer			Reference to the organisation the user belongs to
created_at	datetime		not null	Timestamp for when the user was created
updated_at	datetime		not null	Timestamp for when the user was last updated

Table 2: Users Attachments entity - description

This table stores attachments linked to users.

Column Name	Data Type	Key	Other Parameters	Description
user_attachment_id	integer	PK	Not null	Primary key for identifying user attachments
user_id	integer		not null	Reference to the post
data	blob		not null	Attachment data
created_at	datetime		not null	Timestamp when the attachment was uploaded

Table 3: User Roles pivot - description

This pivot table links users with their roles in the system.

Column Name	Data Type	Key	Other Parameters	Description
user_id	integer	PK	not null	Reference to the user
role_id	integer	PK	not null	Reference to the role assigned to the user

Table 4: Permission Roles pivot - description

This pivot table links roles with their permissions in the system.

Column Name	Data Type	Key	Other Parameters	Description
permission_id	integer	PK	not null	Reference to the permission
role_id	integer	PK	not null	Reference to the role with the permission

Table 5: Roles entity - description

This table stores information about roles within the system.

Column Name	Data Type	Key	Other Parameters	Description
role_id	integer	PK	Not null	Primary key for identifying roles
name	varchar(25)		not null	Name of the role
description	text		nullable	Description of the role
created_at	datetime		not null	Timestamp when the role was created
updated_at	datetime		not null	Timestamp when the role was last updated

Table 6: Permissions entity - description

This table stores permissions within the system.

Column Name	Data Type	Key	Other Parameters	Description
permission_id	integer	PK	Not null	Primary key for identifying permissions
code	varchar(25)		not null	Code representing the permission
created_at	datetime		not null	Timestamp when the permission was created
updated_at	datetime		not null	Timestamp when the permission was last updated

3.1.2 Notifications and corresponding tables

This subsection contains detailed information about table design of the User Notifications entity (*Table 7*) and the core notifications module entity – Notifications (*Table 8*)

The data from the Notifications entity is used by the challenge module (*Section 2.2.3*), order module (*Section 2.2.6*), social media module (*Section 2.2.7*)

Table 7: User Notifications pivot - description

This pivot table stores the notifications settings and data for each user and links notifications to users.

Column Name	Data Type	Key	Other Parameters	Description
user_notification_id	integer	PK	Not null	Primary key for identifying the notification setting
user_id	integer		not null	Reference to the user
notification_code	varchar(25)		not null	Code of the notification type

value	varchar(50)		nullable	Stored value for the notification setting
data	text		nullable	Additional data for the notification
created_at	datetime		not null	Timestamp when the notification setting was created
updated_at	datetime		not null	Timestamp when the notification setting was last updated

Table 8: Notifications entity - description

This table stores system notifications.

Column Name	Data Type	Key	Other Parameters	Description
notification_code	varchar(25)	PK	Not null	Unique code for identifying the notification
default_value	varchar(50)		not null	Default value for the notification
description	text		nullable	Description of the notification
created_at	datetime		not null	Timestamp when the notification was created
updated_at	datetime		not null	Timestamp when the notification was last updated

3.1.3 Challenges and corresponding tables

This subsection contains detailed information about table design of Challenges entity (*Table 11*), related Challenges Attachments entity (*Table 12*) and user challenges pivot (*Table 9*), User Challenges Proofs entity (*Table 10*).

The data from the challenges entity is used by the User management module (*Section 2.2.2*), Social Media module (*Section 2.2.7*), Notification module (*Section 2.2.9*)

Table 9: User Challenges pivot - description

This pivot table links users with the challenges they are participating in.

Column Name	Data Type	Key	Other Parameters	Description
user_challenge_id	integer	PK	Not null	Primary key for identifying user challenges
user_id	integer		not null	Reference to the user
challenge_id	integer		not null	Reference to the challenge
status	enum('active', 'completed')		default active	Current status of the user's challenge

	'failed', 'in_progress')			
created_at	datetime		not null	Timestamp when the user challenge was created
updated_at	datetime		not null	Timestamp when the user challenge was last updated

Table 10: User Challenges Proofs entity – description

This table stores information about submitted proof for challenge completion validation.

Column Name	Data Type	Key	Other Parameters	Description
user_challenges_proof_id	integer	PK	Not null	Primary key for identifying user challenges proof
user_challenge_id	integer		not null	Reference to the user challenge
data	blob		not null	Challenge proof data (Text or attachment)
created_at	datetime		not null	Timestamp when the user challenge was created
updated_at	datetime		not null	Timestamp when the user challenge was last updated

Table 11: Challenges entity – description

This table stores information about challenges available in the system.

Column Name	Data Type	Key	Other Parameters	Description
challenge_id	integer	PK	Not null	Primary key for identifying challenges
location_id	integer		not null	Reference to the location associated with the challenge
title	varchar(25)		not null	Title of the challenge
description	text			Description of the challenge
points	integer		not null	Points awarded for completing the challenge
difficulty	integer		default 1	Difficulty level of the challenge

challenge_type	enum('trivia', 'photo', 'activity')		not null	Type of the challenge
active	boolean		default true	Whether the challenge is currently active
organisation_id	Integer		not null	Reference to organisation associated with the challenge
created_at	datetime		not null	Timestamp when the challenge was created
updated_at	datetime		not null	Timestamp when the challenge was last updated

Table 12: Challenges Attachments entity - description

This table stores attachments linked to challenges.

Column Name	Data Type	Key	Other Parameters	Description
challenge_attachment_id	integer	PK	Not null	Primary key for identifying challenge attachments
challenge_id	integer		not null	Reference to the challenge
data	blob		not null	Attachment data
created_at	datetime		not null	Timestamp when the attachment was uploaded

3.1.4 Posts, Followers and corresponding tables

This subsection contains detailed information about table design of Posts (*Table 12*), and its corresponding entities – Comments (*Table 13*), Likes (*Table 14*), Posts Attachments (*Table 15*). Additionally, Followers self-join table.

Posts entity is used in Challenge module functions (*Section 2.2.3*).

Table 13: Posts entity - description

This table stores user-generated posts, including the content and privacy settings.

Column Name	Data Type	Key	Other Parameters	Description
post_id	integer	PK	Not null	Primary key for identifying posts
user_id	integer		not null	Reference to the user who created the post
challenge_id	Integer		not null	Reference to the challenge from which the post is created
title	varchar(100)		not null	Title of the post
body	text		not null	Content of the post

privacy_level	enum('public', 'private', 'friends_only')		not null	Privacy setting of the post
like_amount	integer			Number of likes the post received
created_at	datetime		not null	Timestamp when the post was created
updated_at	datetime		not null	Timestamp when the post was last updated

Table 14: Comments entity - description

This table stores comments made on posts by users.

Column Name	Data Type	Key	Other Parameters	Description
comment_id	integer	PK	Not null	Primary key for identifying comments
post_id	integer		not null	Reference to the post being commented on
user_id	integer		not null	Reference to the user who made the comment
content	text		not null	Content of the comment
created_at	datetime		not null	Timestamp when the comment was created
updated_at	datetime		not null	Timestamp when the comment was last updated

Table 15: Likes entity - description

This table stores information about likes on posts by users.

Column Name	Data Type	Key	Other Parameters	Description
like_id	integer	PK	Not null	Primary key for identifying likes
post_id	integer		not null	Reference to the liked post
user_id	integer		not null	Reference to the user who liked the post
created_at	datetime		not null	Timestamp when the like was created

Table 16: Posts Attachments entity - description

This table stores attachments linked to posts.

Column Name	Data Type	Key	Other Parameters	Description

post_attachment_id	integer	PK	Not null	Primary key for identifying attachments
post_id	integer		not null	Reference to the post
data	blob		not null	Attachment data
created_at	datetime		not null	Timestamp when the attachment was uploaded

Table 17: Followers entity - description

This table stores information about user follow relationships.

Column Name	Data Type	Key	Other Parameters	Description
follower_id	integer	PK	Not null	Primary key for identifying each follow relationship
user_id	integer		not null	Reference to the user following
user_id_2	integer		not null	Reference to the user being followed
status	enum('active', 'blocked', 'pending')		default pending	Status of the follow relationship
created_at	datetime		not null	Timestamp when the follow relationship was created
updated_at	datetime		not null	Timestamp when the follow relationship was last updated

3.1.5 Orders table

This subsection contains detailed information about table design of Orders entity (*Table 17*).

Orders entity is used in Reward points module functions when used for deducing points after order completion (*Section 2.2.4*), and Reward catalogue module, when showcasing redeemed rewards (*Section 2.2.5*)

Table 18: Orders entity - description

This table stores information about user reward orders.

Column Name	Data Type	Key	Other Parameters	Description
order_id	integer	PK	Not null	Primary key for identifying orders
reward_id	integer		not null	Reference to the reward

user_id	integer		not null	Reference to the user who ordered the reward
order_number	varchar(25)		not null	Number for identifying which order it is
status	enum('pending', 'approved', 'delivered', 'cancelled')		default 'pending'	Order status
created_at	datetime		not null	Timestamp when the order was placed
updated_at	datetime		not null	Timestamp when the order was last updated

3.1.6 Rewards and corresponding attachments table

This subsection contains detailed information about table design of Rewards (table 18) and it's corresponding Attachments – Rewards Attachments (table 19) entity.

Table 19: Rewards entity - description

This table stores rewards available to users.

Column Name	Data Type	Key	Other Parameters	Description
reward_id	integer	PK	not null	Primary key for identifying rewards
organisation_id	integer		not null	Reference to the organisation offering the reward
title	varchar(25)		not null	Title of the reward
description	text		not null	Description of the reward
points	integer		not null	Points required for the reward
status	enum('active', 'inactive', 'redeemed')		default 'active'	Status of the reward
created_at	datetime		not null	Timestamp when the reward was added
updated_at	datetime		not null	Timestamp when the reward was last updated

Table 19: Rewards Attachments entity - description

This table stores attachments linked to rewards.

Column Name	Data Type	Key	Other Parameters	Description
reward_attachment_id	integer	PK	Not null	Primary key for identifying rewards attachments

reward_id	integer		not null	Reference to the reward
data	blob		not null	Attachment data
created_at	datetime		not null	Timestamp when the attachment was uploaded

3.1.7 Organisations and corresponding organisation-location pivot table

This subsection contains detailed information about the table design of Organisations (*Table 20*) entity and Organisation Locations (*Table 21*) pivot table.

Organisations entity is used in the User management module functions (*Section 2.2.2*), Challenge module (*Section 2.2.3*), Reward catalogue module (*Section 2.2.5*), and Order module (*Section 2.2.6*).

Table 21: Organisations entity - description

This table stores information about various organisations, including their type, contact details, and unique identifier.

Column Name	Data Type	Key	Other Parameters	Description
organisation_id	integer	PK	Not null	Primary key for identifying organisations
organisation_kind	enum('travel agency', 'tourism centre', 'attraction')		not null	Type of organisation
organisation_name	varchar(50)		not null	Name of the organisation
unique_identifier	varchar(50)		not null, unique	Unique identifier for the organisation
phone	varchar(25)		not null	Phone number of the organisation
email	varchar(50)		not null	Email address of the organisation
notes	nvarchar(200)			Additional notes about the organisation
created_at	datetime		not null	Timestamp when the organisation was created
updated_at	datetime		not null	Timestamp when the organisation was last updated

Table 22: Organisation Location pivot - description

This pivot table links organisations to their locations.

Column Name	Data Type	Key	Other Parameters	Description
org_loc_id	integer	PK	Not null	Primary key for identifying each entry
organisation_id	integer		not null	Reference to the organisation
location_id	integer		not null	Reference to the location

3.1.8 Location, and corresponding entities – Country, City

This subsection contains detailed information about table design of Location (*Table 22*), and its corresponding - Country (*Table 23*), City (*Table 24*) entities.

Location entity is used in User management module functionality (*Section 2.2.2*) and challenge module functionality (*Section 2.2.3*)

Table 23: Location entity - description

This table stores geographical locations, including city and country details.

Column Name	Data Type	Key	Other Parameters	Description
location_id	integer	PK	Not null	Primary key for identifying locations
country_id	integer		not null	Reference to the country
city_id	integer		not null	Reference to the city
coords_xyz	varchar(100)		not null	Coordinates in XYZ format
created_at	datetime		not null	Timestamp when the location was created
updated_at	datetime		not null	Timestamp when the location was last updated

Table 24: Country entity - description

This table stores country information.

Column Name	Data Type	Key	Other Parameters	Description
country_id	integer	PK	Not null	Primary key for identifying countries
name	varchar(50)		not null	Name of the country
active	boolean		default true	Active status of the country
created_at	datetime		not null	Timestamp when the country entry was created
updated_at	datetime		not null	Timestamp when the country entry was last updated

Table 25: City entity - description

This table stores city information and its reference to the country.

Column Name	Data Type	Key	Other Parameters	Description
city_id	integer	PK	Not null	Primary key for identifying cities
country_id	integer		not null	Reference to the country
name	varchar(50)		not null	Name of the city
active	boolean		default true	Active status of the city
created_at	datetime		not null	Timestamp when the city entry was created
updated_at	datetime		not null	Timestamp when the city entry was last updated

3.1.9 Settings and corresponding Users-Settings pivot table

This subsection contains detailed information about table design of settings entity (*Table 26*) and its corresponding pivot (*Table 25*).

The settings entity is used as a system-wide configuration table, which can be used for any module.

Table 26: User Settings pivot - description

This pivot table stores settings for individual users.

Column Name	Data Type	Key	Other Parameters	Description
user_setting_id	integer	PK	Not null	Primary key for identifying user settings
user_id	integer		not null	Reference to the user
setting_code	varchar(25)		not null	Reference to the setting code
value	varchar(50)		nullable	Stored value for the user setting
created_at	datetime		not null	Timestamp when the user setting was created
updated_at	datetime		not null	Timestamp when the user setting was last updated

Table 27: Settings entity - description

This table stores system-wide settings.

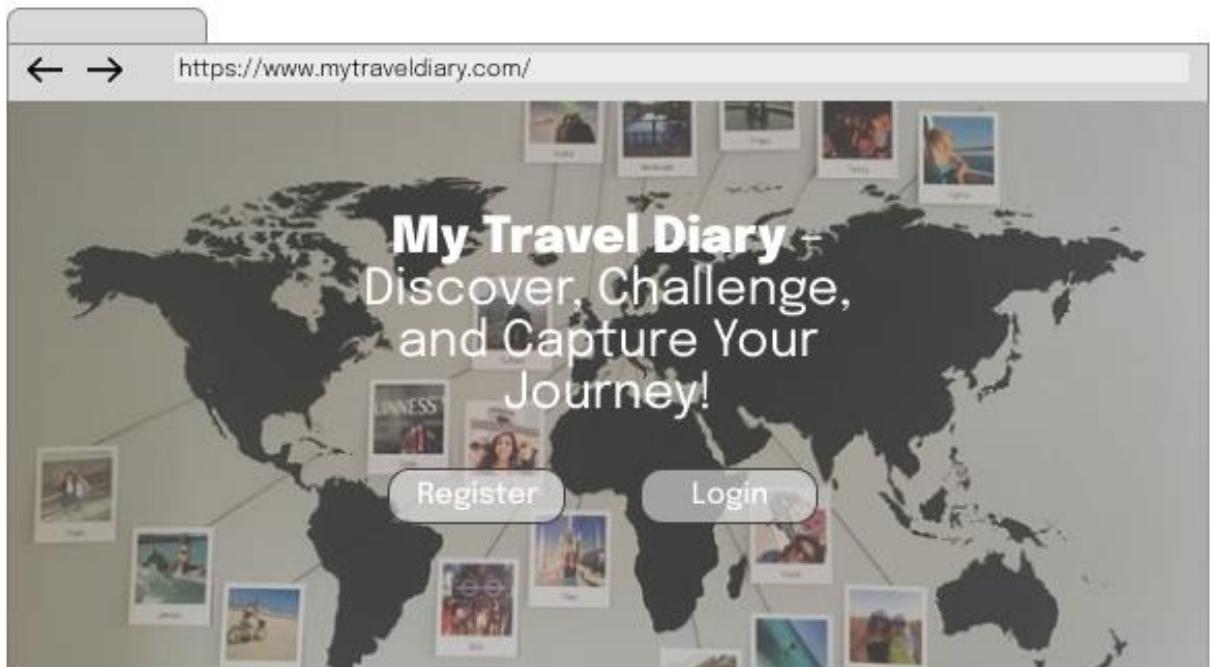
Column Name	Data Type	Key	Other Parameters	Description
code	varchar(25)	PK	Not null	Unique identifier for the setting
default_value	varchar(50)		not null	Default value for the setting

description	text		nullable	Description of the setting
created_at	datetime		not null	Timestamp when the setting was created
updated_at	datetime		not null	Timestamp when the setting was last updated

3.2 UI design

This section contains mockups of the platform pages, its functionality and platform design overview for the web application.

The first main page, which appears for all type of users (guest, general user, company user, moderator and admin) before logging in the application contains application name, slogan and “Register” button for registering as a guest and “Login” button for logging in as registered users (general or company user, moderator and admin).



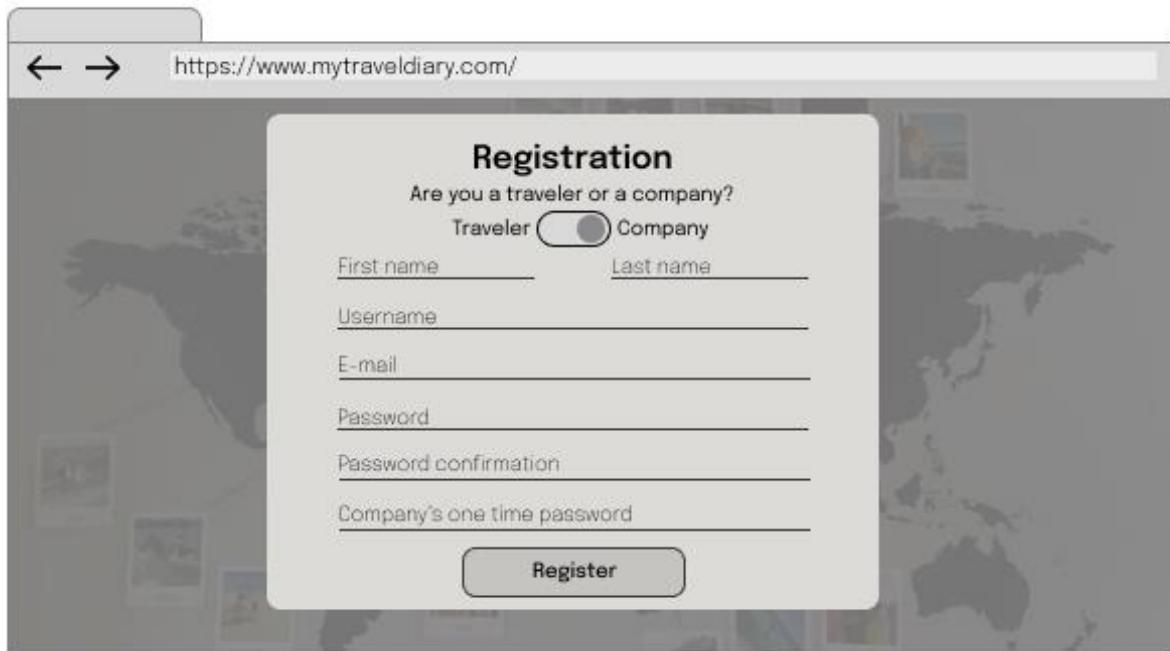
3.2.1. Main page

If a guest wants to register, then by clicking the “Register” button, guest is shown a register form, which has a button to choose between registering as a traveler or a company. If guest is traveler, then he/she must fill following fields in the form: first name, last name, username, e-mail, password and password confirmation. In the system a traveler is the general user.



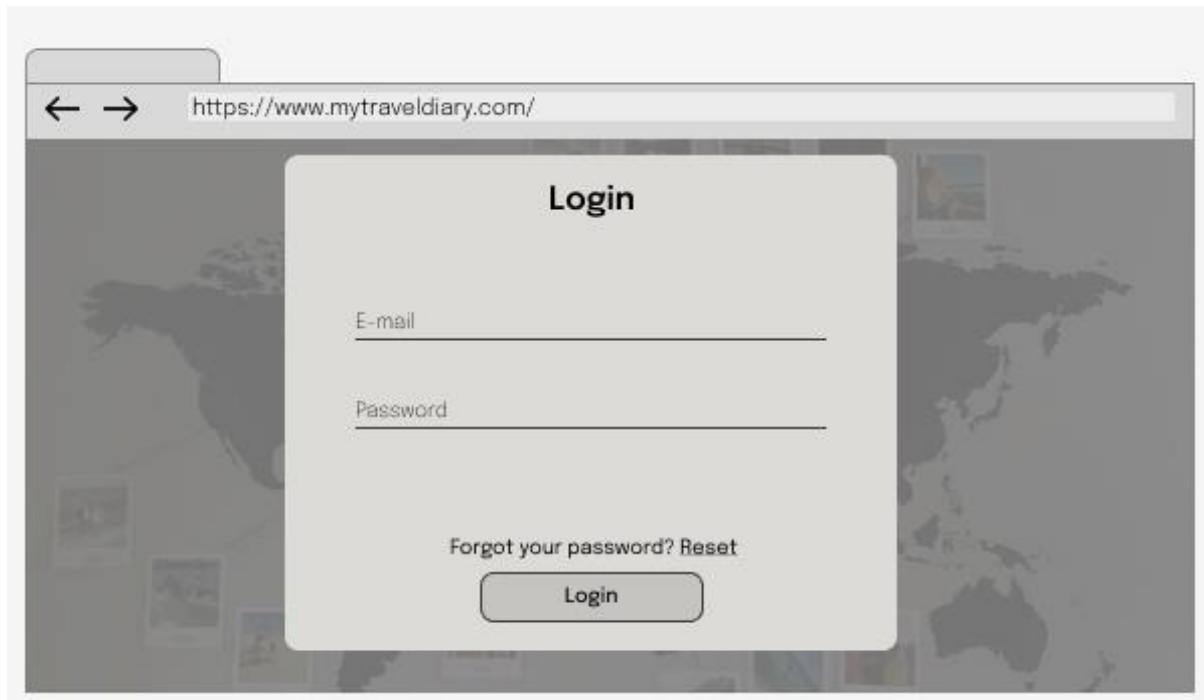
3.2.2. Main page – Registration (General user)

If the guest is a company representative, he/she must fill the same fields as a traveler, but additionally fill in company's one time password. In the system a company representative is the company user.



3.2.3. Main page – Registration (Company user)

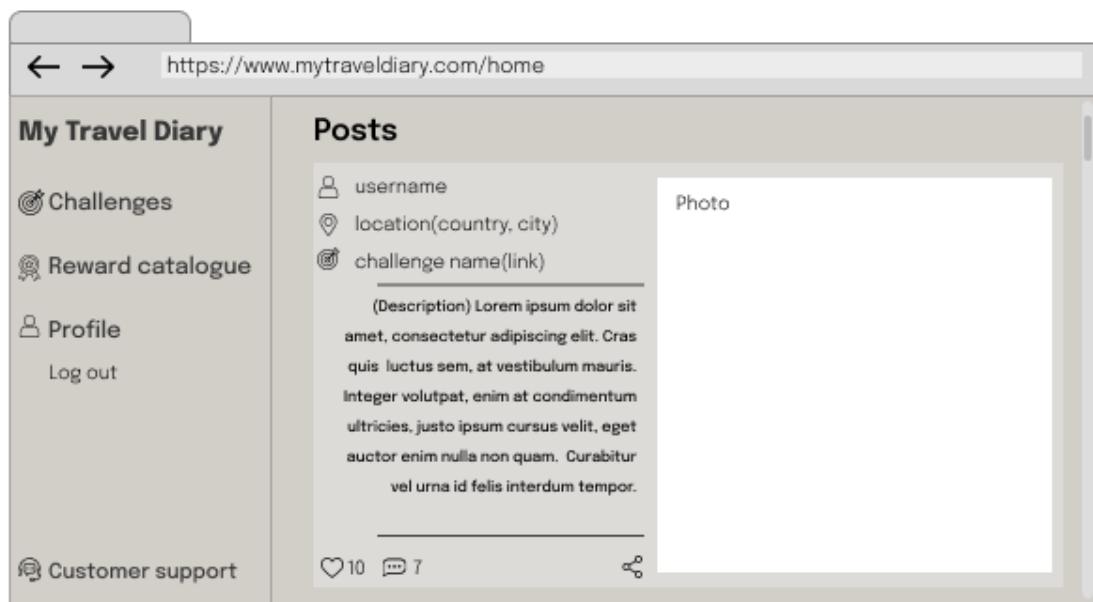
If the user is already registered, after using the “Login” button on Main page (3.2.1.), login form appears. It asks to enter users e-mail address and password. This is described in user story U-2(Section 2.2.2)



3.2.4. Login form

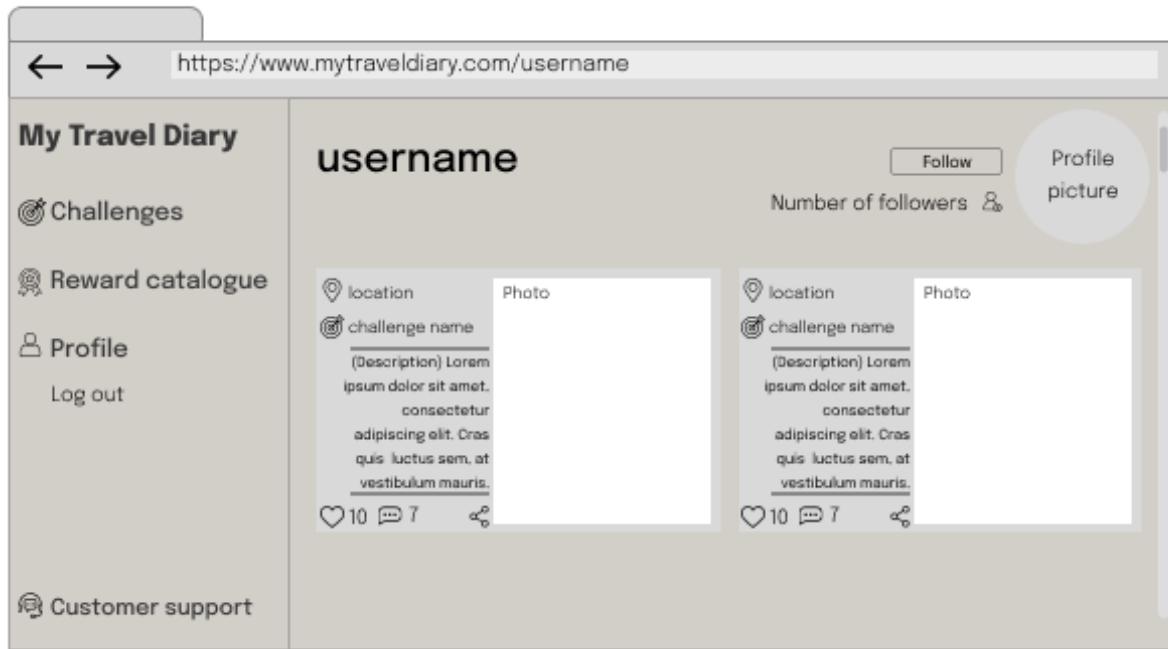
3.2.1 General and Company user UI

After logging in to the app, user can see the homepage (posts page), where he/she can view other users posts (user story SM-10), like their posts (user story SM-7), write a comments to their posts (user story SM-8) and share them (user story SM-9).



3.2.1.5. Homepage (posts page)

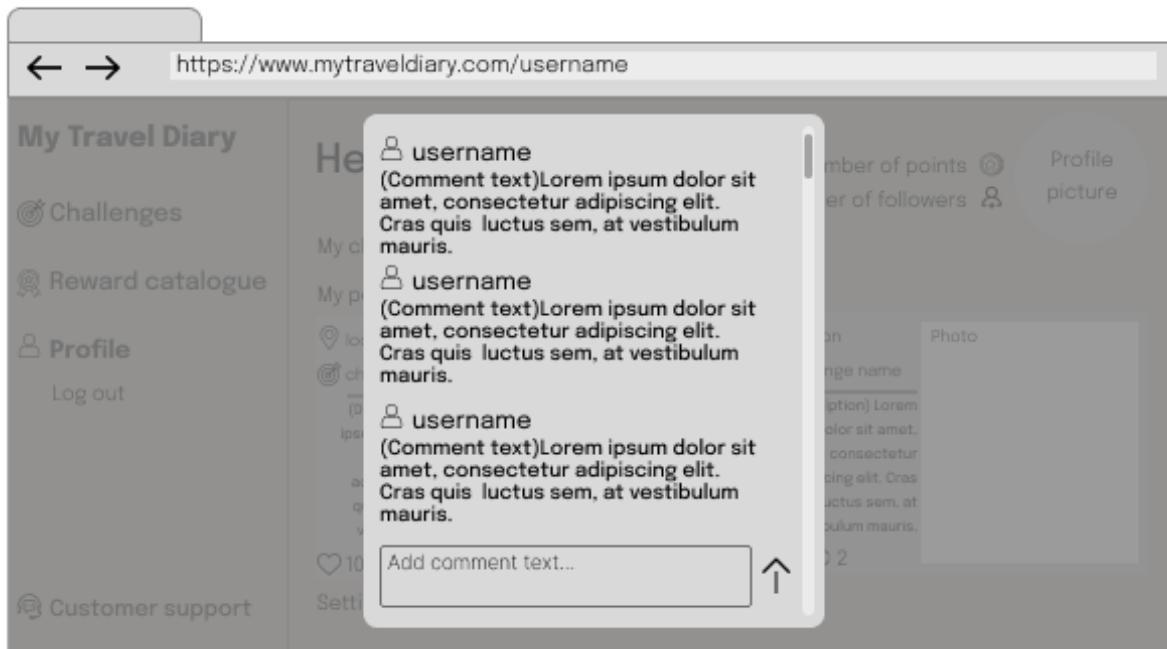
By clicking “username” on the post, general users are transferred to the according users’ profile, where they can see their posts and use the “Follow” button (user story SM-5) to follow this specific user, or in case general user already follows this profile - use “Unfollow” button (user story SM-6) to stop following this profile.



3.2.1.6. User's profile page

By clicking the like (heart) icon on the post, the general user can like this post (user story SM-7).

By clicking the comment icon on the post, the comments window is opened, where the general can see other user's comments (user story SM-12), leave a comment to this post, entering the text in the text field and clicking arrow icon, submitting comment (user story SM-8).



3.2.1.7. Post – Comment window

By clicking the share icon on the post, the general user can share this post by copying link(user story SM-9).

On the homepage (and on the following pages as well) there is also a navigation bar on the left of the page, which allows users to navigate through homepage (by clicking “My Travel Diary”), challenges page, reward catalogue page, profile and customer support pages. It also has a log out button (user story U-6).

When clicking “Challenges” in the navigation bar user is transferred to challenges page, where he/she can see country list. By clicking on a specific country, the list of the cities in this country is shown. By clicking on a specific city, a list of challenges available in this city is shown. Each challenge block contains challenges’ name/title, type and excerpt from the description of the challenge.

The screenshot shows a web browser window for the URL <https://www.mytraveldiary.com/challenges>. The left sidebar contains links for 'Challenges', 'Reward catalogue', 'Profile', 'Log out', and 'Customer support'. The main content area displays a list of challenges. Each challenge item includes a 'Country name' (e.g., 'Country name #1', 'Country name #2'), a 'City name' (e.g., 'City name #1 in country #2', 'City name #2 in country #2'), and a 'Challenge' section with 'Challenge in city#2 name', 'Challenge type', and 'Challenge description...'. Below each challenge section is a 'See more' link.

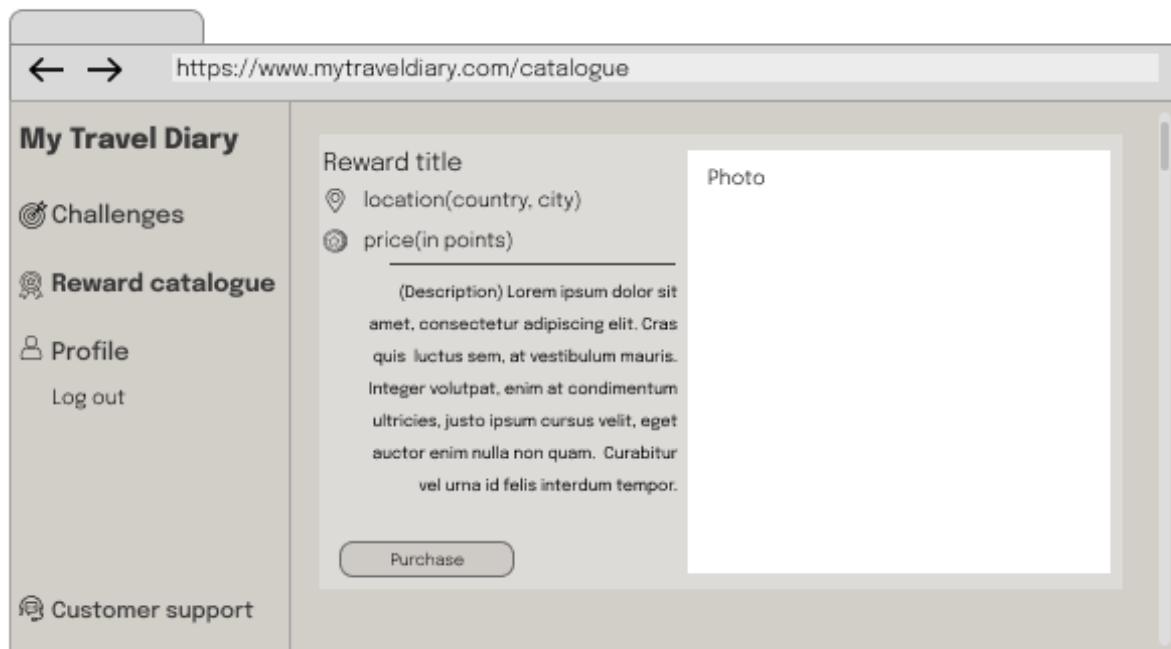
3.2.1.8. Challenge page

By clicking “See more”, user can see a window with full information about the challenge, including location, challenge name, type and difficulty, full description, points awarded for completing the challenge and challenge status (user story C-4). In this window user can also use the “Accept” button to activate and add this challenge to his/her “My challenges” list in the profile (user story C-5).

The screenshot shows a detailed view of a challenge from the previous page. The challenge is titled 'Challenge name' with 'Challenge type(trivia, photo, activity)' and 'Challenge difficulty(1-10)'. The 'Description' field contains a long block of placeholder text: '(Description) Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras quis luctus sem, at vestibulum mauris. Integer volutpat, enim at condimentum ultricies, justo ipsum cursus velit, eget auctor enim nulla non quam. Curabitur vel urna id felis interdum tempor.' Below the challenge details, there is a section for 'Awarded points' and 'Status', and a prominent 'Accept!' button.

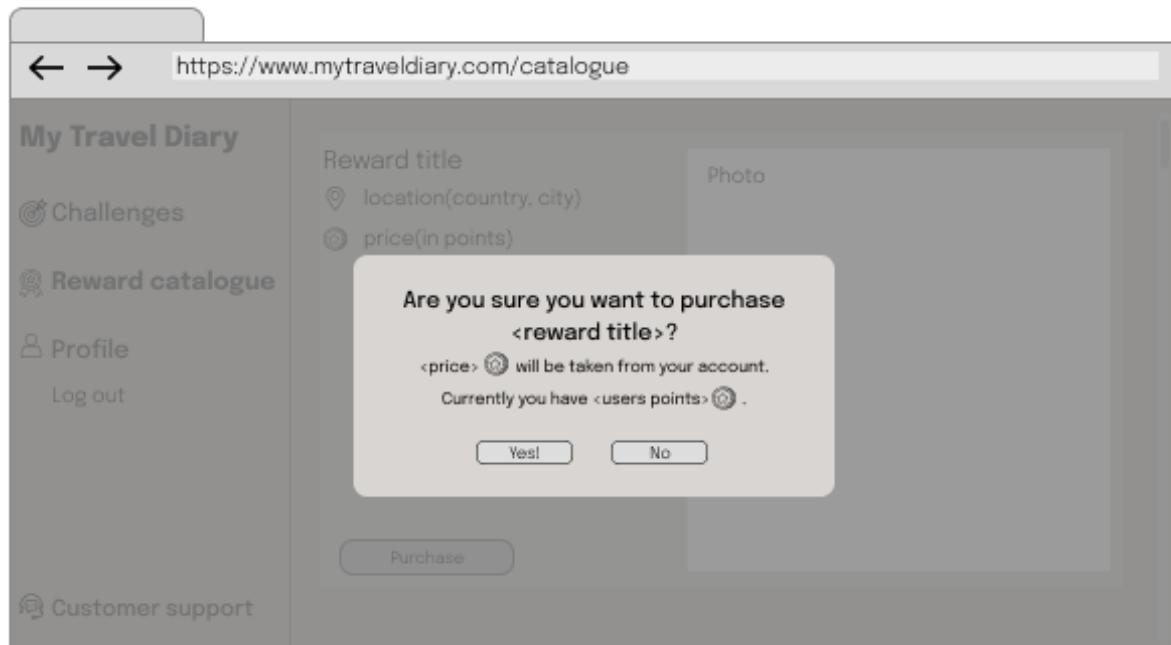
3.2.1.9. Challenge page – See more

By clicking “Reward catalogue” user is transferred to the page, where all available rewards are displayed with full information, including reward title, price (in in-app currency – points) and full description of the reward (user story RC-2).



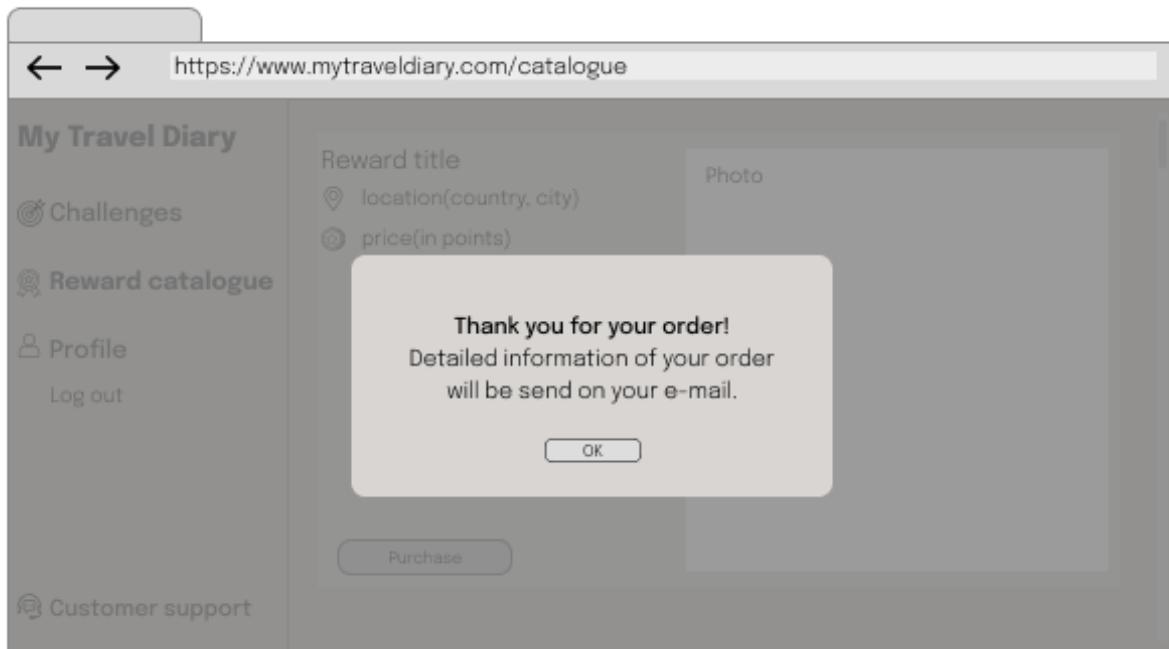
3.2.1.10. Reward catalogue page

On the same page, for each reward user can use “Purchase” button, which by clicking will open a confirmation window, asking user if he/she is sure about the purchase of this reward, suggesting two action buttons “Yes!” and “No”. This window repeatedly displays the price of the reward and the users’ amount of points he can spend.



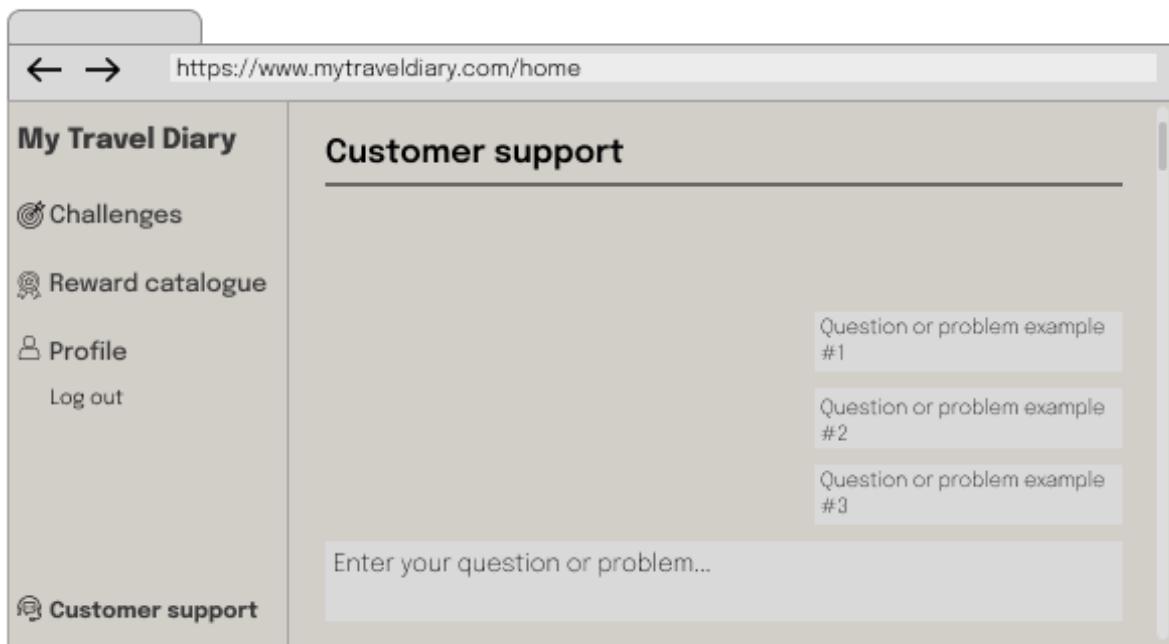
3.2.1.11. Reward catalogue page – Purchase

By clicking “Yes!”, user confirms his purchase. The price of the reward is deducted from users’ amount of points (user stories RC-3, RP-2) and user sees the confirmation window.



3.2.1.12. Reward catalogue page – Purchase – Yes

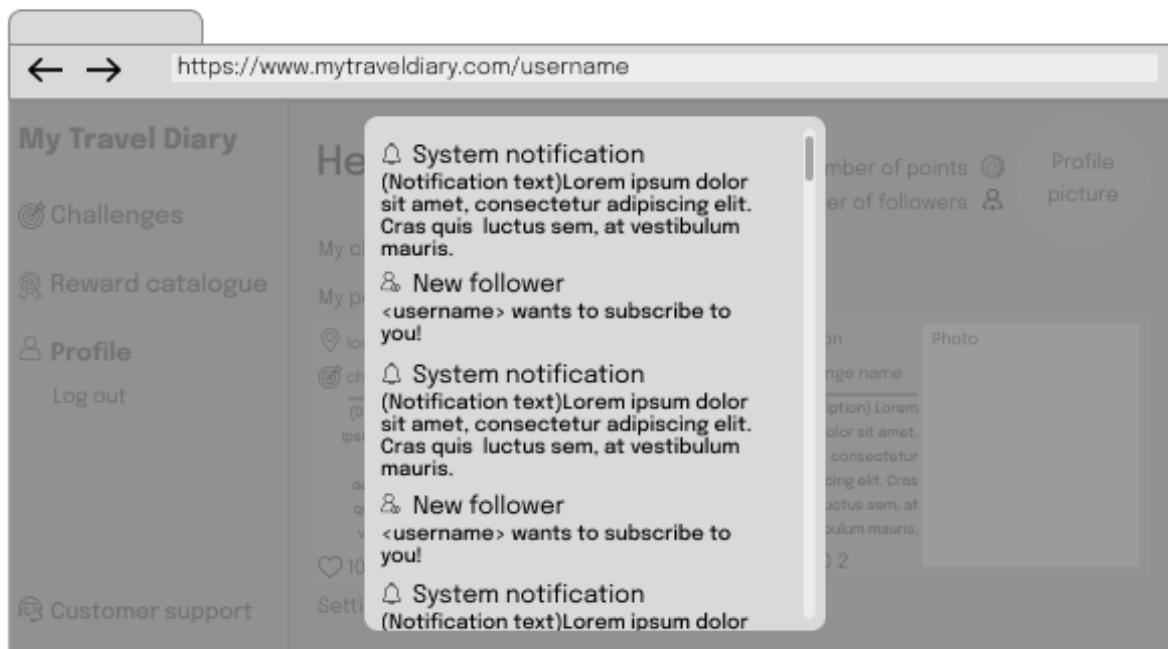
By clicking “Customer support” in the navigation, user is transferred to the page with a chat, where there is a text field, where he/she can enter his/her own question or problem related to app functionality (user story CS-1), and suggestions of questions or problems that could be asked. When the customer support (moderator) answers to the users’ message, user can see the answer in the same chat page (user story CS-2).



3.2.1.13. Customer support page

By clicking “Profile” in the navigation general user is transferred to his/her profile page, where he/she can see a greeting from the system, notifications icon, his/her number of available points, number of followers, profile picture and a list of tabs: “My challenges”, “My posts” and “Settings”.

By clicking “Notifications” user is shown a notification window, where he/she can see system notifications and new followers.



3.2.1.14. Profile page – Notifications (General user)

By clicking “My challenges” a block with users’ challenges is displayed, each challenge block displays challenge name, type and excerpt from the description, location of challenge and status (user story C-4). Depending on status, different buttons are displayed in the same block (Status “Completed” – “Create post” button (user story SM-1), status “In progress” - “Add submission” button (user story C-9), status “Failed” – no button).

The screenshot shows the My Travel Diary profile page at <https://www.mytraveldiary.com/username>. The left sidebar includes 'Challenges', 'Reward catalogue', 'Profile' (selected), and 'Customer support'. The main content area displays 'Hello, username!' and 'My challenges'. It shows three challenge cards with fields for 'Challenge name', 'Challenge type', and 'Challenge description'. Each card has a 'Status' section with a location pin and a 'Button' (disabled). Below the cards are links for 'My posts >' and 'Settings >'. The top right features 'Profile picture', 'Number of points', 'Number of followers', and 'Notifications'.

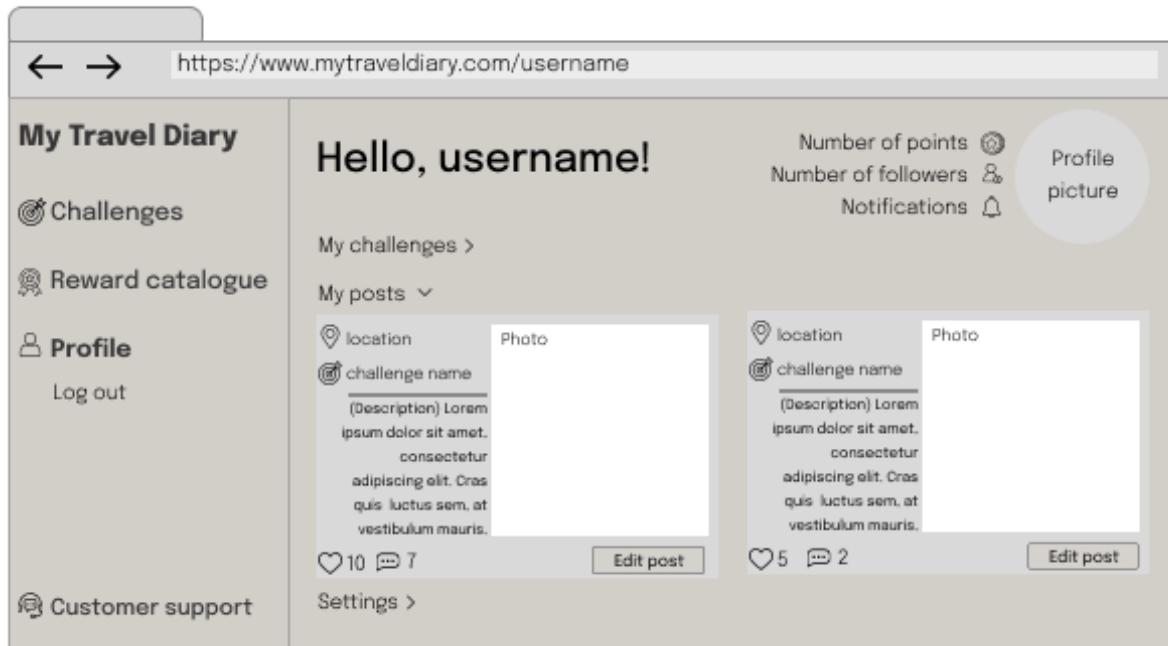
3.2.1.15. Profile page – My challenges (General user)

By clicking “Create post”, the user can see the window with location and challenge name, automatically inputted by the system (based on the challenge), post description text field, “Add photo” button and privacy settings - “Everybody” and “Only followers” (user story SM-3). At the bottom of the window the user can click “Create post” button, submitting filled fields (all fields must be filled), then post is added to “My posts” block in the profile page and to the homepage feed (if privacy settings are set to “Everybody”).

The screenshot shows the 'Create post' window for 'My challenges' at <https://www.mytraveldiary.com/username>. The left sidebar is identical to the previous screenshot. The main window contains fields for 'Location (automatic input)', 'Challenge name (automatic input)', 'Post description' (with placeholder 'Add text...'), 'Add photo', and 'Privacy settings' (radio buttons for 'Everybody' and 'Only followers'). A 'Create post' button is at the bottom right.

3.2.1.16. Profile page – My challenges – Create post (General user)

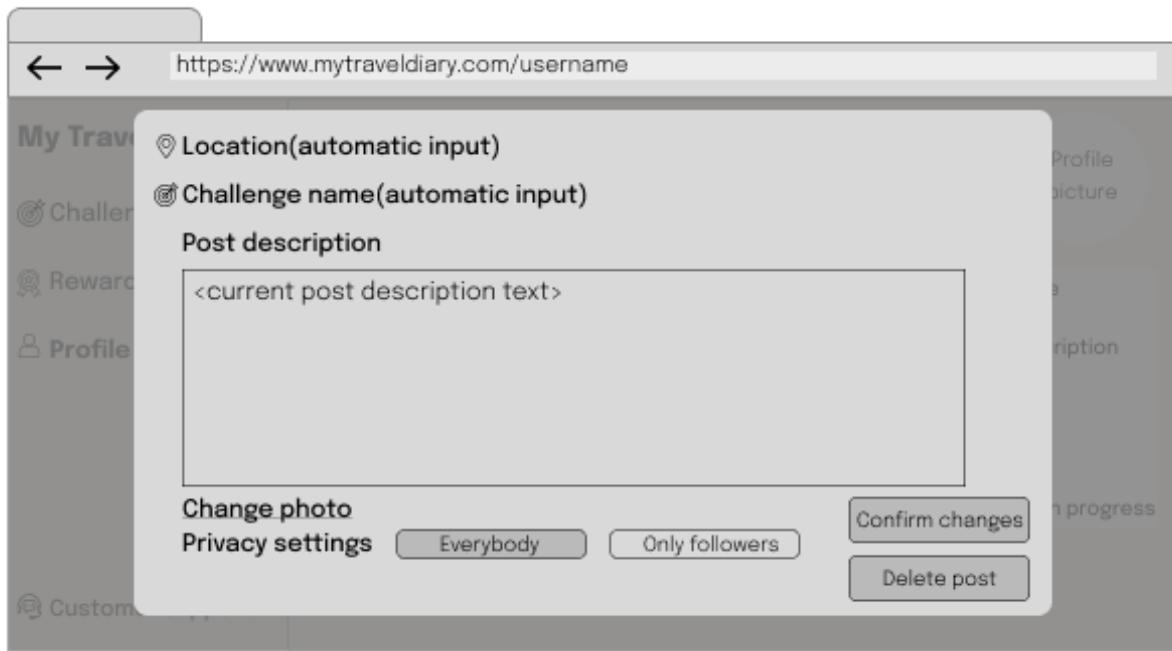
By clicking “My posts”, a block with users’ posts is displayed, where each post block contains location, challenge name connected to this post, description of the post, likes and comments number and the “Edit post” button.



The screenshot shows a web browser window with the URL <https://www.mytraveldiary.com/username>. The page is titled "Hello, username!". On the left, there's a sidebar with links: "Challenges", "Reward catalogue", "Profile" (which is currently selected and shows "Log out"), and "Customer support". The main content area displays two posts. Each post has a "location" icon, a "challenge name" icon, a text area with placeholder text, a "likes" counter (10 and 5 respectively), a "comments" counter (7 and 2 respectively), and an "Edit post" button. At the top right, there are links for "Number of points", "Number of followers", "Notifications", and a "Profile picture" placeholder.

3.2.1.17. Profile page – My posts (General user)

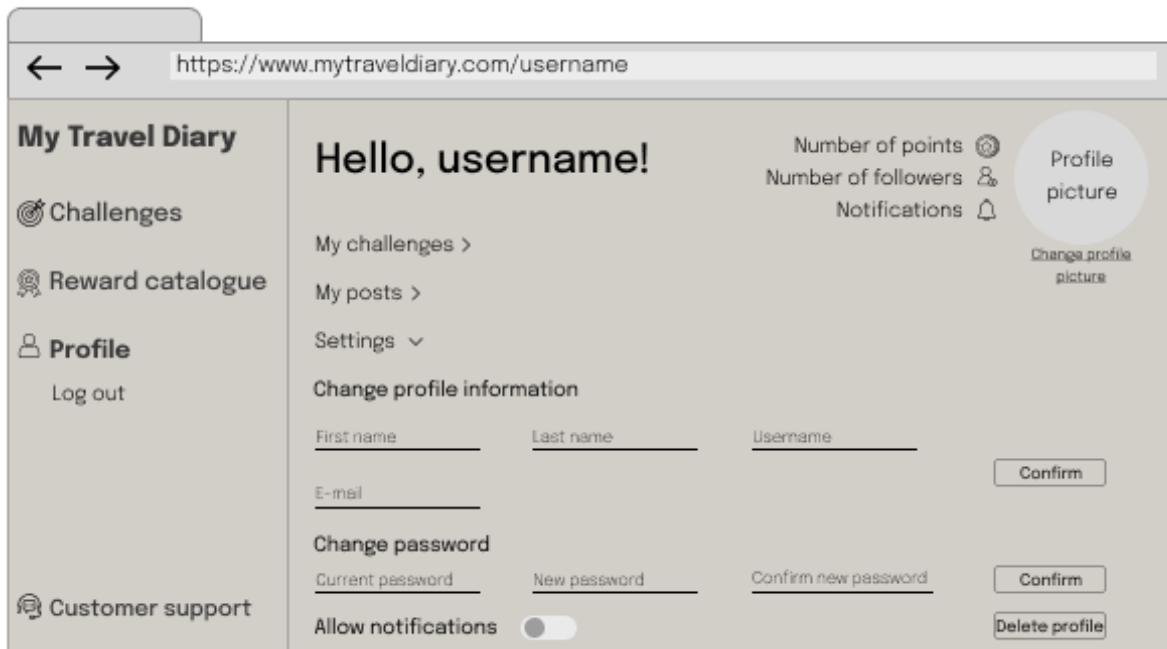
By clicking “Edit post” button, the user can see the window with location, challenge name, post description and privacy settings automatically inputted by the system based on this posts’ currently existing data in the fields (user story SM-2). At the bottom of the window the user can click “Confirm changes” to submit changes made to the post fields. In the same place is “Delete post” button, by clicking it user can delete this post from the homepage feed and from “My posts” section (user story SM-4).



3.2.1.18. Profile page – My posts – Edit post (General user)

By clicking “Settings”, a block with settings is displayed, containing 3 sections: “Change profile information” section, inside which the user can make changes to first name, last name, username and e-mail address, and confirm made changes by clicking the button “Confirm” (user story U-3); “Change password” section, in which user can change his current password to new one, entering in specified fields current password, new password and repeatedly new password; “Allow notifications” button which can be switched from left to right, disabling and enabling notifications respectively (user stories N-1, N-2). There is “Change profile picture” button under the current profile picture.

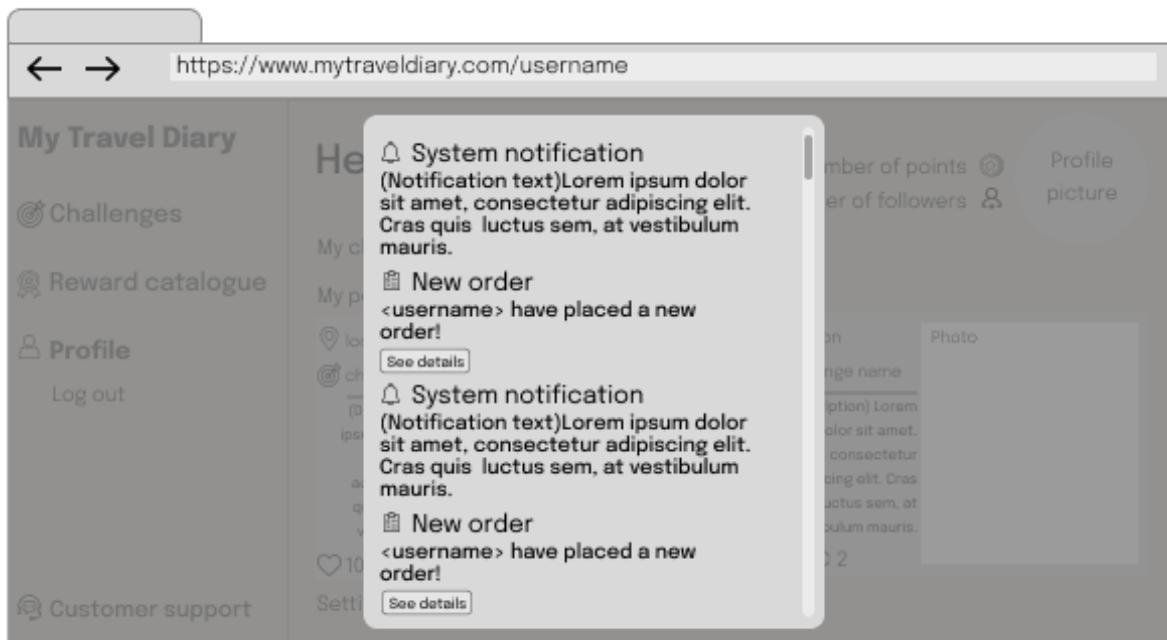
At the bottom of the page, there is a “Delete profile” button, which user can use to delete his/her account (user story U-5).



3.2.1.19. Profile page – Settings (General user)

By clicking “Profile” in the navigation company user is transferred to their profile page, where they can see a greeting from the system, notifications icon, profile picture and a list of tabs: “My challenges”, “My rewards”, “Orders” and “Settings”.

By clicking “Notifications” user is shown a notification window, where he/she can see system notifications and new orders with “See details” button, by clicking it the company user is transferred to his profile page “Orders” section.



3.2.1.20. Profile page – Notifications (Company user)

By clicking “My challenges”, a section with all company’s challenges is displayed, where each challenge block contains challenge name, type, description, location of the challenge and number of people, that have completed the challenge, and “Edit challenge” button, and “Add new challenge” button.

My Travel Diary

Hello, company name!

Notifications Profile picture

Challenges

Reward catalogue

Profile

Log out

Customer support

My challenges Add new challenge

Challenge name	Challenge type	Challenge description
Challenge_name	Challenge type	Challenge description
Challenge_name	Challenge type	Challenge description
Challenge_name	Challenge type	Challenge description

Location (Number) people have completed this challenge!

Location (Number) people have completed this challenge!

Location (Number) people have completed this challenge!

My rewards >

Orders >

Settings >

3.2.1.21. Profile page – My challenges (Company user)

By clicking “Challenge name” in a specific challenge block, company user can view all users requests with attachments (text or photo) for verifying this challenge (user story C-6).

My Travel Diary

Challenge name

Profile picture

Challenges

Reward catalogue

Profile

Log out

Customer support

username <submitted text or photo>

3.2.1.22. Profile page – My challenges – Challenge name (Company user)

By clicking “Add new challenge” button, the company user can see the window with location, challenge name, type, difficulty fields, challenge description text field and “Add photo” button (user story C-1). At the bottom of the window the user can click “Create challenge” button, submitting filled fields (all fields must be filled, except photo – it is optional), then post is added to “My challenges” section in the profile page and to the “Challenges” page.

The screenshot shows a web browser window with the URL <https://www.mytraveldiary.com/username>. The page is titled "My Traveldiary". On the left, there is a sidebar with icons for "My Traveldiary", "Challenges", "Rewards", "Profile", and "Custom". The main content area is a form for adding a new challenge. It includes fields for "Location", "Challenge name", "Challenge type (trivia, photo, activity)", "Challenge difficulty", "Challenge description" (with a text area placeholder "Add text..."), and an "Add photo (optional)" button. At the bottom right of the form is a "Create challenge" button.

3.2.1.23. Profile page – My challenges – Add new challenge (Company user)

By clicking “Edit challenge” button in a specific challenge block, the company user can see the window with location, challenge name, challenge description, type automatically inputted by the system based on this posts’ currently existing data in the fields (user story C-2). At the bottom of the window the user can click “Confirm changes” to submit changes made to the challenge fields. In the same place is “Delete challenge” button, by clicking it user can delete this challenge from the “Challenges” page and from “My challenges” section (user story C-3).

My Travel Diary

Location <current location value>

Challenge name <current challenge name value>

Challenge type(trivia, photo, activity) <current challenge type value>

Challenge difficulty <current challenge difficulty value>

Challenge description <current challenge description>

Change photo

Delete challenge

Confirm changes

3.2.1.24. Profile page – My challenges – Edit challenge (Company user)

By clicking “My rewards”, a section with all company’s rewards is displayed, where each reward block contains reward title, location, price (in points), description and number of people, that have purchased the reward (user story RC-2), “Edit reward” button and “Add new reward” button.

My Travel Diary

Challenges

Reward catalogue

Profile

Log out

Customer support

Hello, company name!

Notifications

Profile picture

My challenges >

My rewards > Add new reward

Reward title

location

price(in points)

(Description) Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras quis luctus sem, at vestibulum mauris.

(Number) purchases!

Photo

Edit reward

Reward title

location

price(in points)

(Description) Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras quis luctus sem, at vestibulum mauris.

(Number) purchases!

Photo

Edit reward

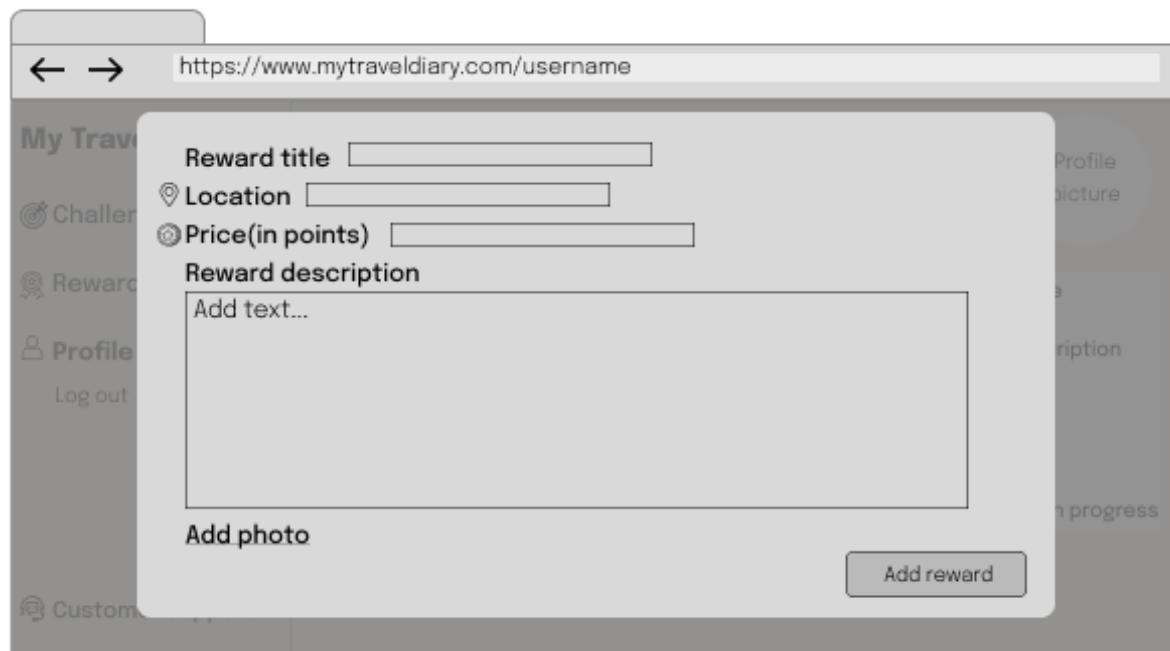
Orders >

Settings >

3.2.1.25. Profile page – My rewards (Company user)

By clicking “Add new reward” button, the company user can see the window with reward title, location and price text fields, challenge description text field and “Add photo” button. At the bottom of the window the user can click “Add reward” button, submitting filled fields

(all fields must be filled), then reward is added to “My rewards” section in the profile page and to the “Reward catalogue” page (user story RC-1).



3.2.1.26. Profile page – My rewards – Add new reward (Company user)

By clicking “Edit reward” button in a specific reward block, the company user can see the window with reward title, location and price text fields, challenge description text field automatically inputted by the system based on this rewards’ currently existing data in the fields (user story RC-4). Additionally, status of the reward can be changed by clicking on the box with status value (the written status value is the currently set one), which will open a dropdown list of available statuses: “Active”, “Inactive” and “Redeemed” and by clicking on the desired value , system will set it as current status. At the bottom of the window the user can click “Confirm changes” to submit changes made to the reward fields.

In the same place is “Delete reward” button, by clicking it user can delete this reward from the “Reward catalogue” page and from “My rewards” section in the profile (user story RC-5).

My Travel Diary

Reward title <current title value>

Location <current location value>

Price (in points) <current price value>

Reward description
<current reward description>

Status Active

Change photo

Active
Inactive
Redeemed

Delete reward Confirm changes

3.2.1.27. Profile page – My rewards – Edit reward (Company user)

By clicking “Orders”, a section with all company’s orders is displayed, where each order block contains order number, reward title, username of the recipient, status of order (user story O-1) and “Confirm” button for confirming that the order was redeemed by the recipient (user story O-2).

My Travel Diary

Challenges

Reward catalogue

Profile

Log out

Customer support

Hello, company name!

Notifications

Profile picture

Order number	Reward name	Username
Order number	Reward name	Username
Order number	Reward name	Username

Confirm Status Confirm Status Status

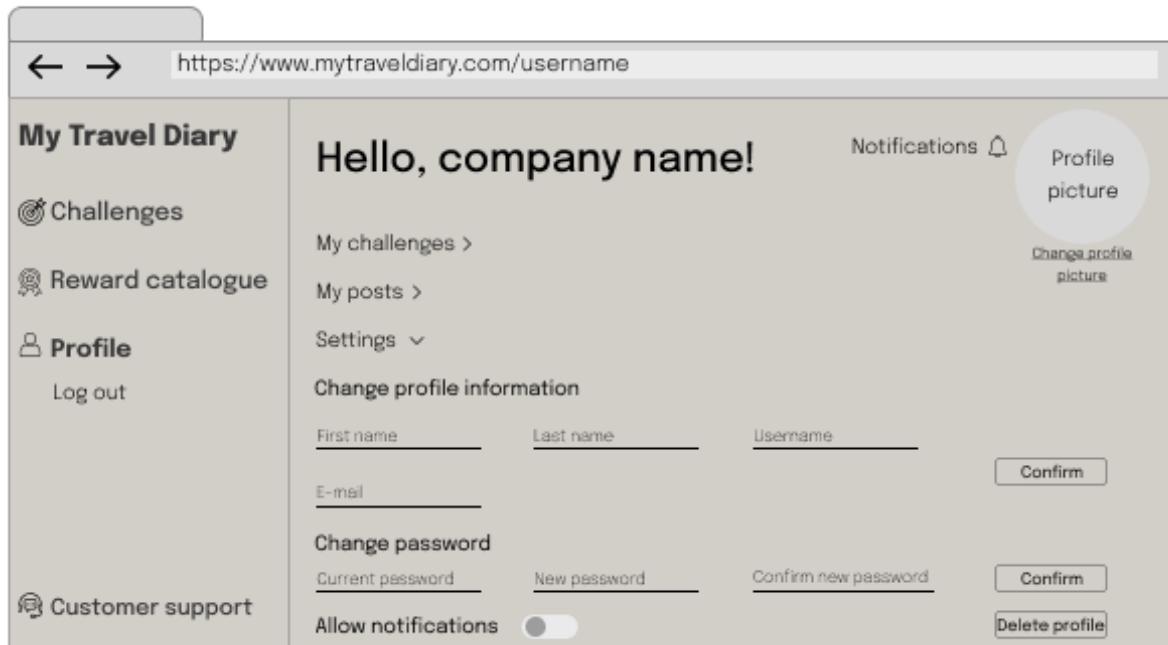
Settings >

3.2.1.28. Profile page – Orders (Company user)

By clicking “Settings”, a block with settings is displayed, containing 3 sections: “Change profile information” section, inside which the company user can make changes to first name, last name, username and e-mail address, and confirm made changes by clicking the button

“Confirm” (user story U-3); “Change password” section, in which company representative can change his current password to new one, entering in specified fields current password, new password and repeatedly new password; “Allow notifications” toggle switch, disabling and enabling notifications (user stories N-1, N-2). There is “Change profile picture” button under the current profile picture.

At the bottom of the page, there is a “Delete profile” button, which company user can use to delete his/her account (user story U-5).



3.2.1.29. Profile – Settings (Company user)

3.2.2 Moderator and Admin UI

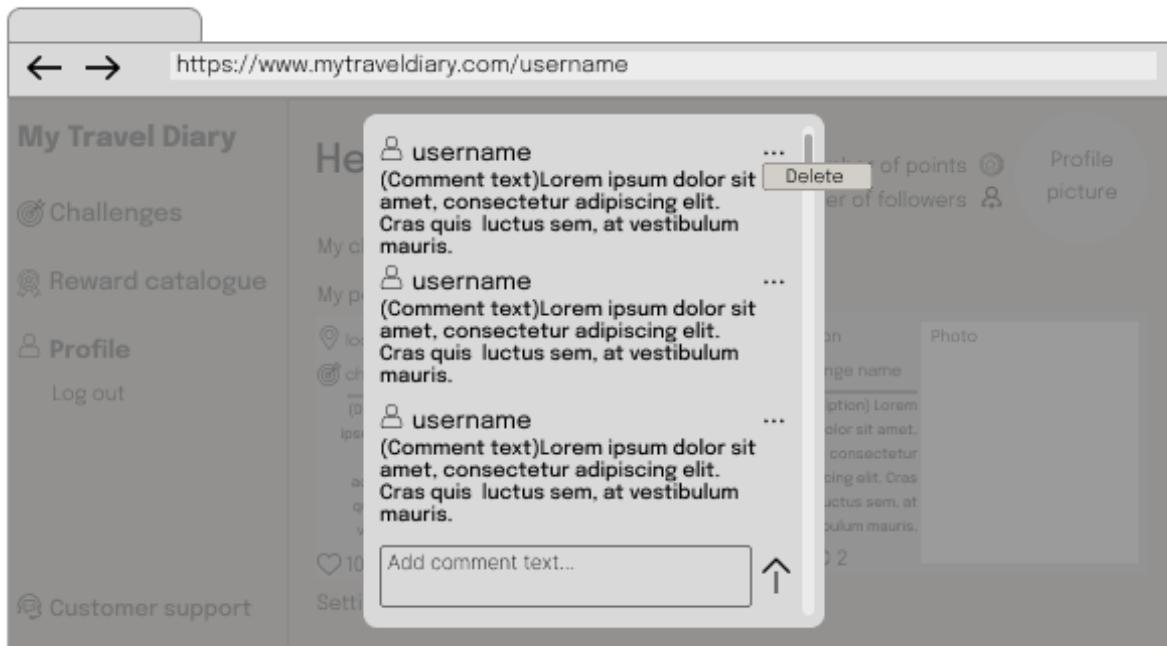
After logging in to the app, moderator can see the homepage (posts page), where he/she can view other users' posts (user story SM-10). Moderator can delete posts, if they break TOS (terms of service), by clicking button "Delete" on the specific post (user story SM-13).

3.2.2.30. Main page (posts page) (Moderator)

By clicking the username on the specific post, moderator is transferred to this user's profile page, where he/she can see this user's posts (user story SM-10) and delete them by clicking "Delete" button on specific post (user story SM-13).

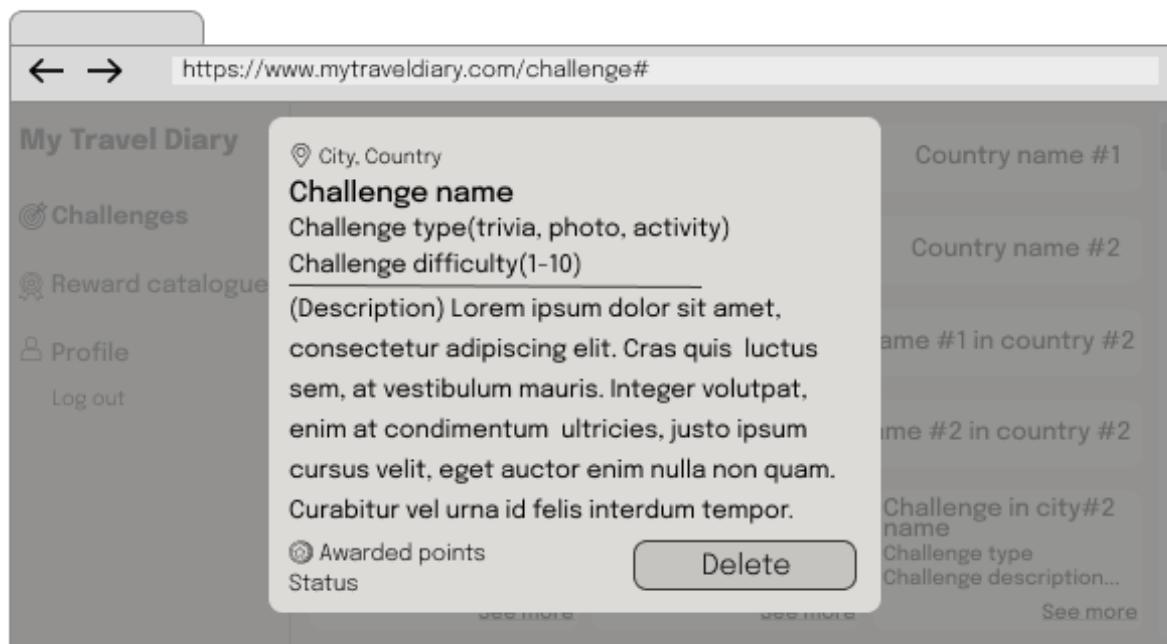
3.2.2.31. User's profile page (Moderator)

By clicking the comment icon on a specific post, a window with all comments related to this post is shown (user story SM-12). Moderator can comments, if they break TOS (terms of service), by clicking button "Delete" inside the overflow menu of the specific comment (user story SM-14).



3.2.2.32. Main page/User's profile page - Comment icon (Moderator)

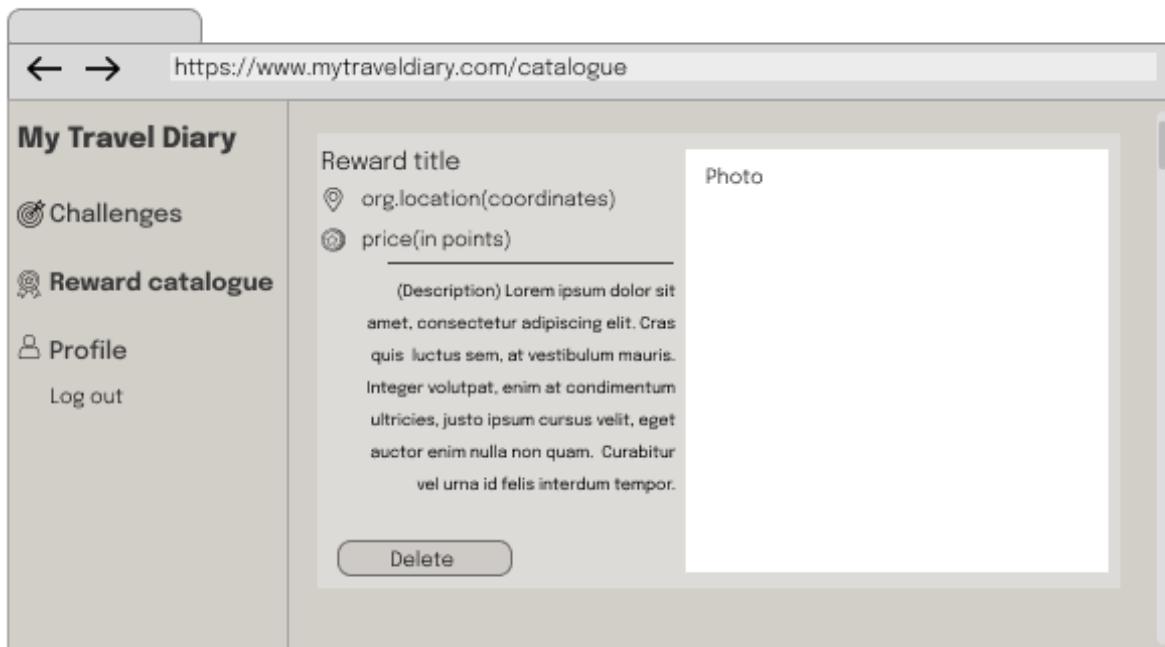
By clicking “Challenges” in the navigation menu moderator is transferred to the challenge page (picture 3.2.1.8.), where he/she can open the challenge window by clicking “See more” on the specific challenge (user story C-4), where he/she can delete this challenge (user story C-8), if it breaks TOS (terms of service).



3.2.2.33. Challenge page – See more (Moderator)

By clicking “Reward catalogue” in the navigation menu moderator is transferred to the reward catalogue page, where he/she can view rewards (their title, organization location, price, description and photo) (user story RC-2) and delete those by clicking “Delete” button

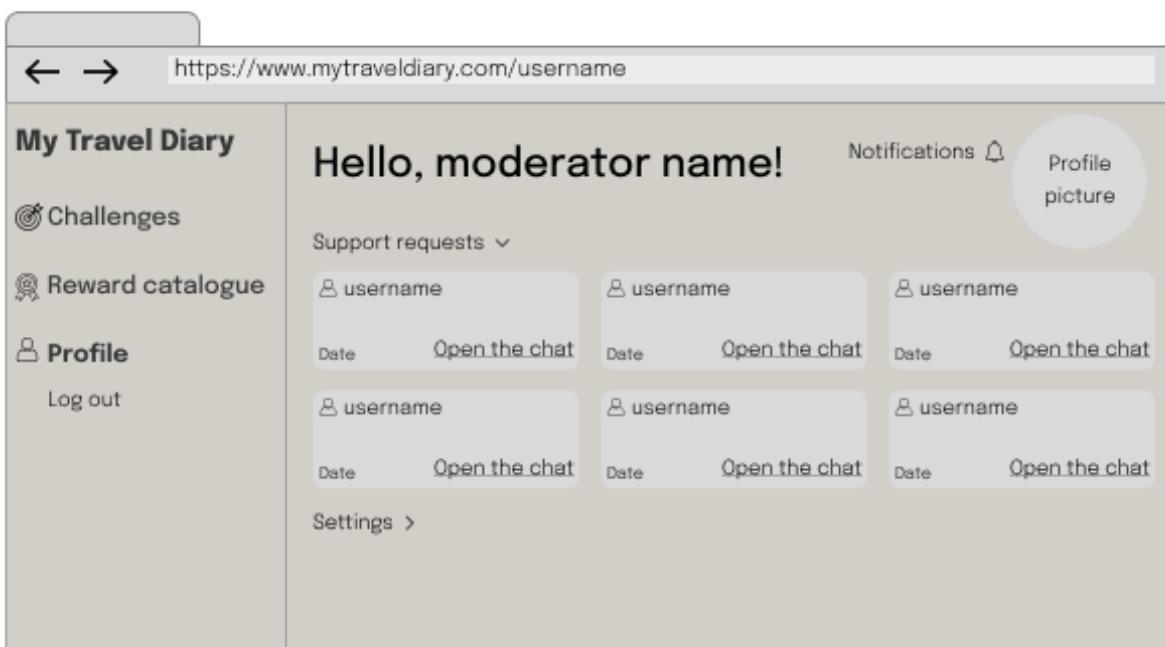
on the specific reward (user story RC-8), if it breaks TOS (terms of service).



The screenshot shows a web browser window with the URL <https://www.mytraveldiary.com/catalogue>. The left sidebar of the application 'My Travel Diary' includes 'Challenges', 'Reward catalogue' (selected), 'Profile', and 'Log out'. The main content area displays a reward entry with the following fields: 'Reward title' (dropdown menu showing 'org.location(coordinates)' and 'price(in points)'), 'Photo' (empty placeholder), and a large text area containing placeholder text: '(Description) Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras quis luctus sem, at vestibulum mauris. Integer volutpat, enim et condimentum ultricies, justo ipsum cursus velit, eget auctor enim nulla non quam. Curabitur vel urna id felis interdum tempor.' Below this is a 'Delete' button.

3.2.2.34. Reward catalogue page (Moderator)

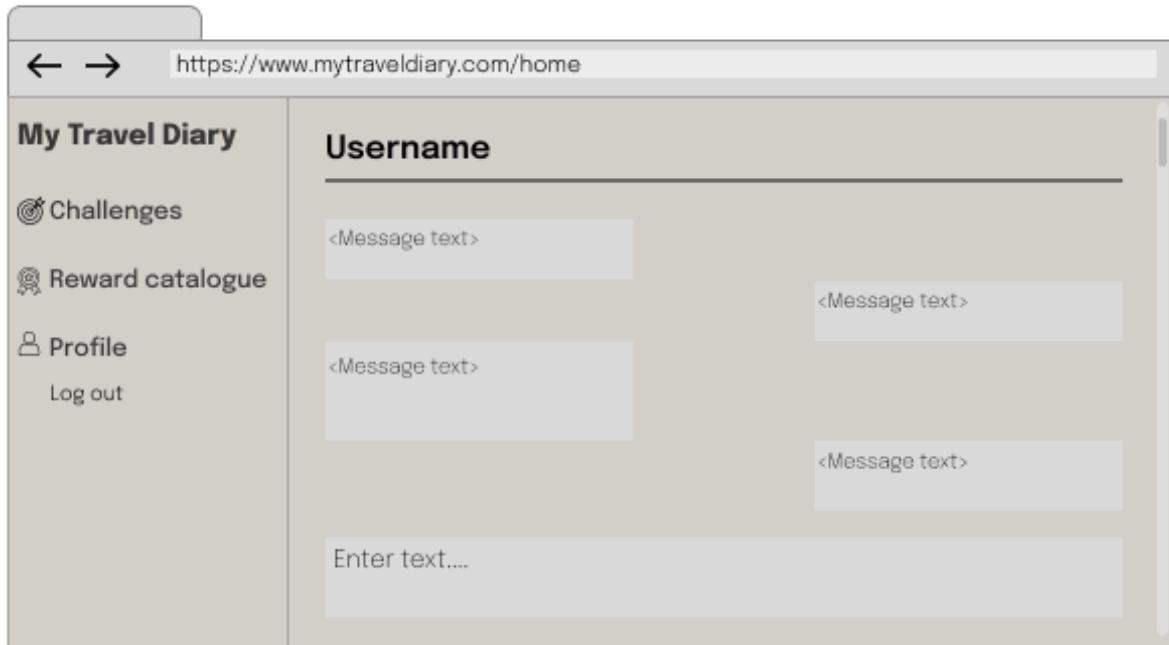
By clicking "Profile" in the navigation menu, moderator is transferred to profile page, where he/she can see two sections - "Support requests" and "Settings", and greeting from the system, profile picture and. In the "Support requests" section each request block displays the username, who wrote the message, and date, when the last message was received or sent, and "Open the chat" button.



The screenshot shows a web browser window with the URL <https://www.mytraveldiary.com/username>. The left sidebar of the application 'My Travel Diary' includes 'Challenges', 'Reward catalogue', 'Profile' (selected), and 'Log out'. The main content area displays a greeting 'Hello, moderator name!' and a 'Notifications' section with a 'Profile picture' placeholder. Below this is a 'Support requests' section with a dropdown menu 'Support requests ▾'. It lists four support request blocks, each containing a user icon, a 'username' field, a 'Date' field, and an 'Open the chat' button. At the bottom of the support requests section is a 'Settings >' link.

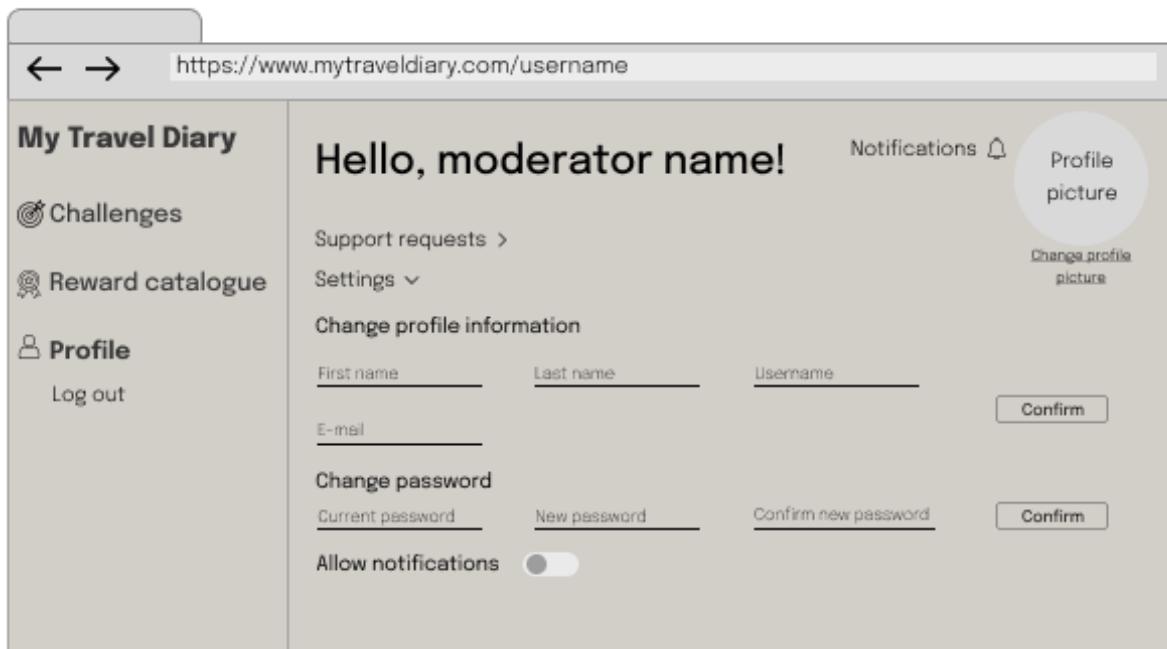
3.2.2.35. Profile page – Support requests (Moderator)

By clicking “Open the chat” moderator is transferred to customer support page, where he/she can view previously received and sent messages (user stories CS-3, CS-2) and write a new message in the text field (user story CS-1). By clicking “Enter” button on the keyboard, message is sent.



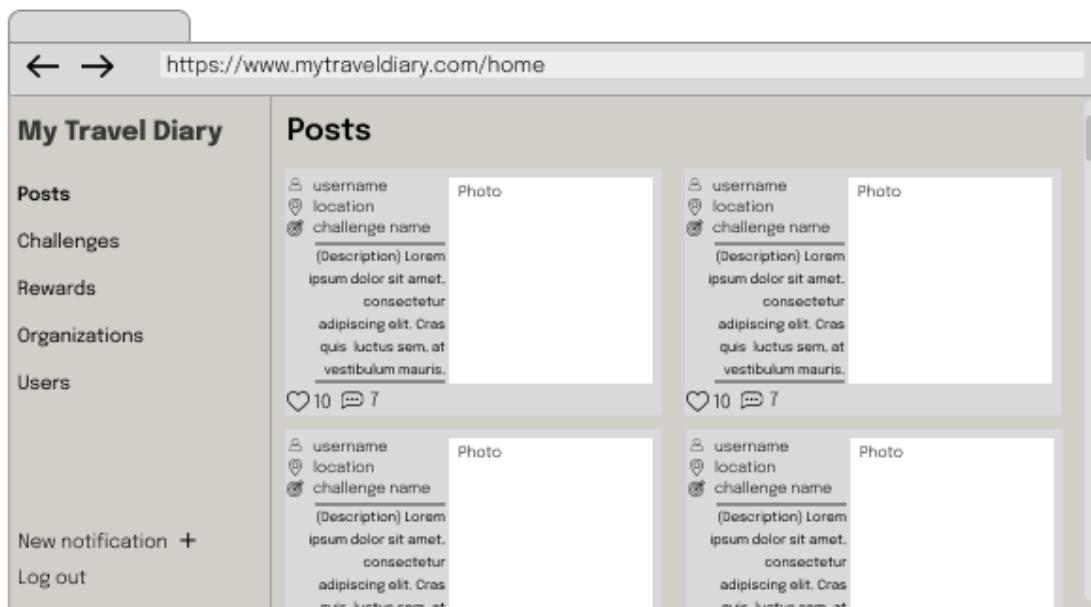
3.2.2.36. Profile page – Support requests – Open the chat (Moderator)

By clicking “Settings” in the profile page, settings section is shown to the moderator, where he/she can change the profile information – first name, last name, username, E-mail and profile picture and submit changes by clicking “Confirm” button on the right of the “Change profile information” section (user story U-3); can change password by entering current password and new password two times in the corresponding fields and submit changes by clicking “Confirm” button on the right of the “Change password” section (user story U-4). It is also possible to enable and disable notifications by switching “Allow notification” toggle button (user stories N-1, N-2).



3.2.2.37. Profile page – Settings (Moderator)

When Admin enters the app, the main page window is shown with navigation menu on the left side of the window, containing “Posts”, “Challenges”, “Rewards”, “Organizations” and “Users” pages linked to the according page. In “Posts”, “Challenges” and “Rewards” pages admin could see all the existing elements of each section like in the *picture 3.2.2.9.*, where “Posts” page example is shown. In the same navigation menu, admin could also use “New notification” button to create a notification, selecting to which user groups the notification must be sent “Standard user”, “Company user” or “Moderator” and “Log out” button.



3.2.2.38. Posts page (Admin)

When admin clicks “Organizations” in the navigation menu, the page with all involved organizations and the list of each company’s representatives (this specific company’s users) - their usernames and first and last names, is opened. On the top of the page is the “Add new organization” button.

My Travel Diary

Posts

Challenges

Rewards

Organizations

Users

New notification +

Log out

← → https://www.mytraveldiary.com/home

Organizations

Add new organization

Company name #1
Organization's representatives (list of this company's users):
👤 username(First name Last name)
👤 username(First name Last name)
👤 username(First name Last name)

Company name #2
Organization's representatives (list of this company's users):
👤 username(First name Last name)
👤 username(First name Last name)
👤 username(First name Last name)

Company name #3
Organization's representatives (list of this company's users):
👤 username(First name Last name)
👤 username(First name Last name)
👤 username(First name Last name)

Company name #4
Organization's representatives (list of this company's users):
👤 username(First name Last name)
👤 username(First name Last name)
👤 username(First name Last name)

3.2.2.39. *Organizations page*

By clicking “Add new organization” button on the “Organizations” page, the window with two text fields “Organization name” and “Organization’s one time password” (the password, that company users use during registration process) and “Add new organization” button, appears.

My Travel Diary

Posts

Challenges

Rewards

Organizations

Users

New notification +

Log out

Organizations

Company name #1
Organization's representatives

Company name #2
Organization's representatives

Add new organization

Organization name

Organization's one time password

Add new organization

Organization's representatives (list of this company's users):

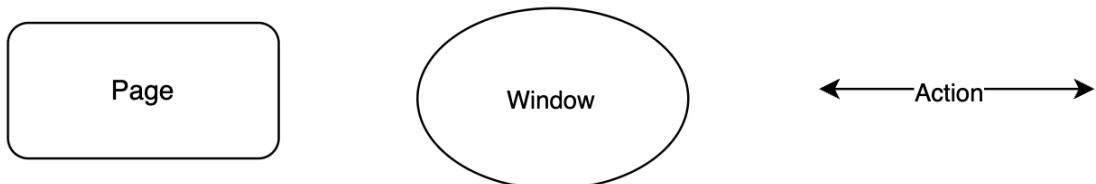
- username(First name Last name)
- username(First name Last name)
- username(First name Last name)

Organization's representatives (list of this company's users):

- username(First name Last name)
- username(First name Last name)
- username(First name Last name)

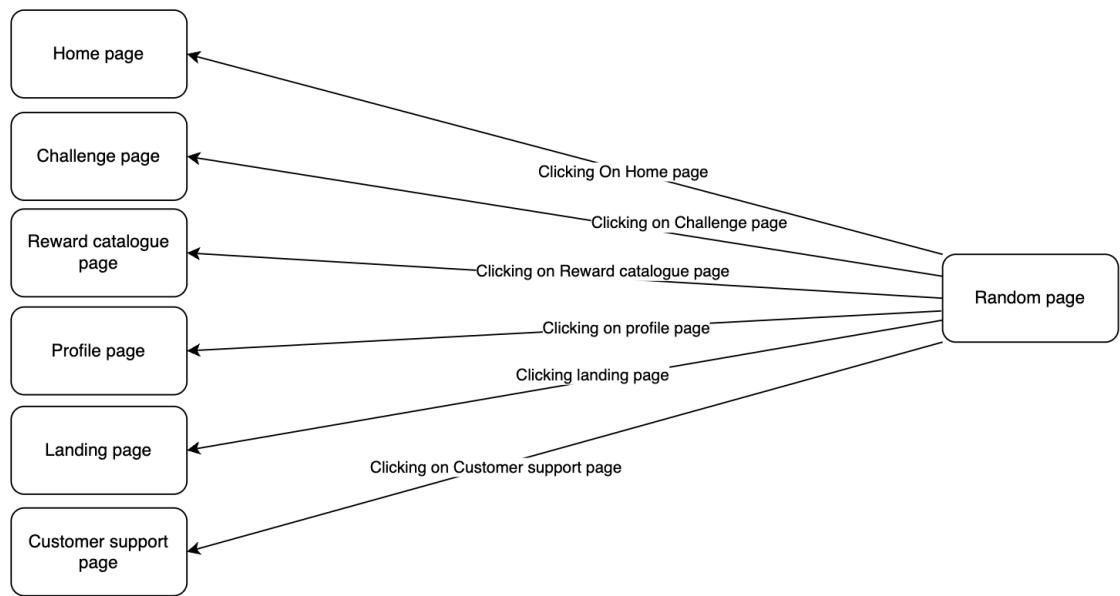
3.2.2.40. *Organizations page – Add new organization*

3.2.3 Navigation diagrams



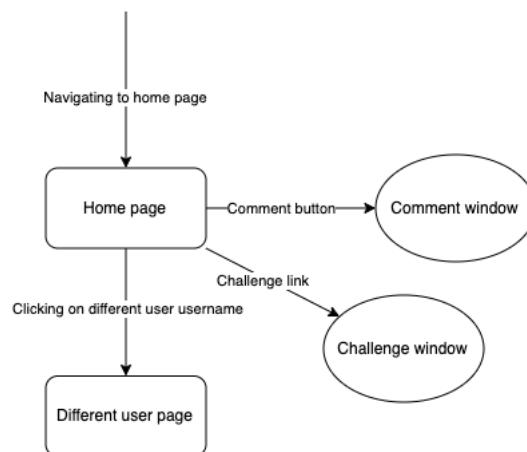
3.2.3.1. *Legend of Navigation diagrams*

Rounded Rectangle Represents Page, Oval represents Window which pops up during some action and Arrow is an action which user can perform to navigate through different pages and windows.



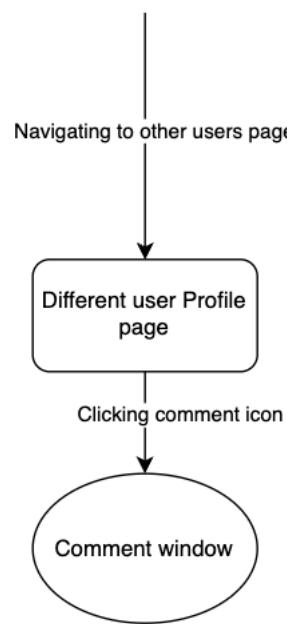
3.2.3.2. Moderator, Company and normal user interface (Menu Navigation Diagram)

User can navigate through different pages of website using menu by clicking on the pages listed on picture.



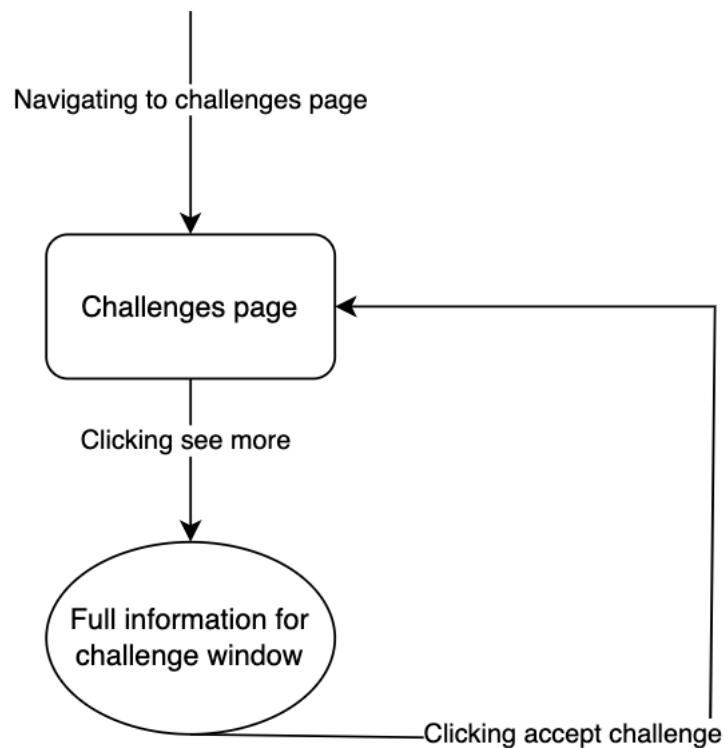
3.2.3.3. User interface diagram(Home page)

Users can use the comment button to see comment window or use challenge link to see challenge window, user can also click on different user's username which will send them to different user's personal page.



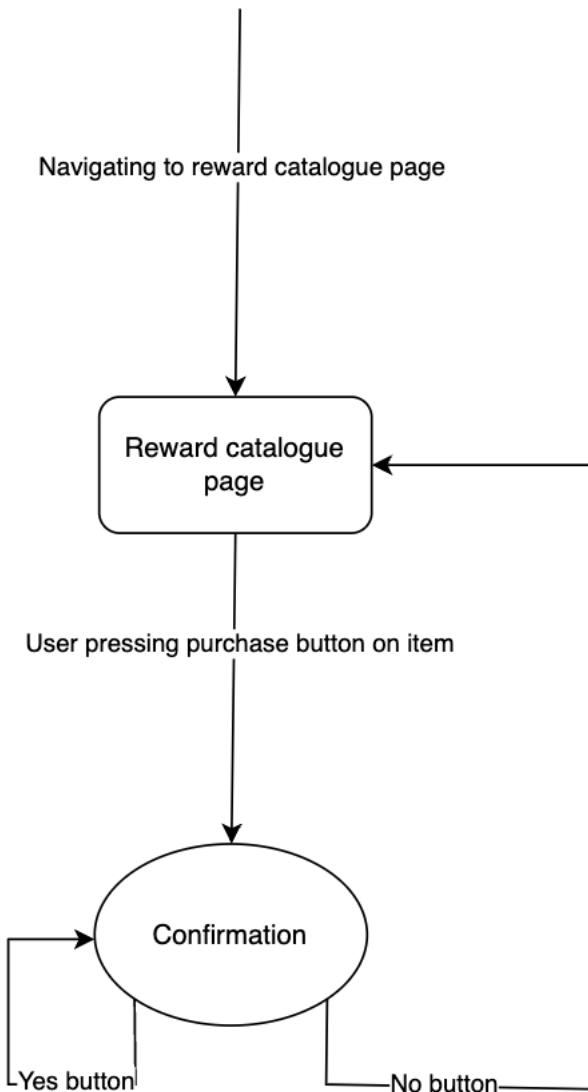
3.2.3.4. User interface diagram(Different user profile page)

Users Can Click on comment icon on different user profile page's post which will open comment window.



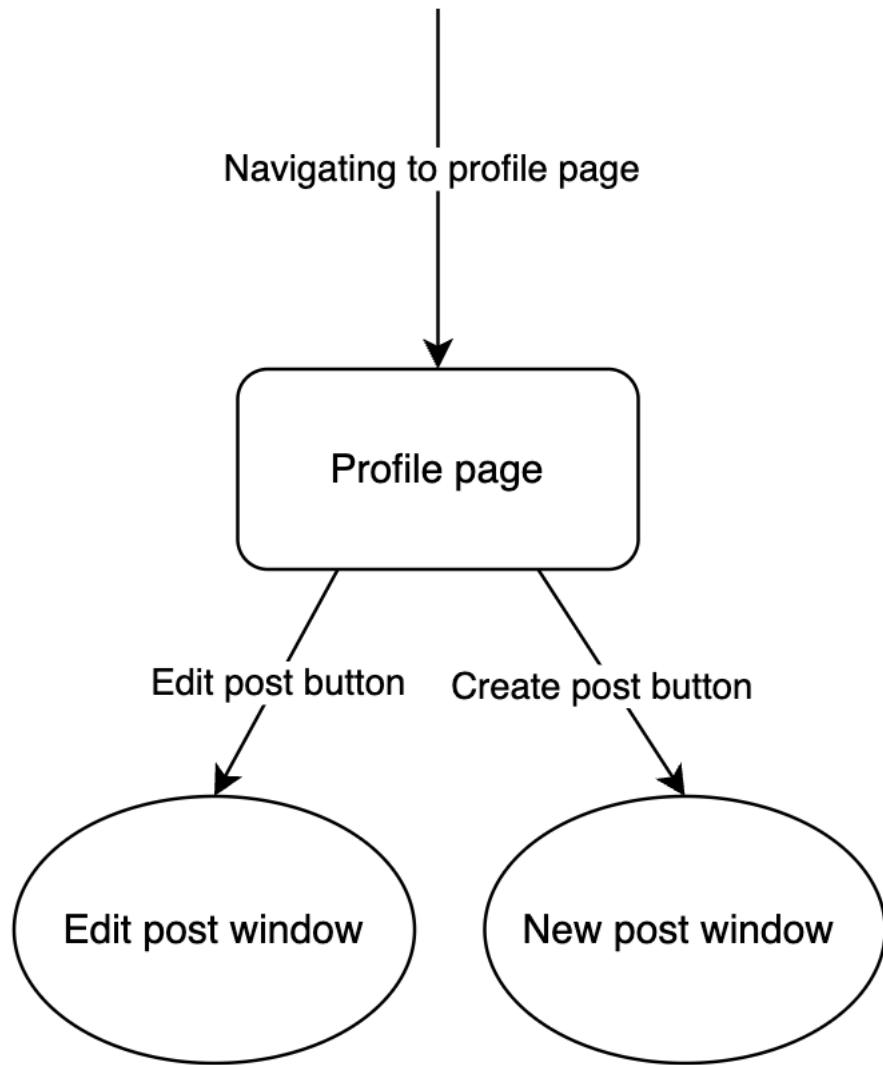
3.2.3.5. User interface diagram(*Challenges page*)

Users can click see more on challenge which will open Full information for challenge window and then can click accept challenge button which will close said window.



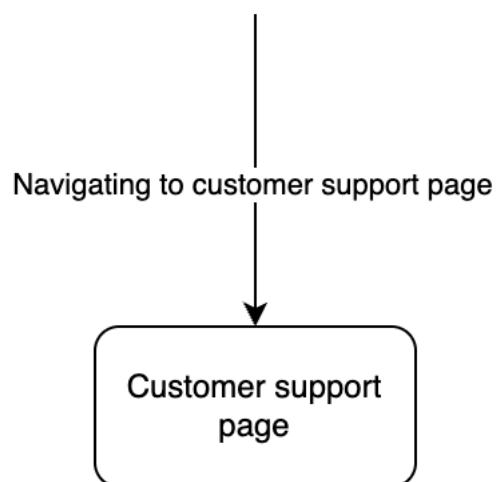
3.2.3.6. User interface diagram(Reward catalogue page)

Users can use purchase button which is right next to item which will open confirmation window if they use yes button they will need to confirm one more time otherwise they will stay in confirmation window, if user uses no button Confirmation window is closed.

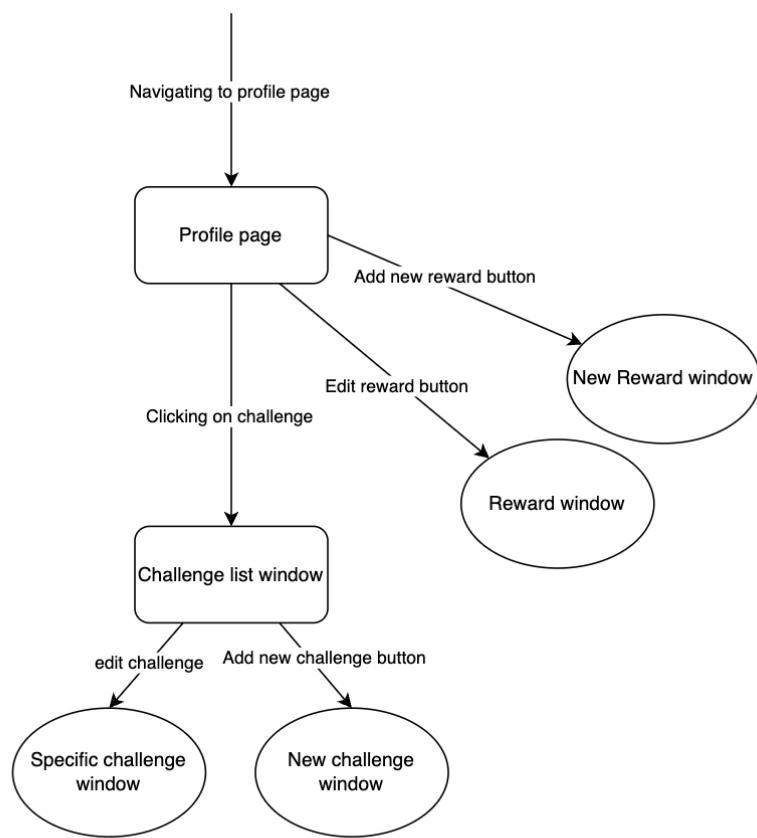


3.2.3.7. User interface diagram(Profile page)

Users can edit their posts using edit post button which will open new window and will enable them to edit said post, They can also use create post button that will open new post window

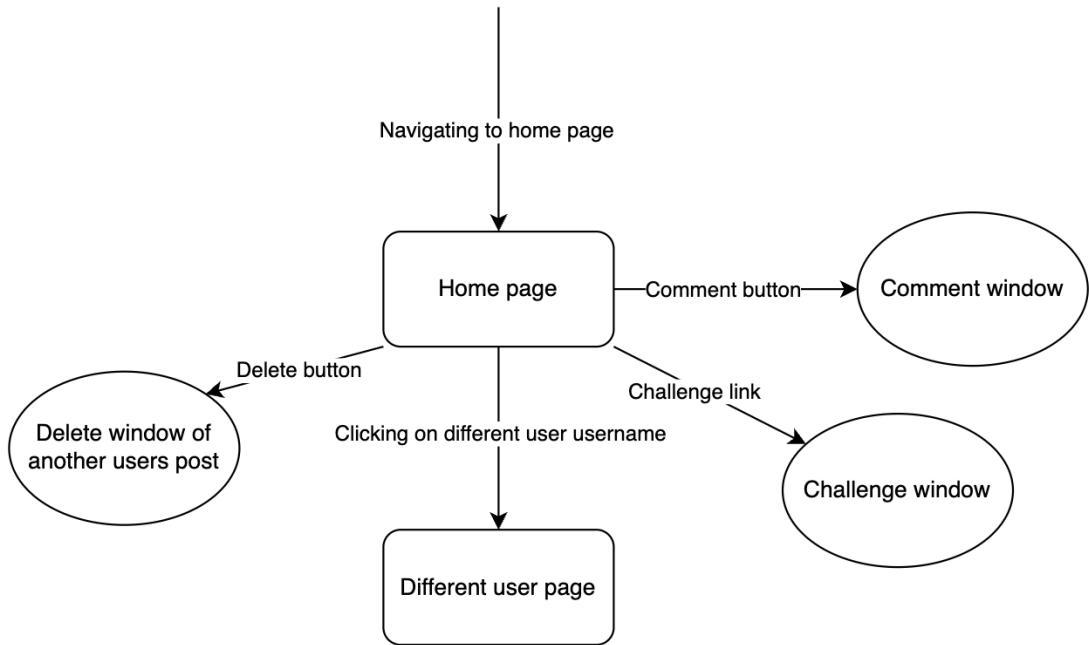


3.2.3.8. User interface diagram(Customer support page)

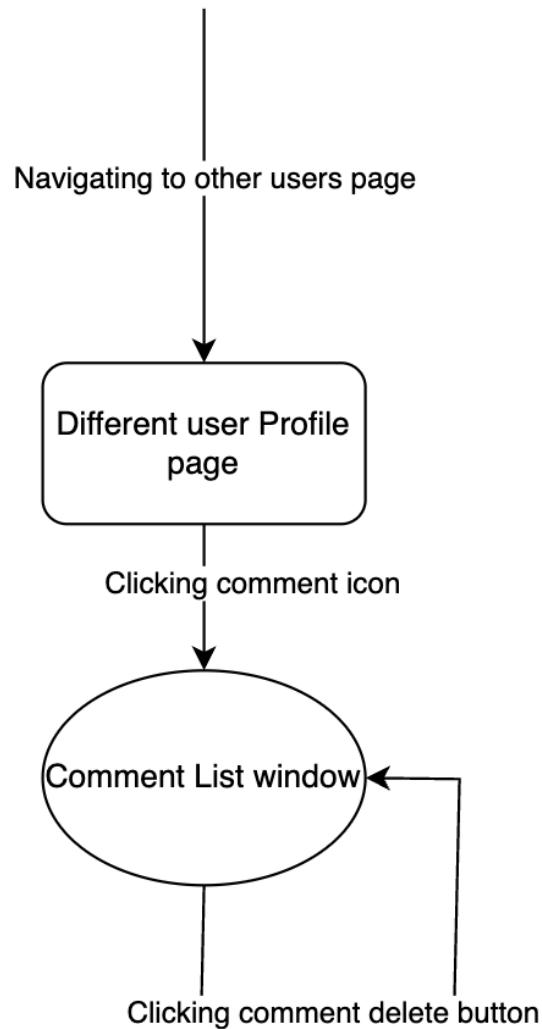


3.2.3.9. User interface diagram(Profile page for company user)

Company Users can use add new reward button that will open new reward window they can also use edit reward button which will open already created reward window. Clicking challenge allows company users to unlock the challenge list window and afterwards they can use the edit challenge button to open specific challenge window or use the add new challenge button which will open the new challenge window.

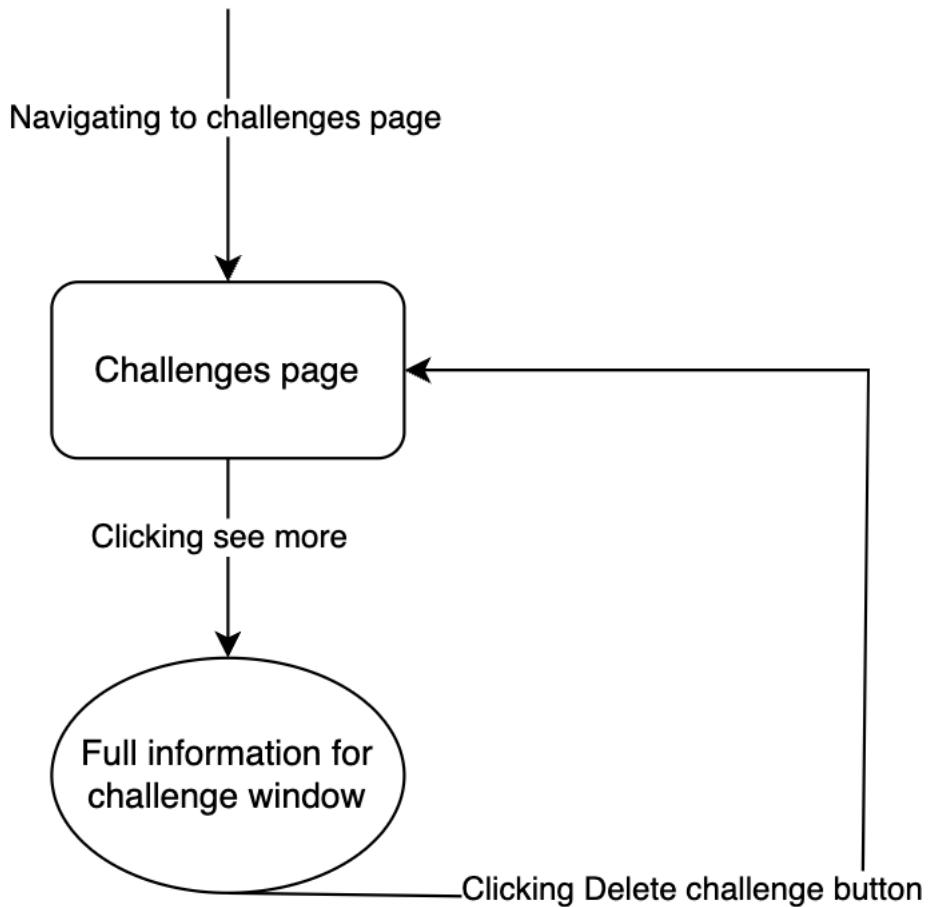


3.2.3.10. User interface Diagram (Home page for Moderator)



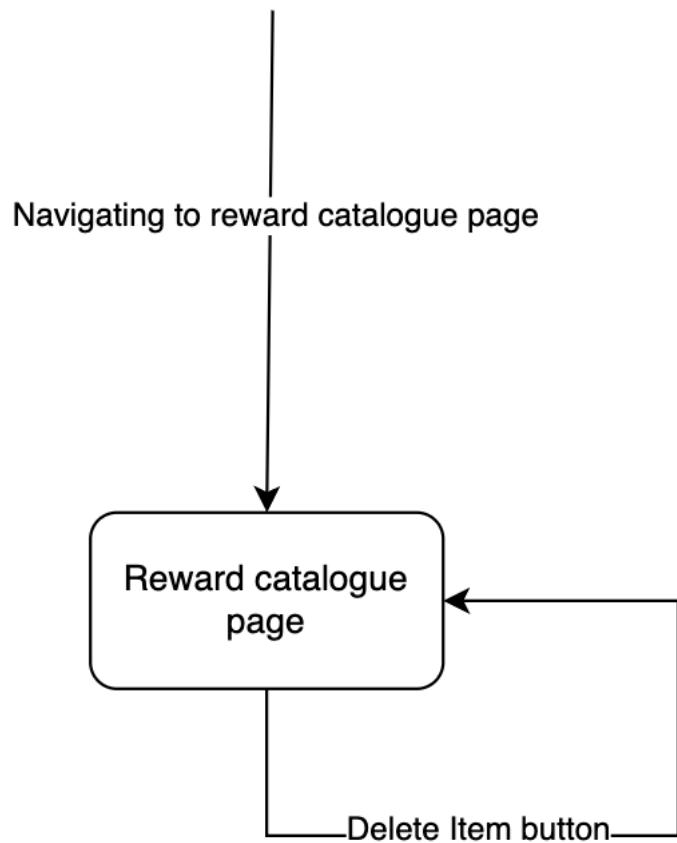
3.2.3.11. User interface Diagram (Different user profile page for Moderator)

Moderator can use comment icon to open comment list window and delete any comment from list using the delete button.



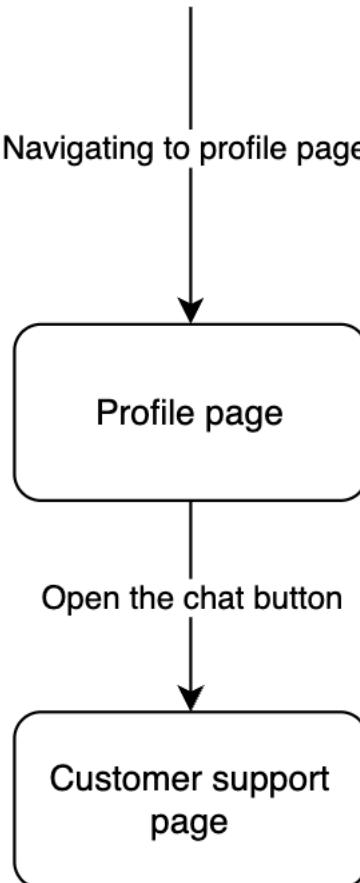
3.2.3.12. User interface Diagram (Challenges page for moderator)

Moderator can use see more button to open window of a challenge, they can use delete challenge button to remove said challenge which will close challenge window



3.2.3.13. User interface Diagram (Reward catalogue page)

Moderator can delete any item in reward catalogue page using delete item button



3.2.3.14. User interface Diagram (Profile page for Moderator)

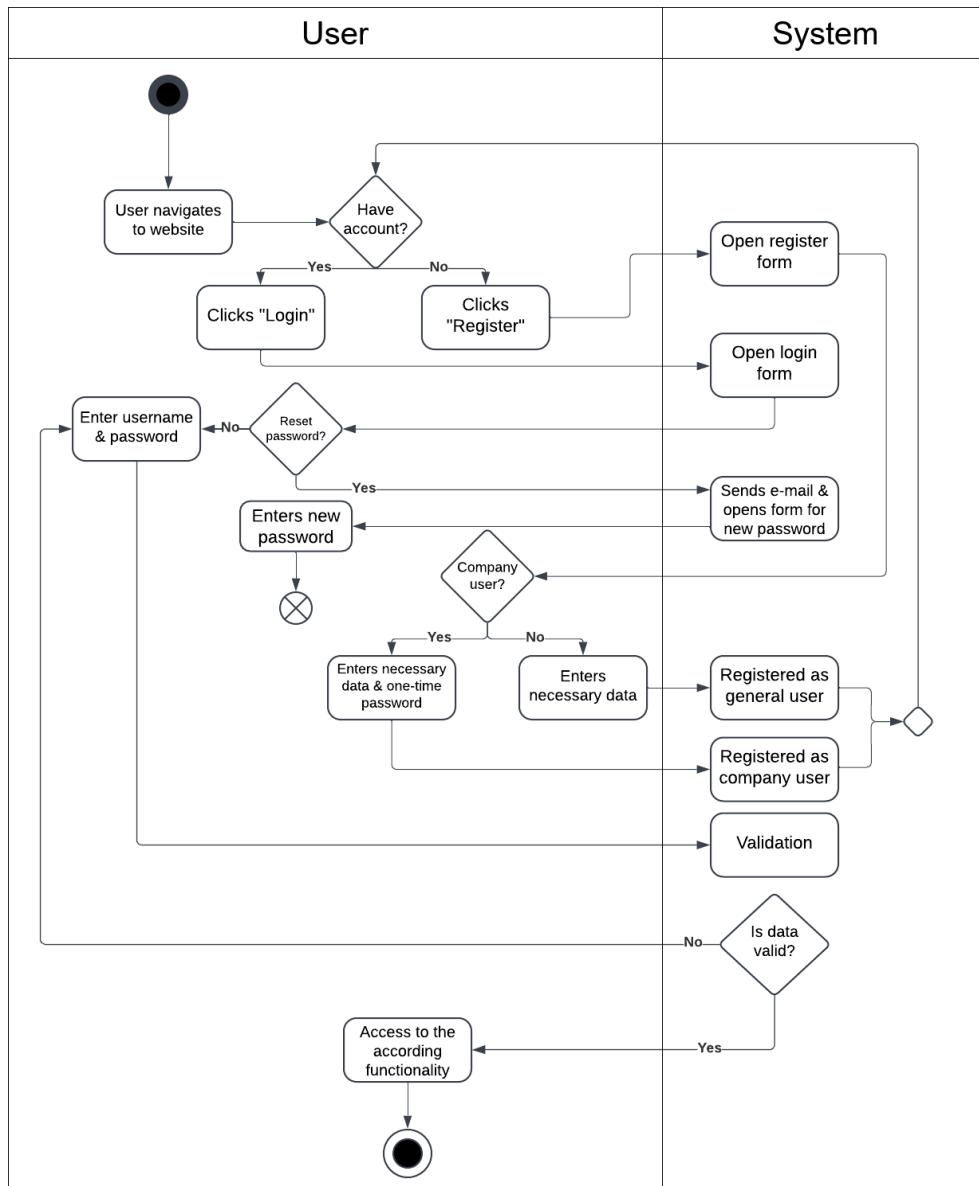
Moderator can use “Open the chat” button to navigate to customer support page.

3.3 Partial Functional design

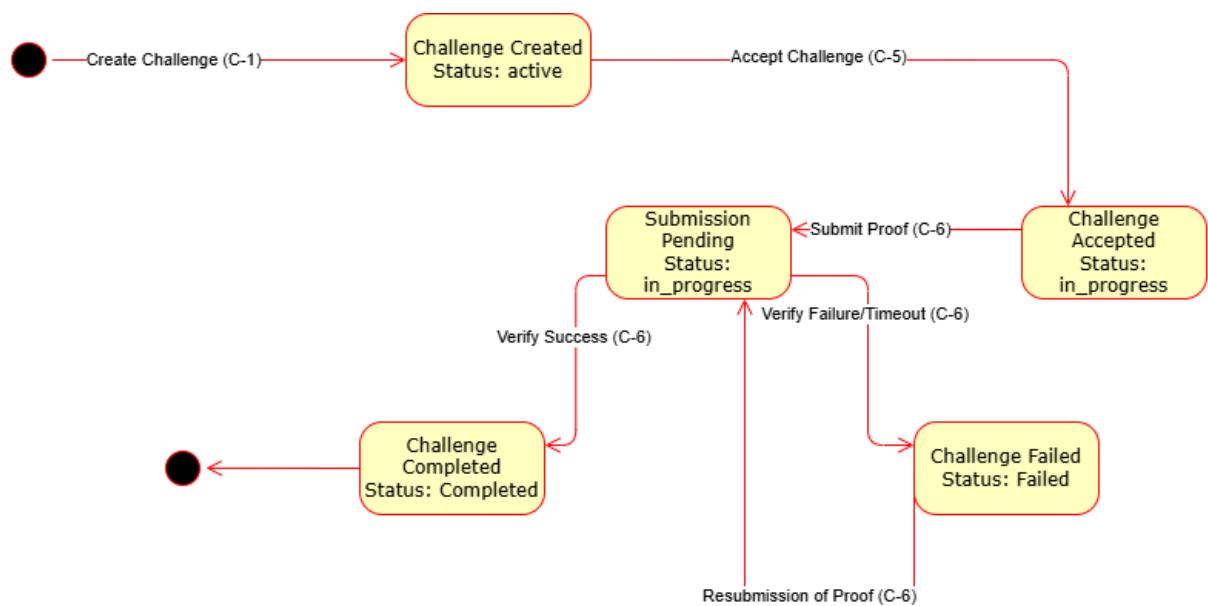
The section contains diagrams which describe the most important functionality of our system.

- The process of registration for general (traveler) and company user in the system and logging in, if the user has already registered, is displayed in UML activity diagram, shown in *picture 3.3.1*. It is based on the functionality described in *section 2.2.2. U-1, U-2, U-4*.
- The state transition diagram for the challenges module outlines the lifecycle of a challenge, as depicted in *picture 3.3.2*. It is based on the functionality described in *section 2.2.3*. The diagram highlights the transition of a challenge from being created, accepted by a user, and submitted for verification to either completion or failure. Additionally, it illustrates the possibility of resubmitting proof in case of failure, ensuring users have opportunities to retry challenges.

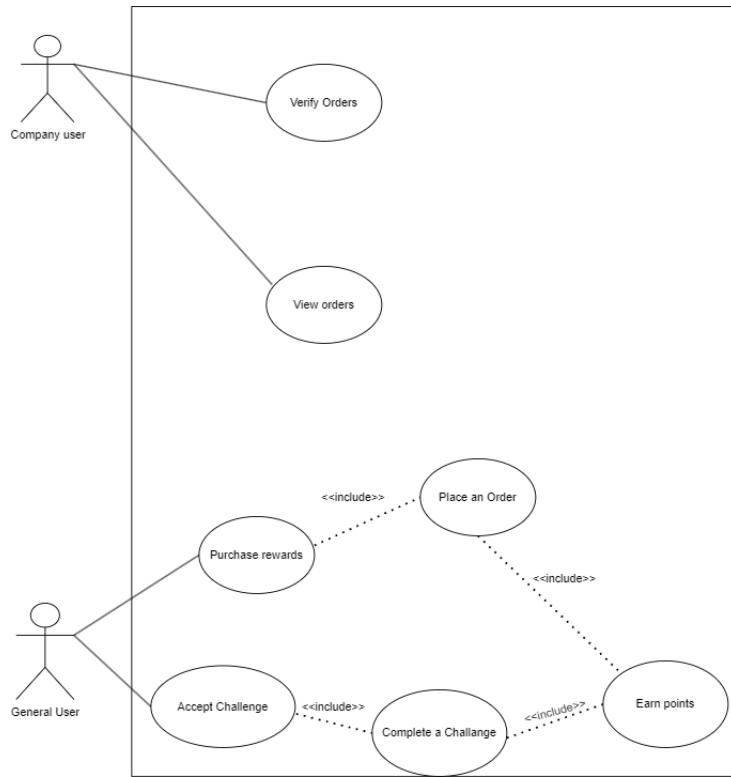
- The use case diagram shows the interactions between a General User, who completes challenges to earn points, purchases rewards, and places orders, and a Company User, who views and verifies these orders, which is shown in *picture 3.3.3*. It is based on the functionality described in *sections 2.2.4* and *2.2.6*.
- The class diagram for the social media module depicts the structural relationships and attributes necessary to support the functionalities described in *Section 2.2.7*. It focuses on interactions between classes such as User, Post, Comment, Like, Attachment, and Follower.(shown in *picture 3.3.4*)



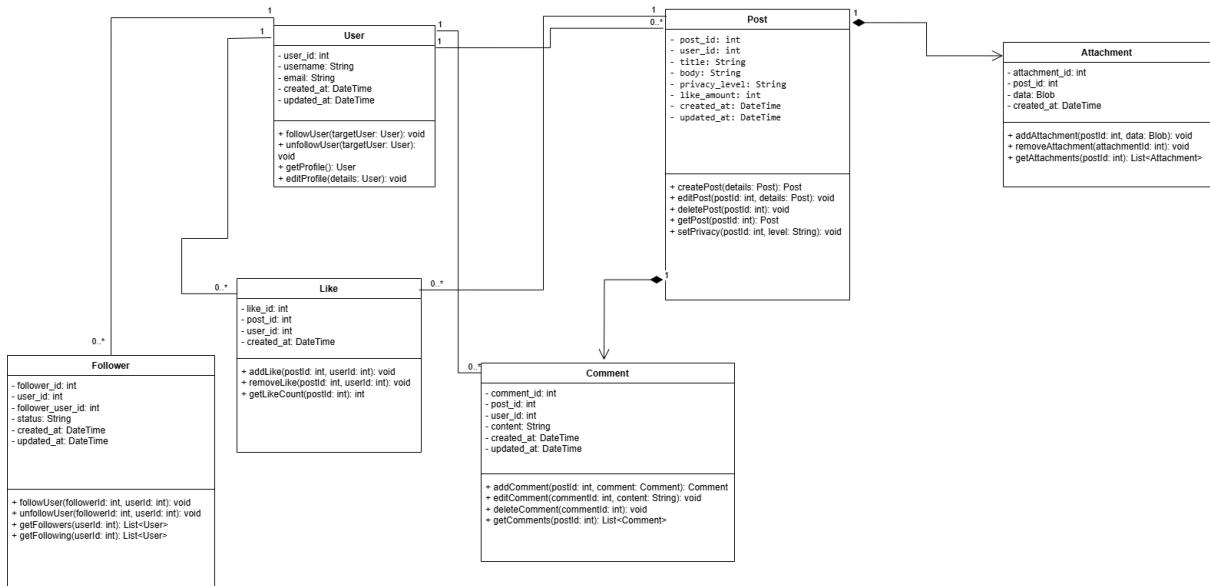
3.3.1. User registration and login (UML activity diagram)



3.3.2. Challenges module (UML state transition diagram)



3.3.3. Point and order module (UML use case diagram)



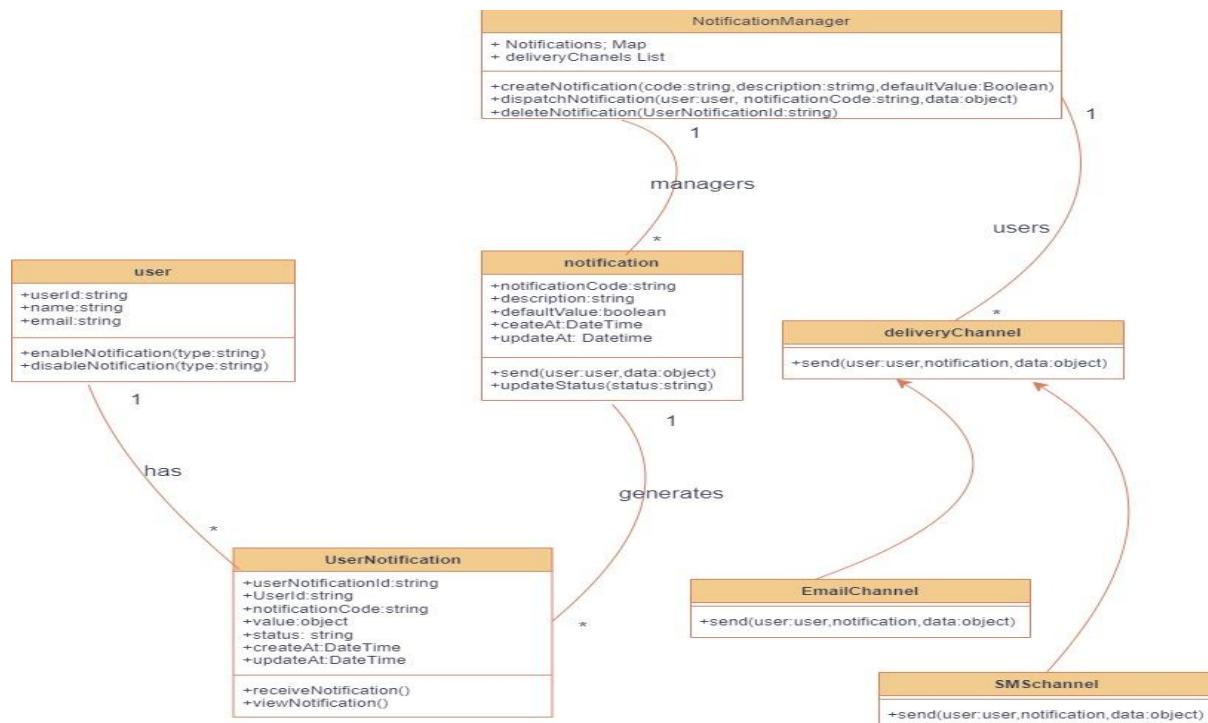
3.3.4. Social media module (UML class diagram)

The diagram illustrates a notification management system with key components:

1. **Notification Manager:** Oversees notifications and delivery channels, offering methods to create, dispatch, and delete notifications.
2. **User:** Represents system users, allowing them to enable or disable notification types.

3. **Notification:** Represents individual notifications with details like code, description, timestamps, and methods to send or update status.
4. **User Notification:** Links users to notifications, storing user-specific values, status, and timestamps, with methods to view or receive notifications.
5. **Delivery Channel:** Represents delivery methods (e.g., email, SMS) with a generic send method.
6. **EmailChannel/SMSChannel:** Specialized channels inheriting from Delivery Channel.

Relationships include users having multiple notifications, notifications linked to users, and Notification Manager managing all delivery channels.

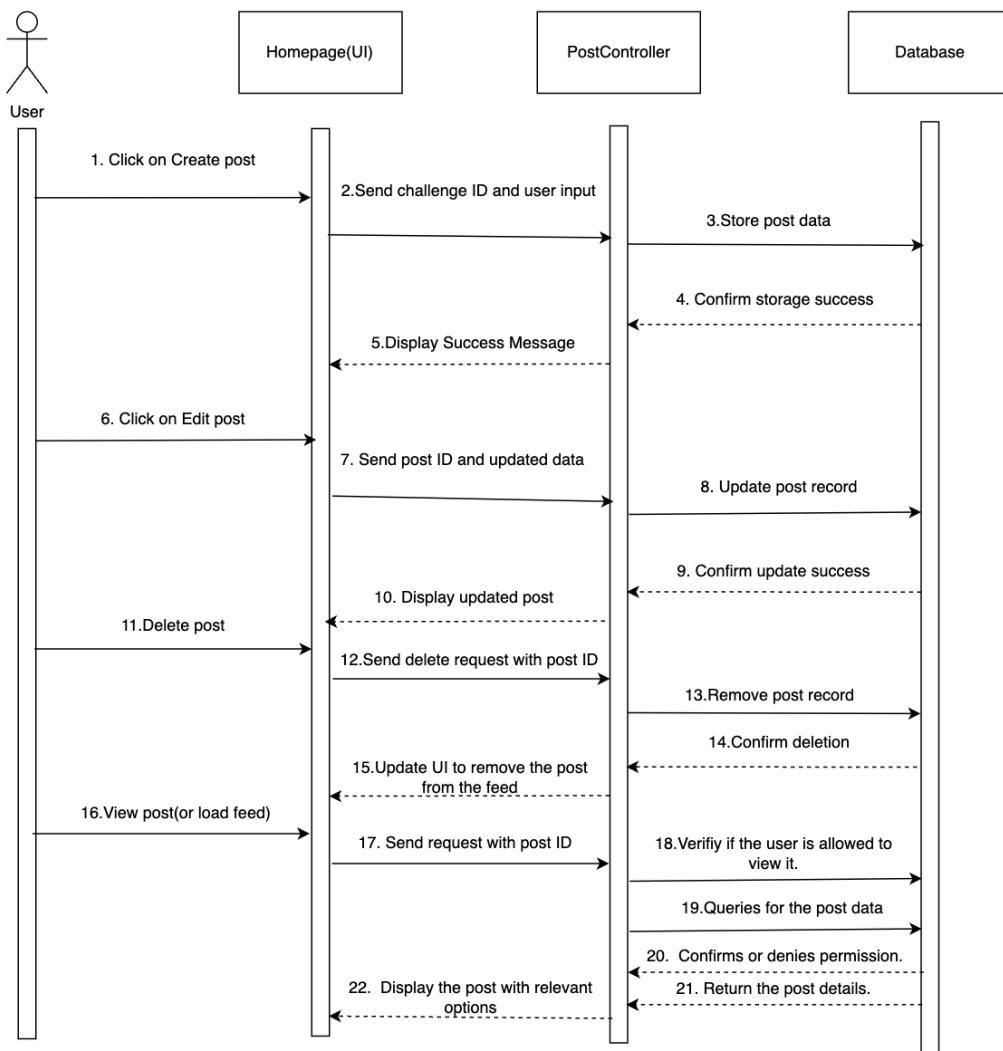


3.3.5 UML object diagram for notification functionalities

This diagram outlines the lifecycle of posts, showing interactions between the user, UI, backend (PostController), and database. Users can create, edit, delete, or view posts.

- **Create Post:** User inputs are sent to the backend, stored in the database, and confirmed with a success message on the UI.
- **Edit Post:** Updates are sent to the backend, applied in the database, and displayed on the UI.

- **Delete Post:** The backend processes deletion, updates the database, and reflects changes in the UI.
- **View Post:** The backend verifies permissions (if required) and retrieves post data from the database, which the UI then displays.



3.3.6 Posts Module (UML Sequence Diagram)

References and sources

1. ISO/IEC/IEEE 23026:2023 standard <https://www.iso.org/standard/81896.html>
2. Types of UML diagrams <https://www.lucidchart.com/blog/types-of-UML-diagrams>
3. Document structure <https://estudijas.lu.lv/mod/resource/view.php?id=833957>

Appendix

The appendix contains possible initial database seeds examples for entities described in subsection 3.1. The name of table is corresponding to the name of the database entity. Tables consist of columns indicating the table column names and their values for seeding.

Table 1: Initial Admin Users (Users Table)

Attribute		
user_id	1	2
username	admin1	admin2
first_name	Kaspars	Em
last_name	Minajevs	Now
email	admin1@example.com	admin2@example.com
password	pass_1	pass_2
session_token	NULL	NULL
reward_points	0	0
organization_id	NULL	NULL
created_at	NOW()	NOW()
updated_at	NOW()	NOW()

Table 2: Permission Roles Table (Assign Admin Roles)

user_id	role_id
1	1
2	1

Table 3: User Roles Table

role_id	name	description	created_at	updated_at
1	Admin	Full access to all system functionalities	NOW()	NOW()
2	Moderator	Moderate user content and enforce rules	NOW()	NOW()
3	General User	Standard user role	NOW()	NOW()
4	Company User	Users representing companies	NOW()	NOW()

Table 4: Permissions Table

permission_id	code	created_at	updated_at
1	manage_users	NOW()	NOW()

2	view_challenges	NOW()	NOW()
3	delete_posts	NOW()	NOW()

Table 5: Notifications Table

notification_code	default_value	description	created_at	updated_at
NEW_CHALLENGE	org_challenge	Notify users when a new challenge is posted	NOW()	NOW()
NEW_REWARD	org_reward	Notify users about new rewards in the catalog	NOW()	NOW()
FOLLOW_NOTIFICATION	enabled	Notify users when someone follows them	NOW()	NOW()
ORDER_STATUS_CHANGE	enabled	Notify users of changes in their order status	NOW()	NOW()

Table 6: Country Table

country_id	name	active	created_at	updated_at
1	Latvia	True	NOW()	NOW()
2	France	True	NOW()	NOW()
3	Germany	True	NOW()	NOW()
4	USA	True	NOW()	NOW()

Table 7: City Table

city_id	country_id	Name	active	created_at	updated_at
1	1	Riga	True	NOW()	NOW()
2	1	Daugavpils	True	NOW()	NOW()
3	2	Paris	True	NOW()	NOW()
4	3	Berlin	True	NOW()	NOW()
5	4	New York	True	NOW()	NOW()

Table 8: Location Table

location_id	country_id	city_id	coords_xyz	created_at	updated_at
1	1	1	56.95N, 24.1E	NOW()	NOW()
2	1	2	55.87N, 26.55E	NOW()	NOW()

3	2	3	48.85N, 2.35E	NOW()	NOW()
4	3	4	52.52N, 13.41E	NOW()	NOW()
5	4	5	40.71N, 74.01W	NOW()	NOW()

Table 9: Settings Table

code	default_value	description	created_at	updated_at
default_notifications	enabled	Enable system notifications	NOW()	NOW()
default_privacy	public	Default privacy of user data	NOW()	NOW()
default_language	English	Default app language	NOW()	NOW()

Table 10: User Settings Table

user_setting_id	user_id	setting_code	value	created_at	updated_at
1	1	default_notifications	enabled	NOW()	NOW()
2	1	default_privacy	public	NOW()	NOW()
3	1	default_language	English	NOW()	NOW()
4	2	default_notifications	enabled	NOW()	NOW()
5	2	default_privacy	public	NOW()	NOW()
6	2	default_language	English	NOW()	NOW()

