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ER: Requirements Specification Component

Planora is a flexible and efficient project management platform that empowers individuals and teams to organize, track, and complete their projects with ease. Designed with user-friendly navigation and a responsive interface, it enables seamless collaboration and task management across all devices.

A1: Planora

Planora is a project management system currently being developed by a small group of students from the Faculty of Engineering of the University of Porto (FEUP), as part of the Database and Web Application Laboratory course. It is designed to serve both individual users and teams who seek to efficiently manage their projects.

The primary objective of the project is to create a web-based information system for project management. This includes task assignment and tracking for each team member, setting deadlines, and organizing work teams. The system will be flexible, supporting both individual projects and large-scale team collaborations. To enhance integration across various teams, we will incorporate GitHub and Google Calendar, enabling seamless coordination and workflow management.

Upon setup, a group of administrators will be designated, tasked with overseeing the system's operations and ensuring its continuous and efficient functioning.

Users are organized into groups with varying permission levels. These groups include the aforementioned administrators, who have full access and modification rights; project coordinator, responsible for team assignments and setting deadlines; and team members, who are limited to viewing and managing only the tasks assigned to them and visitors who are not authenticated that will have limited access, being able to view general information about Planora and its functionalities. However, to access the project management tools, assign tasks, or integrate third-party services, they will need to register or log in.

Planora includes a variety of essential features designed to ensure smooth operation and user satisfaction. Firstly, it offers user authentication features, allowing users to securely sign up, log in, and manage their profiles through a robust authentication system. Additionally, the platform provides user management and administration tools, enabling administrators to oversee user roles, permissions, and group management, which ensures efficient control of team access and rights. Furthermore, Planora incorporates advanced search capabilities, allowing users to quickly find tasks, projects, team members, and other relevant information. Lastly, it will include core features highlighted in both the theme and common descriptions of the course project, ensuring alignment with academic expectations and real-world applicability.

The platform will feature a responsive design, ensuring an optimal and user-friendly experience across all devices—whether desktop, tablet, or smartphone. Additionally, the product will prioritize intuitive navigation and provide an excellent overall user experience.

A2: Actors and User stories

This section details the specifications of the actors and their user stories, providing documentation for Planora's requirements.

1. Actors

For the Planora system, the actors are defined in Figure 1 and described in Table 1.

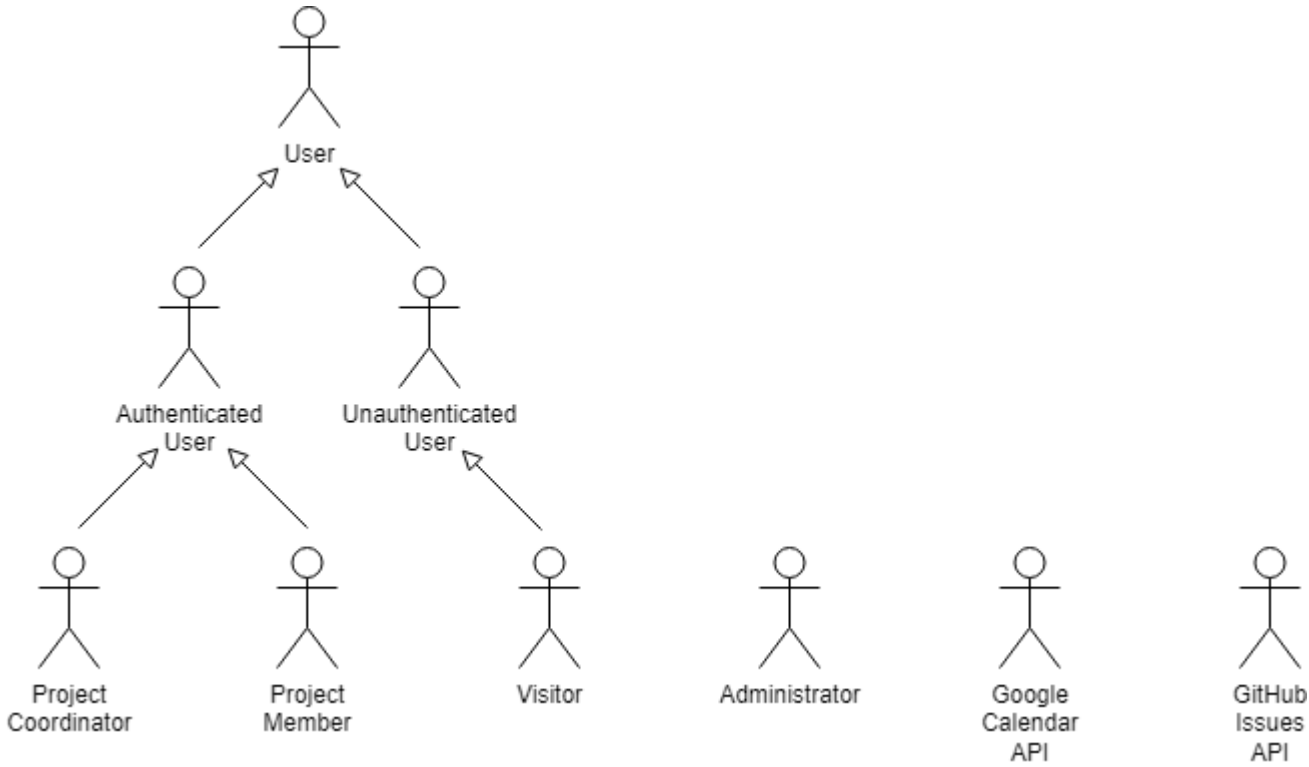


Figure 1: Planora actors.

Identifier	Description
User	A general user with access to non-sensitive project information, such as the project's members and public tasks. This user has read-only access.

Identifier	Description
Authenticated User	A general user who has successfully verified their identity by providing valid credentials to access the system.
Unauthenticated User	A general user whose identity is not recognized or confirmed by the system, having limited access to the functionalities from the system.
Administrator	An authenticated user with full permissions over the platform. This user can access and manage every project, modify settings, and ensure all guidelines are followed.
Project Coordinator	An authenticated user with full control over the project. This user can create and manage teams, assign users to those teams, and modify project settings.
Project Member	An authenticated user who can have tasks assigned to them. This user can update tasks, provide progress updates, leave comments, attach files, and mark tasks as completed.
Visitor	An unauthenticated user who can either register or sign in to the system.
Google Calendar API	An external API used to sync calendar data such as project meetings, deadlines, and milestones with the project management platform.
GitHub Issues API	An external API used to sync project tasks, issues, and progress from GitHub repositories.

Table 1: Planora actors description.

2. User Stories

The user stories considered for the Planora system are outlined below.

2.1. Visitor

Identifier	Name	Priority	Responsible	Description
US01	Sign In	High	Rui	As a visitor, I want to be able to log into the system, so I can access restricted features and information.
US02	Sign Up	High	Rui	As a visitor, I want to create an account in the system, so that I can log in.

Table 2: Visitor user stories.

2.2. User

Identifier	Name	Priority	Responsible	Description
US03	Logout	High	Rui	As a user, I want to log out of the system, so I can end my session and protect my account.
US04	View Profile	High	Diogo	As a user, I want to view my profile, so that I can see my personal information and account details.
US05	Edit Profile	High	Diogo	As a user, I want to edit my profile, so that I can update my personal information and account details.
US06	Exact Match Search	High	Gonalo	As a user, I want to perform an exact match search, so that I can find specific information that matches my query.
US07	Full-text Search	High	Gonalo	As a user, I want to perform a full-text search, so that I can search for relevant information within all content.
US08	Create Project	High	Lucas	As a user, I want to create a new project, so that I can initiate and organize my tasks and collaborate with my team.
US09	View My Projects	High	Lucas	As a user, I want to view my projects, so that I can keep track of my progress and manage my tasks.
US10	Recover Password	Medium	Lucas	As a user, I want to reset my password, so that I can regain access to my account.
US11	Delete Account	Medium	Gonalo	As a user, I want to delete my account, so that I can permanently remove my data and no longer have access to the system.

Identifier	Name	Priority	Responsible	Description
US12	Support Profile Picture	Medium	Diogo	As a user, I want to upload and update my profile picture, so that I can personalize my account with a visual identifier.
US13	View Personal Notifications	Medium	Rui	As a user, I want to view my personal notifications, so that I can stay informed about updates and actions related to my account and projects.
US14	Search Over Multiple Attributes	Medium	Gonçalo	As a user, I want to search across multiple attributes, so that I can find more precise and relevant results based on different criteria.
US15	Search Filters	Medium	Gonçalo	As a user, I want to apply search filters, so that I can narrow down the results and find more relevant information.
US16	Placeholders in Form Inputs	Medium	Diogo	As a user, I want to see placeholder text in form inputs, so that I can easily understand what information is required and how to fill out the form properly.
US17	Contextual Error Messages	Medium	Diogo	As a user, I want to receive contextual error messages, so that I can understand what went wrong and how to correct any issues while using the application.
US18	Contextual Help	Medium	Lucas	As a user, I want to access contextual help throughout the application, so that I can receive guidance and support relevant to the specific features or fields I am using.
US19	About Us	Medium	Rui	As a user, I want to view the "About Us" section, so that I can learn more about the organization, its mission, and the team behind the application.
US20	Main Features	Medium	Lucas	As a user, I want to view the main features of the application, so that I can understand its capabilities and how it can meet my needs.
US21	Contacts	Medium	Rui	As a user, I want to access the contact section, so that I can find information on how to reach support or the team behind the application for any inquiries or assistance.
US22	Accept Email Invitation	Medium	Lucas	As a user, I want to accept an email invitation, so that I can join a project or collaborate with others.
US23	Mark Project As Favorite	Medium	Lucas	As a user, I want to mark a project as a favorite, so that I can access it later and keep it prioritised in my workflow.
US24	Completed Task in Project Managed or in Participating Task	Medium	Diogo	As a user, I want to receive notifications when a task is marked as completed in a project I manage or participate in, so that I can stay updated on progress and make informed decisions.
US25	Ordering of Results	Low	Gonçalo	As a user, I want to sort the search results, so that I can review the information in the order that best suits my needs.
US26	Manage Project Invitation	Low	Lucas	As a user, I want to manage project invitations, so I can accept or decline invitations to collaborate on projects.
US27	Edit Post	Low	Rui	As a user, I want to edit my post, so that I can make corrections or updates to the content I have previously submitted.
US28	Delete Post	Low	Rui	As a user, I want to delete my post, so that I can remove content I no longer wish to have published.

Table 3: User user stories.

2.3. Project Member

Identifier	Name	Priority	Responsible	Description
US29	Create Task	High	Lucas	As a project member, I want to create a new task, so that I can assign specific actions within a project and manage my workload.
US30	Manage Tasks	High	Lucas	As a project member, I want to manage tasks by setting priorities, adding labels, and defining due dates, so that I can organize my workload and ensure timely completion of my projects.

Identifier	Name	Priority	Responsible	Description
US31	View Task Details	High	Diogo	As a project member, I want to view task details, so that I can understand the specific requirements, due dates, and assigned users for each task.
US32	Complete an Assigned Task	High	Diogo	As a project member, I want to mark an assigned task as complete, so that I can track my progress and indicate to my team that the task has been finished.
US33	Search Tasks	High	Gonalo	As a project member, I want to search for tasks, so that I can find specific tasks based on keywords, due dates, or assigned users.
US34	Assign Users To Tasks	Medium	Lucas	As a project member, I want to assign other users to tasks, so that I can delegate responsibilities and ensure that the right team members are accountable for specific actions.
US35	Comment on Task	Medium	Rui	As a project member, I want to comment on a task, so that I can provide updates, ask questions, or share feedback with my team members regarding the task.
US36	Leave Project	Medium	Lucas	As a project member, I want to leave a project, so that I can withdraw from tasks and responsibilities that I can no longer participate in.
US37	View Project Team	Medium	Diogo	As a project member, I want to view the project team, so that I can see the members involved, their roles, and how we can collaborate.
US38	View Team Members Profiles	Medium	Diogo	As a project member, I want to view team members' profiles, so that I can learn more about their skills, roles, and contributions to the project.
US39	Google Calendar Integration	Medium	Gonalo	As a project member, I want to sync project meetings, deadlines, and milestones with Google Calendar through the Google Calendar API, so that I can manage my schedule and ensure that all project-related events are synchronized across platforms.
US40	Assigned to Task	Medium	Diogo	As a project member, I want to receive a notification when I am assigned to a task, so that I am promptly informed of my responsibilities.
US41	Change In Project Coordinator	Medium	Diogo	As a project member, I want to be notified when there is a change in the project coordinator, so that I can stay informed about leadership and direct my questions or concerns to the appropriate person.
US42	View Project Timeline	Low	Rui	As a project member, I want to view the project timeline, so I can have an overview of the project.
US43	Github Integration	Low	Gonalo	As a project member, I want to link tasks and issues from GitHub directly to the project management app, so that I can manage code-related tasks in one place, keeping everything in sync.

Table 4: Project Member user stories.

2.4. Project Coordinator

Identifier	Name	Priority	Responsible	Description
US44	Add User to Project	High	Rui	As a project coordinator, I want to add a user to a project, so that I can collaborate with them on tasks and leverage their skills and expertise.
US45	Assign New Coordinator	Medium	Rui	As a project coordinator, I want to assign a new coordinator to the project, so that I can ensure effective leadership and management of the team moving forward.
US46	Edit Project Details	Medium	Lucas	As a project coordinator, I want to edit project details, so that I can update information to reflect any changes in scope or objectives.
US47	Assign Task to Member	Medium	Lucas	As a project coordinator, I want to assign a task to a team member, so that I can delegate responsibilities and ensure the work is distributed among the team.
US48	Remove Project Member	Medium	Gonalo	As a project coordinator, I want to remove a project member, so that I can manage the team composition and ensure that only relevant members are involved in the project.

Identifier	Name	Priority	Responsible	Description
US49	Archive Project	Medium	Gonalo	As a project coordinator, I want to archive a project, so that I can preserve its information and status without it cluttering my active project list.
US50	Accepted Invitation to Project	Medium	Diogo	As a project coordinator, I want to receive a notification when others accept my invitation to a project, so that I can stay informed about the team composition.
US51	Manage Members Permissions	Low	Diogo	As a project coordinator, I want to manage members' permissions, so I can control their access and roles within the project.
US52	Invite to Project by Email	Low	Lucas	As a project coordinator, I want to invite users to the project by email, so I can add new collaborators to the team.

Table 5: Project Coordinator user stories.

2.5. Administrator

Identifier	Name	Priority	Responsible	Description
US53	Administer User Accounts	High	Gonalo	As an administrator, I want to search, view, edit, and create user accounts, so that I can manage users and ensure proper system access and functionality.
US54	Administrator Accounts	Medium	Gonalo	As an administrator, I want to manage user accounts and permissions, so that I can control access levels and ensure the system is used securely and appropriately.
US55	Block and Unblock User Accounts	Medium	Rui	As an administrator, I want to block and unblock user accounts, so that I can manage access for users who violate policies or resolve issues when appropriate.
US56	Delete User Account	Medium	Rui	As an administrator, I want to delete user accounts, so that I can remove access for users who no longer need to use the system or who have requested account deletion.
US57	Browse Projects	Medium	Diogo	As an administrator, I want to browse all projects, so that I can monitor project statuses, manage resources, and ensure effective oversight of ongoing activities.
US58	View Project Details	Medium	Diogo	As an administrator, I want to view project details, so that I can assess project progress, resource allocation, and team performance to ensure successful project management.

Table 6: Administrator user stories.

3. Supplementary Requirements

The following supplementary requirements are categorized into business rules, technical specifications, and non-functional constraints.

3.1. Business rules

This section outlines the fundamental guidelines and regulations that govern the operations and interactions within the system.

Identifier	Name	Description
BR01	Administrator Account Independence	Administrator accounts are independent of standard user accounts. Administrators cannot create or participate directly in projects, ensuring their role remains focused on system management and user oversight rather than project execution.
BR02	Project Coordinator Responsibilities	Project Coordinators are responsible for team assignment, setting deadlines, and managing overall project timelines and objectives. They are also in charge of distributing specific tasks among their team members and overseeing task progress.
BR03	Team Member	Team members can view and manage only the tasks assigned to them by their project manager.
BR04	User Group Permissions	Users are organized into hierarchical groups: administrators, project coordinators and project members, each with varying permission levels.

Identifier	Name	Description
BR05	User Data Anonymization	Upon the deletion of a user's account, any shared data previously created by the user (e.g. comments, reviews, likes) is retained in the system for historical purposes but is made fully anonymous to ensure user privacy and compliance with data protection regulations.
BR06	Date Validations	In any project or task-related data entry, the exit date must be later than or equal to the entry date. The system will enforce this rule to avoid any invalid or inconsistent date entries.
BR07	User self response	Users are allowed to vote, comment, and review their own responses or tasks. This feature is intended to help users reflect on their own work, better understand their challenges and provide insights that may assist others facing similar issues.

Table 7: Business rules.

3.2. Technical requirements

This section specifies the technical specifications and constraints that the system must adhere to for optimal performance and functionality.

Identifier	Name	Description
TR01	Performance	The system must ensure response times shorter than 2 seconds to maintain user engagement and provide a seamless experience.
TR02	Robustness	The system must be resilient to runtime errors, allowing operations to continue smoothly without crashing or losing critical data.
TR03	Scalability	The system must be designed to handle a growing number of users and actions, ensuring performance remains stable even with increased demand.
TR04	Responsive Design	Our system is designed with responsive layouts to ensure usability across desktop, tablet, and smartphone devices.
TR05	Database Integration	Our system integrates with a relational database (PostgreSQL) to manage user, project, and task information.
TR06	API Integration	Our system provides an API for Google Calendar and GitHub to help project managements.
TR07	Accessibility	The system must be accessible to all users, regardless of any disabilities or the web browser they use, adhering to web accessibility standards.

Table 8: Technical requirements.

The three essential technical requirements, highlighted in bold and marked in the table above, are driven by the following factors: **performance** is crucial because fast response times help maintain user engagement and ensure a smooth experience. Delays or lag can lead to frustration, reduced productivity, and even cause users to abandon the platform. **Robustness** is important to minimize disruptions and ensure that users can continue working under heavy workloads or stressful conditions without risking data loss or significant downtime. **Scalability** is vital as the system grows, allowing it to handle increased loads without sacrificing performance, preventing crashes or slowdowns as more users and projects are added.

3.3. Restrictions

This section outlines the limitations and constraints placed on the system and its users to maintain security and operational efficiency.

Identifier	Name	Description
RE01	Account Limit	A user is allowed to have more than one account, but not using the same email or login credentials. Each account must be registered with unique credentials.
RE02	Administrator Assignment	Only administrators have the authority to designate new administrators; no automatic promotion based on activity or seniority.
RE03	System Downtime	To prevent system overload, if administrators do not confirm the continuation of a project each month, the system will automatically delete the project.

Table 9: Restrictions.

A3: Information Architecture

The goal of this artifact is to organize and structure content logically for improved usability and navigation.

1. Sitemap

The Planora system is organized into four primary sections, as depicted in Figure 2. The Static Pages provide general information, such as details about the system and contact information. The Project Pages are dedicated to organizing projects and include features like a dashboard, calendar, and task views. The User Pages display user-specific information and offer options for editing user profiles. Lastly, the Admin Pages contain tools for system management, enabling effective oversight and control of the platform.

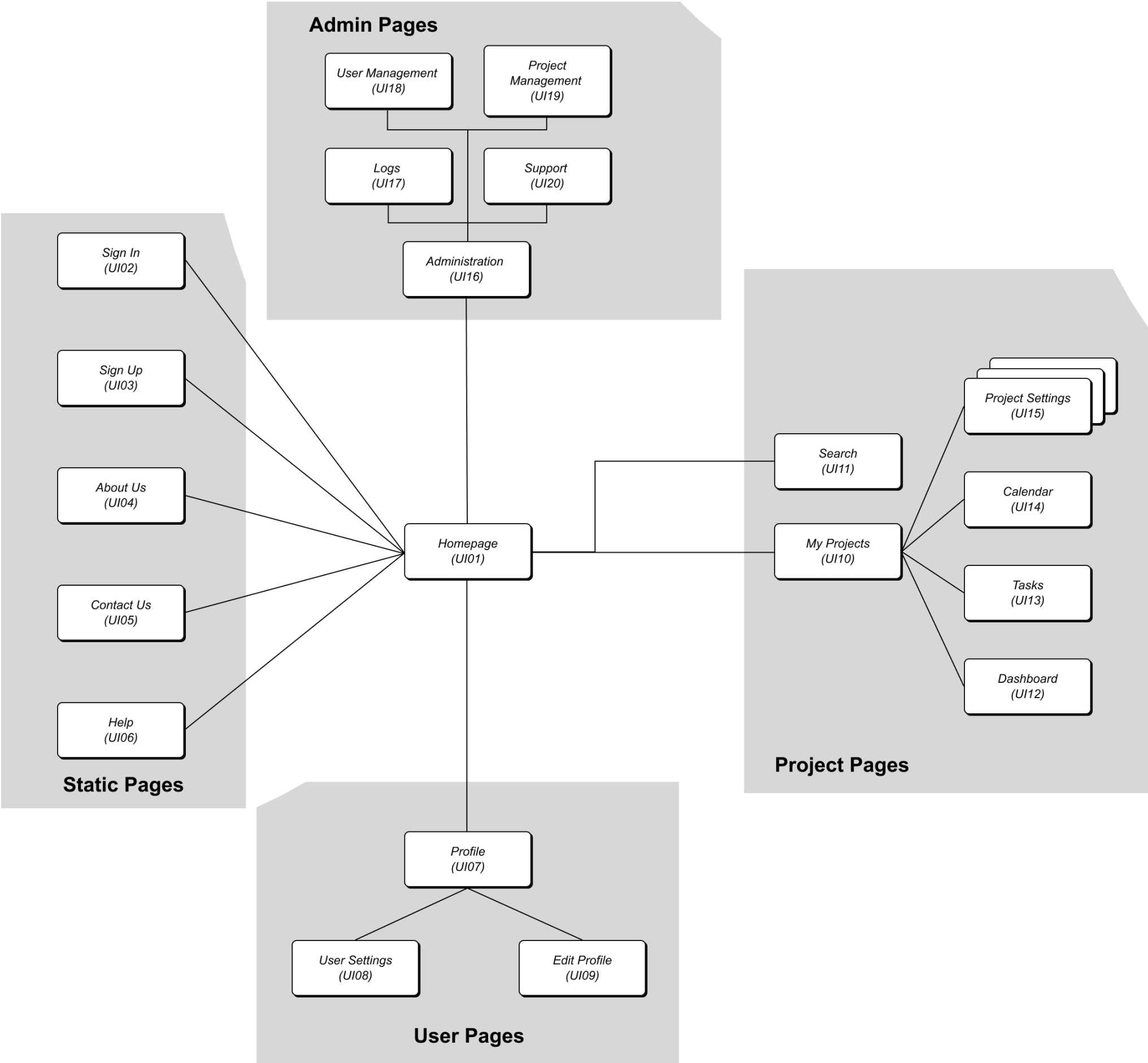


Figure 2: Planora Sitemap.

2. Wireframes

- 1
- Breadcrumbs to help user navigate
- 2
- Direct access to the search feature

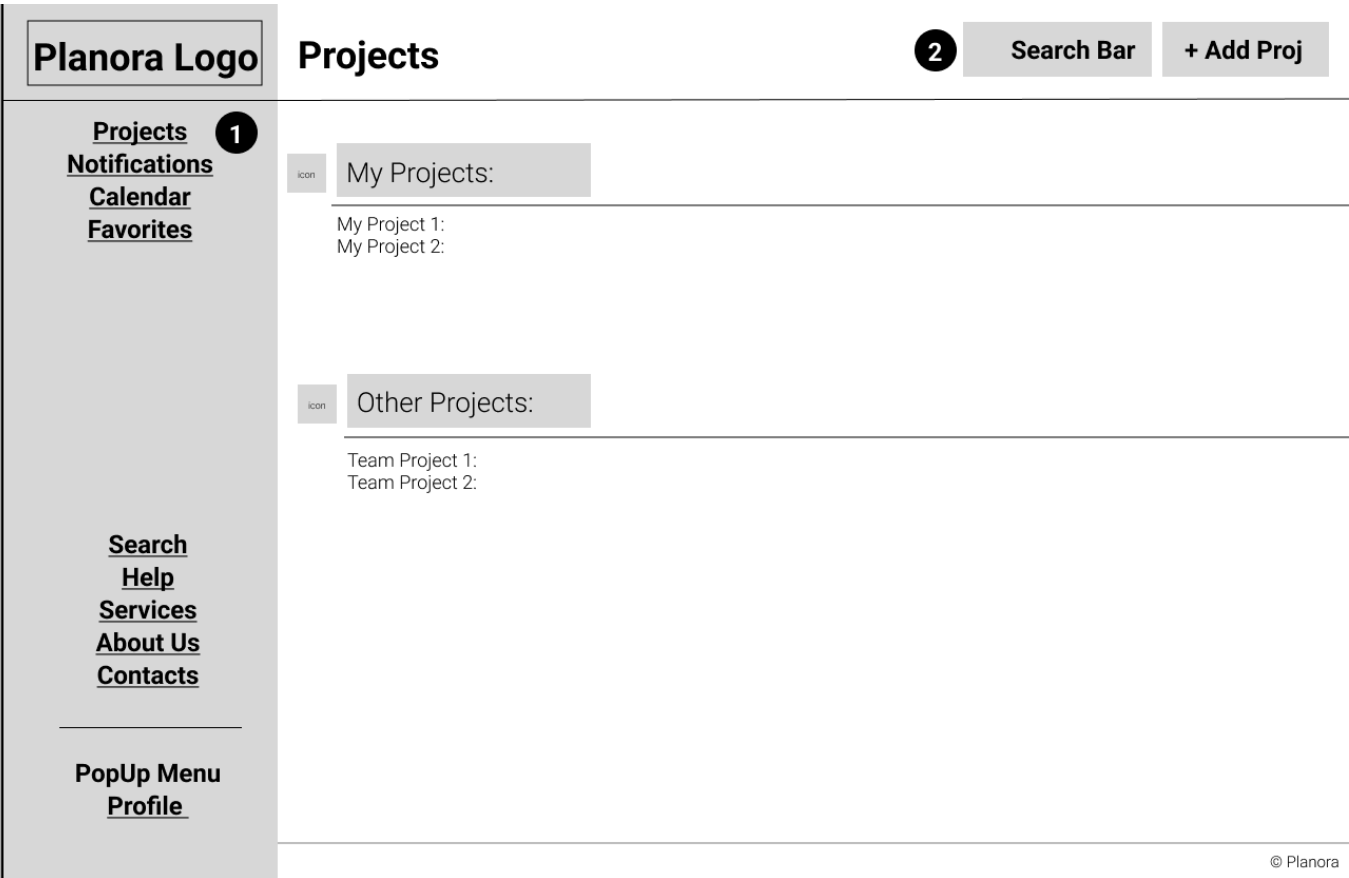


Figure 3: Homepage (UI01) wireframe.

- 1
- Breadcrumbs to help user navigate
- 2
- The profile owner is permitted to open a new project
- 3
- Edit profile is available to the user
- 4
- The profile owner has access to User Settings

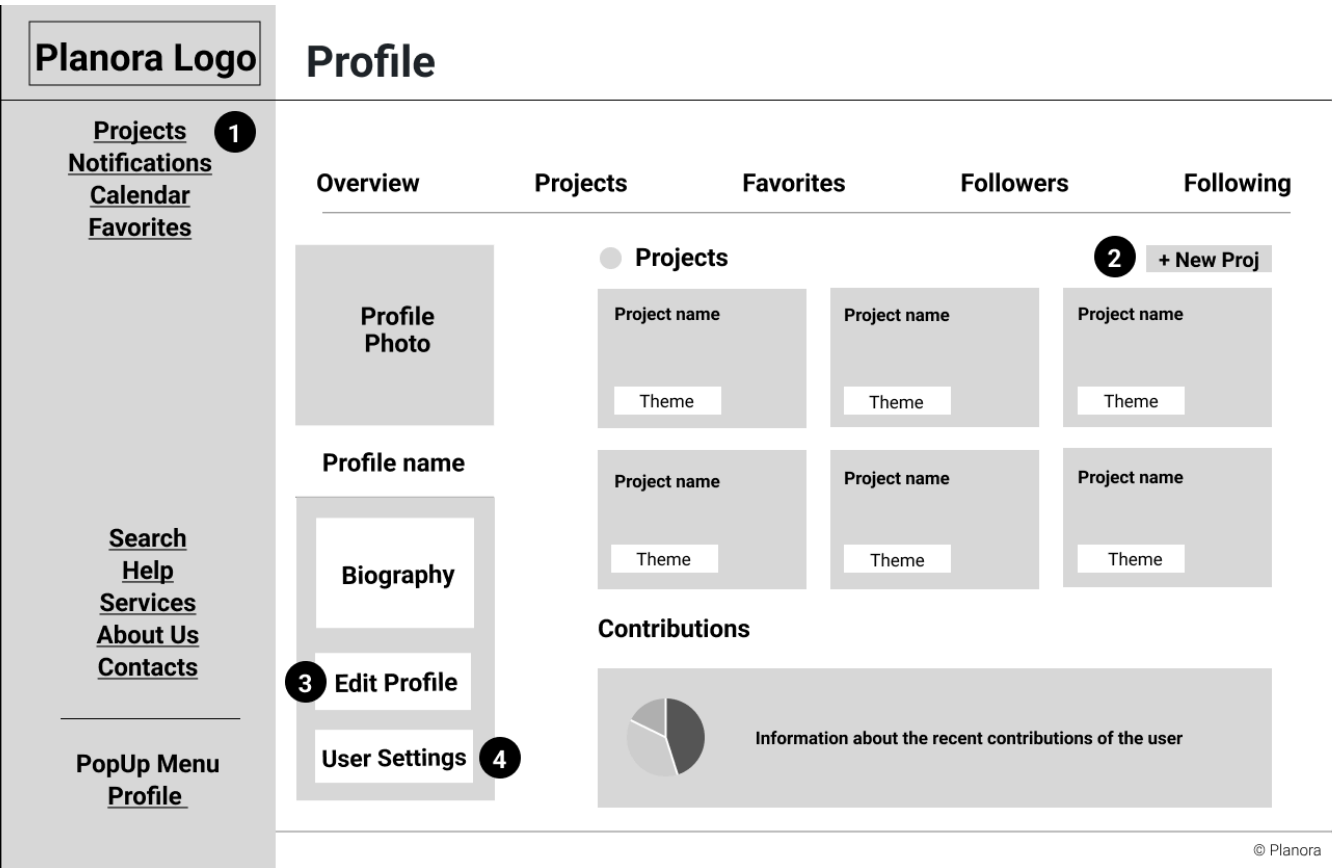


Figure 4: Profile (UI07) wireframe.

- 1
- Breadcrumbs to help user navigate
- 2
- Project Coordinator can create a new task

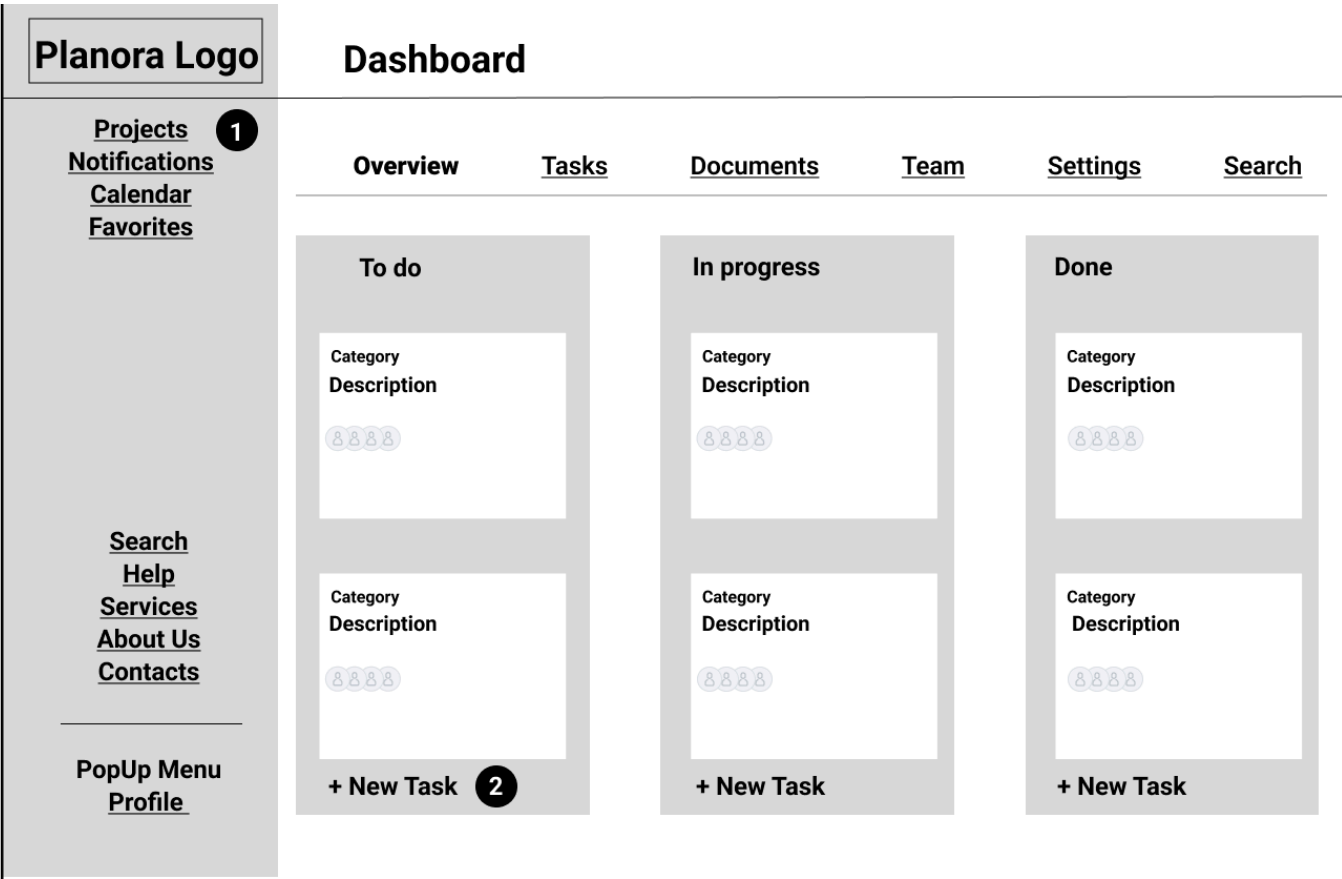


Figure 5: Dashboard (UI11) wireframe.

Revision history

Changes made to the first submission:

1. Actors figure: Specification of the GitHub API to be used, with the name of the API being Issues API.
2. Sitemap figure: The admin page was detailed, including its functionality and what tasks administrators can perform. The search was reallocated to the Project Pages.

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Comments

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