TEEM

Software Requirements Specifications

Version 1

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Prepared On: 24-11-2023

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1. Introduction

1.1. Purpose

The purpose of this document is to provide a detailed description of the Software Requirements Specification (SRS) for the TEEM Application. The SRS will define the functional and non-functional requirements of the system, including its scope, and features.
The document will outline the purpose of the website, which is to help people from various backgrounds collaborate smoothly by finding a suitable time to meet and manage their progress. It will describe the features of the web app.

The SRS will serve as a roadmap for the development team, guiding them in the development of the system to ensure that it meets the needs of its users and stakeholders. Furthermore, the document will provide a basis for testing, verification, and validation of the system, to ensure that it meets the specified requirements and is fit for its intended purpose.

1.2. Product Scope

‘TEEM’ is a web app that aims to provide a platform for smoothing out the collaboration process between people from different backgrounds. It aims to do so by letting them create workspaces, organize meets, and create tasks.
The scope of this product involves developing a web application that collaborators can use for the above-mentioned purposes.

The product scope also includes the development of a user-friendly interface that is easy to navigate, responsive, and accessible on all devices.

The product scope excludes hardware requirements as well as legal or regulatory requirements necessary for the use of the application.

1.3. Acronyms

The following acronyms have been used in the given document.

Acronym	Meaning
DB/db	Database
FR	Functional Requirements
NFR	Non Functional Requirements

1.4. Technologies to be Used

We will leverage the power of React Hook Form for efficient form handling, integrate Next.js for seamless server-side rendering and routing, and enhance the user interface with the flexibility of Tailwind CSS, ensuring a modern and responsive web application frontend.

Our backend development will be powered by Node.js and Express.js for efficient server-side operations, with PostgreSQL serving as the robust relational database to store and manage our data.

2. Overall Description

2.1 Need of the Product

People being part of various initiatives such as non-profit organizations, student organizations frequently collaborate with stakeholders in other organizations. These users do not currently have access to a sophisticated solution that would enable them to successfully arrange a mutually convenient time to meet. They lack a standardized mechanism that would enable them to access the availability of other group members. Additionally, they don't have a tool to maintain track of the progress as well as what has been assigned to them.

2.2 Product Features

The product aims to provide multiple features to fulfill its aim of providing a platform to enable smoother collaboration.

1. User Authentication and Account Management

1.1 *Feature*: User Registration and Login
Description: Users can create accounts by providing the necessary information. Registered users can log in securely to access the application and manage their authentication credentials.

2. Workspace Management

2.1 *Feature*: Workspace Creation
Description: Users can create workspaces to bring together individuals for collaboration. They can define the workspace's purpose and invite members.

2.2 *Feature*: Member Management
Description: Users can add or remove members to the workspace and categorize them as 'Teammates' (Users involved in the

workspace), 'Clients' (External parties interested in the workspace), or 'Collaborators'(External parties collaborating on the workspace).

2.3 *Feature*: Edit Workspace Details
Description: Users have the option to edit details of the workspace, including the workspace name and description, to reflect any changes in project scope or focus.

3. Meeting Management

3.1 *Feature*: Schedule Meetings
Description: Workspace members can schedule meetings, specifying the agenda, date, time, and location.

3.2 *Feature*: Invitees Management
Description: For each scheduled meeting, users can add and remove invitees. The list of invitees is dynamic and can be updated as needed.

3.3 *Feature*: Meeting Rescheduling
Description: Invitees have the option to request a reschedule for a meeting, and the organizer can review and make adjustments if necessary.

4. Task Assignment and Project Progress

4.1 *Feature*: Task Assignment
Description: Users can assign tasks to workspace members, providing details such as task description, deadlines, and priority.

4.2 *Feature*: Task Assignee Management
Description: Users can add and remove assignees from tasks, allowing for dynamic task assignments based on project needs.

4.3 *Feature*: Edit Task Details
Description: Users have the option to edit details of tasks, including task description, deadlines, and priority, as project requirements evolve.

4.4 *Feature*: Task Progress Tracking
Description: The system calculates and displays the progress of the project based on completed tasks, providing visual indicators and reports.

5. Email Notifications

5.1 *Feature*: Email Notifications
Description: Email notifications are sent to users for various events, such as user verification using OTP, workspace invitations, meeting invitations, and task assignments.

These features aim to capture the key functionalities of your web application, providing a comprehensive environment for collaboration, task management, and project progress tracking within workspaces.

2.3 User Classes and Stakeholders

User Classes

Regular User:

Regular users are individuals who create accounts, log in, and participate in workspaces. They also have the ability to create workspaces.

Project Manager:

The users who create workspaces get the role of project manager for this specific workspace. They can add/remove members,

schedule meets, assign tasks as well and edit respective details when necessary.

Teammates, Clients, and Collaborators:

Within a workspace, members can be categorized into different roles such as 'Teammates,' 'Clients,' or 'Collaborators.' Each role may have is based on their involvement within the workspace.

Stakeholders

Administrators:

Individuals with administrative privileges who manage and configure the web application. They have control over certain aspects of user management and system configuration.

Developers:

The team responsible for designing, developing, and maintaining the web application. Developers play a key role in implementing the features and functionalities outlined in the project.

2.4 Constraints

Time Constraints:

The project may have specific deadlines or timeframes for the delivery of the overall completion of the web application, influencing project planning and development timelines.

Scalability Constraints:

The system may need to handle a certain number of users, workspaces, and concurrent activities. For a large number of requests and data fetching it may crash.

Integration Constraints:

If the web application needs to integrate with external systems or services, there may be constraints related to the

availability, compatibility, or limitations of those external components.

2.5 Assumptions and Dependencies

- It is assumed that the TEEM application has access to a fast and efficient database to fetch and update data 24/7.

- It is also assumed that the application has access to a reliable email service to send out emails to users at times of workspace creation, meeting scheduling, and task assignment.
- It is also assumed that the external services the application is relying on such as Google API are reliable.

- the host website may leak some user data due to weak encryption protocol.

3. External Interface Requirements

3.1 User Interfaces

The user interfaces are designed to be intuitive and user-friendly, facilitating seamless navigation and interaction. Key interfaces include:

1. *User Registration and Login:* Provides a secure way for users to create accounts and log in.
2. *Workspace Management:* Enables users to create workspaces, manage members, and edit workspace details.
3. *Meeting Management:* Allows scheduling meetings, managing invitees, and rescheduling meetings.
4. *Task Management and Project Progress:* Facilitates task assignment, progress tracking, and dynamic task management.

3.2 Hardware Interfaces

The TEEM Application does not interact with any hardware and hence doesn't have any hardware interface.

3.3 Software Interfaces

The TEEM Application relies on many external software to fulfill its functionality. The dependencies are given below

UI Design: Figma

Coding Environment: Visual Studio Code

Distributed Version Contol System: Git-GitHub

Front-end: Zod,
react-hook-form,
Nextjs,
shading ui,
tailwind css,
fontawesome,
Fullcalendar

Back-end: Node js,
Express js,
Drizzle ORM,
Postgre SQL,
Bcrypt,
Redisclient,
cookie-parser,
Jsonwebtoken,
Nodemailer,
dotenv,
Google API

Web hosting service: Vercel

Testing: Postman,
ts-Jest,
Supertest,
Jmeter

4. Requirement Analysis

4.1 Functional Requirements

FR(1): User Access and Authentication

FR(1.1): The system provides a user-friendly platform interface.

FR(1.1.1): Users are authenticated based on their unique username and password.
FR(1.1.2): The system verifies credentials by searching the database for a match.

FR(1.2): Registration Module

FR(1.2.1): The system checks the availability of the entered username in the database for uniqueness.

FR(1.3): Login Module

FR(1.3.1): The system verifies the entered username's existence in the database, ensuring uniqueness for successful login.

FR(1.4): Password Recovery

FR(1.4.1): Users can reset their password by indicating a forgotten password.
FR(1.4.2): The system prompts the user for an email address for password reset.

FR(1.5): Change Password

FR(1.5.1): Authenticated users have the option to change their password for security purposes.
FR(1.5.2): The system prompts users to enter their current password and the new password for confirmation.
FR(1.5.3): The system validates the entered current password before allowing users to set a new password.

FR(2): Workspace Management

FR(2.1): Users can create workspaces for different projects.

FR(2.1.1): Users specify a unique name and purpose for each workspace.
FR(2.1.2): Workspaces are categorized or tagged for easy identification.

FR(2.2): Project Managers can add, remove, or modify team members within a workspace.

FR(2.2.1): Project Managers add team members by specifying their roles.
FR(2.2.2): Project Managers remove team members from a workspace when necessary.
FR(2.2.3): Project Managers modify team members' roles and permissions as project dynamics evolve.

FR(2.3): Project Managers can edit workspace details like name, and description.

FR(2.4): Project Managers can delete the workspace.

FR(3): Task Management

FR(3.1): Project Managers can create tasks within a workspace.

FR(3.1.1): Project Managers create tasks with titles, descriptions, and due dates.

FR(3.2): Project Managers can add, remove, or modify assignees within a task.

FR(3.3): Project Managers edit task details.

FR(3.4): Project Managers can specify and modify the status of tasks like “To Do”,” In Progress”, and” Done”.

FR(3.5): Project Managers can delete tasks.

FR(4): Meeting Scheduling

FR(4.1): Users can schedule meetings within a workspace.

FR(4.1.1): Users can schedule meetings within a workspace, specifying date, time, and agenda.

FR(4.2): Meet Organizer can see free slots of their workspace member so he/she can easily schedule a meeting at the convince of all invitees

FR(4.3): Meet Organizer can add, remove, or modify invitees to meet.

FR(4.4): Meet Organizer edit meet details like meet date, time, venue, and duration.

FR(4.5): The Invitee can also request to meet the organizer to reschedule the meeting by suggesting a new meeting time, meeting date, venue, and duration.

FR(4.4): Meet Organizer can delete meet.

FR(5): Workspace Progress Tracking

FR(5.1): Users can track the progress workspace.

FR(5.1.1): TEEM simply calculates the progress of the workspace based on the completion of tasks.

4.2 Non-Functional Requirements

NFR(1): Accessibility

NFR(1.1): The TEEM platform should provide intuitive navigation, ensuring a user-friendly experience.
NFR(1.2): A dashboard button should enable users to return to the dashboard page effortlessly.

NFR(2): Reliability

NFR(2.1): The system should consistently produce correct outputs within specified time frames.
NFR(2.2): It should avoid silent errors and ensure the delivery of accurate and uncorrupted data.
NFR(2.3): The platform should remain stable even during high volumes of requests and data fetching operations.

NFR(3): Performance

NFR(3.1): The TEEM platform should excel in various performance metrics, including page load time, throughput, error rate, and response times.
NFR(3.2): The system should remain stable and perform efficiently, even during peak usage times, without crashing or compromising user experience.

NFR(4): Availability

NFR(4.1): The platform should be available 24/7 for users.
NFR(4.2): APIs (request-response message systems) should remain accessible at all times, with data fetching capabilities operating at 100% efficiency.

NFR(5): Utility

NFR(5.1): The system must provide useful and helpful features that can help project owners manage their projects more

efficiently and effectively and can help clients keep in touch with project members.

NFR(6): Flexibility

NFR(6.1): The system should be flexible enough to easily make changes to it

NFR(6): Security

NFR(6.1): The system must be able to keep the personal information of the users secure by encrypting the user data to prevent unauthorized access to their accounts and personal information.

5. User Stories

User Story 1:

Front of the card	Back of the card
• As a user, I want to create an account so that I can access the TEEM Application.	• If the required Information is not filled then the user cannot proceed further. • If the user is already registered on the website, then the user will be asked to log in. • If the required information is filled then an OTP will be sent to an email through which the user can verify their account.

User Story 2:

Front of the card	Back of the card
• As a registered user, I want to log in so that I can access my account.	• The person logging in should be a registered user. • If the login details provided by the user are not correct, then the user will be prompted with an error message.

User Story 3:

Front of the card	Back of the card
• As a user, I want to create a new project /workspace so that I can easily collaborate.	• Users can provide a project name and a brief description of the new project. • Once submitted, the new project will be added to the project list and it will appear on the main dashboard, along with any other existing projects. • The project creator will be assigned the role of the project manager.

User Story 4:

Front of the card	Back of the card
• As a project leader, I want to view the current members and add/remove members so that I can manage who is involved in the project.	• The project manager will input the email addresses of new members. • The project leader can assign roles to the new members, such as teammates, clients, or collaborators. • Upon submission, the new members are added to the project with their respective roles. • An email notification is sent to the new members, including

	project details and assigned roles. ● If the added member is not a user of the platform, they receive an invitation to join and create an account. ● Only the project leader(s) can remove existing members from the project. ● The member management process is secure, ensuring only authorized individuals have access to the project.

User Story 5:

Front of the card	Back of the card
● As a project manager, I want to add tasks for project members so that the project keeps progressing.	● The project manager can define the name and description, and deadline of the task ● The project manager specifies the members to whom the task is assigned. ● Members can view their assigned tasks and track their progress. ● The project manager can edit or remove tasks as needed. ● The system ensures that members are aware of their

	responsibilities and the set timeline. • task creation process maintains the security and access control of the project.

User Story 6:

Front of the card	Back of the card
• As a project member, I want to see the tasks assigned to me so that I get to know what I should be working on.	• Members can see a list of the assigned tasks relevant to them. • The tracking process indicates pending, completed, and overdue tasks. • The system ensures that members can only manage checkpoints assigned specifically to them, maintaining project security.

User Story 7:

Front of the card	Back of the card
• As a project member, I want to see the project progress so I can get insights into the completion status of various tasks and milestones.	• The progress section showcases a visual representation. • Members can see the percentage of completed tasks and tasks in progress. • The progress view is

	regularly updated and accurately reflects the real-time status of the project. ● This functionality helps project members gauge the project's advancement. ● The system ensures that project members can access this progress view only for projects they are actively involved in, maintaining privacy and access control.

User Story 8:

Front of the card	Back of the card
● As a project member, I want to schedule a meeting according to other members' availability and schedule.	● The user should be asked for the meeting details such as time, date, and topic of the meeting. ● After that, the details of the meeting will be sent to the other group members and they will have two options. ● They can choose to accept the invitation or they can ask to reschedule it. ● The meeting organizer will be notified about the availability of the other group members.

User Story 9:

Front of the card	Back of the card
• As a group member, I want the ability to sync my meeting schedules with my personal calendar.	• The user will have an option to sync the meeting schedules with popular calendars like google calendar. • The user will have an option to choose a free period in which the meeting request will be declined.

User Story 10:

Front of the card	Back of the card
• As a meet organizer, I want the option to customize the meeting settings, such as date, time, and invitees.	• A meet invitee will have an option to suggest to the meeting organizer to change the time of the meeting. • In case of unavailability of invitees or need for new invites the organiser could also edit the invitee list.

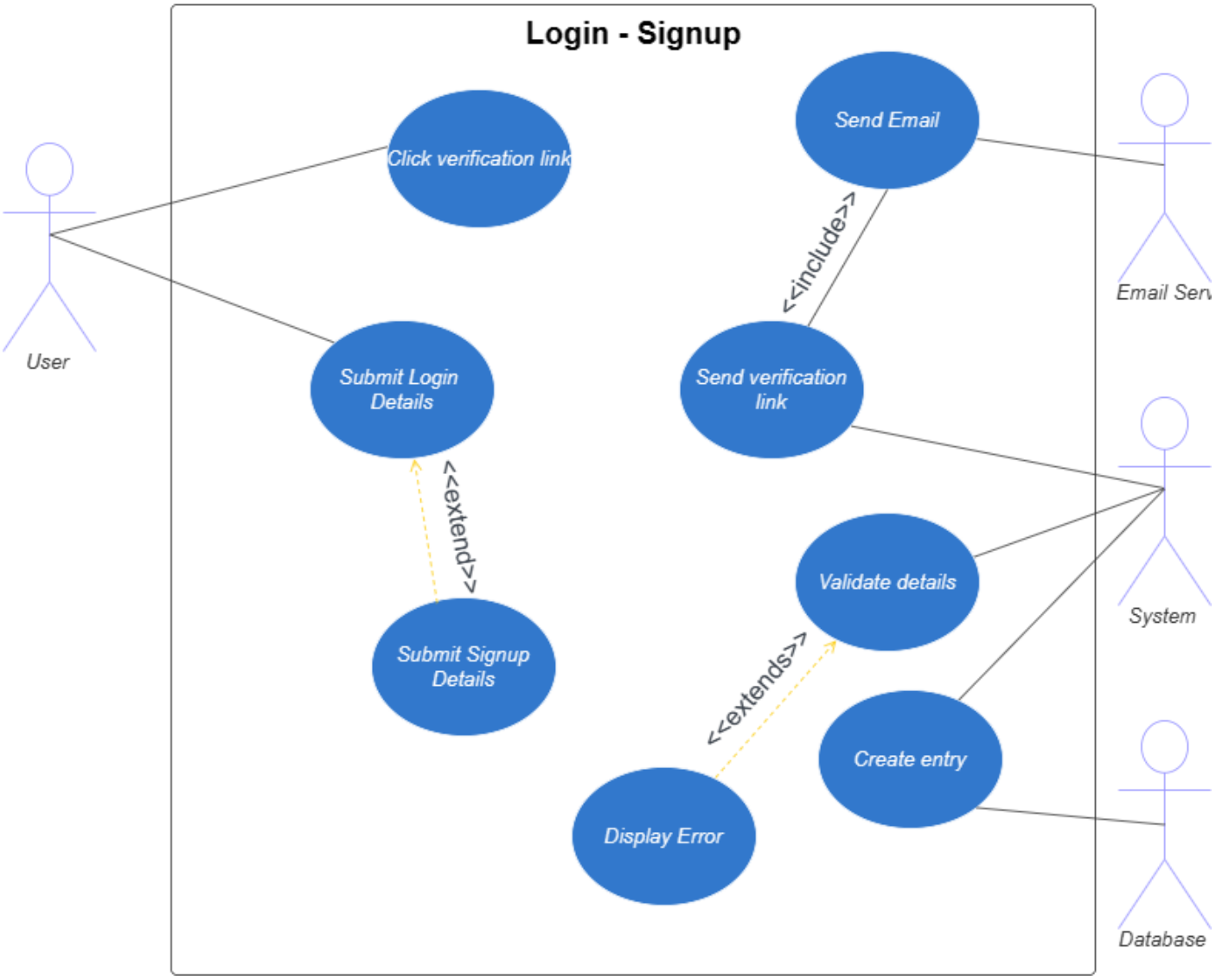
6. Use Case Documents

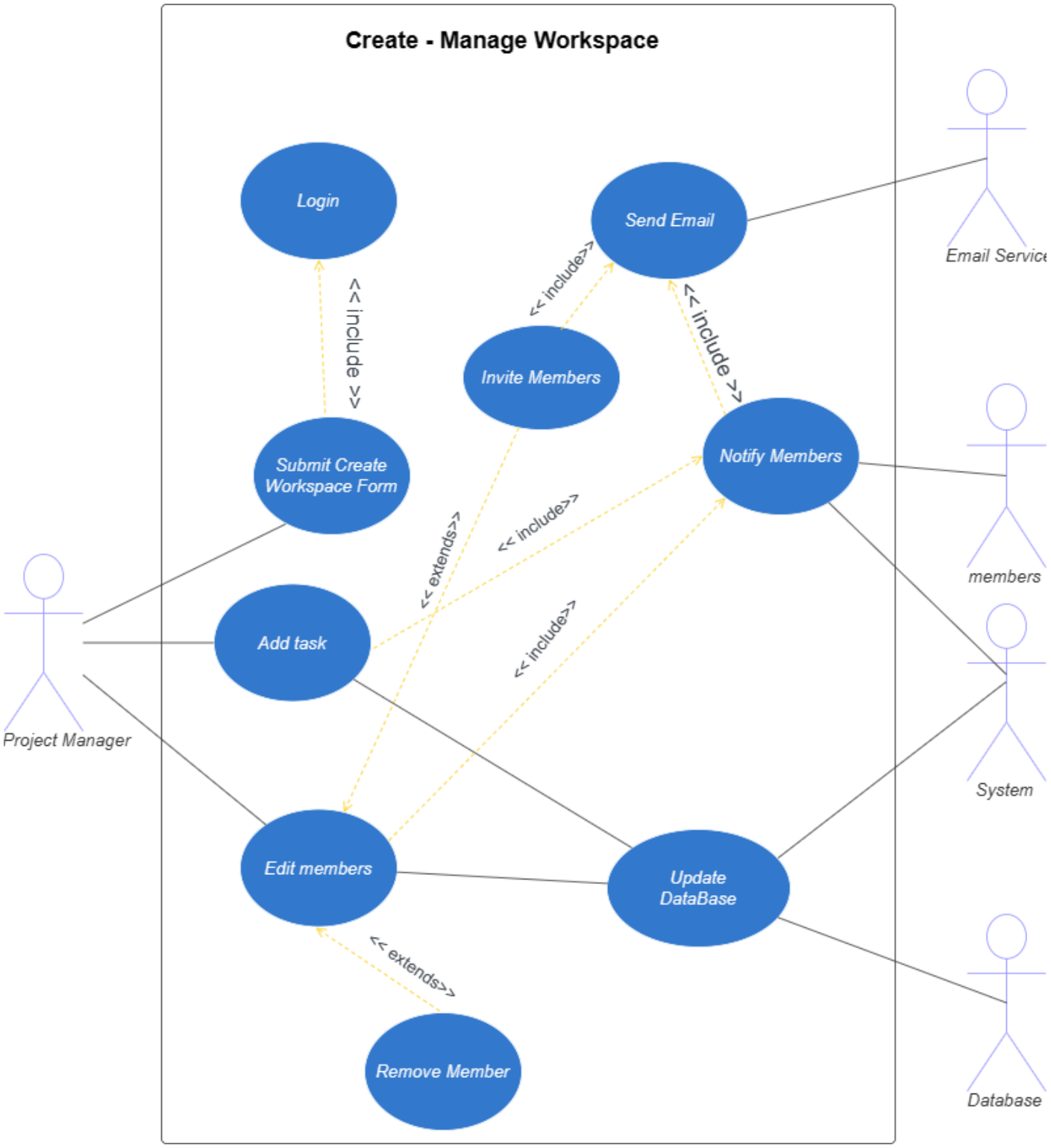
Use case Name	Use Case ID	View
Signup	TEEM.UC.001	SignUpUseCaseDocum…
Login	TEEM.UC.002	LoginUseCaseDocume…
Change Password	TEEM.UC.014	ChangePassword
Forgot Reset Password	TEEM.UC.015	Forgot and Reset P…
Create Workspace	TEEM.UC.003	TEEM-CreateWS
Schedule Meeting	TEEM.UC.004	TEEM-ScheduleMeeti…
Add Task	TEEM.UC.006	TEEM-Add-Task
Edit Workspace Members	TEEM.UC.011	TEEM-Edit wsMember…
Add Invitee	TEEM.UC.007	TEEM-Add-Invitees
Edit Task Details	TEEM.UC.012	TEEM-Edit taskDeta…
Edit Meeting Time	TEEM.UC.009	TEEM-Edit-Meeting-…
Edit Workspace Details	TEEM.UC.010	TEEM-EditWSDetails
Edit Task Assignees	TEEM.UC.013	TEEM-EditTaskAssig…

Deleted Use-Cases :

Use case Name	Use Case ID	View
Remove Members	TEEM.UC.008	TEEM-Remove-Member
Add Members	TEEM.UC.005	TEEM-Add-Members

7. Use Case Diagrams




Create - Manage Workspace
Login
Send Email
Email Service
<< include >>
<< include>>
Invite Members
<< include >>
Submit Create Workspace Form
Notify Members
members
<< extends>>
<< include>>
Add task
<< include>>
Project Manager
System
Edit members
Update DataBase
<< extends>>
Remove Member
Database


Schedule - Manage Meeting
Show Calendar
Login
Send Email
notify About Meet
<< include >>
<< include >>
Force Schedule
<< extends>>
Submit Meeting Details
<< include >>
Edit Meet
<< include >>
check conflicts
<< extends >>
Drop Meet
create New Entry
Display Error
<< extends>>
Validate Information
Meet Organizer
Calendar
Email Service
Ivitees
System
Database

8. Proposed Methodology for Development

The SCRUM-Agile method of software development is going to be used to develop the TEEM web application.

SCRUM-Agile is a popular project management framework known for its efficiency and adaptability. Its structured approach to iterative development, frequent feedback loops, and emphasis on collaboration makes it an ideal choice for teams aiming to deliver high-quality products in a dynamic and rapidly evolving environment.

Iterative Development: SCRUM-Agile breaks projects into small, manageable parts, allowing for continuous refinement and improvement.

Adaptability: The framework is designed to handle changing priorities and requirements, providing flexibility in response to evolving project needs.

Efficient Time Management: Time-boxed iterations, known as sprints, ensure focused efforts on high-priority tasks, enhancing productivity and timely delivery.

Risk Reduction: By breaking down the project into smaller increments and addressing issues promptly, Scrum-Agile minimizes the risk of large-scale project failure.

In essence, SCRUM-Agile offers a straightforward and effective way to manage projects by focusing on iterative development, collaboration, and adaptability.