

IT 314

Group 25

Gen-scholar:- A Collaborative Research Platform



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Sprint 1:

User Authentication and workspace foundation

Sprint 1 was focused on user authentication like login,logout,register and creating workspace like basic functionalities.

Covered User Stories:

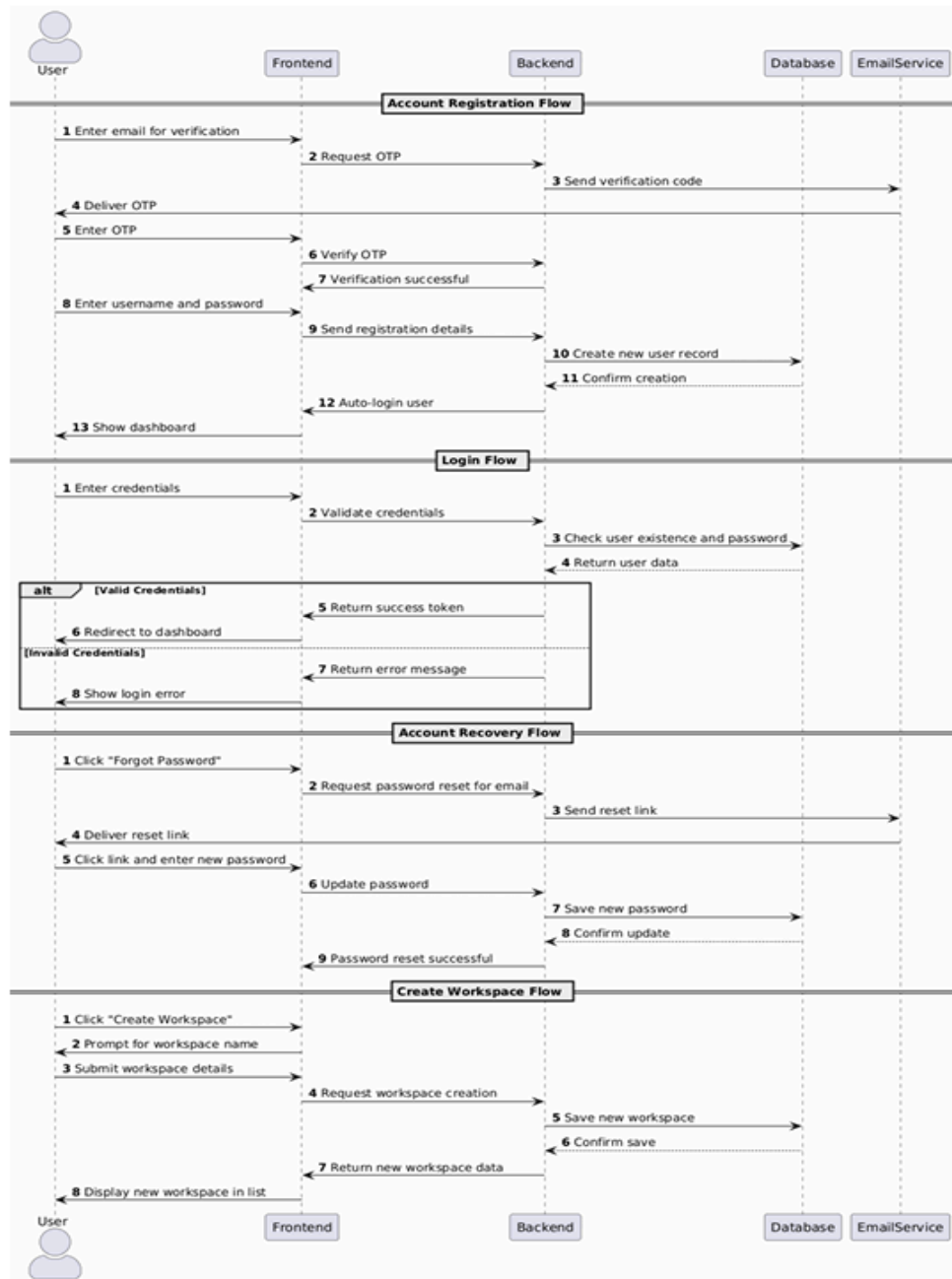
As a Research Group Member

- Story: Account Registration
As a new user, I want to register for an account, so that I can join workspaces and start collaborating.
Given I am on the registration page, When I enter my username and a valid password, Then my account is created, and I am automatically logged in,
- Story:Account recovery
As an existing user I want to recover my account ,so that I can start working on my research.

Given existing user System should provide a forgot password functionality through which user can recover their account
- Story: Creating a Workspace
As a research group member, I want to create a shared, collaborative workspace, so that my team and I can coordinate our research activities in a single location.

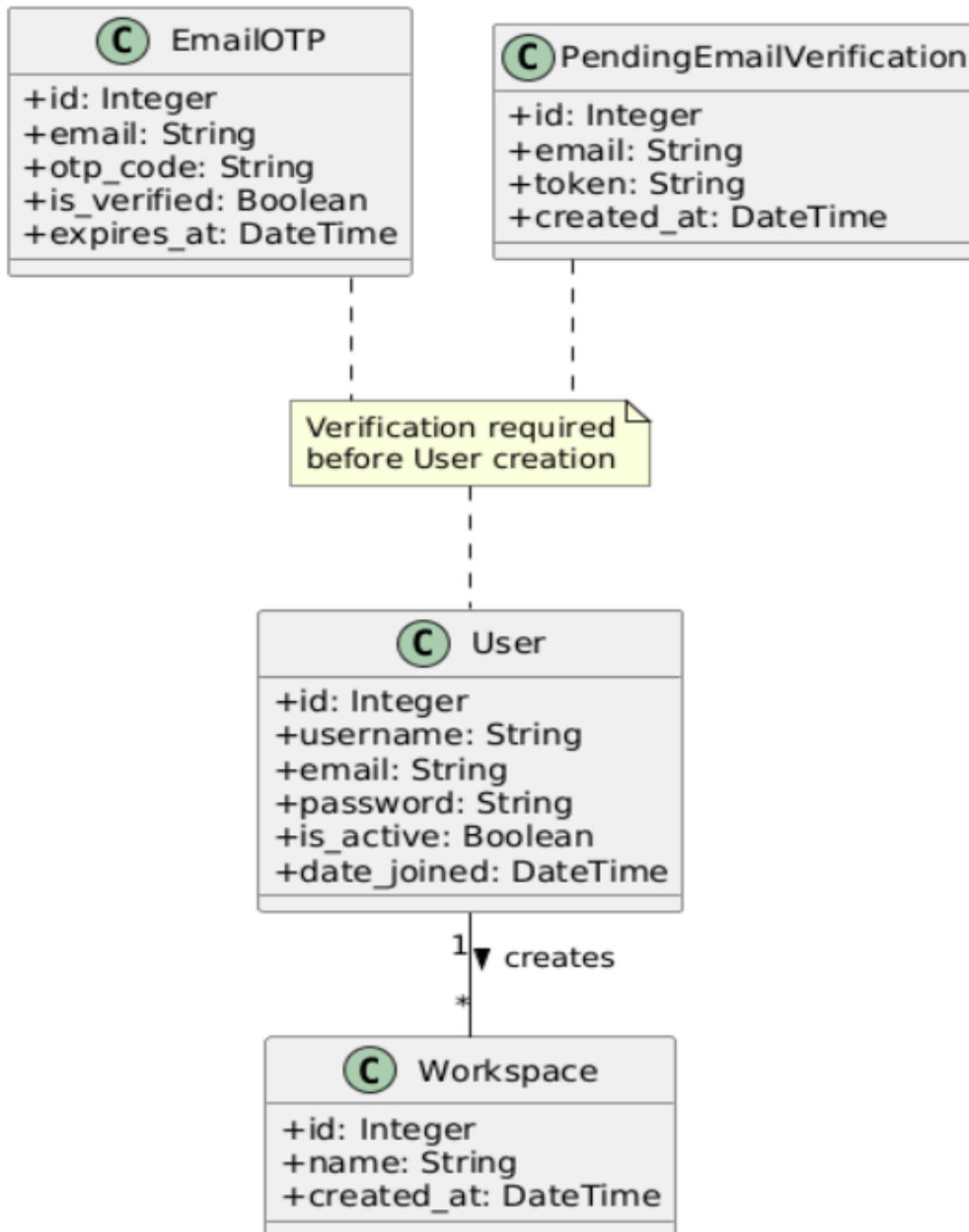
Given a member is logged into the shared workspace, When they add, edit,or comment on a document, then all team members must see the updates in real time, And a built-in chat feature must allow discussions directly within the workspace.

Sequence Diagram:

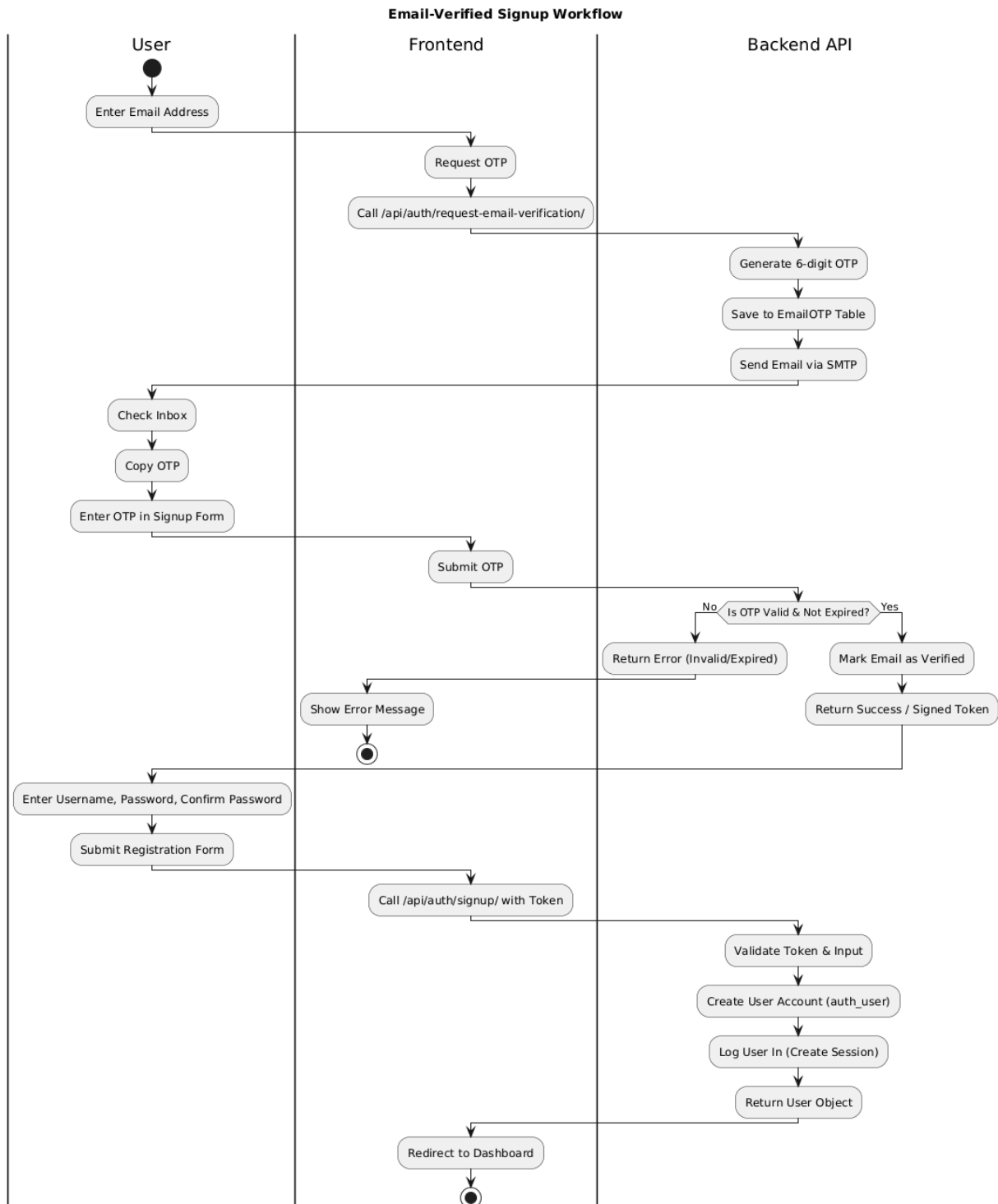


Class Diagram:

Class Diagram - Sprint 1 (Auth & Foundation)



Activity Diagram:



Sprint 2:

Core Document Collaboration & Deployment

This sprint included the baseline of the project. we implemented pdf upload feature in workspace and added main chat functionality where users in same workspace can discuss and also added the real time annotation feature. User can also invite new people in workspace according to role.

Covered User Stories:

As a Research Group Member

- Story: Uploading a PDF.

As a research group member, I want to upload research PDFs, so that my team can access and review shared papers.

Given a member is logged into the shared workspace, When they select and upload a research PDF, Then the file must be stored securely and become immediately accessible to all team members, And each member must be able to view the PDF.

- Story: Inviting users

As a research group member, I want to invite users in my workspace based on role, so we can start working together.

Given the creator of the workspace when I enter the username/email of an existing user then an invitation must be sent to the user and the invited user should be able to accept/decline the invitation.

- Story: Role Management

As a workspace creator, I want to manage user roles so that collaborators have appropriate permissions.

Given I am the creator, When I change a member's role, Then their permissions update immediately and they receive a notification.

- Story: PDF Search & Filtering

As a research group member, I want to search and filter PDFs so that I can find documents quickly

Given multiple PDFs exist, When I apply a search or filter, then only matching PDFs should appear.

- Story: PDF Deletion

As a researcher, I want to delete PDFs so that the workspace stays organized.

Given I have permissions, When I delete a PDF, then it is removed for all members and the index updates.

- Story: Real-Time Annotation

As a research group member, I want to annotate PDFs in real-time, so that my team can instantly view and respond to my insights.

Given a PDF is open in the workspace, When a member highlights or comments on text, Then all group members should see the annotation immediately, And annotations should auto-save without manual action.

- Story: Annotation Undo

As a research group member, I want to undo my annotations so I can correct mistakes.

Given I am annotating, When I click Undo, Then the last annotation is reverted.

- Story: Main Chat

As a research group member, I want to have a main chat area in my workspace, so that I can have general discussions with my team that are not tied to a specific part of a document.

Given that I am in my workspace, when I open the main chat panel, then I can see the conversation history with my team, and I can send new messages that are visible to everyone in the workspace in real-time.

- Story: User Profile Stats

As a research group member, I want to view my profile stats so that I can understand my contributions.

Given I open the profile page, When it loads, Then I should see stats like uploads, messages, annotations, and threads.

- Story: Add Short Note

As a research group member, I want to add a note to all the members of the workspaces.

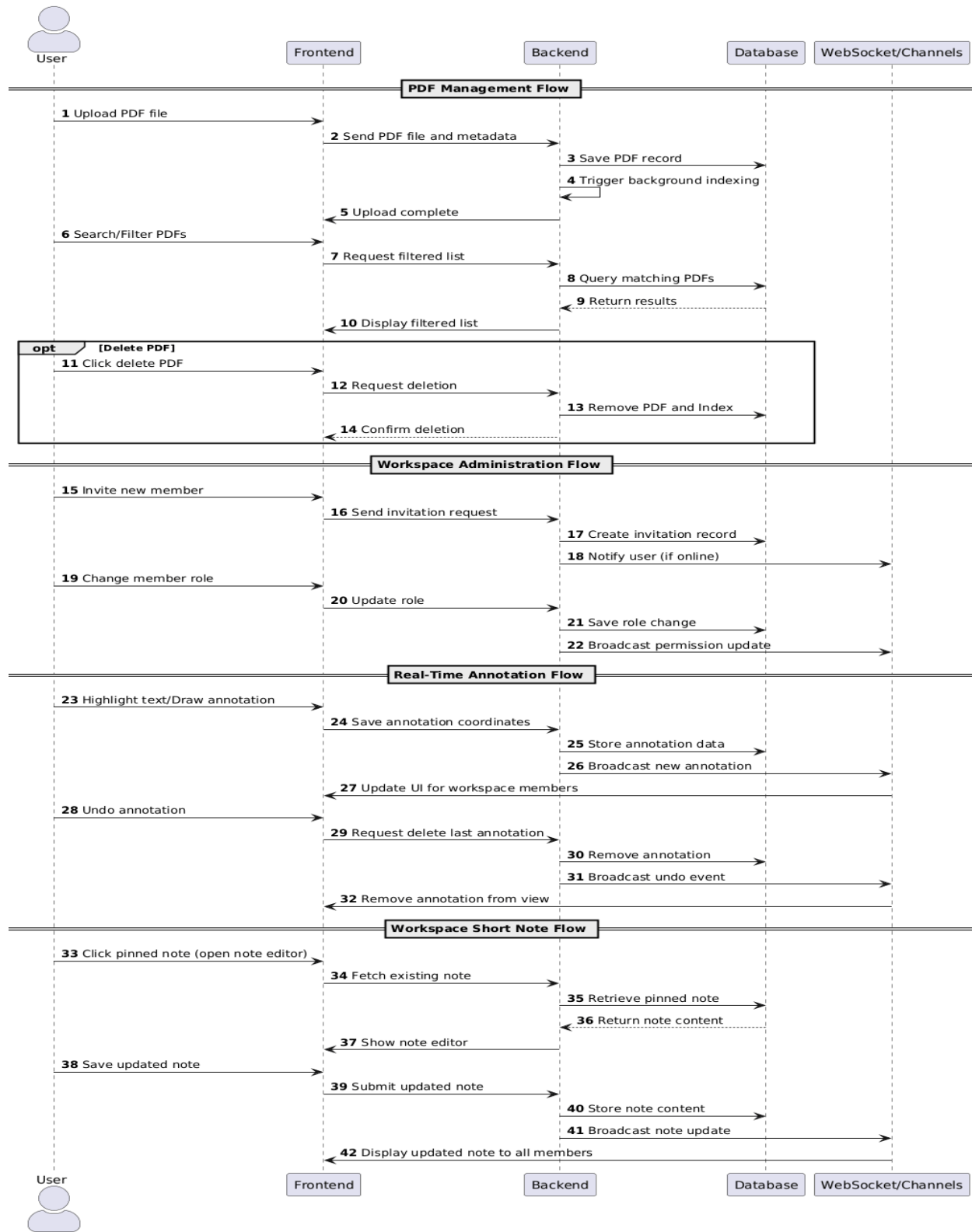
Given a member of the workspace when clicked on pinned notes then he should be able to write/edit notes.

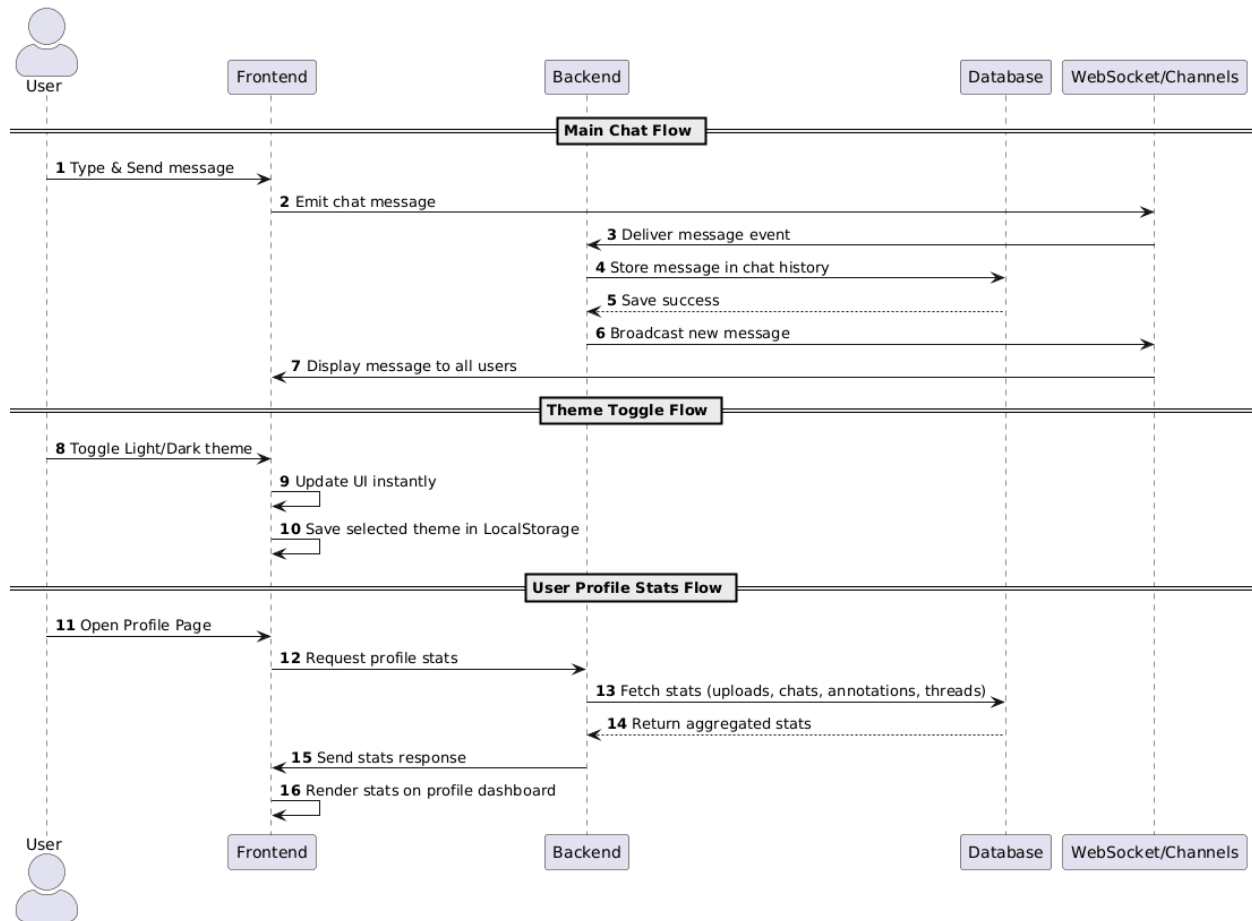
- Story: Theme Toggle

As a user, I want to toggle between light and dark themes so that I can work comfortably.

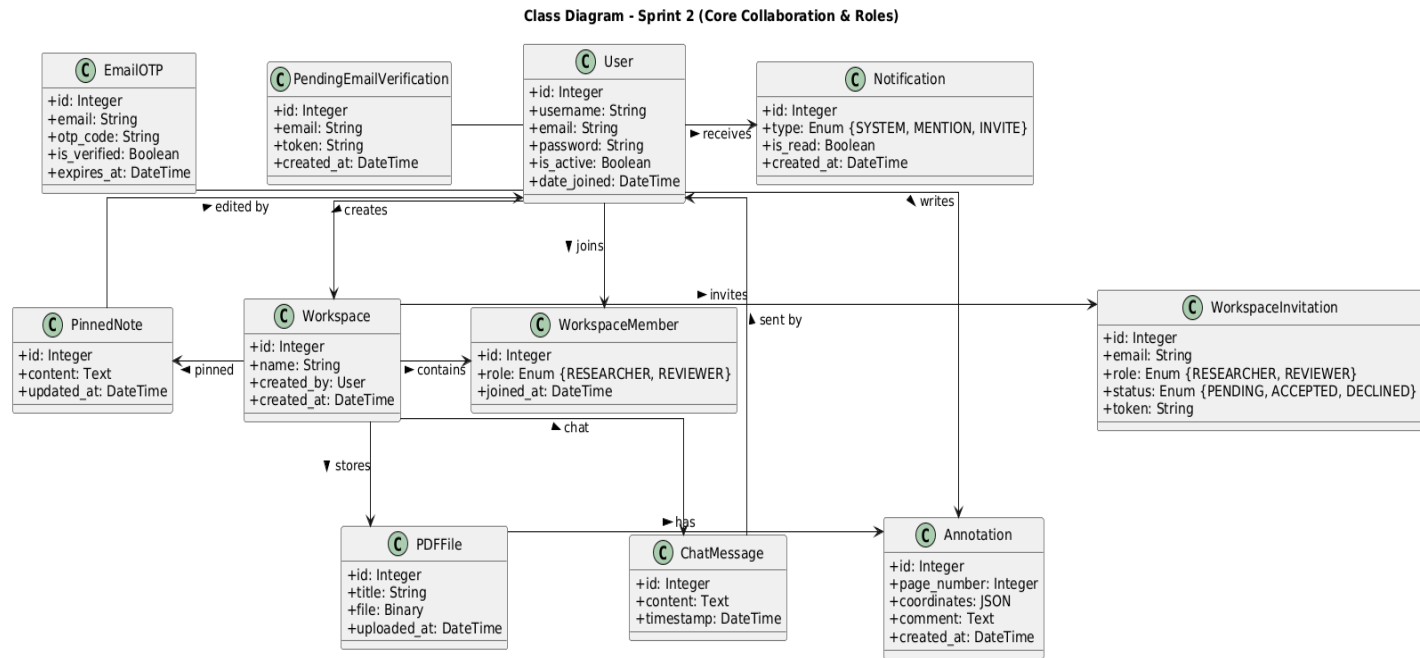
Given I use the theme switch, When I change the theme, Then it saves in localStorage and loads automatically next time.

Sequence Diagram:

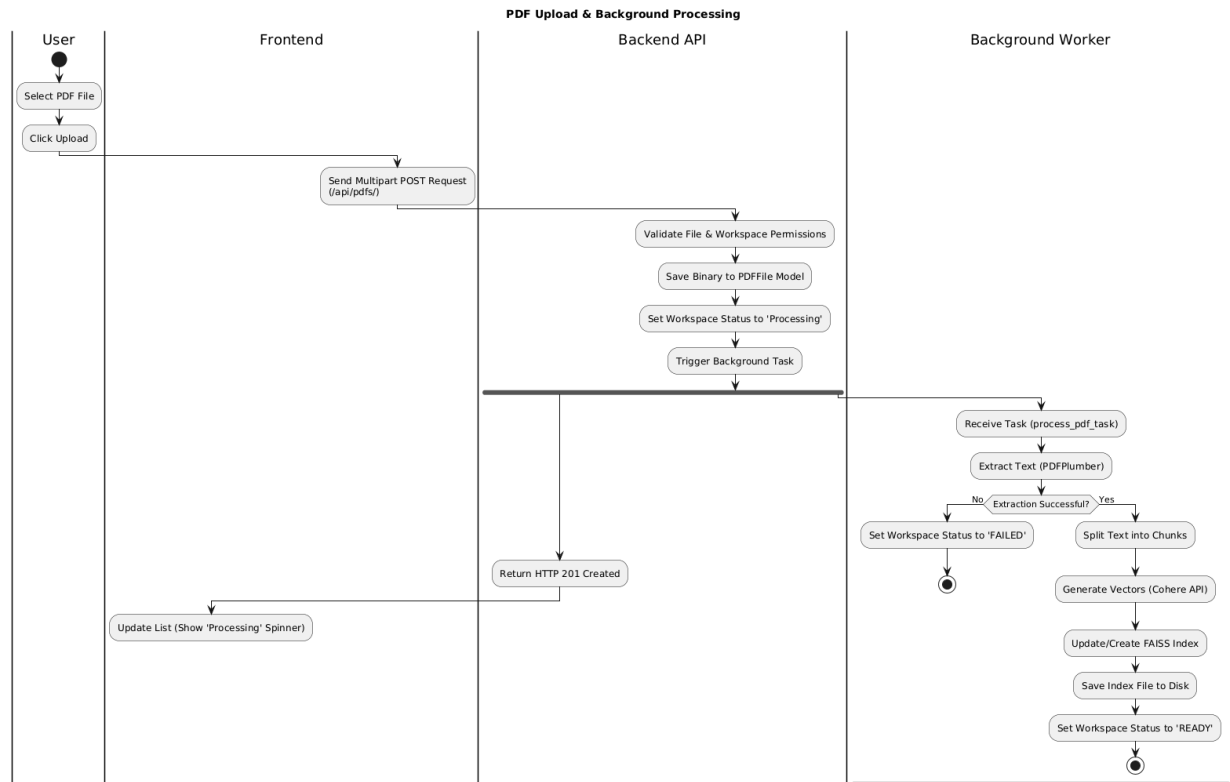




Class Diagram:



Activity Diagram:



Sprint 3: Contextual Discussion & AI Insights

Here we implemented the ai chatbot feature which helps the user to summarize their documents or users can ask any doubt related to their research work and implemented a threaded chat feature in which users can select text portions from the document and can start discussion on particular portions.

Covered User Stories:

As a Research Group Member

- Story: Threaded Discussions

As a research group member, I want to create threaded discussions on specific document parts, so that our conversations remain contextual and structured.

Given a member highlights text or a figure, When they start a discussion by adding a comment, Then a new thread should be created and linked to that section, And replies should appear in a nested format under the original comment.

- Story: Threaded Discussions storage

As a research group member, I want to store my threaded discussion so I can review it again.

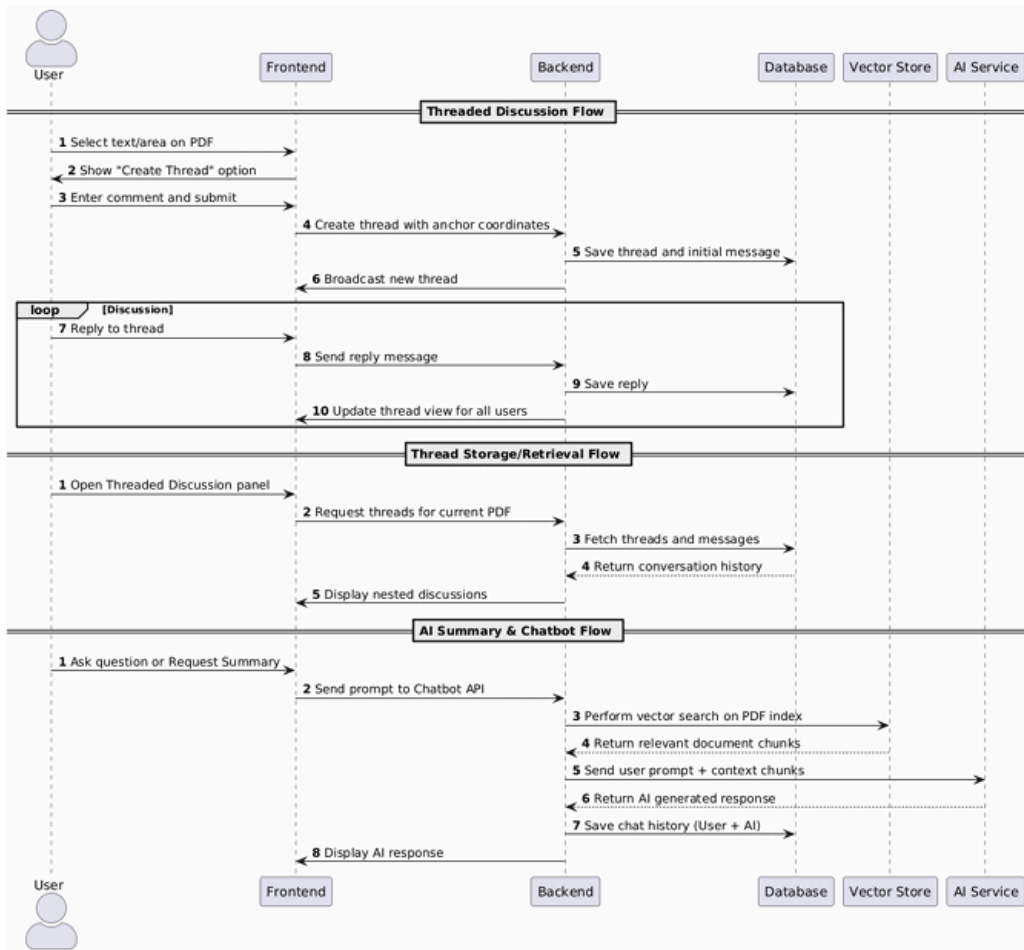
Given a number when they click on threaded discussion icon then they should be able to see all the discussion for that thread.

- Story: AI-Generated Summaries

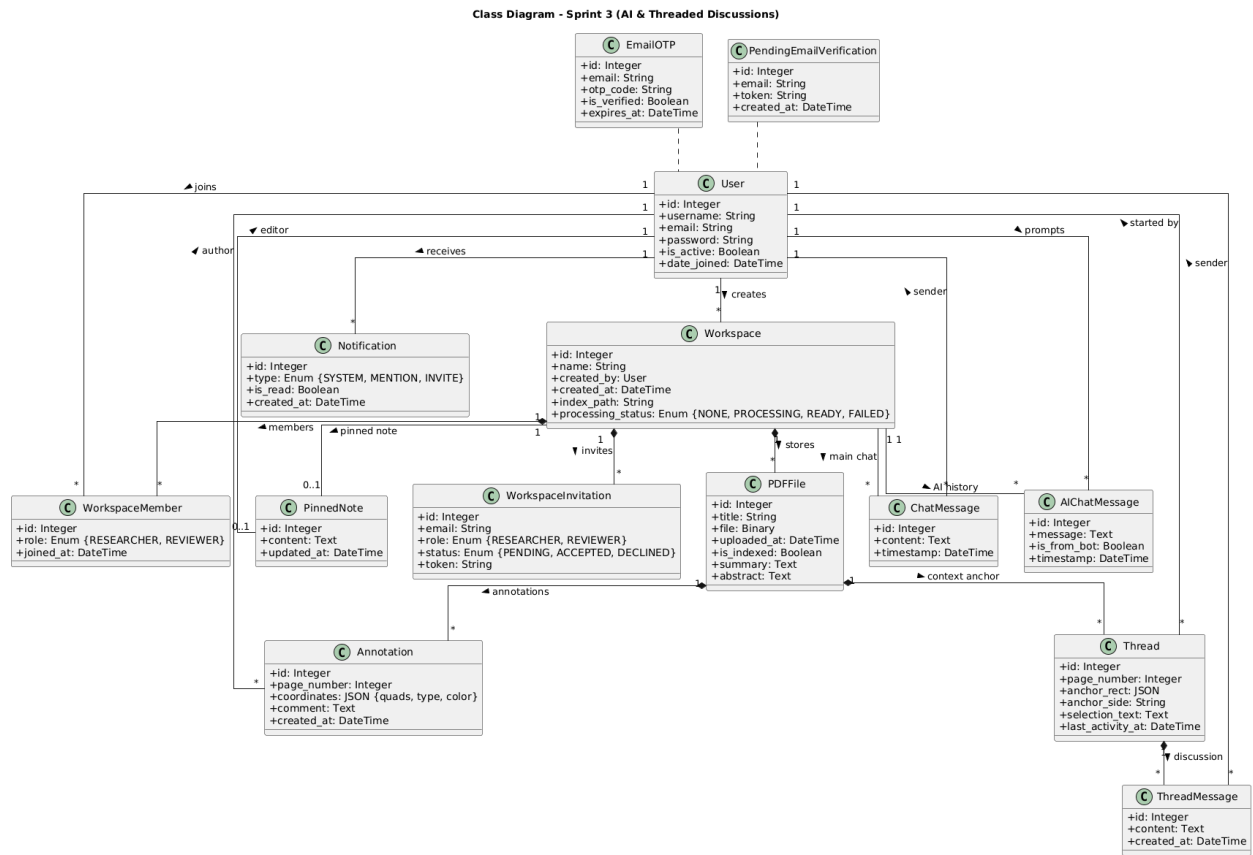
As a research group member, I want to get AI-generated summaries of papers, so that I can quickly understand key insights without reading the full text.

Given a research paper is uploaded, When a member requests a summary, Then the system should generate a concise summary, And results must be delivered within a reasonable timeframe. And the summary must include the paper's objectives, methods, and results.

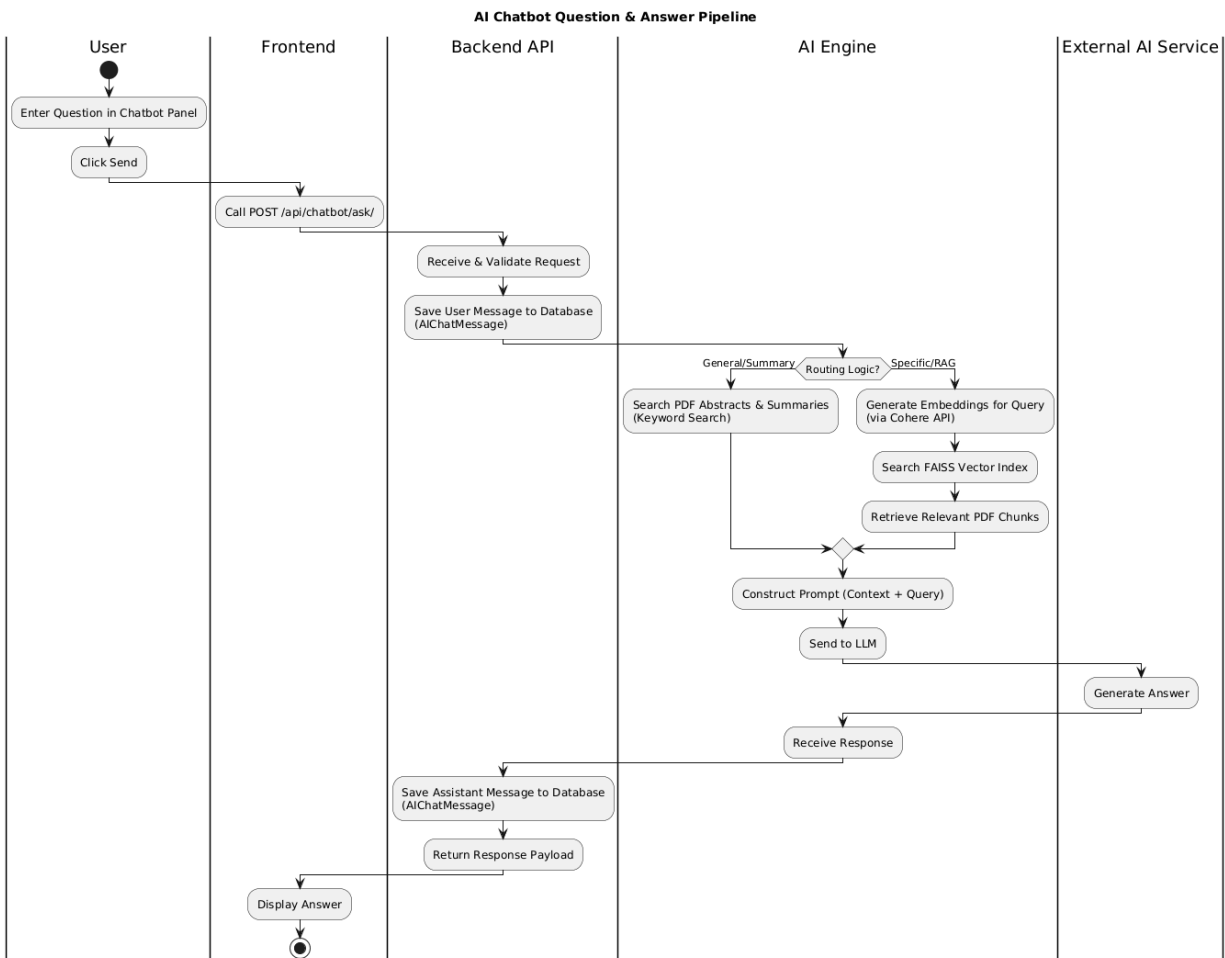
Sequence Diagram:



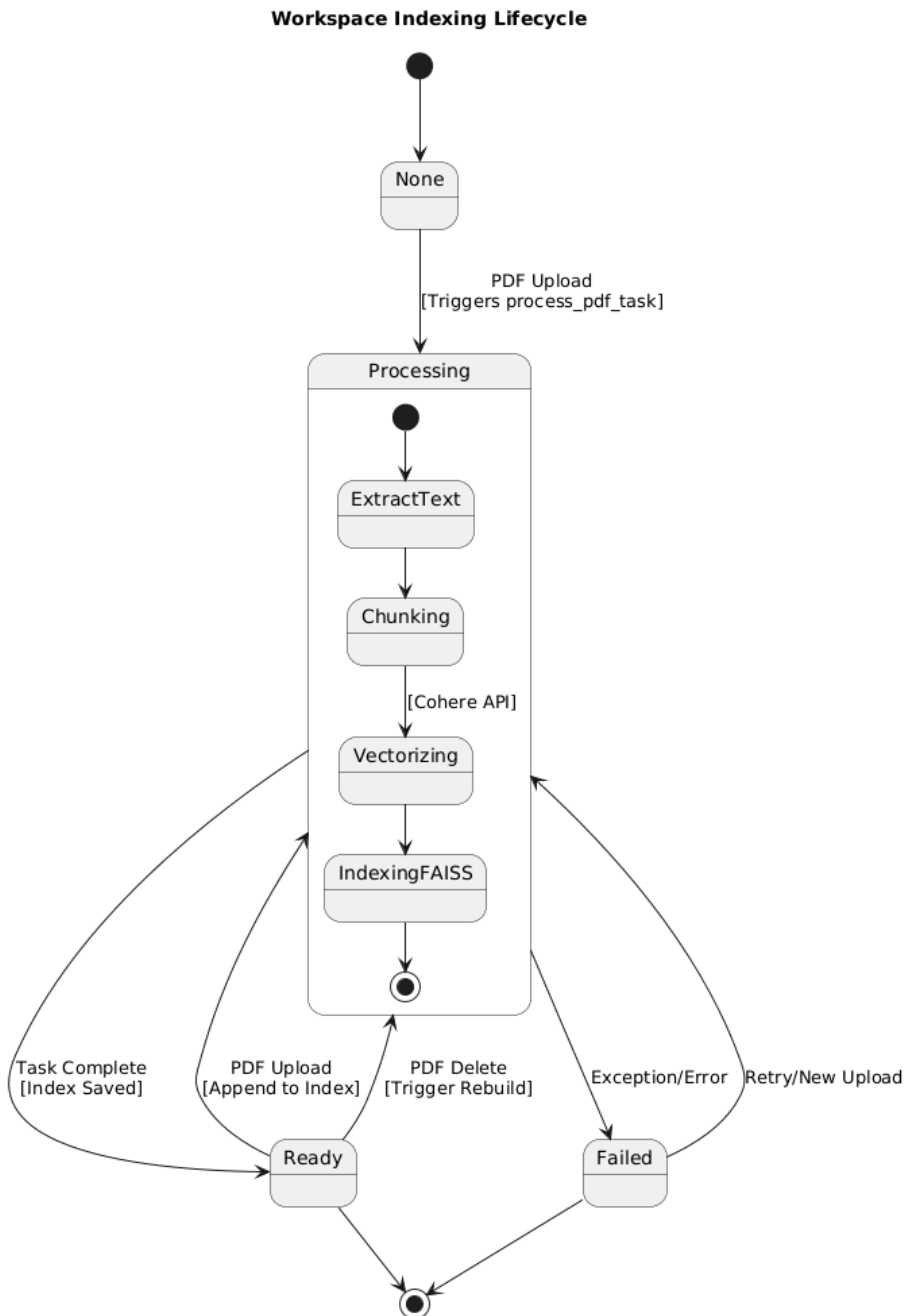
Class Diagram:



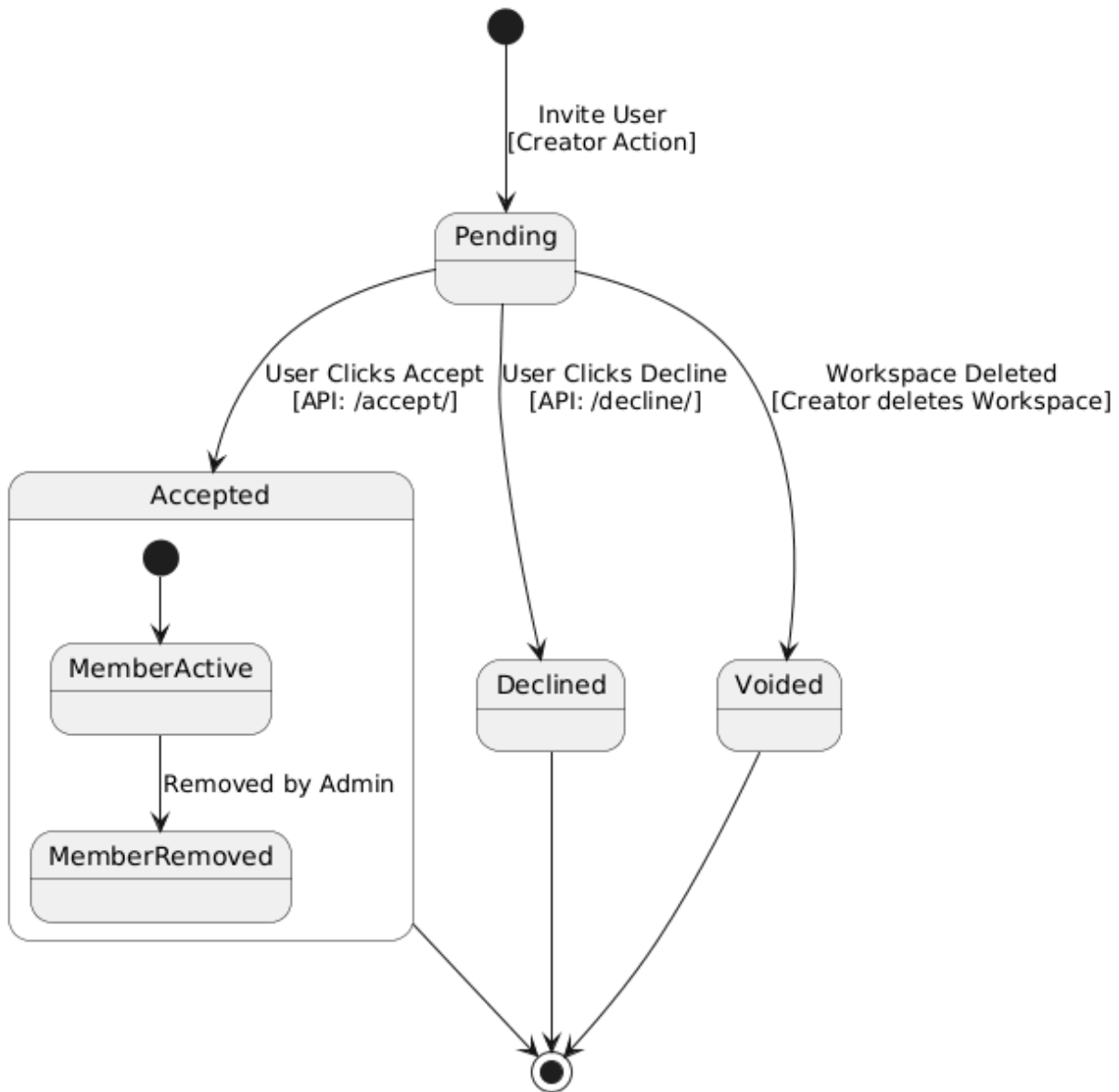
Activity Diagram:



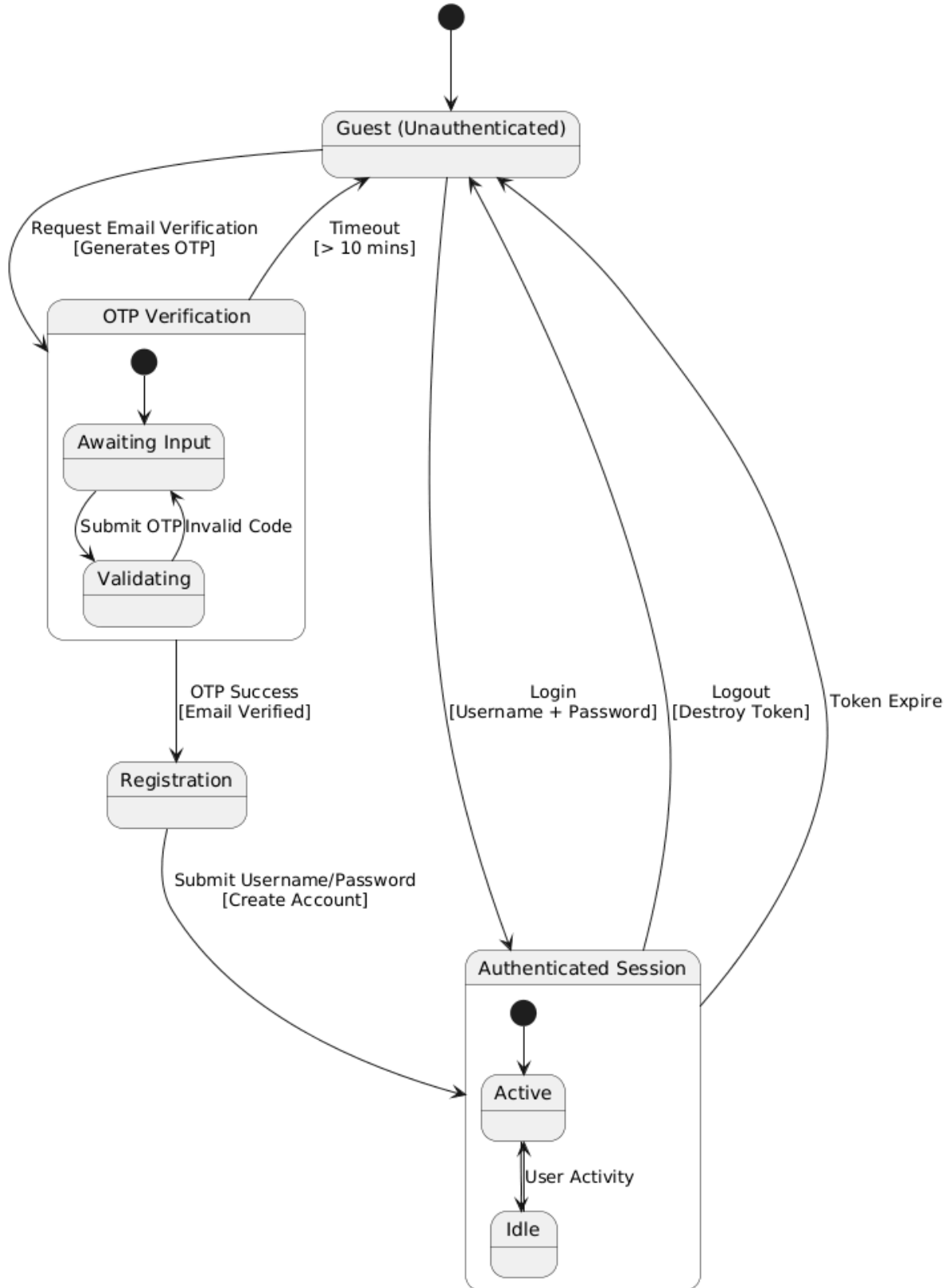
State Diagrams :-



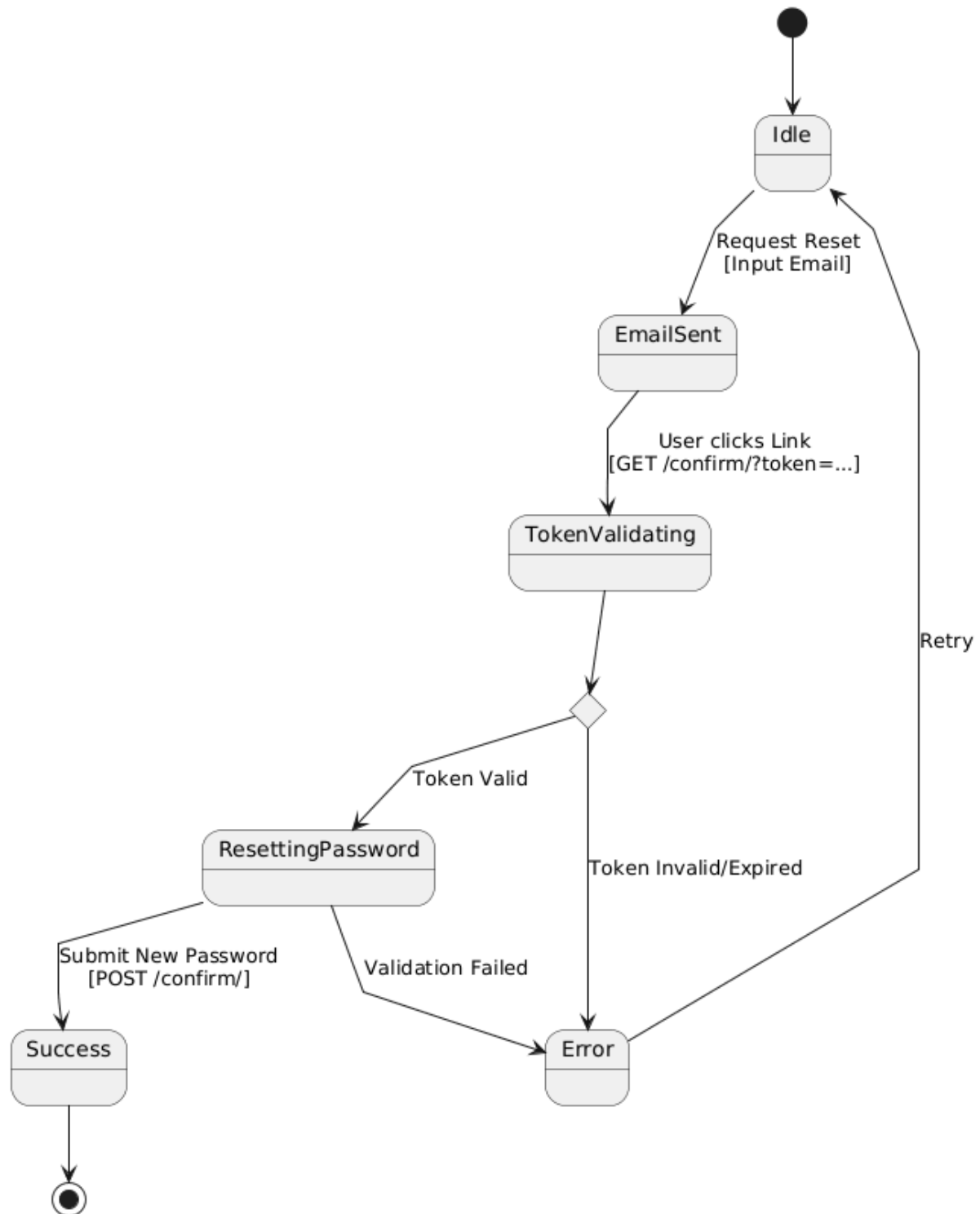
Workspace Invitation Lifecycle



User Authentication Session



Password Reset Lifecycle



WebSocket Connection Manager

