Ticket System Integration with Discourse and Webhooks

A Project Report for the

Software Engineering

(Milestone 3)

Submitted By:

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Contents

Milestone 3 - Scheduling and Design

3.1 Project Schedule

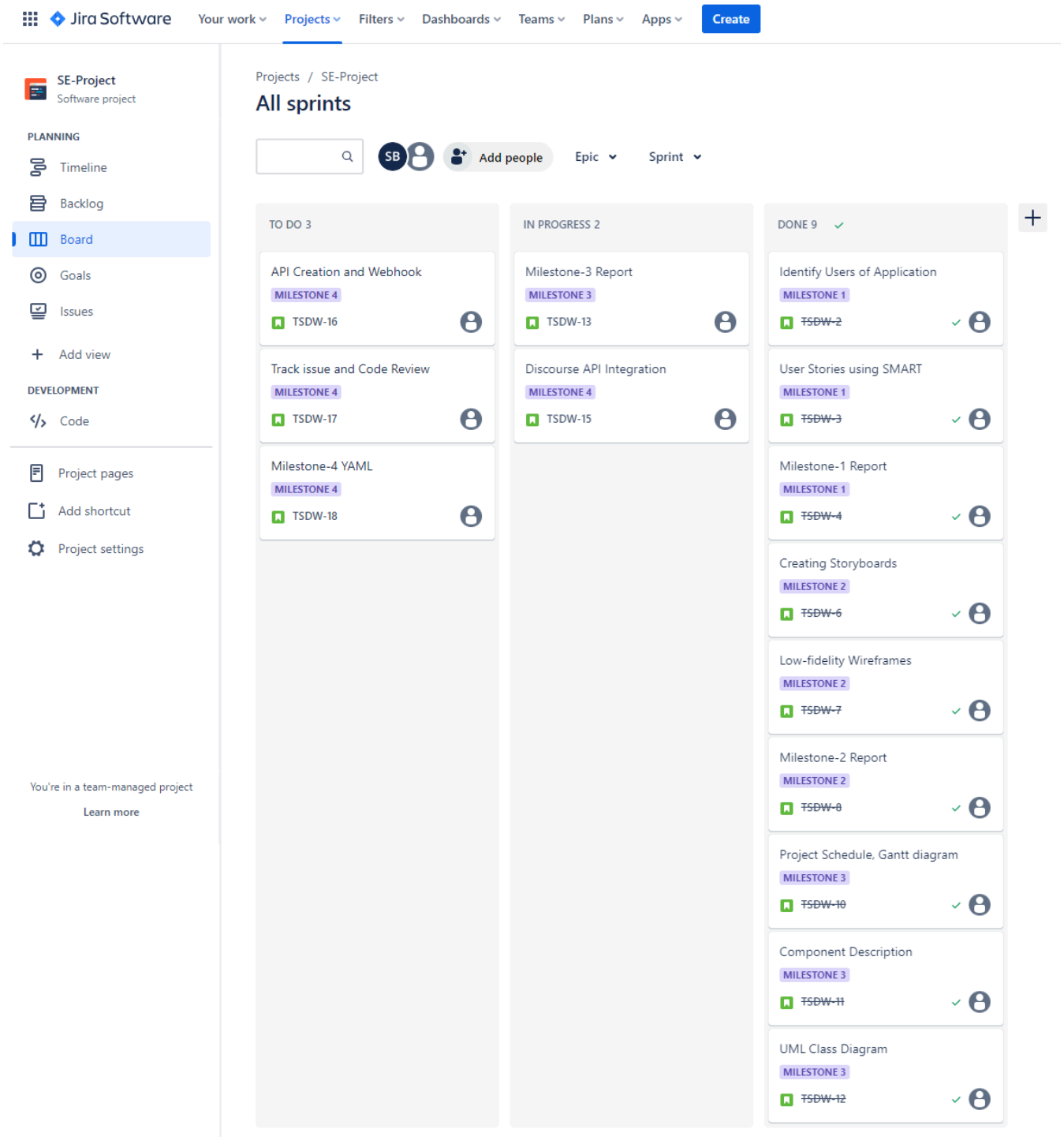
3.1.1 Sprints Schedule

- **Sprint 1:** Identify Users and User Requirements for the Application
  - Date: 09/02/24 - 15/02/24
- **Sprint 2:** User Stories for the requirements, Milestone-1 Vetting and Final Submission
  - Date: 16/02/24 - 23/02/24
- **Sprint 3:** Storyboards and Wireframes (by following usability guidelines and heuristics), Milestone-2 Vetting and Final Submission
  - Date: 24/02/24 - 29/02/24
- **Sprint 4:** Project Schedule, Components Design and Description, Class Diagram and Minutes Of Meetings, Milestone-3 Vetting and Final Submission
  - Date: 01/03/24 - 06/03/24
- **Sprint 5:** Discourse API Integration, Database Schema and Re-Modelling, User Class, Students Class (Code, Debug, Raise Issues & Code Review)
  - Date: 07/02/24 - 11/02/24
- **Sprint 6:** For each user story, create appropriate API endpoints, adding G-Chat Webhook, code review, debug, Milestone-4 Vetting and Final Submission
  - Date: 12/03/24 - 15/03/24
- **Sprint 7:** Design Test cases for API's and other functionalities, Perform Unit testing using Pytest
  - Date: 16/03/24 - 21/03/24
- **Sprint 8:** Complete Unit testing, Milestone-5 Vetting and Final Submission, Frontend Modification
  - Date: 22/03/24 - 29/03/24
- **Sprint 9 :** Finish Frontend, Integrate the Frontend and the Backend, Final project report, Record project presentation, Milestone-6 Vetting and Final Submission
  - Date 30/03/24 - 16/04/24

Project Scheduling Tools: JIRA

We primarily utilize Jira for project management, task tracking, and collaboration. Jira's well defined interface and customizable features make it well-suited for agile project management.

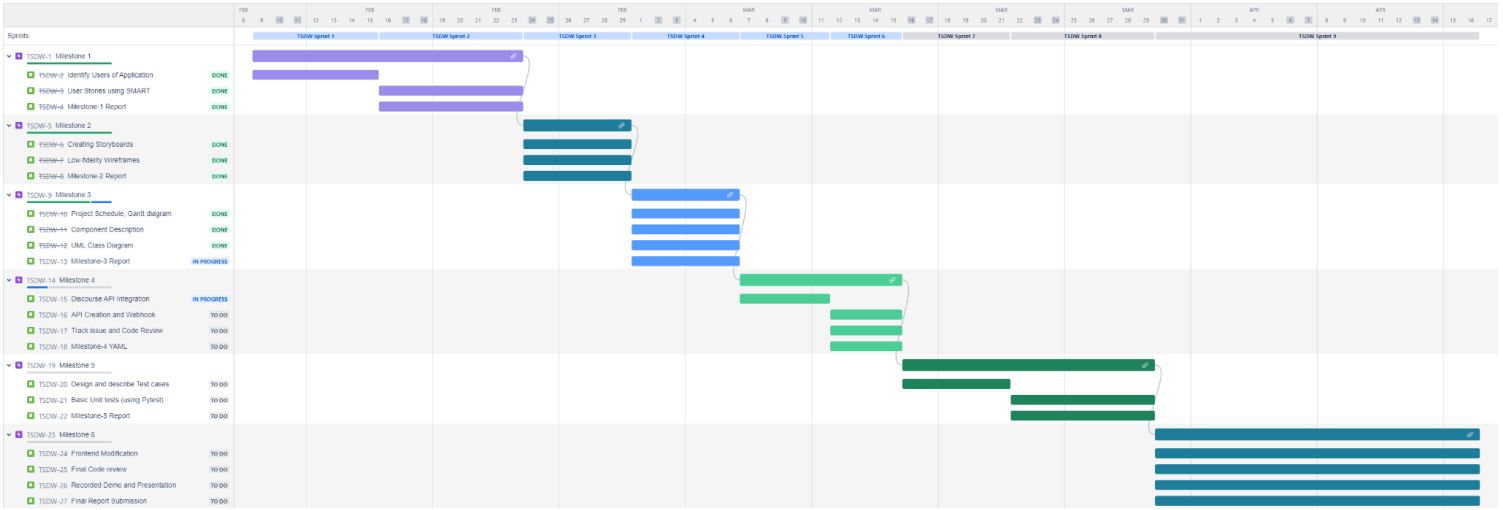
3.1.2 Scrum Board



[3.1] Scrum Board

3.1.3 Timeline / Gantt Chart

The Gantt-Chart for the project schedule is shown as below. For the high resolution image of the chart, please click here.



[3.2] Timeline / Gantt diagram of Project Schedule

3.2 Design of Components (Additional Features)

Description of the different components of the ticketing system with integration of Discourse and Webhook:

1. **User Component:**
    a. Represents a generic user of the system.
    b. Contains attributes such as userId, roleId, password, emailId, name, and userName.
    c. Includes methods for logging in and editing profile information.

2. **Ticket Component:**
    a. Represents a support ticket created by a student.
    b. Contains attributes such as ticketId, title, description, creationDate, creatorId, responderId, numberOfUpvotes, isRead, isOpen, isOffensive, and isFAQ.
    c. Includes methods for rating answers to the ticket and managing its status.

3. **Student Component:**
    a. Represents a student user of the system.
    b. Contains attributes such as rollNumber and a list of ticket objects.

c. Create a support ticket for their queries/concerns.
d. Includes methods for creating, editing, deleting, and reopening tickets.
e. Receive notification through email/gchat regarding the status of their queries (webhooks).
f. View a list of similar tickets to avoid duplicating existing support request.
g. Integration with Discourse for retrieving relevant tickets.
h. Search and Filter tickets based on keywords or categories.
i. like or +1 an existing support ticket to prioritize popular concerns.

4. **SupportStaff Component:**
    a. Represents a support agent user of the system.
    b. Contains attributes such as agentId and a list of ticket objects.
    c. Includes methods for checking open queries, closing tickets, flagging tickets, forwarding offensive tickets, and suggesting FAQs.
    d. Receive notification when a new ticket is created through email/gchat (webhooks).
    e. View ticket details, respond to the students queries and concerns.
    f. Mark tickets as resolved once the query has been addressed.
    g. Send notifications to students after the query/concern has been resolved.
    h. Close the ticket after it has been resolved.

5. **Admin Component:**
    a. Represents an admin user of the system.
    b. Contains attributes such as adminId.
    c. Includes methods for adding, editing, and deleting FAQs, as well as managing users.
    d. Categorize resolved tickets and add them to the FAQ section for future reference.
    e. Define and manage user roles and permissions.
    f. Controls access to system features and data based on user roles and responsibilities.
    g. Create, Edit and Delete user roles and assign permissions accordingly.

6. **IT_Staff Component:**
    a. Represents an IT staff user of the system.

b. Contains attributes such as staffId.
c. Includes methods for adding and removing admins, as well as checking resolution time.
d. Monitors and manages the reliability and security of the ticketing system's infrastructure.
e. Implement security measures to protect student data from unauthorized access or breaches.

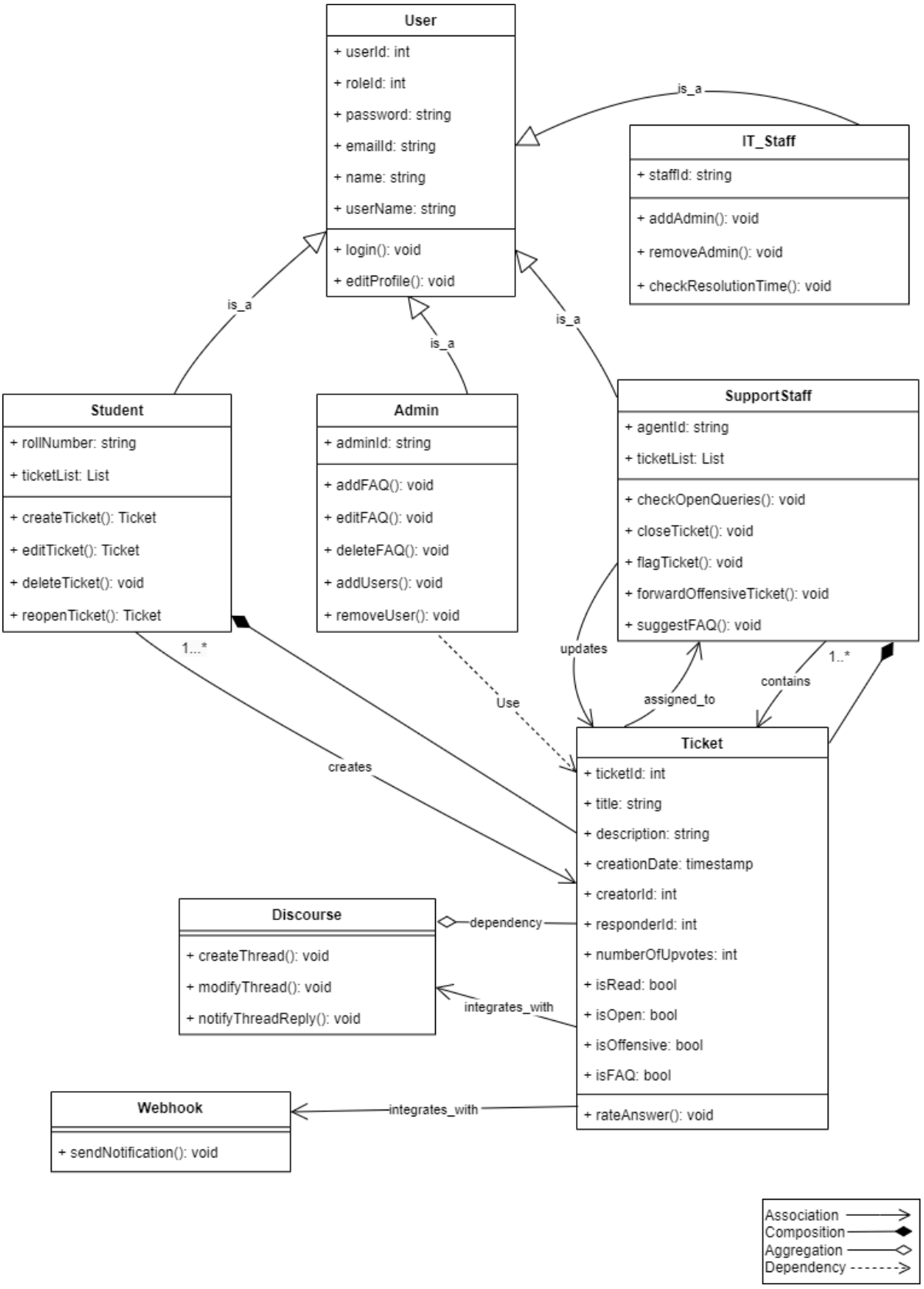
7. **Discourse:**
    a. Represents the component responsible for integrating with the Discourse platform.
    b. Includes methods for creating and modifying threads, as well as notifying thread replies.

8. **Webhook:**
    a. Represents the component responsible for integrating with G-Chat using webhooks.
    b. Includes a method for sending notifications to G-Chat.

These components work together to facilitate the creation, management, and resolution of support tickets within the ticketing system. Users interact with the system through various interfaces provided by these components, allowing for efficient communication and collaboration between students, support agents, admins, and IT staff.

3.3 Class Diagram

The UML class diagram provides a visual representation of the 8 components and their relationships within the ticketing system project. It illustrates the structure of the system, including the different types of users (such as students, support staffs, admins, and IT staffs), as well as the main entities like tickets. Additionally, it highlights the interactions between these components, such as the creation and management of tickets, integration with external platforms like Discourse and G-Chat, and the roles and responsibilities of different user types. Overall, the class diagram serves as a blueprint for the system architecture, aiding in understanding and communicating the design of the ticketing system.



[3.3] Class Diagram

3.4 SCRUM Meeting Minutes/Details

SCRUM Meetings Schedule: Every Tuesday, Thursday and Friday (20:30 - 22:30 PM)

Location: Google Meet

Attendees: Aditya R, Ashutosh Kumar Barnwal, Kanishk Mishra, Nikhil Guru Venkatesh, Shubhankar Jaiswal, Sushobhan Bhargav, Utkarsh Kumar Yadav

Sprint 1 SCRUM meetings minutes/details:
The team collaborated together to identify and define different Users and User requirements. Each team member presented their own ideas and insights based on their understanding of the project requirements. After identifying the users each team member was assigned a task to come up with user stories for the different users.

Sprint 2 SCRUM meetings minutes/details:
User stories were finalized, all the team members sat together in a meeting to review the milestone-1 report and the Final submission was made.

Sprint 3 SCRUM meetings minutes/details:
The team collaborated to create storyboards and wireframes for the project. Each member gave their own ideas and suggestions regarding the storyboards. A discussion took place to review the storyboards and wireframes created by the team, providing feedback and suggestions for improvements. After the final review Milestone-2 report was submitted.

Sprint 4 SCRUM meetings minutes/details:
Decided on Project management software (JIRA) to keep track of the project's progress. After a thorough discussion among the team members, the project schedule was decided, and a gantt chart was created for the same. Components were designed and a class diagram for the application was made. Following the final review, milestone-3 report was submitted.