Software Requirements Specification (SRS) Document

Authors: Anushka Agrawal, Khushi Wadhwa, Pratham Mishra

1. Introduction

1.1 Problem Statement

The problem at hand is the need to develop a system that facilitates the assessment and evaluation of various projects hosted on GitHub. These projects traverse various phases, such as requirement gathering, design, coding, testing, deployment, and presentation. Within this context, there are distinct roles involved, including project team members (comprising students and supervisors, such as TAs, project managers, architects, and professors).

The challenge lies in streamlining this process: Students engage in project work, placing their work on GitHub for public access. They seek feedback and input from TAs and Teachers. Following revisions based on this feedback, supervisors assign final grades. Additionally, the system should calculate an overall grade, considering team performance relative to other projects.

In essence, the problem to be addressed is the creation of an efficient system that simplifies collaboration on GitHub-based IT projects and ensures fair and accurate project grading.

1.2 Users Profile

This website can be used by Teachers, TAs, and Students. The users will have different levels of access based on their roles. The Teachers and TAs will be able to assign different tasks and subtasks, see submissions, and grade them. They will also be able to provide remarks or comments on the same. The students will be able to submit different tasks and communicate with teachers about their progress and any other doubts they may have via comments.

2. Project Modules

2.1 User Authentication and Authorization

- This module will handle user registration, login, and authentication.
- Users will have roles: Teachers and Students, each with different permissions.

2.2 Dashboard

- Provide a personalized dashboard for both Teachers and Students upon login.
- Display a summary of tasks, submissions, and notifications.

2.3 Task Management

- Teachers can create, edit, delete tasks and subtasks.
- Tasks can be based on templates or custom templates created by teachers.

2.4 Submission Management

- Students can make submissions for tasks and subtasks.
- Store submission history, including GitHub commit links and timestamps.

2.5 Grading and Feedback

- Teachers can review and grade submissions.
- Provide a comment system for teachers to give feedback to students.
- Calculate and record grades for each submission.

2.6 Communication

- Implements a messaging system for communication between teachers and students.
- Allows for comments, questions, and notifications related to tasks.

2.7 GitHub Integration

- Integrate with GitHub to track student commits and link to the latest commits for each task.

2.8 Task Status Tracking

- Students can mark tasks as completed.
- Track the progress of each task and overall project completion.

2.9 Notification System

- Send notifications to users for important events such as new assignments, graded submissions, and messages.

2.10 Reporting and Analytics

- Provide analytics and reports for teachers and administrators to track student performance and project progress.

2.11 Use Cases:

2.11.1 User Registration and Login

Actors: Student, Teacher, TA

Description: Users can register for an account and log in.

```
+----------------------------+
| GitHub Grading System      |
+----------------------------+
|                            |
|   +-------------------+    |
|   |  User (Student)   |    |
|   |                   |    |
|   +-------------------+    |
|                            |
|   +-------------------+    |
|   |  User (Teacher)   |    |
|   |                   |    |
|   +-------------------+    |
|                            |
|   +-------------------+    |
|   |  User (TA)        |    |
|   |                   |    |
|   +-------------------+    |
|                            |
+----------------------------+
         |    |    |
         |    |    |
         |    |    |
         |    |    |
         |    |    |
       +-----+-----+
         |    |
         |    |
     +-------------------+
     | User Registration |
     | and Login         |
     +-------------------+
          |
          |
     +-------------------+
     |   View Dashboard  |
     +-------------------+
```

2.11.2 View Dashboard

Actors: Student, Teacher, TA

Description: Users can access a personalized dashboard displaying tasks, submissions, and notifications.

2.11.3 Task Management

Actors: Teacher, TA

Description: Teachers and TAs can create, edit, and delete tasks and subtasks.

```
+----------------------+
| GitHub Grading System |
+----------------------+
|                      |
|  +----------------+  |
|  |  User (Teacher) |  |
|  |                |  |
|  +----------------+  |
|                      |
|  +----------------+  |
|  |   User (TA)    |  |
|  |                |  |
|  +----------------+  |
|                      |
+----------------------+
       |     |
       |     |
      +-----+
        |
+-----------------------+
| Task Management       |
|                       |
|  +----------------+   |
|  | Create Task    |   |
|  +----------------+   |
|                       |
|  +----------------+   |
|  | Edit Task      |   |
|  +----------------+   |
|                       |
|  +----------------+   |
|  | Delete Task    |   |
|  +----------------+   |
|                       |
|  +----------------+   |
|  | Create Subtask |   |
|  +----------------+   |
|                       |
|  +----------------+   |
|  | Edit Subtask   |   |
|  +----------------+   |
|                       |
|  +----------------+   |
|  | Delete Subtask |   |
|  +----------------+   |
+-----------------------+
```

2.11.4 Submission

Actors: Student

Description: Students can make submissions for tasks and subtasks.

```
+---------------------------+
| GitHub Grading System     |
+---------------------------+
|                           |
|   +-------------------+    |
|   |  User (Student)   |    |
|   |                   |    |
|   +-------------------+    |
|                           |
|   +-------------------+    |
|   |  User (Teacher)   |    |
|   |                   |    |
|   +-------------------+    |
|                           |
|   +-------------------+    |
|   |  User (TA)        |    |
|   |                   |    |
|   +-------------------+    |
|                           |
+---------------------------+
         |    |    |
         |    |    |
         |    |    |
         |    |    |
       +-----+-----+
         |    |
         |    |
    +-------------------+
    | Submission        |
    | Management        |
    +-------------------+
         |
         |
    +-------------------+
    | Grading and       |
    | Feedback          |
    +-------------------+
```
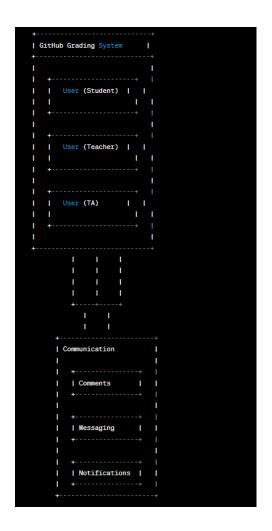
2.11.5 Grading and Feedback

Actors: Teacher, TA

Description: Teachers and TAs can review, grade submissions, and provide feedback.

2.11.6 Communication

Actors: Student, Teacher, TA

Description: Users can communicate via comments and messages.

```
+---------------------------+
| GitHub Grading System     |
+---------------------------+
|                           |
|   +-------------------+   |
|   |   User (Student)  |   |
|   |                   |   |
|   +-------------------+   |
|                           |
|   +-------------------+   |
|   |   User (Teacher)  |   |
|   |                   |   |
|   +-------------------+   |
|                           |
|   +-------------------+   |
|   |   User (TA)       |   |
|   |                   |   |
|   +-------------------+   |
|                           |
+---------------------------+
        |    |    |
        |    |    |
        |    |    |
        |    |    |
       +-----+-----+
          |    |
          |    |
     +---------------------+
     | Communication       |
     |                     |
     |   +-------------+   |
     |   | Comments    |   |
     |   +-------------+   |
     |                     |
     |   +-------------+   |
     |   | Messaging   |   |
     |   +-------------+   |
     |                     |
     |   +-------------+   |
     |   | Notifications |   |
     |   +-------------+   |
     +---------------------+
```
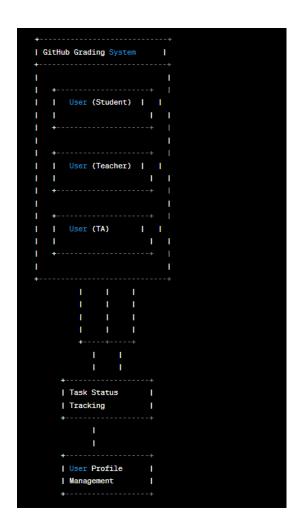
2.11.7 GitHub Integration

Actors: Student, Teacher, TA

Description: Integrate with GitHub to track commits and link to the latest commits for each task.

2.11.8 Task Status Tracking

Actors: Student

Description: Students can mark tasks as completed, and the system tracks task progress.

```
+--------------------------+
| GitHub Grading System    |
+--------------------------+
|                          |
|   +------------------+   |
|   |  User (Student)  |   |
|   |                  |   |
|   +------------------+   |
|                          |
|   +------------------+   |
|   |  User (Teacher)  |   |
|   |                  |   |
|   +------------------+   |
|                          |
|   +------------------+   |
|   |  User (TA)       |   |
|   |                  |   |
|   +------------------+   |
|                          |
+--------------------------+
       |     |     |
       |     |     |
       |     |     |
       |     |     |
     +-----+-----+
        |     |
        |     |
   +------------------+
   | Task Status      |
   | Tracking         |
   +------------------+
        |
        |
   +------------------+
   | User Profile     |
   | Management       |
   +------------------+
```

2.11.8 User Profile Management

Actors: Student, Teacher, TA

Description: Users can manage their profiles, including personal information and preferences.

2.11.9 Notification

Actors: Student, Teacher, TA

Description: Send notifications for important events like new assignments, graded submissions, and messages.

2.11.10 Reporting and Analytics

Actors: Teacher, Admin

Description: Generate analytics and reports to track student performance and project progress.