Software Requirements Specification

for

DOCTORAL STUDENT'S PROGRESS TRACKER

Version 1.0

Prepared by

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Course: CS4096D Software Engineering Lab

Date: 19/02/2025

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1 Introduction

1.1 Document Purpose

This document outlines functional/non-functional requirements, design constraints, and interface specifications for the Doctoral Progress Tracker (DPT), a web-based platform to manage PhD student milestones, DC meetings, publications, and SWAYAM course approvals.

1.2 Product Scope

The DPT enables:

- Students to log DC meetings, submit exam requests, track publications, and register for SWAYAM courses.
- Supervisors to approve requests and monitor student progress.
- Coordinators to manage comprehensive exams and system-wide configurations

1.3 Intended Audience and Document Overview

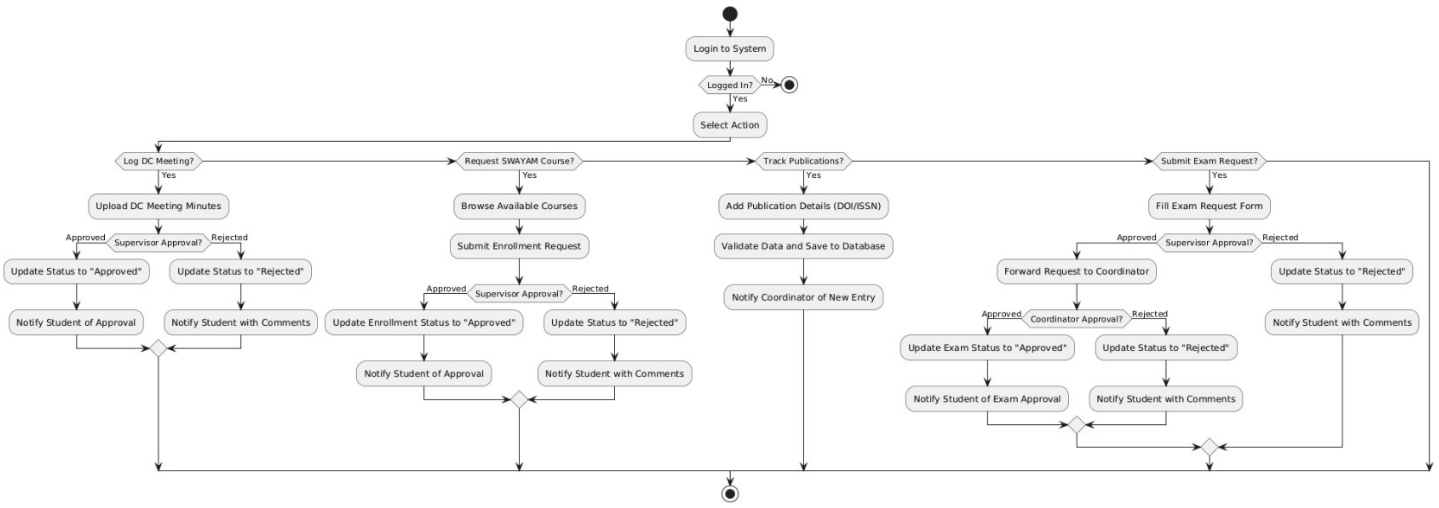
This document is intended for developers, testers, PhD students, faculty supervisors, and academic coordinator and instructors evaluating the project. The document is organized to provide an overview of the system's requirements, its design constraints, functionality, and quality attributes, followed by specific use cases and requirements.

1.4 Document Conventions

This document follows IEEE formatting requirements using Arial font size 11 or 12. Section and subsection titles conform to the template style, with major sections in bold.

2 Overall Description

2.1 Product Overview



2.2 Product Functionality

- **DC Meeting Management**: Log dates, upload minutes, and track approvals.
- **Exam Management**: Submit/approve comprehensive exam requests and results.
- **Publication Tracking**: Maintain a database of research papers linked to student profiles.
- **SWAYAM Registration**: Request/enroll in courses with supervisor approval.
- **Role-Based Dashboards**: Custom interfaces for students, supervisors, and coordinators.

2.3 Design and Implementation Constraints

- **Frontend**: HTML/CSS/JavaScript with Bootstrap for responsive UI.
- **DBMS**: MySQL for structured data storage.
- **Security**: Role-based access control (RBAC) and encrypted credentials.
- **Standards**: COMET design method and UML modeling language will be utilized for design.

2.4 Assumptions and Dependencies

- The system assumes reliable internet connectivity.
- User authentication assumes standard web security protocols.

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

- **Login**: Role-specific entry (Student/Supervisor/Coordinator).
- **Dashboard:** Summary of pending tasks, upcoming DC meetings, and milestones.
- **DC Meetings**: Form to upload minutes, discussion summaries, and approval status.
- **SWAYAM Courses**: List of available courses with "Request Enrollment" options.

3.1.2 Hardware Interfaces

The system interfaces with PCs, laptops and desktops which support:

- **Processor:** Minimum of Intel core i3 processors.
- **Disk Storage:** 25GB of disk space
- **RAM:** 2GB RAM minimum. 4GB RAM preferred.

3.1.3 Software Interfaces

- **Database**: Store student profiles, DC meeting logs, and publication records.
- **Frontend**: Using HTML, JavaScript and CSS for the user interface.

3.2 Functional Requirements

Student Functions

1. **User Login**:
    - Users shall log in with their unique email and password, authenticated against the database.
    - The system shall provide error handling for incorrect credentials or unregistered users.
    - Passwords shall be securely hashed using bcrypt for secure storage.
2. **DC Meeting Logging**:
    - Students can upload meeting minutes in PDF/DOCX format.
    - The system shall validate file size and format before submission.
    - Notifications shall be sent to the supervisor for review and approval.
    - Students can track the approval status of their DC meeting logs via their dashboard.

3. **Exam Request Submission**:
    - Students can submit requests to appear for exams by attaching coursework documents (PDF/DOCX).
    - The system shall notify the supervisor for approval.
    - Students can view the status of their submitted requests (e.g., Pending, Approved, Rejected).
4. **SWAYAM Enrollment**:
    - Students can browse a list of available SWAYAM courses via the system.
    - Students submit enrollment requests with justification text if required.
    - Notifications are sent to the coordinator for approval.
    - Approved courses are added to the student's academic profile.
5. **Publication Indexing**:
    - Students can add publication details (e.g., DOI/ISSN, title, journal name).
    - The system shall auto-fetch journal impact factors using external APIs (e.g., CrossRef or Scopus).
    - Publications are stored in the database and linked to the student's profile for tracking.
6. **Document Organization**:
    - Students can upload and categorize academic documents (e.g., research proposals, progress reports).
    - The system provides folder-based organization for easy access.
7. **Feedback Submission**:
    - Students can submit feedback forms related to courses, supervisors, or program structure.
    - Feedback is stored anonymously in the database for analysis by coordinators.

Supervisor Functions

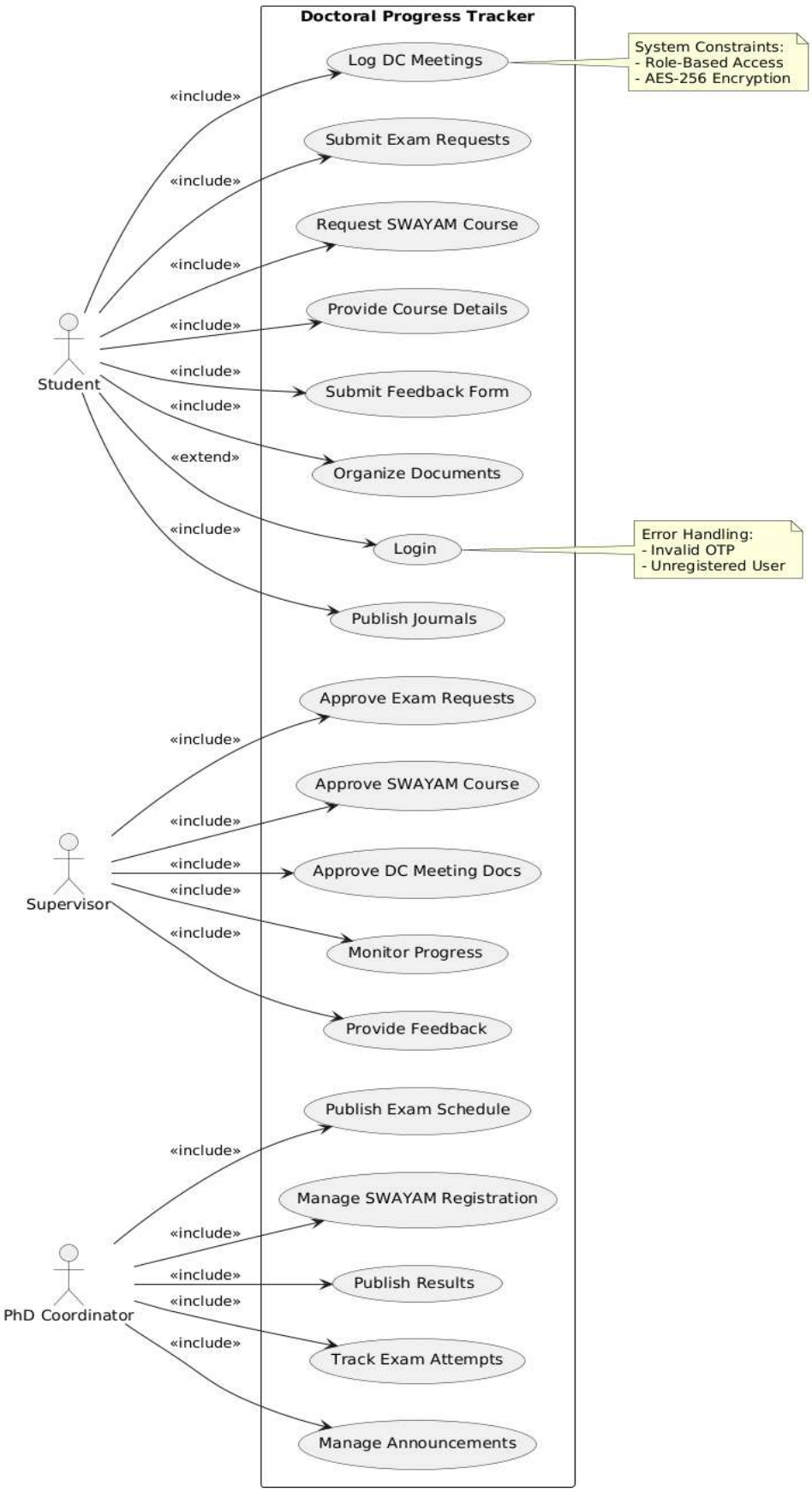
1. **Approve/Reject DC Meeting Documentation**:
    - Supervisors review uploaded DC meeting minutes submitted by students.
    - Supervisors can approve or reject with comments for revisions.
2. **Validate SWAYAM Course Requests**:
    - Supervisors review SWAYAM course enrollment requests submitted by students.
    - They can approve or reject requests with comments explaining their decision.

3. **Monitor Student Progress**:
    - Supervisors have access to a dashboard summarizing each student's progress (e.g., completed milestones, pending tasks).
4. **Provide Feedback**:
    - Supervisors can provide feedback on student submissions, including publications, exam requests, and DC meetings.

Coordinator Functions

1. **Schedule Comprehensive Exams**:
    - Coordinators can schedule comprehensive exams for students based on availability of examiners and students.
    - The system generates a calendar view of scheduled exams.
2. **Publish Exam Results**:
    - Coordinators upload exam results into the system after evaluations are completed.
    - Results are published to students via their dashboards.
3. **Announce Academic Timelines**:
    - Coordinators can configure and publish academic timelines (e.g., submission deadlines, meeting schedules).
    - Notifications are sent to all relevant users when timelines are updated.
4. **Manage SWAYAM Course Registration**:
    - Coordinators oversee SWAYAM course registrations and ensure compliance with university guidelines.
    - They verify eligibility criteria before approving enrollment requests.
5. **Track Exam Attempts**:
    - Coordinators track how many times a student has attempted specific exams.
    - This data is used to enforce institutional policies on re-attempts.
6. **Manage Announcements**:
    - Coordinators post announcements related to academic events, deadlines, or changes in policies.
    - Announcements are displayed on user dashboards based on their role.

3.3 Use Case Model



Actors

1. Doctoral Student: The primary user of the system who performs tasks such as registering, logging in, organizing documents, submitting requests, and providing feedback.
2. Supervisor: A faculty member responsible for monitoring the student's progress, approving requests, and providing feedback.
3. PhD Coordinator: An administrative role responsible for managing course registrations, exam results, and other approvals.

Use Case

Doctoral Student's Tasks

1. Log DC Meetings:
    - The student logs details of Doctoral Committee (DC) meetings.
    - They can also upload meeting minutes for documentation.
2. Submit Exam Requests:
    - Students submit requests to appear for exams.
3. Request SWAYAM Course Registration:
    - Students request registration for courses offered through SWAYAM (an online learning platform).
4. Provide Course Details:
    - Students share details about courses they are taking.
5. Submit Feedback Form:
    - Students provide feedback about courses or the program.
6. Organize Documents:
    - Students upload and categorize documents required for their academic progress.
    - The system handles scenarios like invalid OTPs or unregistered users during login/registration.
7. Login:
    - Students log in to access its features.
    - If an OTP is invalid or the user is not registered, appropriate error handling occurs.

Use Case

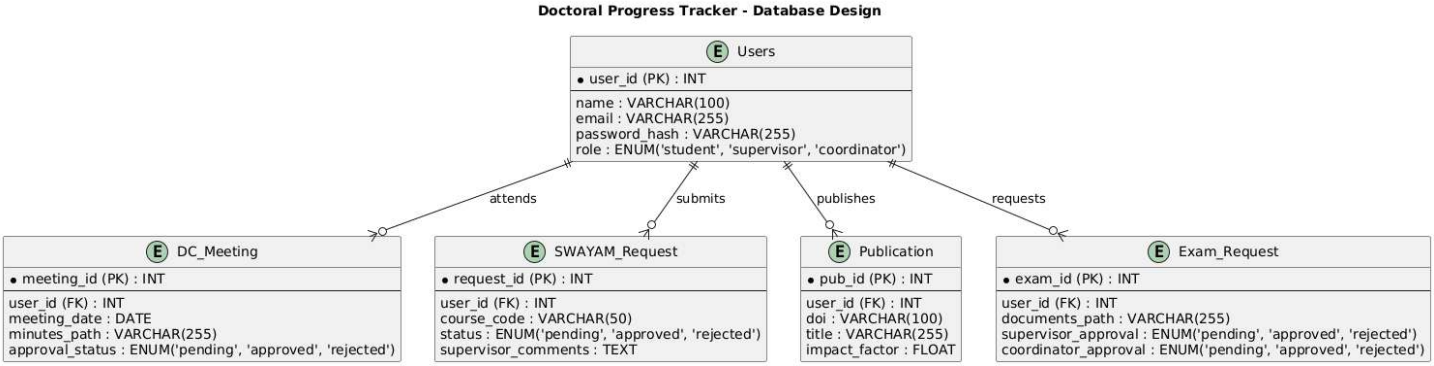
Supervisor's Tasks

1. Approve Exam Requests:
    - Supervisors review and approve requests submitted by students to appear for exams.
2. Approve SWAYAM Course Registrations:
    - Supervisors approve students' requests for SWAYAM course registrations.
3. Approve DC Meeting Documentation:
    - Supervisors review and approve DC meeting minutes uploaded by students.
4. Monitor Student Progress:
    - Supervisors track the academic progress of their assigned students.
5. Provide Feedback:
    - Supervisors give feedback to students based on their progress or submissions.

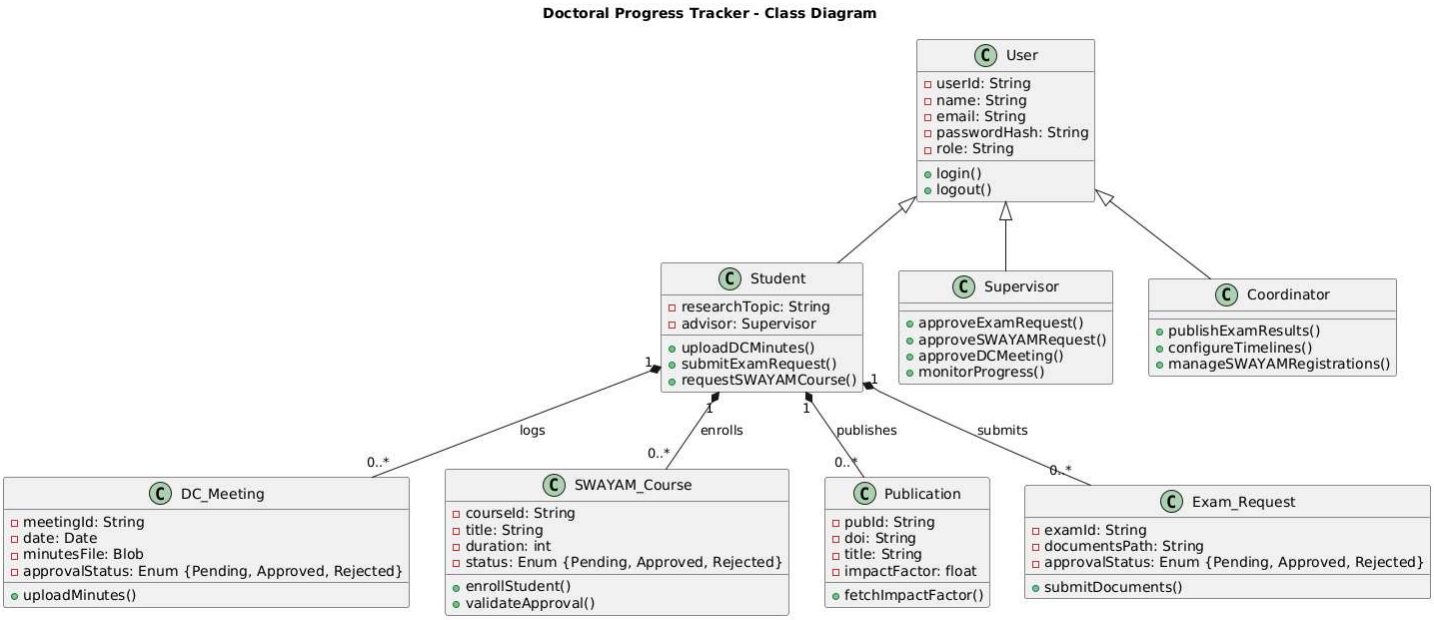
PhD Coordinator's Tasks

1. Approve or Reject Requests:
    - The coordinator reviews and decides on various student requests (e.g., documents or registrations).
2. Manage SWAYAM Course Registration:
    - The coordinator oversees all SWAYAM course registrations for PhD students.
3. Publish Results:
    - The coordinator publishes exam results after approval.
4. Release Exam Results:
    - Results are officially released by the coordinator after processing.
5. Track Exam Attempts:
    - The coordinator tracks how many times students have attempted specific exams.
6. Manage Exam Results and Announcements:
    - The coordinator manages exam-related announcements and results publication.
7. Publish Exam Schedule:
    - The coordinator publishes schedules for upcoming exams.

Database Diagram



Class Diagram



4 Other Non-functional Requirements

4.1 Performance Requirements

- **Response Time**: The system shall display shows within 3 - 5 seconds of the user request.
- **Scalability**: The application shall handle up to 250 concurrent users without performance degradation.

4.2 Safety and Security Requirements

- **Data Protection**: User passwords shall be securely hashed and stored into the database. This will be achieved using hashing tool called bcrypt. AES-256 encryption for document uploads
- **Role based Access Control**: Users with different roles will have access to various functions.

4.3 Software Quality Attributes

4.3.1 Reliability

- The system shall provide reliable access to data, with a target uptime of 99.5%.

4.3.2 Usability

- The interface shall be intuitive, with minimal training required for end-users. Consistent navigation and error-handling mechanisms shall be implemented.