



UE22CS352B - Object Oriented Analysis & Design

Mini Project Report

Title

Submitted by:

Name :

PESIUG22CS613 SRILAKSHMANA AMARESH M (PESIUG22CS613)

PESIUG22CS611 SRIHARI KRISHNA (PESIUG22CS611)

PESIUG22CS580 SHREYAS KARTHIK (PESIUG22CS580)

PESIUG22CS554 SHASHANK UDYAVAR (PESIUG22CS554)

Semester : 6 Section : J

Faculty :

Bhargavi Mokashi

January - May 2025

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
FACULTY OF ENGINEERING
PES UNIVERSITY**

(Established under Karnataka Act No. 16 of 2013)
100ft Ring Road, Bengaluru – 560 085, Karnataka, India

Problem Statement:**Key Features:****User Registration & Authentication:**

The system supports different types of user registrations—mentors, mentees, parents, and admins. Users can register, log in, and log out. Each role has a dedicated authentication flow that directs them to their respective home pages.

Role-Based Dashboards:

After logging in, users are routed to home screens tailored to their roles:

Mentors can view and manage their mentees, schedule sessions, and provide feedback.

Mentees can view their upcoming sessions and submit feedback.

Admins have access to reports, assignment tools, and search functionality for both mentors and mentees.

Parents can monitor their child's progress and review mentor feedback.

Session Scheduling & Management:

Mentors can schedule sessions with mentees. The application enforces business rules (for example, ensuring that session durations are capped at 20 minutes) and uses design patterns like the Builder pattern to create session objects in a flexible and maintainable way.

Feedback Mechanism:

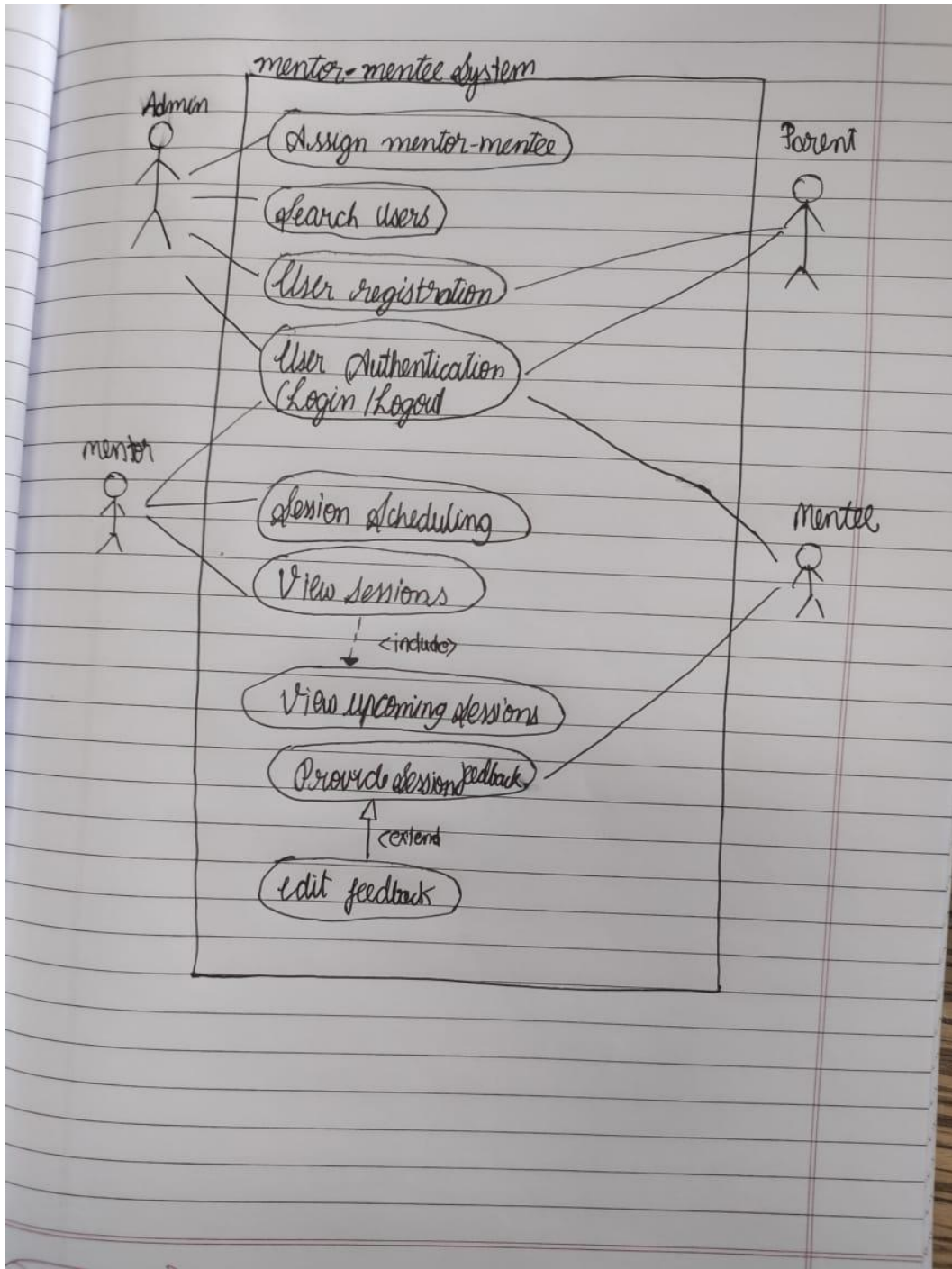
Both mentors and mentees are able to provide feedback on completed sessions. Feedback operations are encapsulated in dedicated services that maintain the separation of concerns.

Search and Assignment:

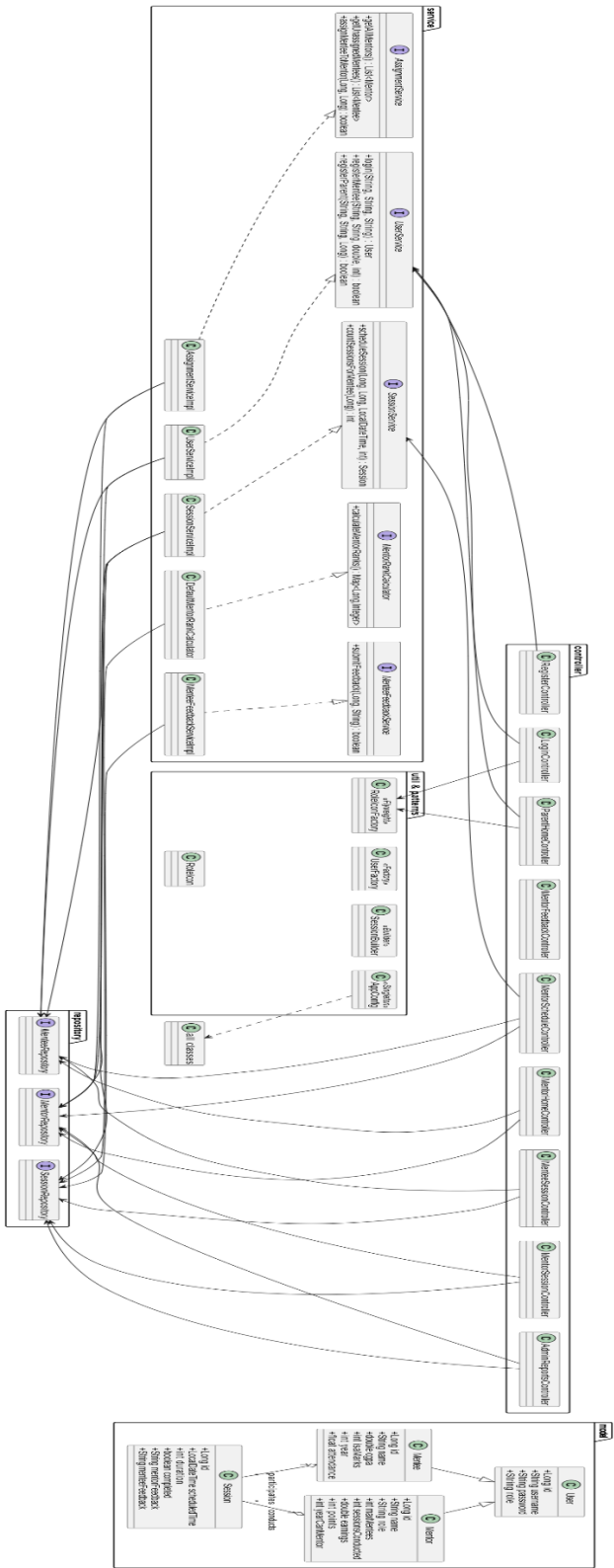
Administrators can search for mentors and mentees using a common search interface that allows substituting different search strategies. Additionally, the system supports the assignment of mentees to mentors, which helps in organizing and managing mentor–mentee relationships.

Models:

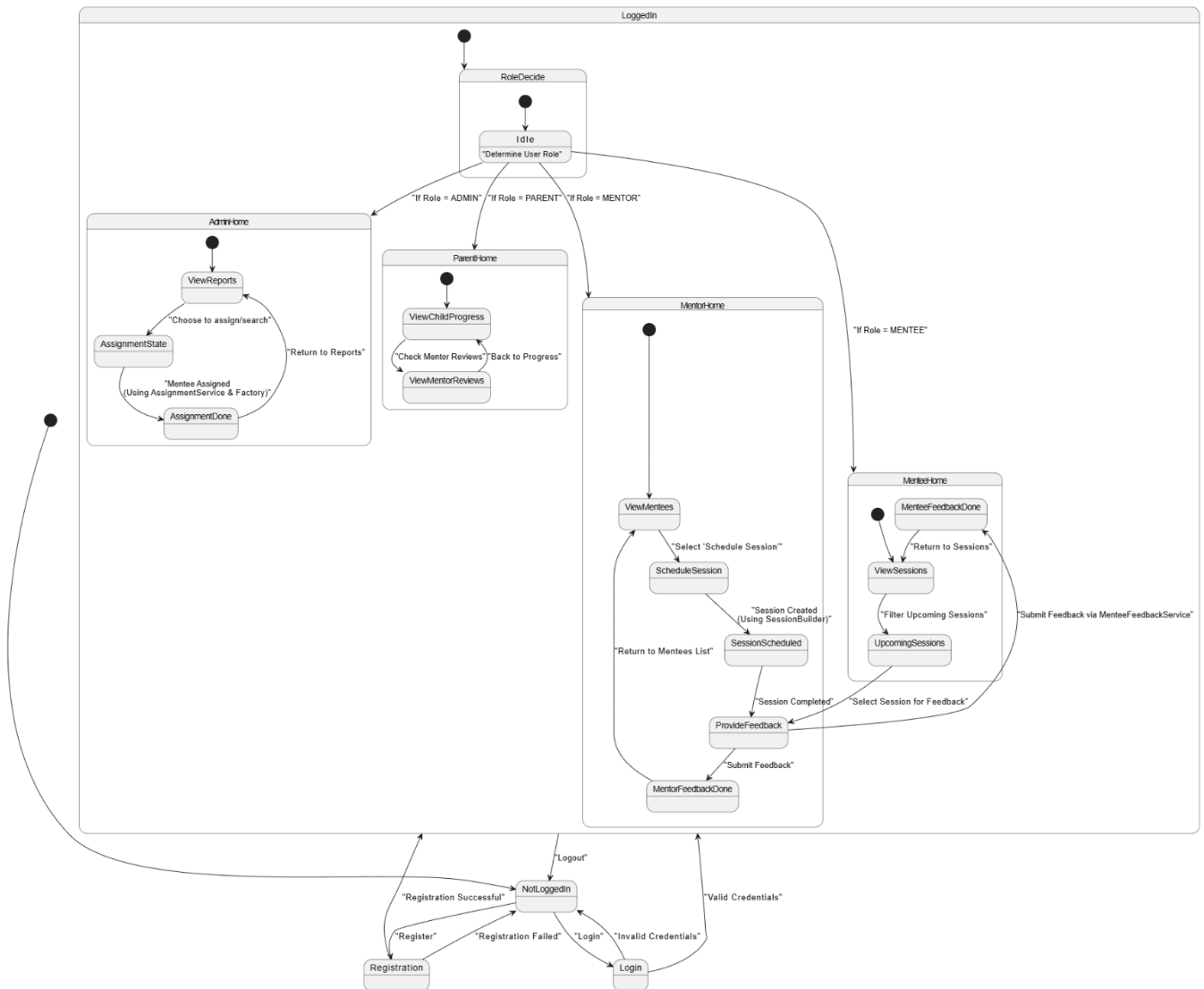
Use Case Diagram:



Class Diagram:

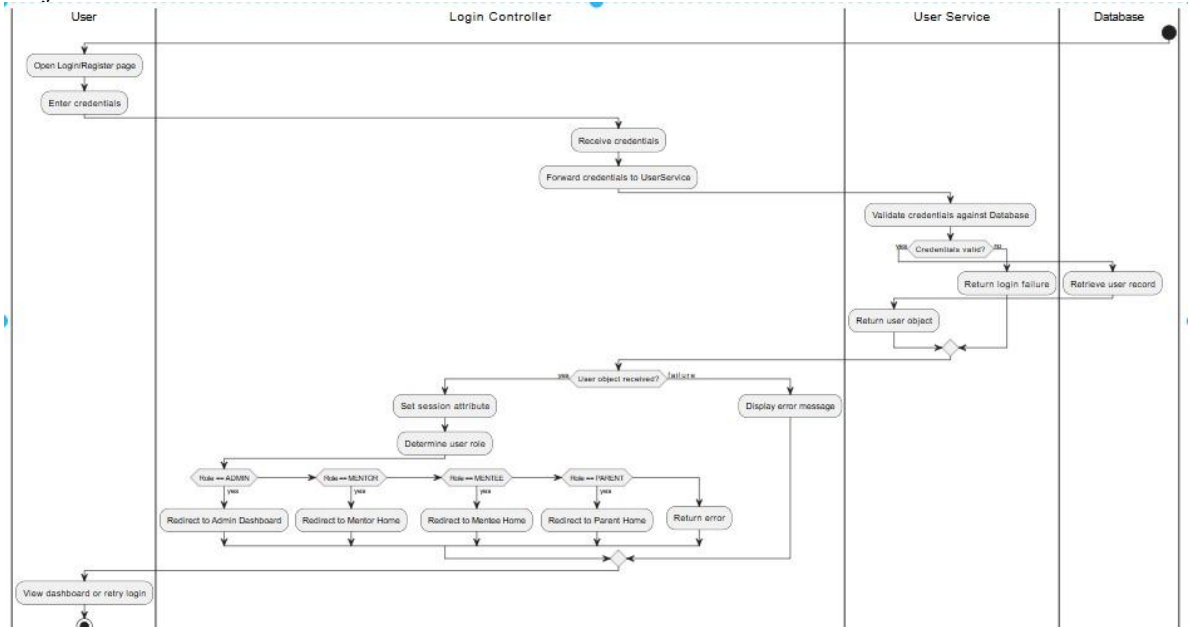


State Diagram:

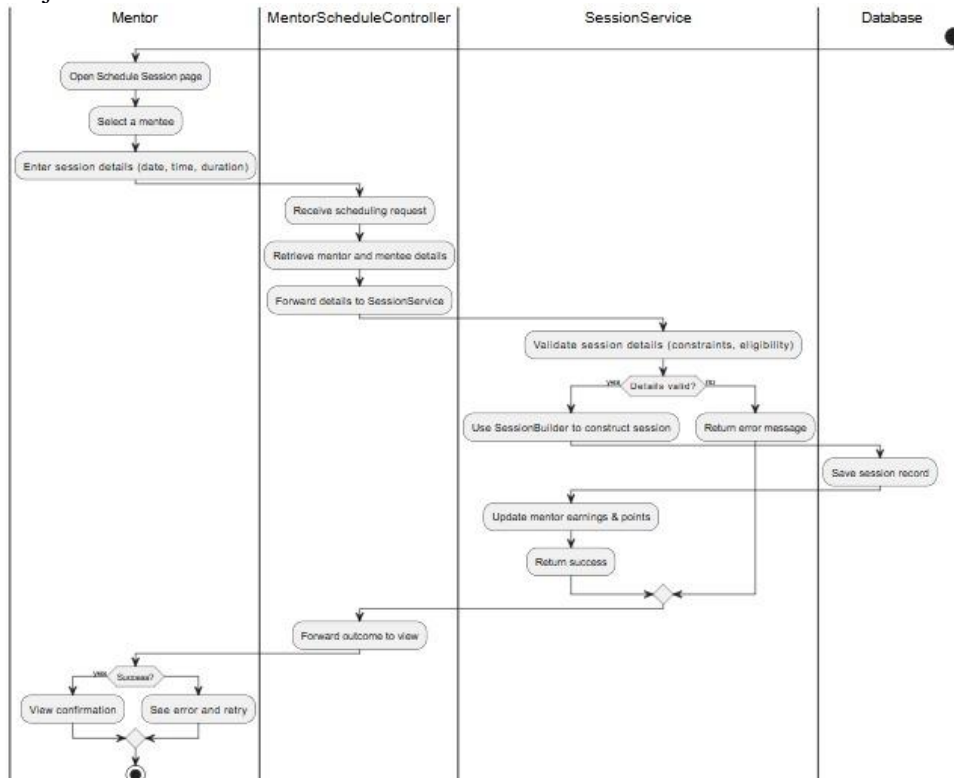


Activity Diagrams:

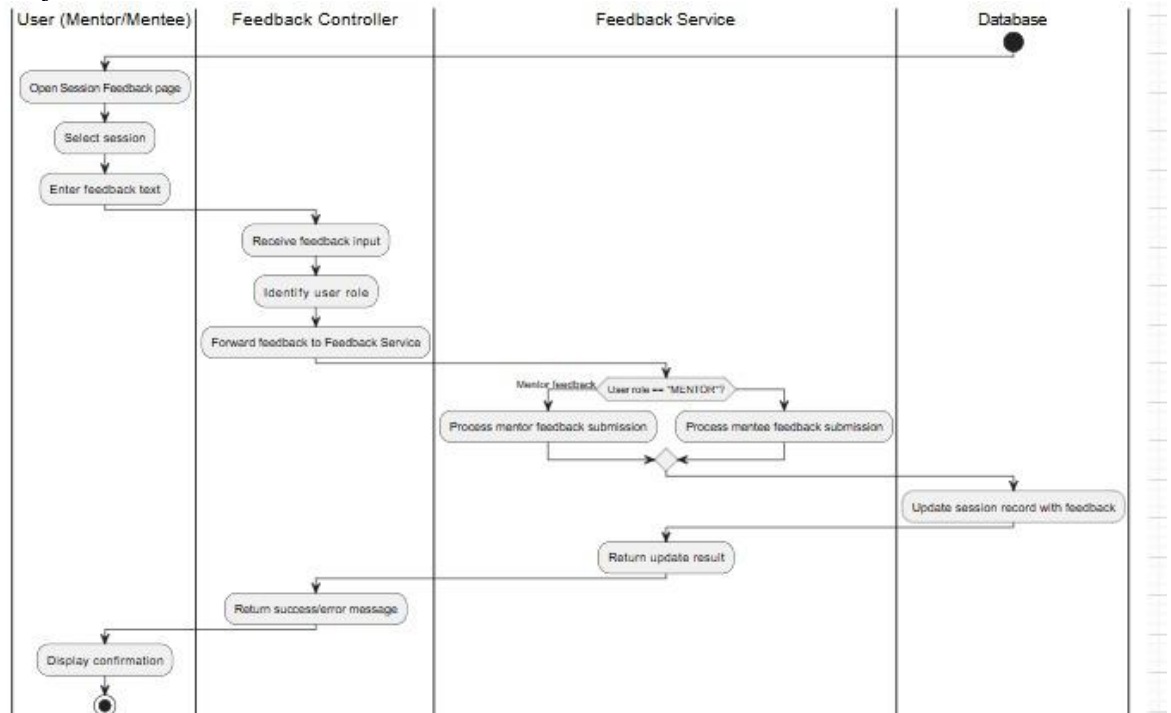
1. Major Usecase



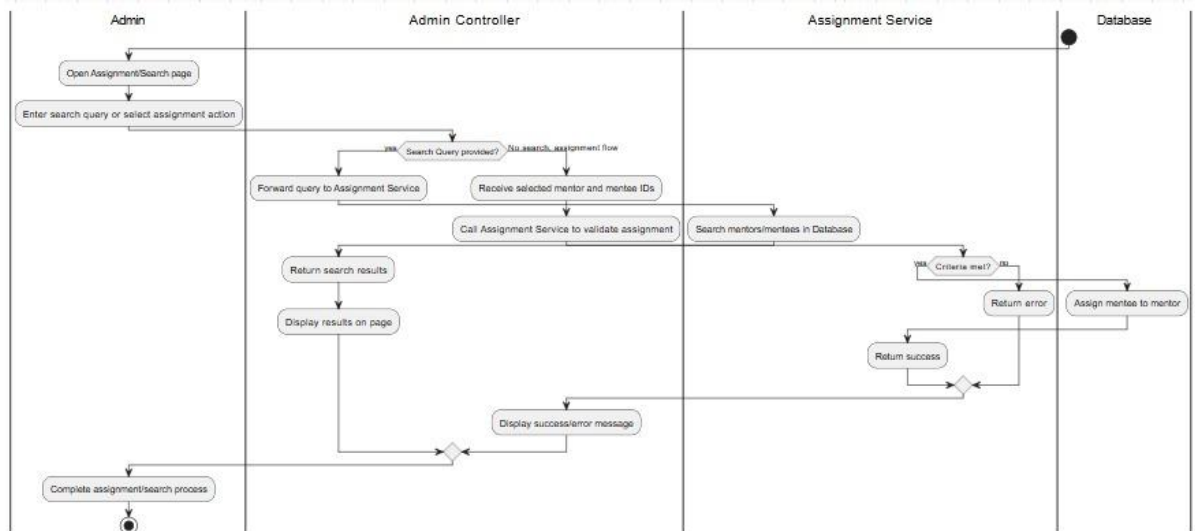
2. Major Usecase



3. Major Usecase



4. Major Usecase



Architecture Patterns, Design Principles, and Design Patterns:

Architecture Patterns

Model – View – Controller Pattern (MVC)

Design Principles

The project uses 4 of the SOLID principles

Single Responsibility Principle

Open/Closed Principle

Liskov Substitution Principle

Dependency Inversion Principle

Design Patterns

Singleton for centralized configuration (e.g., AppConfig).

Factory for consistent user creation (e.g., UserFactory).

Builder for constructing complex session objects (e.g., SessionBuilder).

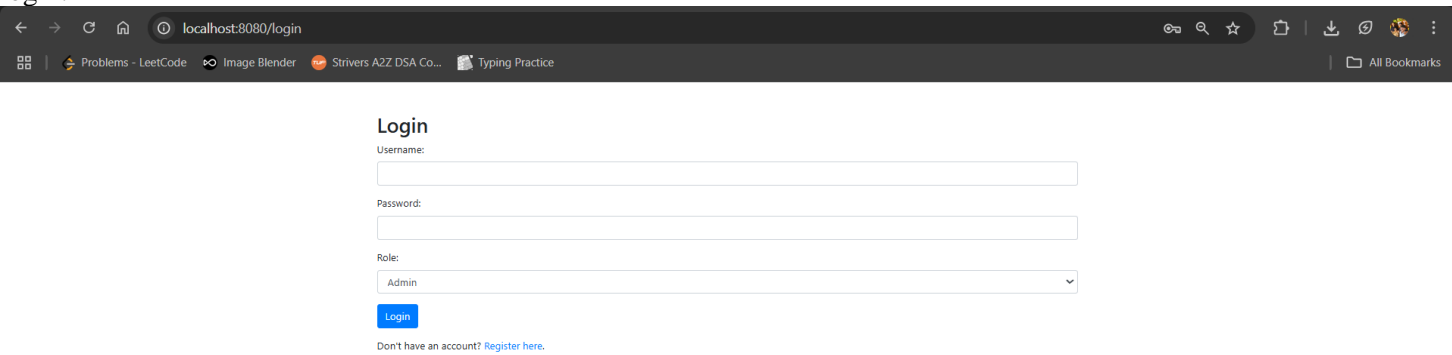
Flyweight for shared role icon data (e.g., RoleIconFactory and RoleIcon).

Github link to the Codebase:

https://github.com/amaresh-X64/OOAD_PROJECT

Screenshots of UI:

login:



A screenshot of a web browser displaying a login page. The browser's address bar shows 'localhost:8080/login'. The page has a dark header with navigation links: 'Problems - LeetCode', 'Image Blender', 'Strivers A2Z DSA Co...', and 'Typing Practice'. The main content area is titled 'Login' and contains three input fields: 'Username:', 'Password:', and 'Role:'. The 'Role:' dropdown menu is set to 'Admin'. Below the inputs is a blue 'Login' button. At the bottom, there is a link: 'Don't have an account? [Register here.](#)'

Login

Username:

Password:

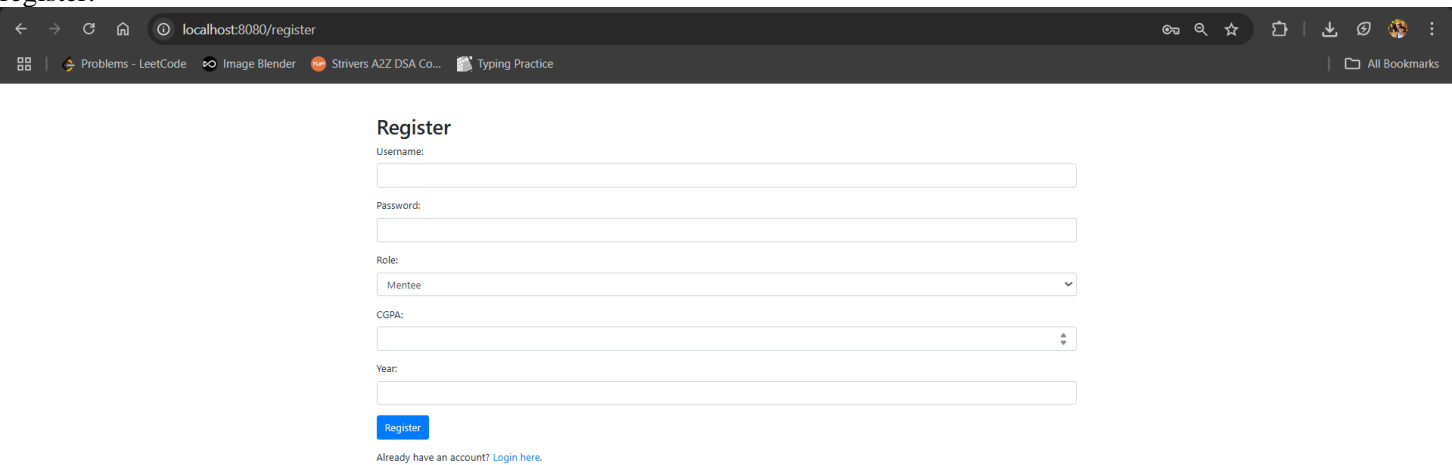
Role:

Admin

Login

Don't have an account? [Register here.](#)

register:



A screenshot of a web browser displaying a register page. The browser's address bar shows 'localhost:8080/register'. The page has a dark header with navigation links: 'Problems - LeetCode', 'Image Blender', 'Strivers A2Z DSA Co...', and 'Typing Practice'. The main content area is titled 'Register' and contains five input fields: 'Username:', 'Password:', 'Role:', 'CGPA:', and 'Year:'. The 'Role:' dropdown menu is set to 'Mentee'. Below the inputs is a blue 'Register' button. At the bottom, there is a link: 'Already have an account? [Login here.](#)'

Register

Username:

Password:

Role:

Mentee

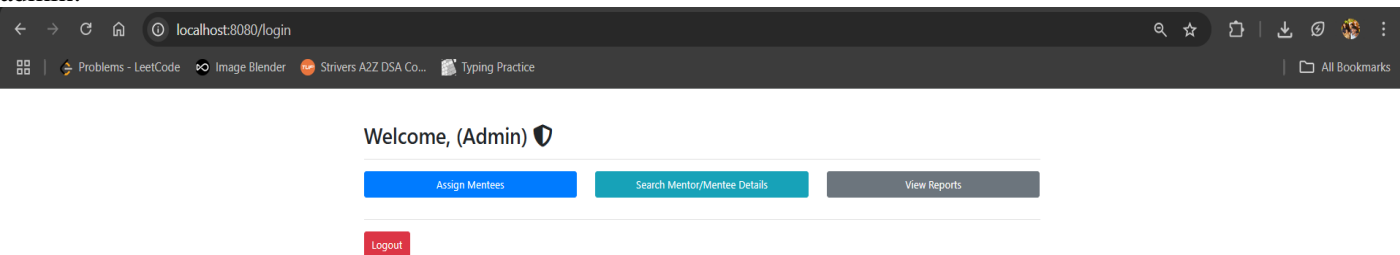
CGPA:

Year:

Register

Already have an account? [Login here.](#)

admin:



A screenshot of a web browser displaying an admin dashboard. The browser's address bar shows 'localhost:8080/login'. The page has a dark header with navigation links: 'Problems - LeetCode', 'Image Blender', 'Strivers A2Z DSA Co...', and 'Typing Practice'. The main content area is titled 'Welcome, (Admin)' with a shield icon. Below the title are three buttons: 'Assign Mentees', 'Search Mentor/Mentee Details', and 'View Reports'. At the bottom, there is a red 'Logout' button.

Welcome, (Admin)

Assign Mentees

Search Mentor/Mentee Details

View Reports

Logout

mentor:



Welcome, Dr. Smith (Mentor) 

[View My Mentees](#)

Give Session Feedback

Logout

mentee

Welcome, srihari (Mentee)

[View Session Details](#)

Upcoming Sessions

Logout

parent:



Welcome, srihari1 (Parent)

[View Child's Progress](#)[View Mentor Reviews](#)

Logout

Individual contributions of the team members:

Name	Module worked on
Srilakshmana Amaresh M	Flyweight
Srihari Krishna	Singleton
Shreyas Karthik	builder
Shashank Udyavar	factory

