Indore Institute of Science & Technology

Affiliated to - RGPV (Bhopal) & Approved by - AICTE (New Delhi)

Minor Project

Project Title-Coding Mastery Learning Dashboard

Branch/year: CS/3rd

Group Members:

1.Mohit Patel(0818CS221115)

2.Pushpendra Patel(0818CS221152)

3.Lokesh Mahajan(0818CS221102)

Layout

- Abstract of Project
- Background Study
- Class Diagram
- Purpose
- Feasibility Study
- Sequence Diagram
- User Navigation Flow
- Scope
- Technical Approach

Abstract of Project

- A personalized and interactive web-based learning system
- Provides daily coding challenges and skill-based progression
- Enables real-time feedback and performance tracking
- Incorporates gamification elements like XP and badges
- Allows role-based access for learners, instructors, and admins
- Supports user-generated course creation and challenge evaluation

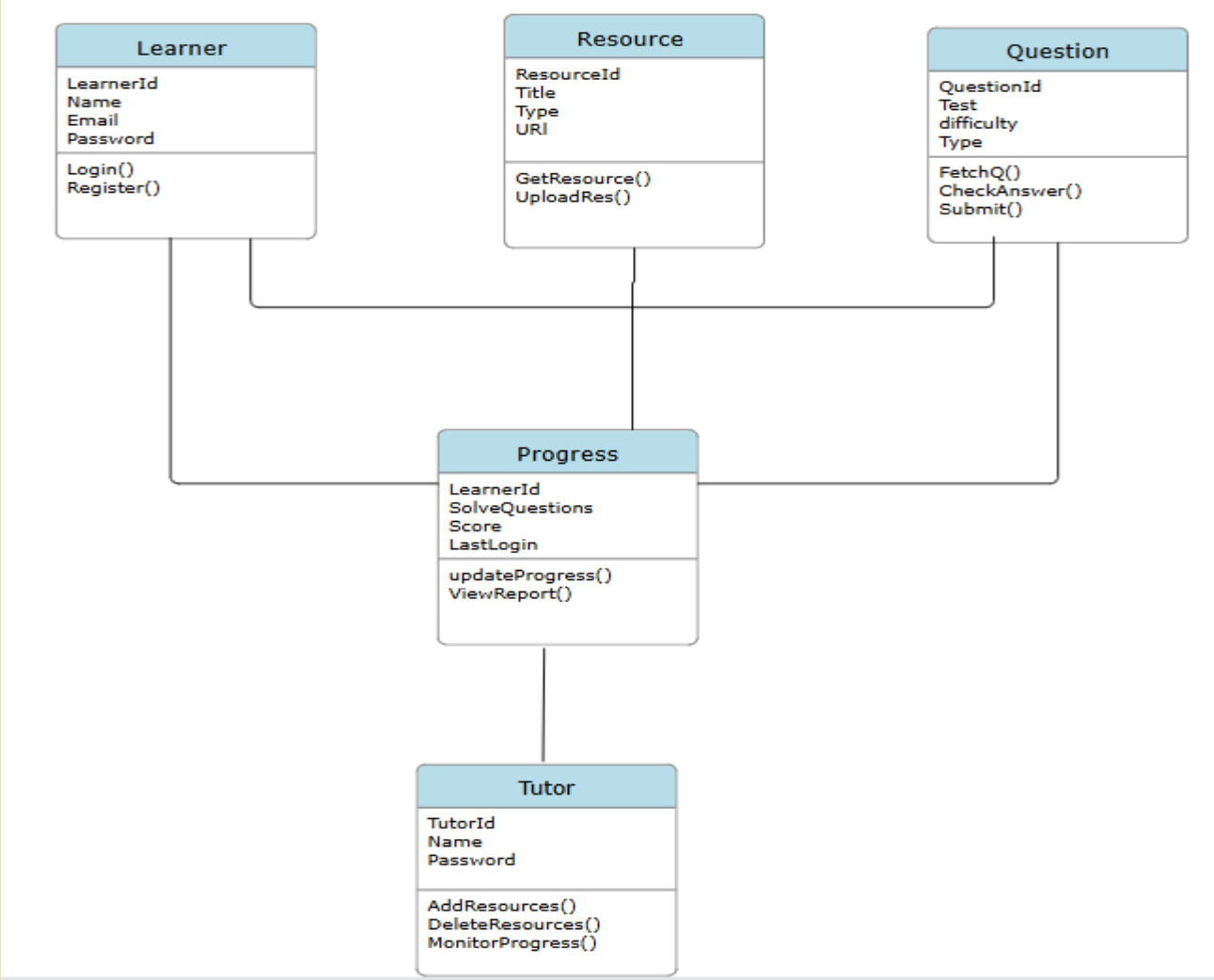
Problem Statement

- Most websites only offer video tutorials, with no practice tool.
- Students switch platforms to code, breaking learning continuity often.
- There's no all-in-one space combining both theory and practice.
- Feedback is missing and learners lose motivation to progress

Background Study

- Mastery learning emphasizes understanding before progression
- Inspired by Bloom's model of tailored and competency-based education
- Traditional platforms like Codeacademy and Coursera offer content but lack:
  - Mastery-based adaptive pathways
  - Strong real-time feedback mechanisms
  - Community support and gamification

Class Diagram



Purpose

- We aim to build a simple and engaging platform to help learners improve their coding skills step by step.
- It's designed to fill the gap between what learners know and how they apply it in the real world.
- The platform also keeps learners involved with feedback, suggestions, and interactive features.

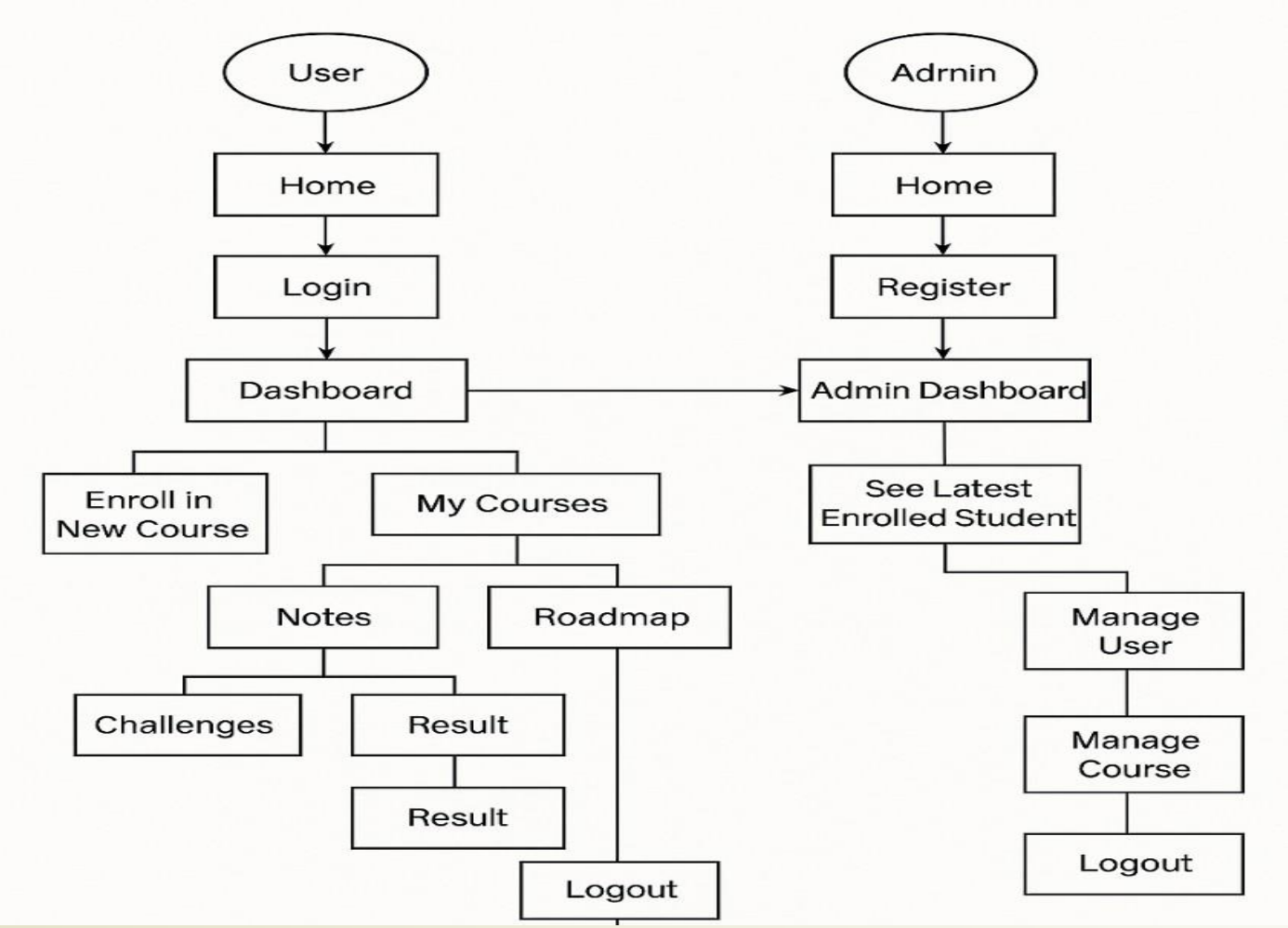
Key Features

- Role-based user management
- Interactive coding challenges
- Instant feedback system
- Performance dashboards
- Badges and leaderboards

Technology Stack

- Frontend: HTML5, CSS3, JavaScript, Bootstrap
- Backend: Java, JSP, Servlets
- Database: MySQL
- Server: Apache Tomcat
- Tools: Eclipse, VS Code, GitHub

User Navigation Flow



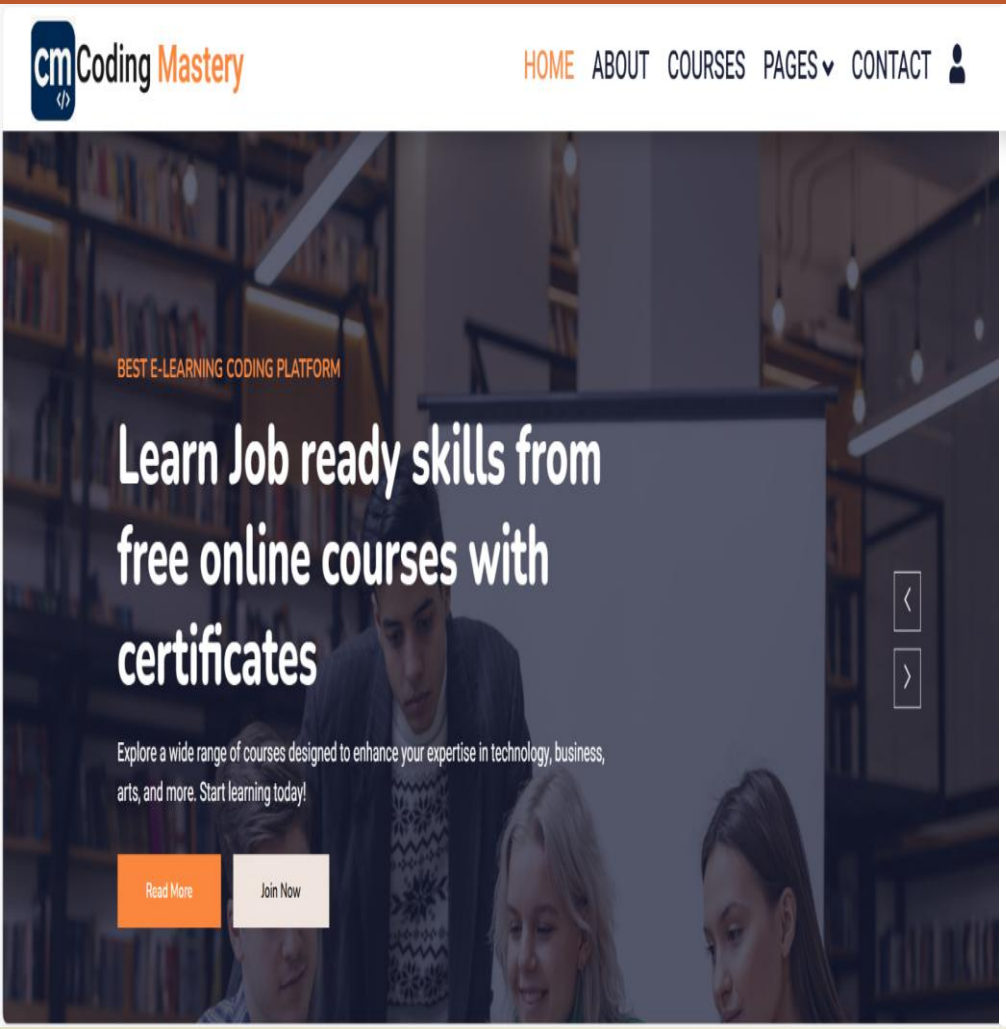
Development Methodology

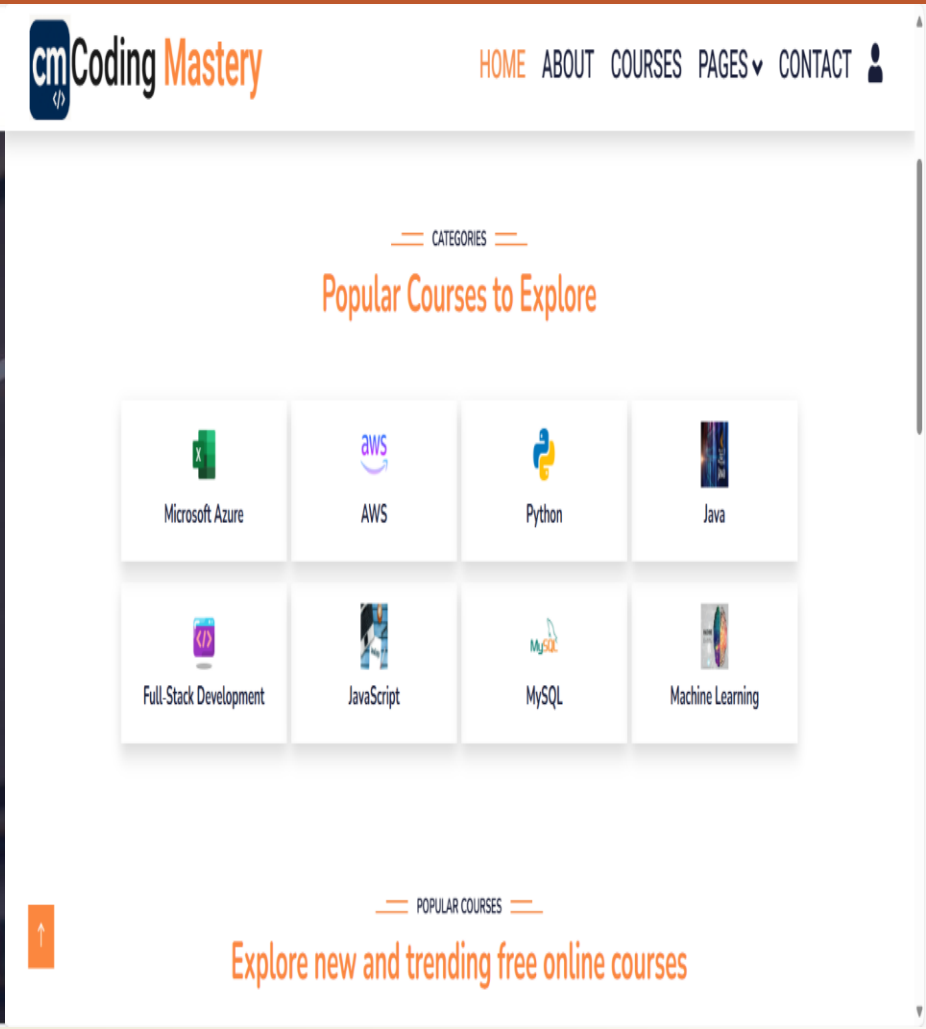
- Agile methodology with incremental model
- Four sprints:
  - Requirement Gathering
  - Core Development
  - Testing and Debugging
  - Deployment and Documentation

Future Scope

- AI-powered recommendations
- Mobile application
- Real-time mentorship
- Multilingual support
- Game-based code learning

Implementation





Conclusion

The Coding Mastery Learning Dashboard offers a user-friendly, personalized platform for learners to build strong programming skills. With adaptive learning, gamified challenges, and intelligent feedback, it addresses the limitations of many current online coding tools.

Its scalable Java-based design ensures smooth deployment in educational institutions, with future enhancements easily adaptable.


THANK YOU!