A

PROJECT REPORT

ON

“SMART STUDENT PORTAL”

SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR

IN THE PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE AWARD OF DEGREE
BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND
ENGINEERING

SUBMITTED BY

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UNDER THE GUIDANCE OF

Mr. S. P. Pise

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA
SCIENCE ENGINEERING
DKTE SOCIETY’S TEXTILE AND ENGINEERING
INSTITUTE, ICHALKARANJI
(AN EMPOWERED AUTONOUMOUS INSTITUTE)
2024-2025

D.K.T.E. SOCIETY’S

TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI

(AN EMPOWERED AUTONOUMOUS INSTITUTE)

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE ENGINEERING

DKTE
AN AUTONOMOUS INSTITUTE
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CERTIFICATE

This is to certify that, project work entitled

“SMART STUDENT PORTAL”

is a bonafide record of project work carried out in this college by

MR. Sourabh Umesh Kamble 22UAD027

is in the partial fulfillment of award of degree Bachelor of Technology in Artificial Intelligence and Data Science Engineering prescribed by Shivaji University, Kolhapur for the academic year 2024-2025.

MR. S. P. PISE
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PROF.(DR.) L.S.ADMUTHE
(DIRECTOR)

EXAMINER: __________________

DECLARATION

We hereby declare that, the project work report entitled "**SMART STUDENT PORTAL**" which is being submitted to D.K.T.E. Society's Textile and Engineering Institute Ichalkaranji, affiliated to Shivaji University, Kolhapur is in partial fulfillment of degree B.Tech.(AI & DS). It is a bonafide report of the work carried out by us. The material contained in this report has not been submitted to any university or institution for the award of any degree. Further, we declare that we have not violated any of the provisions under Copyright and Piracy / Cyber / IPR Act amended from time to time.

Title	**Name of the Student**	**PRN**	**Signature**
MR.	**Sourabh Umesh Kamble**	**22UAD027**	

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Thank you,

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MR.	**Sourabh Umesh Kamble**	**22UAD027**

ABSTRACT

The Smart Student Portal is a web-based application developed to streamline and modernize the academic and administrative interactions between students and educational institutions. Built using PHP and MySQL, the system offers secure access to student profiles, document requests, and real-time academic updates through a responsive and user-friendly interface.

The portal addresses key challenges in manual systems, such as inefficient communication, document delays, and limited access to student data. With features like user authentication, dashboard views, document request tracking, and profile management, the system enhances both user experience and administrative efficiency.

Designed using a three-tier architecture and developed under Agile methodology, the application ensures modularity, maintainability, and future scalability. Security features such as password hashing, session management, and input validation are implemented to protect sensitive student data.

This project lays the foundation for a robust academic service platform and opens the door for future integration of advanced functionalities such as automated document generation, payment processing, and mobile app support.

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1. Introduction

a. Problem Definition

In many educational institutions, students often face challenges accessing academic resources, requesting documents, or managing their academic profile in a centralized and efficient manner. Manual processing of document requests, scattered course information, and lack of an integrated student dashboard contribute to inefficiency and frustration among students and administrative staff. Additionally, without a proper system, managing authentication and secure access to student data becomes a challenge.

b. Aim and Objective of the Project

The aim of this project is to develop a Smart Student Portal — a secure, user-friendly web-based application that centralizes student activities such as:

- Profile management
- Course and academic information access
- Secure login/logout system
- Online document request and management
- Notification and updates panel

The objective is to streamline communication between students and administrative staff, automate routine academic services, and provide a seamless user experience with enhanced security features.

c. Scope and Limitation of the Project

Scope:

- Web-based access for students and staff
- User authentication with session management
- Dashboard overview with key student statistics
- Secure file handling for document uploads/downloads
- Responsive interface for desktop and mobile
- Integration with MySQL for backend data storage
- Scalable structure for future enhancements (e.g., fee payments, academic performance tracking)

Limitations:

- Currently built using PHP and MySQL — not optimized for high-concurrency or microservices-based scaling.
- Assumes local or shared hosting environment (Apache/Nginx); cloud deployment needs manual setup.
- No role-based access beyond basic login (e.g., admin vs student functions are not deeply segregated).
- Limited to basic academic operations; does not include full LMS functionalities.

2. Background study and literature overview

a. Literature Overview

Student portals are a common feature in modern educational institutions, offering centralized access to academic information and services. These platforms are often used for course registration, academic records, document requests, and internal communication. Several studies and systems have been proposed to enhance such platforms:

- **E-learning platforms** such as Moodle and Blackboard have paved the way for centralized learning management but often focus on coursework rather than administrative student needs.
- **University Management Systems (UMS)** aim to provide an all-in-one solution, but many are overly complex or costly for smaller institutions.
- Literature on **web-based academic portals** emphasizes the importance of secure authentication, responsive design, and modular architecture to meet the evolving needs of students and staff.
- **Security practices** such as password hashing, session management, and CSRF protection are identified as essential for safeguarding student data in academic systems.

This project draws on these insights to deliver a lightweight yet secure and functional solution tailored to core student needs.

b. Investigation of Current Projects and Related Work

Several web applications and portals already offer student services, but they vary in terms of accessibility, usability, and functionality:

- **Existing Systems:** Many institutions use third-party solutions like **Ellucian Banner** or **PeopleSoft Campus Solutions**, which are comprehensive but often expensive and require specialized maintenance.
- **Open Source Alternatives:** Tools like **Fedena**, **OpenSIS**, and **SIS Student Portal** offer flexible deployments but may include unnecessary features or lack modern UI/UX principles.
- **Custom Web Portals:** Some universities develop in-house student portals using PHP, Django, or Node.js. These solutions are often tailored but may lack security best practices if not properly maintained.

Comparison with This Project:

Feature	**Existing Systems**	**Smart Student Portal**
Cost	High	Open-source/Free
Features	Comprehensive but often bloated	Focused on essential student functions
Customization	Limited or complex	Easily customizable via PHP & MySQL
Security	Strong (in enterprise solutions)	Implements core best practices like hashing, CSRF, prepared statements
Usability	Varies widely	Lightweight, responsive, and straightforward

3. Requirement analysis

a. Requirement Gathering

Requirements were collected through the following methods:

- **Interviews** with students and staff to understand pain points in current document request and academic tracking systems.
- **Review of existing student portals** to identify standard and desirable features.
- **Consultation with developers** to understand the technical feasibility of implementing core features with PHP and MySQL.

Stakeholders Involved:

- Students (Primary Users)
- Academic Staff (Review and approval of requests)
- System Administrator (Setup and maintenance)

Identified Needs:

- Secure student login system
- Dashboard for student information and updates
- Document request and tracking system
- Profile management
- Administrative panel for staff
- Notification system

b. Requirement Specification

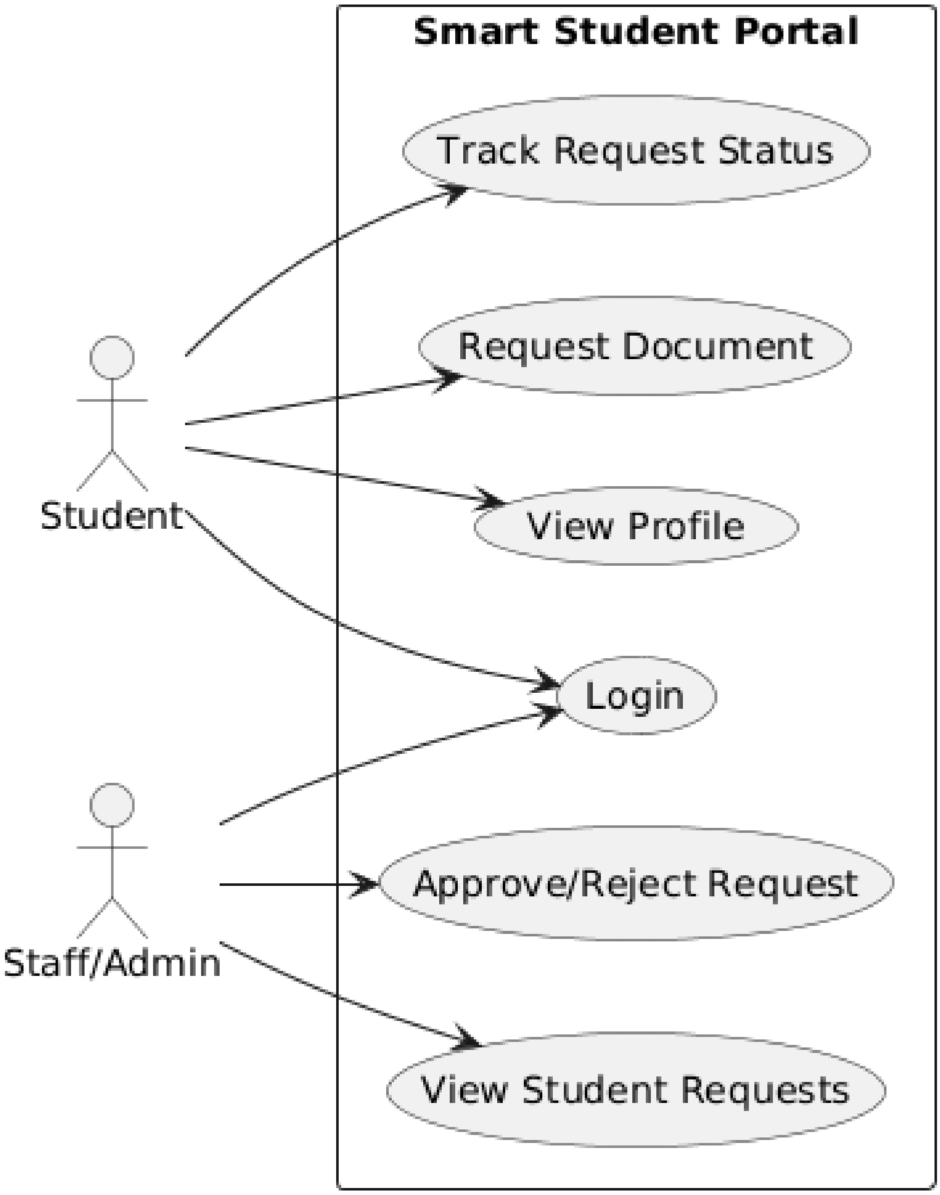
Functional Requirements:

1. **User Registration & Authentication**
    - Login with username and password
    - Password hashing for security
2. **Student Dashboard**
    - Display recent notifications, profile summary, and academic stats
3. **Profile Management**
    - Edit personal details and view profile data
4. **Document Request Module**
    - Submit document request
    - Track request status
5. **Admin/Staff Panel**
    - View and process student requests
    - Manage user accounts
6. **Notifications**
    - Email or in-app alerts about request status and updates
7. **Responsive Interface**
    - Support for desktop and mobile devices
8.

Non-Functional Requirements:

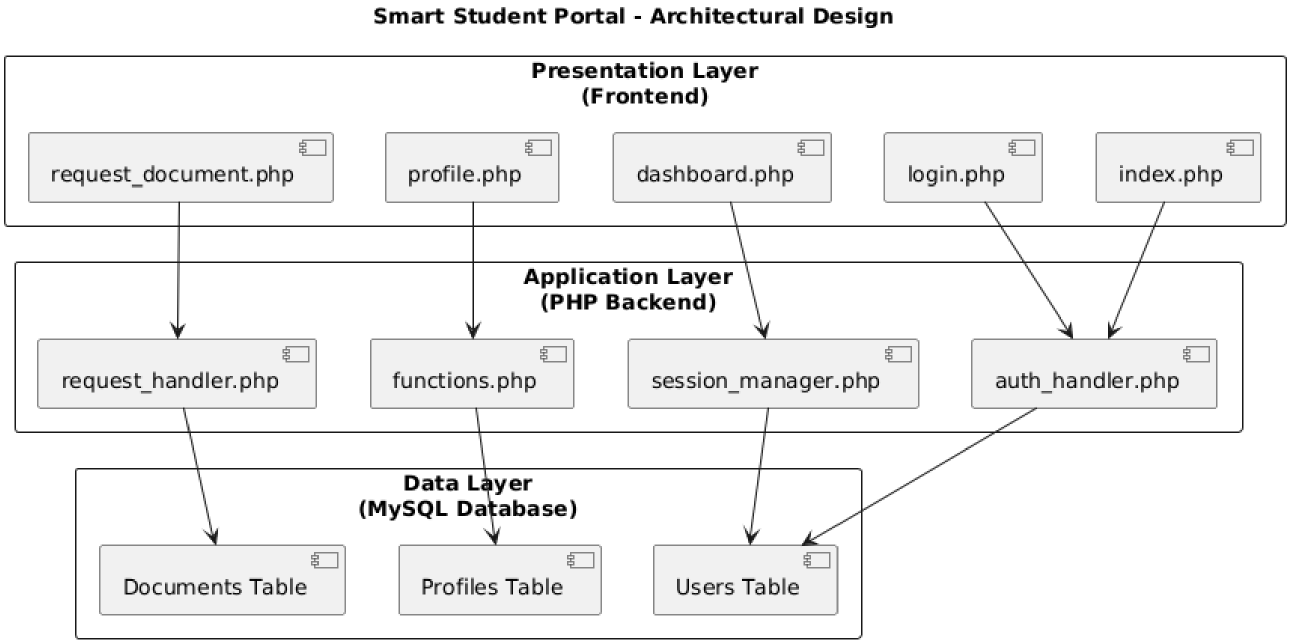
- **Security:** Password hashing, CSRF protection, input sanitization
- **Performance:** Fast response time on dashboard and form submissions
- **Maintainability:** Modular code with includes/templates for easy updates
- **Portability:** Runs on any standard LAMP stack (Linux, Apache, MySQL, PHP)

c. Use Case Diagram

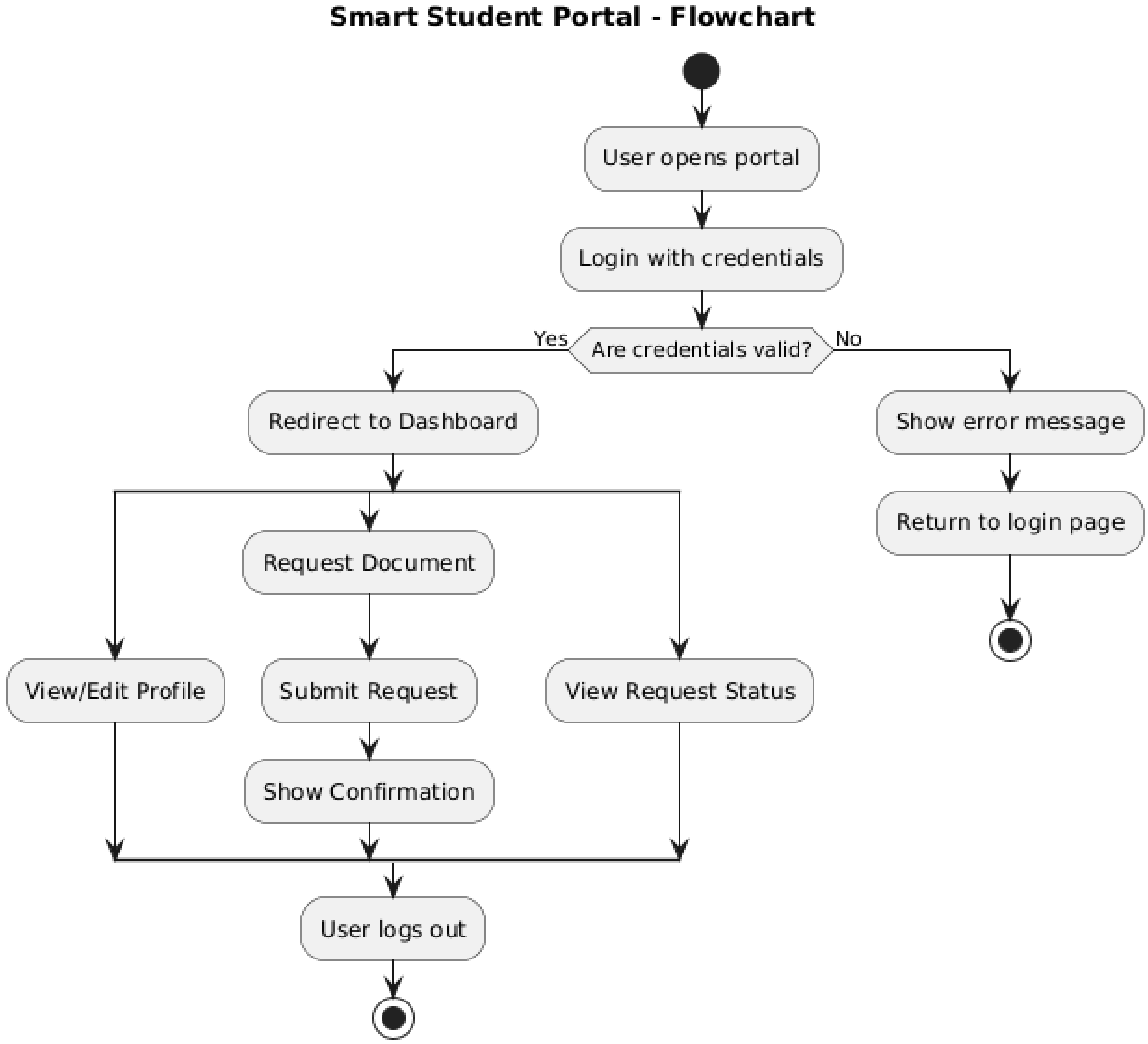


4. System design

a. Architectural Design

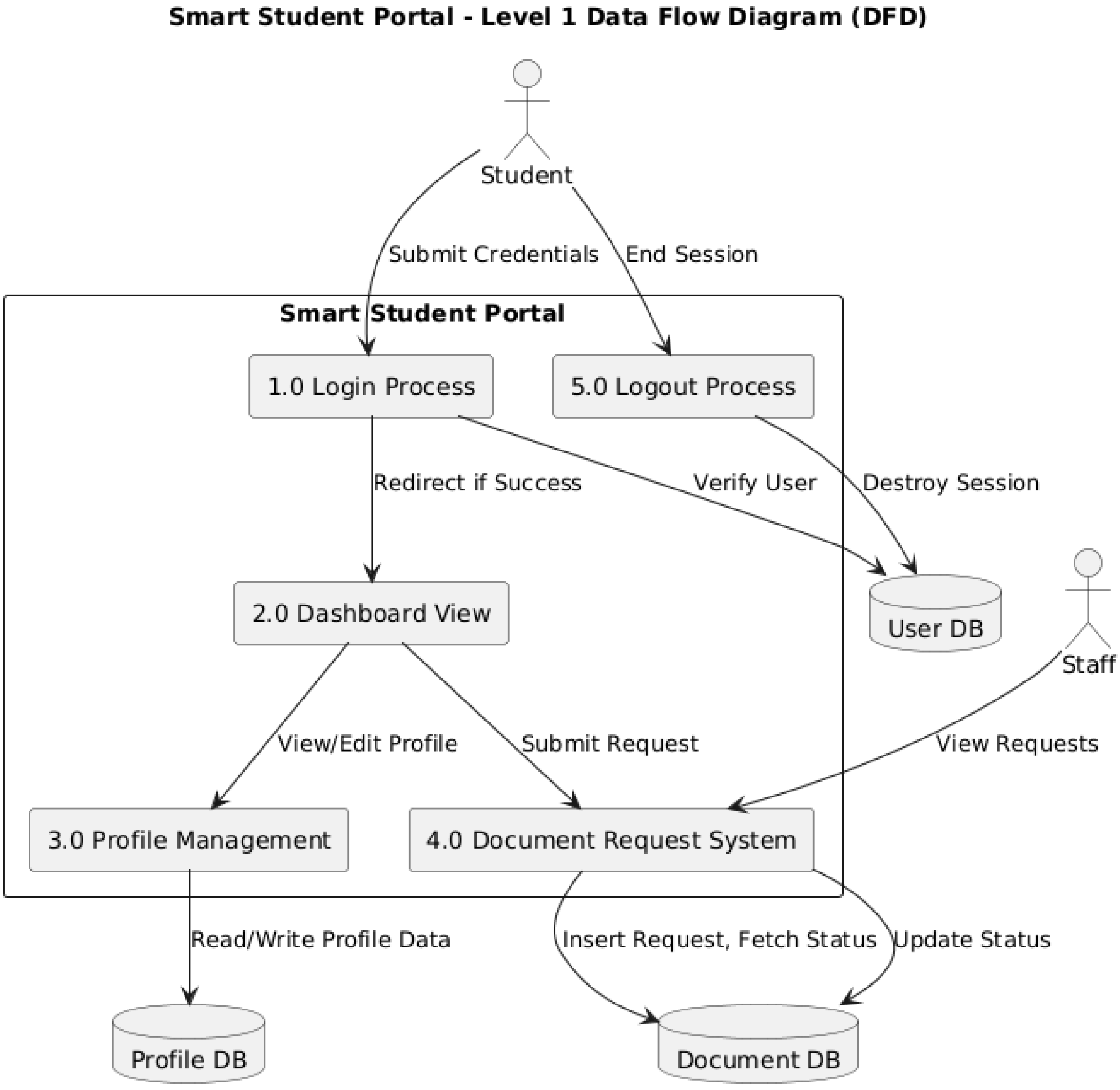


b. Flow Chart


Smart Student Portal - Flowchart
User opens portal
Login with credentials
Are credentials valid?
Yes
No
Redirect to Dashboard
Show error message
Return to login page
Request Document
View/Edit Profile
Submit Request
View Request Status
Show Confirmation
User logs out

c. System Modeling

1. Data Flow Diagram (DFD) – Level 1



5. Implementation

a. Agile Methodologies

The Smart Student Portal was developed using **Agile methodology**, focusing on iterative development, continuous feedback, and adaptability. Each feature was implemented in short sprints:

- **Sprint 1:** User authentication and login
- **Sprint 2:** Dashboard and profile management
- **Sprint 3:** Document request system
- **Sprint 4:** Admin features and notifications
- **Sprint 5:** UI enhancements and testing

Regular testing and feedback guided improvements throughout the process.

b. Development Model

A **Hybrid Agile-Incremental model** was followed:

- **Planning:** Defined core features and structure
- **Design:** Developed architecture and data models
- **Development:** Built modules incrementally (login, profile, document system)
- **Testing:** Conducted after each module
- **Deployment:** Initially on XAMPP, adaptable to Apache/Nginx servers

6. Future Scope

The Smart Student Portal is designed with scalability and extensibility in mind. Future enhancements can significantly expand its functionality and usability:

- Role-Based Access Control (RBAC): Implement separate dashboards for students, staff, and administrators with fine-grained permissions.
- Automated Document Generation: Integrate PDF generation tools to automatically create requested certificates or forms.
- Payment Gateway Integration: Allow online payments for document fees or other institutional charges.
- Mobile App Extension: Develop a companion mobile application for Android/iOS for easier access.
- Notification System Upgrade: Add SMS and push notifications for real-time updates.
- Academic Performance Tracking: Include grade reports, attendance tracking, and course progress analytics.
- Cloud Deployment: Migrate to platforms like AWS or Google Cloud for better performance and scalability.
- AI Chatbot Integration: Assist users with FAQs, request processes, and real-time support.

These future improvements can transform the portal into a complete academic services ecosystem for educational institutions.

7. References (public repository GitHub source code links)

Technologies Used:

- PHP Official Docs: https://www.php.net/
- MySQL Documentation: https://dev.mysql.com/doc/
- PlantUML for diagramming: https://plantuml.com/