ISTUDENT PORTAL – ONLINE ACADEMIC MANAGEMENT SYSTEM USING PYTHON AND DJANGO

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ABSTRACT

The iStudent portal project is a web-based academic management system developed using Python, Django, HTML, CSS, and JavaScript. It automates attendance and marks management, centralizes record-keeping, and streamlines leave request processing, offering a user-friendly interface for teachers and students. This system emphasizes advanced security, ensuring data privacy. Developed through various stages, it follows best practices to ensure scalability, maintainability, and security. The iStudent portal project addresses manual attendance and marks management challenges in educational institutions, providing a customizable solution to enhance efficiency and transparency.

Keywords: Academic Management, Attendance Management, Marks Management, Leave Request Processing, Web-Based System, Python, Django, Record-Keeping, Educational Institutions.

I. INTRODUCTION

The iStudent portal project aims to develop a comprehensive academic management system that allows teachers to take attendance, view student marks, and add new marks for students, while also enabling students to apply for leave and teachers to approve leave requests via a web-based interface. The system will be built using Python, Django, HTML, CSS, and JavaScript.

The iStudent portal is designed to address the challenges of manual attendance and marks management in educational institutions. These manual systems can be time-consuming, error-prone, and lead to delays in academic management. The iStudent portal project seeks to provide a centralized platform for these activities, making academic management more efficient and transparent.

The iStudent portal project will provide a user-friendly web-based interface that allows teachers and students to access and manage attendance, marks, and leave requests from any device with an internet connection. The system will be scalable and customizable to meet the needs of different educational institutions. The iStudent portal project will also incorporate advanced security features to ensure the privacy and confidentiality of student and teacher data.

The iStudent portal project will be built using Python, Django, HTML, CSS, and JavaScript. Python is a widely used high-level programming language that is ideal for developing web applications, while Django is a popular web framework for building robust and scalable web applications. HTML, CSS, and JavaScript will be used for the development of the user interface.

The iStudent portal project will be developed in several stages, including requirement analysis, system design, implementation, testing, and deployment. The project team will work closely with stakeholders to ensure that the system meets their requirements and is user friendly. The project team will also follow best practices in software development to ensure that the iStudent portal is scalable, maintainable, and secure.

1.1 Purpose

A student information system is another name for an iStudent Portal. These programs help faculty members communicate with these programmes facilitate communication among faculty members regarding students and the planning of events. The purpose of this system is to facilitate information tracking for parents and administrative staff.

1.2 Objective

The main objective of the iStudent Portal is to manage the details of the Profile, Course, Login, Exam, and Fee. It has control over all information related to fees, students, profiles, and profiles. Only the administrator is guaranteed access because the project was developed exclusively on the administrative side.
1.3 Scope

Without a Student Portal, managing and maintaining the details of the student is a tedious job for any organization. The Student Portal will store all the details of the students including their Marks and Attendance, educational qualifications, personal details and all the information.

II. LITERATURE REVIEW

The iStudent portal project, aimed at developing a comprehensive academic management system, draws inspiration from a diverse array of scholarly contributions in the field. Walia and Gill (2014) lay the groundwork with their framework for a web-based student record management system using PHP, providing insights into the technological aspects of student data management [1]. Bahel, Bajaj, and Thomas (2019) delve into knowledge discovery in educational databases within the Indian educational system, offering a case study focused on GHRCE, Nagpur [2]. Building on this, Joy and Nambirajan (2021) engage in participatory action research, specifically exploring learning analytics for enhancing academic management systems in the Indian context [3].

The incorporation of e-learning methodologies is addressed by Karmakar and Nath (2014), who discuss strategies and tools for implementing lifelong education, contributing valuable perspectives on the educational landscape [4]. Phokajang and Netinant (2021) bring attention to software architecture, detailing the development of a smart school digital framework in the contemporary era of technology [5]. Ahmed et al. (2020) explore the relationship between smartphone use and the academic performance of university students, employing mediation and moderation analyses to uncover nuanced insights [6].

The broader context of strategic information management is elucidated by Galliers and Leidner (2014), offering a comprehensive overview of challenges and strategies in managing information systems, providing a theoretical foundation for the iStudent portal project [7]. Alam and Mohanty (2022) contribute to the predictive analytics domain by employing educational data mining techniques, machine learning, and learning analytics to forecast students’ performance [8].

In the evolving landscape of educational technology, Singh and Mansotra (2019) undertake the development of an integrated cloud-computing adoption framework, with a specific focus on the Indian school education system [9]. Furthermore, Kulshrestha and Kant (2013) shed light on the benefits of learning management systems (LMS) in the Indian education context, emphasizing the positive impacts of such systems on educational processes [10].

These collective studies provide a rich foundation for the iStudent portal project, addressing various facets of academic management systems, technological implementations, and the broader context of information management in educational institutions. The integration of insights from these references informs the design and development of the iStudent portal, aiming to enhance efficiency, transparency, and accessibility in academic management.

III. METHODOLOGY

3.1 Gathering Requirement

The project can proceed. Stakeholders gather and communicate to the project’s developer and designer all the requirements needed to develop and implement the project during this phase. Six categories, including Student Management Service, Course Management Service, Attendance Management Service, and Administration Management Service, are used to group the requirements for this project, the output of which will be a web application.

3.2 Student Management Service

The student will have access to their attendance records, progress reports, grades on assignments, notifications, timetable, and more through this service.

Feedback on the performance of the teacher in the classroom can be provided by the students.

3.3 Course Management Service

The administrator will have permission to add, edit, and remove courses using this service. Additionally, the administrator will have the ability to add, amend, and remove the course’s subjects. Only the courses added by the administrator are visible to the teacher, guardian, and students.
3.4 Attendance Management Service
Based on the course and the class they are enrolled in, the administrator can submit, update, and remove the attendance of students using this service. Only the students, teacher, and guardian have access to the attendance report.

3.5 Administration Management Service
The administrator of this service will have complete access to all resources. Notifications can be broadcast by the administrator. The student may also be added, updated, or deleted by the admin.

Design
The requirements need to be properly organized after they have been gathered and examined. Based on the requirements gathered in the previous phase, the project's architecture will be designed in this phase.

3.7 Feature Module

3.8 Database Design

Fig 3.1: Different login modules

Fig 3.2: Database Design
IV. TEST AND RESULT

4.1 Login module
Login module will authentication of user accounts. Users who have valid login id and password those only login into their respective accounts.

![Login Page](image)

4.2 Admin/HOD Login
View Summary charts that show the overall performance of students, staff, courses, subjects, leave, and other information.

- Manage Staffs (Add, Update and Delete)
- Manage Students (Add, Update and Delete)
- Manage Course (Add, Update and Delete)
- Manage Subjects (Add, Update and Delete)
- Manage Sessions (Add, Update and Delete)
- View Student Attendance
- Review and Reply Student/Staff Feedback
- Review (Approve/Reject) Student/Staff Leave

![Admin Login](image)
4.3 Staff/Teachers Login

View Summary charts that show the overall performance of students, courses, subjects, and other information.

- Take/Update Students Attendance
- Add/Update Result
- Apply for Leave
- Send Feedback to HOD
- Upload Notes

![Staff/Teacher Login](image)

**Fig 4.3: Staff/Teacher Login**

4.4 Students Login

View Summary charts that show the overall performance of courses, subjects, leave, and other information.

![Student Login](image)

**Fig 4.4: Student Login**
V. FUTURE SCOPE

5.1 Mobile Application Development
Develop dedicated mobile applications for iOS and Android platforms, enhancing accessibility for both students and teachers on smartphones and tablets.

5.2 Advanced Analytics and Reporting
Implement advanced data analytics and reporting features to provide insights into student performance trends, helping educational institutions make data-driven decisions.

5.3 AI and Machine Learning Integration
Explore the integration of artificial intelligence and machine learning algorithms to provide personalized recommendations for student improvement and predict academic challenges.

5.4 Blockchain for Academic Records
Investigate the use of blockchain technology to securely store and verify academic records, certificates, and credentials, ensuring their authenticity and accessibility.

5.5 IoT for Attendance Tracking
Utilize Internet of Things (IoT) devices for more accurate and automated attendance tracking, reducing manual data entry and errors.

5.6 Student Billing and Invoicing
Develop a billing and invoicing system within the iStudent Portal that generates detailed fee invoices for each student, including tuition fees, examination fees, and any other charges.

5.7 Payment Reminders
Set up automated payment reminders through email or SMS notifications to alert students and parents about upcoming or overdue payments.

VI. CONCLUSION

The project’s purpose revolves around creating a centralized platform, the iStudent Portal, facilitating seamless communication and coordination among faculty members, administrative staff, and parents. With its primary objectives focused on managing profiles, courses, logins, exams, and fees, the system ensures that administrators have exclusive access to crucial information, streamlining the administrative processes. The scope of the iStudent Portal extends beyond the traditional boundaries of academic management. By storing detailed student information, including attendance, marks, educational qualifications, and personal details, the portal eliminates the tedious task of manual record-keeping, providing a centralized repository for all relevant data.

VII. REFERENCES


