Smart College Campus Portal

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Abstract: The Smart College Campus Portal project is aimed at developing an Online Intranet College Management System (CMS) that is of importance to either an educational institution or a college. The main idea behind this project is that due to the covid crisis all colleges were shut and many colleges were not able to carry out the daily operations that they used to perform on the floor. Also, colleges have to rely on third-party ERP systems to carry out operations which may cost the college/institutions. This project is developed by the collaboration of 4 students to help institutions carry out their activities even though college may remain shut. This project focuses on the Teachers, HOD, and students to carry out college activities just by sitting at home at ease. The system is developed by two main technology stacks 1) JDBC 2) Django. This system concludes that the system will be effective even though colleges are closed and follow an online mode of learning or even if they follow the usual way of learning. This system eradicates the use of paper and encourages students to follow digitalization.

Keywords: JDBC, ChatBot, Django, Attendance.

I. INTRODUCTION

ERP management is a web application. It makes use of Android-based mobile phones as well as web services on computer systems. The main goal is to create an application that offers a smart and simple way to carry out many instructional operations, such as providing students with information on grievances, placement events, general notifications, and relevant notices from all departments. Students, Teachers, H.O.D., and principals are the four groups of users that can use the app. Each user class will have its application view tailored to their needs.

The use of the Internet and the World Wide Web has revolutionized the availability of information in the digital world of technology and the user's right to take action on the information received. And computers and electronic devices often influence our lives in more ways than we are likely to be aware of computerized administration, storing data from educational schools, universities, other infinite lists. He reviews the details about a pupil, employee, worker, etc. whether management needs the appropriate information. The administrative labor to achieve the details about all pupils, instructors, etc. is hard to plan.

College management systems are a total solution for the online management of a college, i.e., an improved instrument that helps coordinate the day-to-day operations of colleges.

There is an annual procedure in the new structure for the bulk of the college campus to retain notes and other material. Taking the new framework keen on deliberation, it can be seen that the student has to communicate directly with the office daily, succinct on the needs they intend, and so on. Both these need more time and employment.

The proposed Smart Campus framework using Wireless is a fully automated one. The Smart Campus is both a smartphone application and a web application. It uses Android smartphones and online services on computer systems. The main goal is to establish and provide information about grievances, any placement practices, general notifications, and significant notices about all departments to students.

The main objective of Smart Campus growth is to provide a simple way not only to automate all a college's operations but also to provide the highest authority of the college with the finest information regarding every part of the college.

II. EXISTING SYSTEM

Since the retrieval is not user-friendly, the new method data is very sluggish and knowledge is not effectively maintained. The use of certain technologies can be nuanced and time-consuming. Such systems must be operated by a professional for the system should be managed and upgraded, which can once again be very expensive.

All report generation calculations are performed manually, so there is a higher risk of errors. Here the faculty has to suffer a lot through the calculation and it can cause a lot of trouble if there is a failure of any paper. Because of exaggerated calculations, this is often time-consuming. There are some miscalculations even after that, which is challenging for the teachers. These calculations also impact the students' grades, which will eventually lead to their percentage. The

mechanism from which the input is taken is not incredible enough. The points of view of each one of them and not every understudy is taught by these frameworks. Since innovation is well-ordered, we need to Using this development to achieve a beneficial outcome in ample time

III. LITERATURE SURVEY

[A] College Activity Management System.
The College activity management system is used to maintain college activities like fest, farewell, and annual day celebrations, workshops, etc. it provides information on placements, maintains student attendance, provides information on faculty, it also provides college information, and it maintains, branch details, sports details, also provide college achievements. Notification on exams and results, and it takes complaints and some other college activities. The core idea of this project is to implement android based Mobile Campus application for the advancement of the institution and the educational system. The application will be used by students, teachers, and parents. In the previous system, all the information has to view in a hard file, or on the website. At the same time while searching any information it is too difficult to access and takes a lot of time to search the particular website. Hence, to overcome this problem a smartphone-based application using Android can be used to make this process easier, secure, and less error-prone. More efficient information will be achieved through this system.

[B] Design of Student Affairs Management Platform Based on College System
This paper is aimed at developing an Online Intranet College Management System (CMS) that is of importance to either an educational institution or a college. s. To simplify the affairs processing of colleges and universities implementing the management mode of the college system and facilitate students' daily life, the research group designed a student affairs management platform based on the management model of the college system. The platform provides services for students in activities, classes, leave, and other aspects, and also provides a set of efficient management solutions for college administrators, and is applied to the Anji campus of Zhejiang University of Science and Technology

[C] Multi-Platform College Management Framework.
This paper aims to digitize and thus alleviating the amount of work that is put into managing all the records by a college or university. Multi-Platform College Management Framework (MP-CMF) facilitates the users with an online paper checking module, an attendance module, and a digital notice board. Along with this, it further succors in maintaining and updating student's data with minimal human efforts. This system thereby reduces data redundancy and prevents data inconsistency. An API is also available with the system which makes it a multiplatform entity.

[D] Design of Class Management System Based on Naive Bayes Algorithm.
This paper starts with the current needs of class management in colleges and universities, analyses the basic structure of class management information systems in colleges and universities, gives the basic content of system module design and database design and explains the main problems in system implementation.

IV. PROPOSED SYSTEM ARCHITECTURE

The Smart Campus system that has been proposed is completely automated. Smart Campus is both a smartphone and web application. It makes use of Android-based mobile phones as well as web services on computer systems. The primary goal is to produce and provide information to students about grievances, placement events, general notifications, and relevant notices from all departments.
The proposed framework provides an efficient way of interaction for the various modules present in the ERP system. The proposed system consists of four main modules which are Student, Teacher, Head of Department (HOD), and the Admin. The student can log in to the system and carry out the number of operations he/she wants to perform. Similarly, the teacher can have a view or manage the students as well as perform his or her activities. Similarly, the HOD can have control of the teacher and the student section from the proposed system and the Admin can have a track of the whole ERP system.
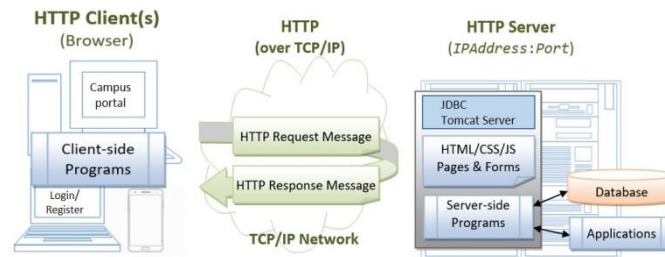
Figure 1: System Architecture Diagram

The proposed system is to be developed using technologies like Java Database Connection (JDBC), Servlet, Django framework, GraphQL, etc. The proposed system consists are developed from a variety of modern technologies which provide flexibility and security in the various sub-modules.

The proposed is built in such a way that it helps the students to carry out the operations like paying fees from home, attending lectures and marking attendance digitally by the system, and many more. This helps everyone to collaborate even from remote locations

V. MODULES

[A] Student Module
Each student has its login credentials through which he/she can log in to the system. The student can view the timetable, pay fees from remote places through an online payment gateway, mark attendance, chat with teachers through the system, etc.

[B] Teacher Module
The teacher can log in to the system and check the status of the students and their activities they perform. Also, a teacher can add test modules from students, add marks, activate and deactivate the login credentials for the freshers and pass out students.

[C] HOD MODULE

HOD is the Head of Department and has the privilege to keep track of students and teachers.

[D] Admin Module
The Admin is the supreme of the system. Admin has control over the entire system. Also, the admin can keep track of records of fees of students who have paid and remaining to pay.
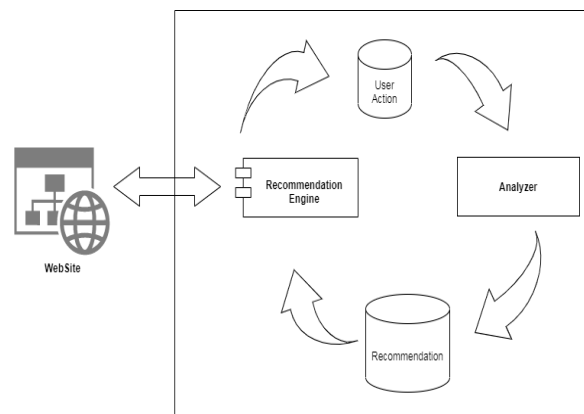
[E] Chat Bot Module

Fig 2: Working of Chat Bot

The chatbot is a special feature that helps the student to answer their basic queries based on a recommendation system. Whenever a student has any doubt or query related to syllabus, exams but not limited, the student can use the chatbot to get his/her query solved.
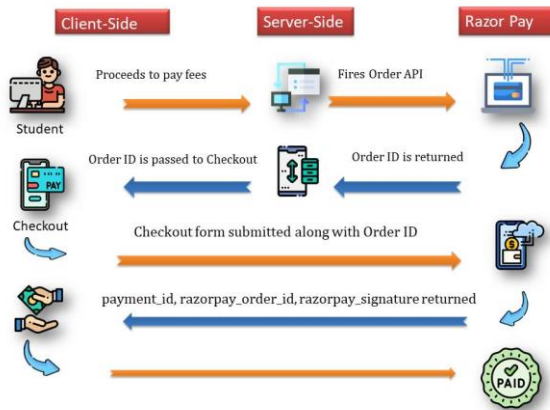
[F] Payment Gateway

Fig 3: Fee Payment Flow Diagram

The proposed system also consists of a facility for students to pay fees from the 'Fees Payment' feature present on the student dashboard. The payment gateway consists of the Razor Pay payment facility.

[G] Online Books Store

The proposed system consists of an online bookstore from where users can buy books from a various category based on their interest.

VI. ALGORITHM OF PROPOSED SYSTEM

PBKDF2 Algorithm
The stated algorithm stands for 'Password-Based Key Derivation Function 2'. Django framework uses this mechanism as a password storage system. This algorithm stores user's input password and converts it into the given format,
<algorithm>$<iterations>$<salt>$<hash>
This mechanism is used in Razor Pay Gateway, where students can securely login and pay fees as the amount of the fees is huge and security is a priority in payments. Passwords can be encrypted which makes it difficult for hackers to crack passwords even using various password cracking tools and brute force attacks.

VII. ADVANTAGES OF PROPOSED SYSTEM

1. The application provides a user-friendly interface for the students to access the web application.
2. It can be used both inside and outside of college campus
3. It provides the facility for the staff to create their account.
4. The uploading and downloading of the files and other documents is very easy.
5. Students can pay their fees using the system.

VIII. RESULTS
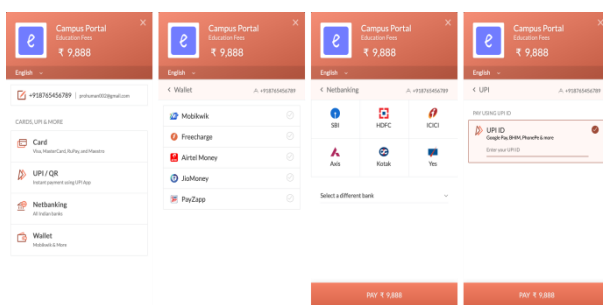

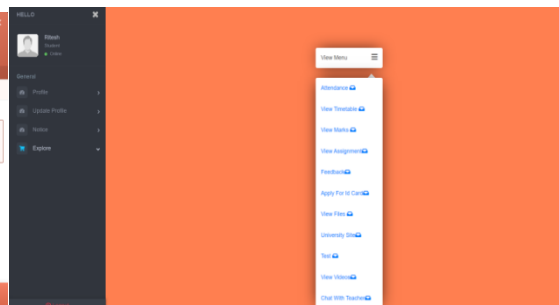Fig 4: Razor Pay Payment Gateway   Fig 5: Student Dashboard

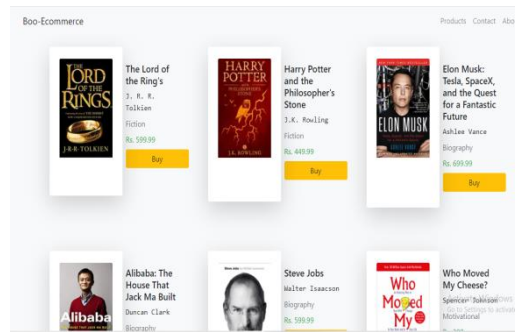Fig 6: Proctored Attendance

Fig 7: Online Book Store

IX. CONCLUSION

In today's modern and digital age education is the key factor. Today most of the educational institutions in India are understaffed and do not have much interaction with the latest technology and trends. As a result of which student faces lots of problems coping up with the latest technology in the market. Web-based college management systems are a small stepping stone. Users of the system would be students and Faculty. The basic idea of this system is to provide a portable environment for the students and Faculty. We strongly want to replace the existing systems of many universities and colleges which are unidirectional i.e., from faculty to students to a bidirectional way i.e., also from student to faculty. The system aims to connect students, faculties, and administrative staff of an institution.

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