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College Management & Administrative System

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ABSTRACT: A significant and enduring aspect of civilization is education. As the world is progressing ahead, so is the education system. Therefore, it is necessary to change how college information is maintained in line with the advancement of education. The majority of college administrative work, like academic reports, time table, placement information and including other information such as paying tuition, taking notes in class, and other tasks, is done manually and this procedure takes some time. This paper speaks about the College Management & Administrative System which is a Web Application offers a user-friendly interface for tracking student data. It can be used by universities or educational institutions to easily keep student records. This project has a backend and frontend where the Backend is built using flask whereas the Front end is built using HTML, CSS and Java Script. MongoDB Cloud is used for database management as it's highly available, supports large datasets.

KEYWORDS: Web Application, Flask, HTML, CSS, JavaScript, MongoDB Cloud.

I. INTRODUCTION

As the title of this paper “College Management & Administrative System” suggests, the main purpose of this system is to automate all functions of the university. The project application aims to manage all the administrative and management work like Student details (admission), Attendance, Time Table and Academic Performance of the student. It also has feature where students can view assignments, academic reports, provide feedback, check latest information about college events and placements. In other terms, the user will be able to access all the information about all attributes of college – it's students, faculties, departments, Academic results and other activities.

The project aims to provide the easiest way to manage all functionalities, reduce paper work, manual labour as well as communication costs.

II. LITERATURE SURVEY

Literature Survey is the most important step in application development process. Before building any application, a survey must be done to get knowledge about existing models. After complete research, next steps such as determining software requirements that the project would require to build it.

This paper [1] focuses primarily on providing a simple interface for maintaining student information. This creates and maintains accurate and up-to-date information about student academic records which are important for faculties and institution management. It handles all types of data from admission to graduation, such as courses of study, payment of fees, attendance certificates, and exam results. All this data must be provided via an online interface.

The major goal of this paper [2] is to give the students results in an easy-to-understand manner. Students can get their results using their roll numbers on the college or institution website. The results are provided with individual scores and the corresponding percentage after analyzing the result status and using the university's standard calculating method. The system is designed with students in mind. The student can access their results by logging in using their login details and password.

This academic paper [3] is about setting up an automated student transcript management system that provides university users, such as students and faculty, with easy access to important information through an easy-to-use web application. This proposed system aims to eliminate the time-consuming and fragile traditional practice of manually managing paper-based student information at a very basic level. The university has many departments. All of these departments offer different records for students. Most of these achievements should contain information about the student. By proposing an electronic student record keeping system, users will be able to access their data anytime, anywhere. Student web portals can store and easily retrieve large amounts of data. So, even though the university has many departments, the introduction of the student web portal has centralized management and the whole system acts as his one entity. A single operator can run this web application, reducing paperwork and reducing the number of employees in each department.

III.METHODOLOGY

The project has two sections – Admin Portal and Student Portal. The admin portal will be managing the entire website's authorization and authentication so that no intruder can login or modify any student data, even login for admin is also available.

The admin portal consists of following components –

1. In the admin homepage, the admin can add, delete, and search for student details, attendance, upload results and send notifications to students.
2. Take attendance/ Upload time table: In this feature the admin can add attendance for the subjects where he/she selected from the application after validation is success. Another function, would be add up time table to portal which regulates on daily basis.
3. Upload Results and Assignments: Admin can upload student's term marks through this application. Along with which there's also feature where admin can assign assignment to students.
4. Admin can send notifications to students about the data which he wants to communicate. Notifications related to college meetings, seminars or any placements related information can be viewed.

The Student Dashboard has the following components –

1. Profile Display – Students can view their bio data and other course related information in this option.
2. Attendance – The attendance which is uploaded can be viewed by the student of that particular time frame.
3. Time Table / Uploading Assignment – The student can see his/ her time table on the application dashboard and upload assignments.
4. Feedback – This is where student can give regular feedbacks about the classes, lecturers and college which further is analyzed by student whether its positive or negative.
5. Results – The Results option will help the student view, analyze and recommend the results of exams – subject wise using data visualization tool – Tableau. It will help in better understanding in which subjects the student should focus on for good results/ performance.
6. Digital notice board and chat bot – This notice board helps the student get all the latest notifications about university, placement or course – related information and the chat bot helps in keeping the student in contact with admin to resolve different queries.

IV. SYSTEM ARCHITECTURE

The detailed design of College Administrative & Management System includes the entire design flow of the entire web application with different entities like Attendance, Time Table, Academic Performance. The flow diagram primarily focuses on managing the data pf students which is maintained by college administration. Figure 1 and Figure 2 show the entire data flow diagram of the admin portal and student portal. Figure 3 speaks about MVC design which shows the users send HTTP requests to server via browsers. These servers will respond to requests from browser and return the information. In order to prevent the client from directly modifying the database, a different layer of Web server is added between the client and the database server. This increases system security.

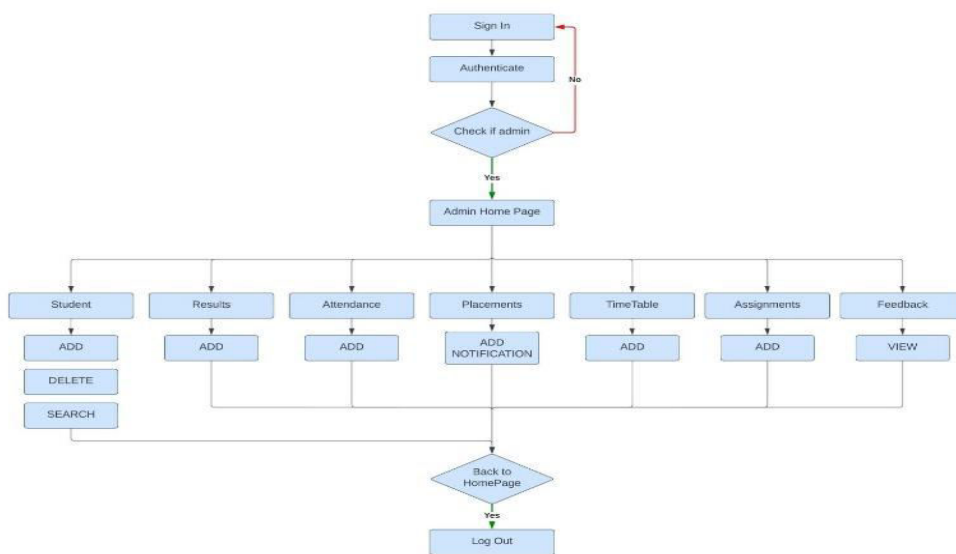


Figure 1

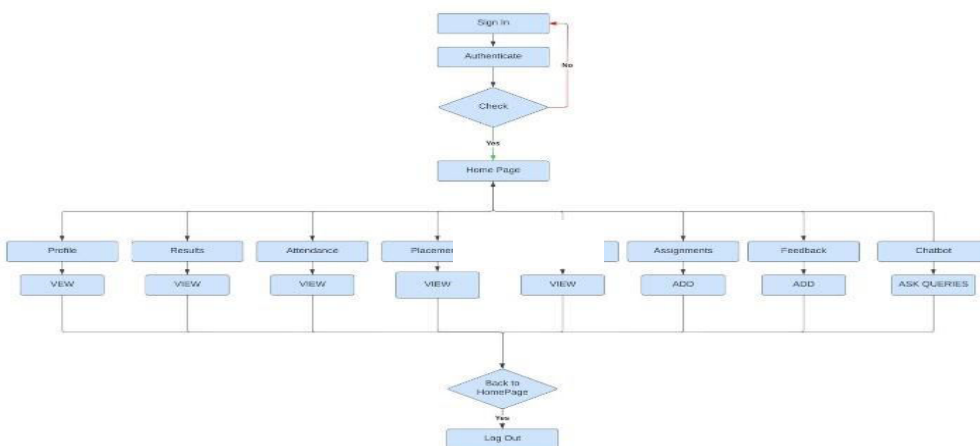


Figure 2

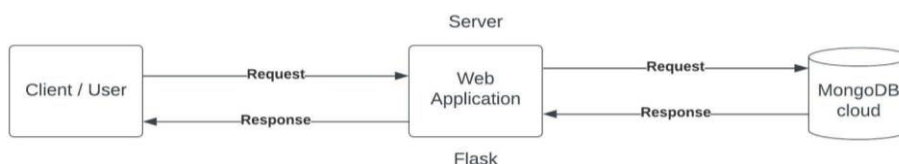


Figure 3

V. TECHNOLOGY REQUIREMENTS

1. Backend – Flask, MongoDB

a. Flask – Flask is an open-source web framework. This means that Flask provides the tools, libraries, and technologies you need to build web applications. We have used this to create a backend for implementing a web application and a backend API application.

b. MongoDB - MongoDB is a free and open-source NoSQL database management system. NoSQL is a database technology used as an alternative to traditional relational databases. We are using MongoDB cloud as database and is used to store data and large amount of distributed data.

2. Frontend – Html, CSS, JavaScript is used to create web pages and make it more user interactive and easy to access.

a. HTML - HTML which stands for Hypertext Markup Language. It is used to create web pages. You can create and structure sections, paragraphs, and links using HTML elements (the building blocks of web pages) such as tags and attributes.

b. CSS - The process of making web pages attractive is made easier with the use of CSS, often known as cascading style sheets. The style and appearance of web pages is determined by CSS. We have used CSS to for text color, font style and layout designs.

c. JavaScript - JavaScript is a text-based computer language that can be used on both the client and server side to create interactive web pages. We have used JavaScript to add interactive components to websites that we will help in better user interface.

3. Data visualization - Tableau is a visual analytics platform that transforms the way data is used to solve problems, enabling people and organizations to make the most of data. Tableau helps you understand performance by visualizing student outcomes.

4. NLP -It is a technology that machines use to understand, parse, process and interpret human language. It helps developers organize knowledge to perform tasks such as translation, automatic generalization, and subject segmentation. NLP can help you analyze student feedback, both positive and negative.

VI. RESULTS

1. ADMIN PORTAL –

Once the admin logs in he can add, search and delete student details. Admin can add attendance, time table, results and assignments in different sections.

a. Admin can also add notifications about latest college notifications and placements information in notice board.

b. Admin can analyze the feedback provided by students whether it's positive or negative which was built using NLP

2. STUDENT PORTAL –

a. Once the student logs in with the details generated, the student can view their profile, Results, Attendance and Time table.

b. Along with this student can upload assignments in Assignment section and give feedback in the Feedback section.

c. In digital notice board, there will be different notifications about the latest events like exams, placements etc.

d. In the chat bot option, the student can interact with admin about the queries related to the portal and other queries.

VII. CONCLUSION

This project was successfully implemented and includes all of the features required for college. The application provides the user with relevant information based on the activity selected. The project is designed to address the day-to-day issues that a manual college management system face. The deployment of our College Management System assists the college in reducing unnecessary time waste in doing work using the manual college management system. The system is user-friendly, highly interactive, and adaptable for future enhancements. The system generates reports as needed. The coding is simplified and understandable which is built using Flask and Html, CSS and JavaScript for frontend.

VIII. FUTURE WORK

Our project currently deals with only student and admin portals, the future adds on in this project would be including staff portal and dashboard where instead of admin adding attendance, time table, directly teacher can enter all the updates about the students. Even admin can check fee details about the student and access to passed out student's data. There will also be an option where faculties can upload video recordings.

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