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College Management System

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A B S T R A C T

This article describes College Management System(CMS) which is built with python technology and using Django framework and can benefits the an educational institute to writing out daily operations more efficiently. CMS facilitates a range of administrative activities, minimizing the burden on personnel and significantly enhancing the experience of students. Some of the core functionalities include simple processes to manage student records, enrollments into courses, scheduling of faculty assignments, and maintenance of attendance and grades of staff and students. An academic college is developing this framework to provide a structure of retention and accessibility for data.

The system is only available to registered users. Then they can read or edit the data according to each granted permission. In addition to these admin features, the system includes robust data analytics and reporting functionality. They offer administrators invaluable information regarding institutional performance, displaying trends in key metrics, showing year over year progress, and isolating areas of improvement. The CMS allows stakeholders to use these empirical findings to encourage some positive changes towards an evolving academic atmosphere. While this journal focuses on the technical aspects of the CMS and its activities, it also addresses the importance of the CMS's functions in the ongoing design of the college.

1. Introduction:

Today, the handling of an academic institution's operations is shifting from erstwhile, manual systems to automated, digital solutions. With the growth of educational institutions, it has become essential to manage student records, faculty, schedules, and other administrative requirements efficiently. To facilitate this process every university adopts various College Management Systems (CMS) to minimize the problem of time wasting, human error, and easier data accessibility mainly by students and staff. Traditionally, institutions depend on paper-based systems or separate software applications leading to inefficiencies and mistakes.

The development and implementation of a CMS using Django, a high-level Python web framework, offers significant improvements over manual systems. Django's robust features, such as a built-in admin interface and authentication system and its ability to handle large datasets, make it an ideal platform for creating scalable and secure College Management Systems. By leveraging Django's model-view-template (MVT) architecture, CMS applications can efficiently manage data, automate complex workflows, and provide a seamless user experience.

2. Drawback of the system

1. The current system presents opportunities for improvement in user-friendliness, particularly regarding data retrieval, which tends to be slow due to manual storage methods. By introducing more advanced technology, we can streamline processes and make them more accessible. Additionally, simplifying the management and updating of the system could potentially lower maintenance costs.
2. Generating reports, such as attendance and percentage calculations, can be enhanced. Currently, the extensive calculations required lead to reports being produced only at the end of the session. By optimizing this process, we can provide quicker access to important reports throughout the session.
3. The manual nature of report calculations creates a risk of errors, which can be alleviated by incorporating automated systems. This would reduce the burden on faculty, minimize calculation time, and ensure increased accuracy in reporting. Implementing better calculation methods could also positively influence student marks and their overall percentages.
4. The system currently faces challenges with document management, including the potential for papers to be misplaced or lost. Improving organizational strategies and document tracking within the administrative department could significantly reduce extra work and enhance efficiency.

3. User view of the product use

Head Of Department Can

1. See Overall Summary Charts of student performance, staff performance, Add/Remove Courses, Add/Remove Subjects, Check/Reply Leave application of staff/students, Check/reply on feedback bt staff/students etc.
2. Manage Staffs
3. Manage Students
4. Manage Course
5. Manage Subjects
6. Manage Sessions
7. View Student Attendance
8. Review and Reply to Student/Staff Feedback
9. Review (Approve/Reject) Student/Staff Leave
10. Update Profile
11. Login/Logout

Staff/Teachers Can

1. See the Overall Summary Charts related to their students, their subjects, leave status, etc.
2. Take/Update Student's Attendance
3. Add/Update Result
4. Apply for Leave
5. Send Feedback to HOD
6. Update Profile
7. Login/Logout

Students Can

1. See the Overall Summary Charts related to their attendance, their subjects, leave status, etc.
2. View Attendance
3. View Result
4. Apply for Leave
5. Send Feedback to HOD
6. Update Profile
7. Login/Logout

4. R Diagram

5. Literature Review

A white paper published by Srikant Patnaik, Khushboo Kumari Singh, Rashmi Ranjan and Niki Kumari (2021) titled 'The College Management System' said The project is aimed at developing an effective College Management System to manage the college activities replacing the traditional way of managing all activities in a location and paperless. It enables remote monitoring and control, reducing human involvement, and improving the precision of the data. This process lowers malpractices and gives the easy way to management to access the data that is stored from time to time in order to make informed decisions. As it provides real-time information to all the stakeholders and faculties/business to take a decision, so it is a very important for colleges/hostels/ universities.

College Management and Time-table Generation Web Application byShike Sahiba, A.N. Ramamani (2020)This web application assists in the management of students, and staff, their daily timetable and the invigilation timings and director's meetings. It automates the process by creating optimized timetables in a single click, eliminating the need for manual work, human error, and time consumption. It integrates scheduling and resource allocation to facilitate college operations.

Online College Management System a) Student Information Maintenance (Kartika Dattarkar and Neha Hajar, 2019)The system has user friendly interface for student and administrator. System helps educational institutions to keep accurate and up-to-date records of students, which includes all the student information like academic progress, course details, placement data, faculty data, etc. In addition to that, it does the same for the students, Courses & Exams & placement related report, queries and notifications in a user easy access way. The e-libary is a collection of academic resources in digital form that you can refer to to boost your knowledge.

6. Scope for the project

In every organization, including colleges, web applications are needed to track students and their staff's information, including attendance, leave applications, and feedback. The project scope covers:

· A simple user interface for students, staff and administration to view and organize their data

· Database to maintain the student and staff information, attendance, leave request and feedback.

· A leave application system that allows the staff and students to apply for leave and the administrator to approve or reject it.

· Developing a feedback mechanism wherein the staff and the students would be able to share their feedback with the admin and HODs.

Attendance and Leave Report Generation · Reporting System

· Verifying correctness and privacy of data through proper authentication and authorization methods.

Make it a scalable and maintainable system that can be enhanced and modified according to college need.

7. Conclusion

Course Management System (CMS) is an advancing tool that helps in conduction various administrative and academic processes in a higher education environment. Do not be misled by previous literature, as it is generally accepted that an effectively implemented CMS enhances operational functioning, promotes communication, and enhances the educational processes in an organization. However, there are some pressing challenges to tackle, such as resistance to change and implementation cost, the overcome of which would lead to the successful adoption and effective usage of CMS in College. This project has been correctly implemented all the built features aligned in the system requirements document. The end-users receive the relevant information on the app based on the selected service, and the app has been built keeping in view the common function in each of these academic block which are used.

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