College Management System

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Abstract -*This project focuses on the developing a College Management System that will offer a systematic interface for maintaining the records of the students, staff, and general college information. The system provides a centrally located platform to various stakeholders, like students ,faculty, head of sections ,placement coordinators and the principal. It will also facilitate the college administrator's generation of notifications to staff and students.*

Key functions include timetable management, complaint resolution, and appointment approvals, which the Head of the respective Section will handle. Faculty members are responsible for updating the assignments, and attendance records of students, and generating course-related notifications, while students through this platform can access their profiles, raise complaints, view attendance, and even request event approvals. The principal is responsible for escalating complaints, scheduling meetings with section heads, and approving events or programs.

Finally, the Placement Coordinator generates and informs about job opportunities and manages campus recruitment notifications. The system is meant for efficient record-keeping across sections like faculty leave requests, and student complaint management and ensures the smooth movement of information within the department.

Keyword: College Management, Student Records, Staff Information, Notifications, Time Table, Complaint Handling, Program Approval, Attendance, Assignments, Leave Requests**.**

1. INTRODUCTION

The new College Management System is a significant step toward running academic institutions. It offers an easy-to-use online platform where everything is kept in one place. It was designed to meet the changing needs of today's education. This system makes communication and operations more effective among students, teachers, and staff members. One of its best features allows students to submit complaints after logging into the system. This tool not only gives students a way to speak up but also ensures that the administration takes complaints and handles them as soon as possible. This creates a more responsive and helpful learning environment.

In addition to addressing complaints, students were able to check their attendance reports. This shows that students regularly attended classes. It allows them to keep an eye on their attendance record and make sure to fulfill the attendance required for taking exams. The platform allows students to see assignments and marksheets, which helps them keep track of how they are doing in college. Using this system, they can determine all assignments when they are due, and what grades they receive. This keeps them at the top of things, and they are ready for what is coming up. It does not just make students more responsible; it also encourages them to think and become serious in their studies in a more organized way. They can decide which assignments to do first, based on when they are due and how well they are doing in class.

This system will be useful for handling data. All information was kept safe in one central database. The system uses strong security measures to protect sensitive details, ensuring that people are allowed to use certain features and view certain data. This multi-layer security does not just keep user information private; it also makes students and staff feel that they can trust the system because they know that their information is safe. In addition, the system has a user-friendly interface that suits the needs of different users. Every user, whether a student, teacher, or admin, has a personalized dashboard. A dashboard provides information and tools that match specific needs. This personal touch improves the user experience, allowing people to find what they need. Teachers can manage their classes, add assignments, and provide feedback without hesitation from their platforms. It also helps students and teachers talk to each other. Students can ask about homework or talk about school staff without the limitations of old ways of communication. This rapid interactive method fosters a closer relationship between educators and students, promoting collaborative learning

2. LITERATURE SURVEY

Functionality and Features: A critical aspect of the College Management System (CMS) is the range of features offered to different user groups. Kumar and Gupta (2018) emphasize that modern CMS should integrate functionalities such as student enrolment, attendance tracking, grading systems, and communication tools. Their study revealed that systems allowing real-time data access improved student engagement and facilitated timely feedback from educators.

Sharma and Verma (2019) discuss the importance of mobile accessibility, noting that responsive design increases usability and ensures that students can access critical information anytime and anywhere. User Experience and Engagement Ali et al. (2020) focused on the user experience (UX) of CMS and asserted that a user-friendly interface is essential for promoting student interaction and satisfaction. Their findings indicate that intuitive navigation and clear design elements significantly impact users' willingness to utilize the system.

Similarly, Patel and Desai (2021) explored the role of user feedback in system development, advocating iterative design processes that incorporate student and faculty inputs to enhance the platform's functionality.

Data management and data security: This is another crucial aspect of CMS, particularly in the storage and processing of sensitive information. According to Singh and Rani (2020), secure data storage solutions such as cloud-based systems are vital for protecting user information. Their study highlighted the effectiveness of employing encryption and authentication protocols to safeguard data from unauthorized access. Khan et al. (2021) underscored the importance of data analytics within CMS, suggesting that the ability to analyze student performance metrics can lead to targeted interventions and improved educational outcomes. Because of the integration of Emerging Technologies, the CMS is a growing area of interest.

Artificial Intelligence and Machine Learning

Choudhury and Roy (2022) discussed the incorporation of artificial intelligence (AI) and machine learning (ML) in CMS, enabling personalized learning experiences based on individual student needs. These technologies can automate administrative tasks and provide insights into student performance, thereby enhancing educational institutions' overall efficiency.

Furthermore, Gupta and Sinha (2023) examine the potential of block-chain technology for maintaining transparent and tamper-proof records of student achievements and transactions learning.

3. EXISTING SYSTEM

The website of Jamia Millia Islamia (JMI) has many helpful features aimed at students, faculty, staff, and the general public. To begin with, the first impression of the website's homepage is that it is simple and neat; thus, different pages are easy to navigate. There are clear-cut links to relevant sections, such as admissions, academic departments, notifications, and research-related events.

One of the most important components of the website is the admission section, which targets future students. All admission policies, procedures, eligibility criteria, and relevant dates can be found. They can simply log onto an online platform through which they can request admission, track their application progress, and check the final outcome. It also acts as an admission registration center during the admission period, making it easier for both students and management.

For existing students, the results of the examination section are among the most accessible areas. In this section, students are able to see their end-of-term results and other examination announcements as well as download the relevant result slips. Other services that the section did not provide included services or an academic calendar. They provided a timetable structure for the academic year that included dates for examinations, breaks, and other relevant functions of the university.

Each academic department has a page on the Jamia Millia Islamia website. The departmental pages contain information about the members of the faculty, a list of offered courses, ongoing research, and recent department news. This is especially beneficial to current students and students who are considering admission to Jamia Millia Islamia and want to know about study or collaboration opportunities.

4. PROBLEM IN EXISTING SYSTEM

The website of Jamia Millia Islamia effectively supports academic and administrative needs but could benefit from several enhancements to improve usability and functionality. Currently, the platform lacks critical features, such as complaint registration, digital attendance tracking, internal mark access, online assignment submission, and enhanced communication tools, which would make it more user-friendly and efficient.

A significant drawback is the absence of a centralized complaint registration system. Students lack a formal platform to express grievances related to academics or administration, which leads to delays and frustration. Introducing a complaint feature would streamline issue-reporting, ensure timely responses, and allow students to track the progress of their complaints.

Attendance management is another area that requires improvement. The manual recording methods that are currently used are error-prone and inefficient. A digital attendance system integrated with the website could automate tracking, provide real-time updates for students, and reduce administrative efforts for faculty members. Notifications of attendance status via mobile integration would also keep students informed of their academic standing.

Additionally, lack of access to internal marks poses challenges for students in tracking their academic progress. Incorporating a feature to view internal marks online would enhance transparency, allow students to monitor their performance, and help identify areas for improvement. This would also alleviate the burden on the faculty to address frequent grade-related inquiries.

The assignment submission process, which still relies on physical formats, can be modernized through an online system. This would enable students to submit their work digitally and receive feedback promptly, ensuring better organization and efficiency for both students and teachers.

Finally, an integrated communication system can improve interactions among students, faculty, and administrators. Features such as direct messaging, group chats, and discussion forums can create a collaborative learning environment and enhance responsiveness to academic and administrative queries.

In conclusion, while the Jamia Millia Islamia website fulfills its basic purpose, adding these features would transform it into a comprehensive platform supporting the diverse needs of its users and fostering a more efficient and interactive university experience

5. PROPOSED METHODOLOGY

Requirement Analysis

In the initial phase of the project's development, we assessed the needs of the college and its stakeholders, including students, faculty members, administrative staff, heads of sections, and placement coordinators.

To gather requirements, we conducted interviews with the faculty, administrators, and students. Students were tasked with uploading their assignments, downloading their attendance reports, reviewing their grades, and submitting complaints.

Faculty members are responsible for scheduling classes, recording attendance, and updating students' grades. Administrators manage complaints, oversee attendance records, verify grades, validate new registrations for teachers and students, and update and maintain the system.

The Head of the Section is charged with managing timetables, addressing complaints, approving or rejecting functions, and facilitating meetings among branch teachers. The Placement Coordinator oversees job posts, teaching responsibilities, and communication efforts.

The principal is involved in escalating complaints, conducting meetings between the heads of sections, and making decisions regarding the approval or rejection of functions.

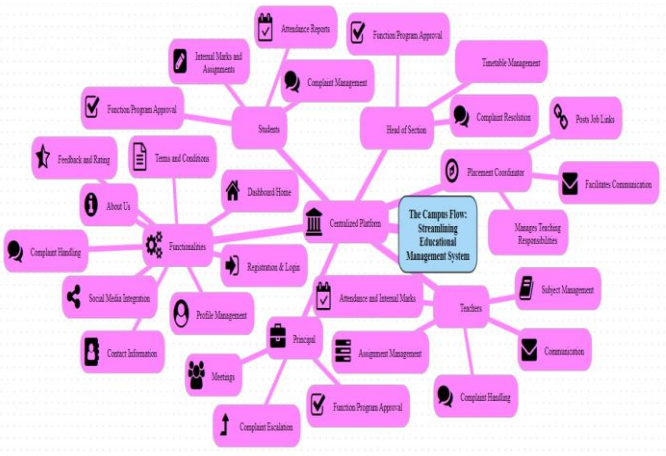

Fig 1. Function Diagram of CMS

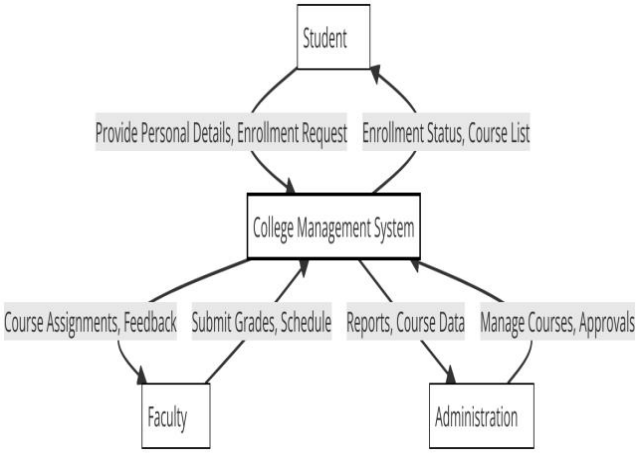

Fig 2. Level-0 Data Flow Diagram of CMS

System Internal View:

UI/UX Design

We designed the architecture according to our requirements. Here, we demonstrate how the client interacts with the system, how the system interacts with servers, and how the server fetches data from the database.We designed an Entity-Relationship (ER) diagram of our system. It shows how the data of students, faculty, and staff managed

Define database schema (MySQL).

(i) Technology Selection

- Frontend:- HTML, CSS , JavaScript
- Backend:- PHP
- Database :- MySQL
- Authentication :- JWT or OAuth2 for secure login
- Version Control :Git-Hub for code management

(ii) Development Phase

Agile Model

To meet these requirements, we used Agile in the Software Development Model Lifecycle (SDLC) for our project, which is more effective. This model breaking down a project into smaller manageable modules is an important strategy in project management, especially when dealing with complex systems such as college management systems or university conferences The modular approach ensures the division a project into specific, straightforward components, each of which can be developed, tested and integrated independently Not only does it reduce project complexity but it also increases focus, enabling teams to do it work in a specific area without being overwhelmed by the big picture This structured work schedule simplifies, reduces risks, and increases the scale of the project with greater flexibility. Each module can be assigned to specific groups, allowing for parallel and accelerated development. It is equally important to define clear objectives for key modules to ensure that the project remains operational and meets its intended objectives. Each module must have specific objectives, timelines, and deliverables consistent with the overall objectives of the project. For example, in a college management system, important modules may include attendance management, assignment, internal score control, communication system, and complaint registry

(iii) Testing Phase

Test individual modules for functionality. It is necessary to ensure that these modules interact correctly. Our architectural design allowed us to verify the flow of the work.

(iv) Deployment

We update all codes on our Git-Hub and then connect them to a Dynamic Hosting website. We bought a domain to launch on the website.

(v) Maintenance and Update

The maintenance team constantly inspects the system for any issues and tries to incorporate new features based on user feedback.

(vi) Documentation

The Documentation Team offers comprehensive information about our system’s API, codebase, and database structure, as well as a guidebook for operating the system based on the IEEE standard.

6. PROPOSED SYSTEM

The proposed system for the Jamia Millia Islamia initiative aims to address the current limitations of existing campus spaces by introducing comprehensive digital solutions that enhance academic and business activities. The new system will be designed as a central location where students, faculty, and administrators can efficiently manage critical aspects of university operations. This digital approach focuses on complaint registration, digital tracking, scoring, assignment

referrals, and improved communication channels to create a more intuitive experience for all stakeholders.

Features of the Proposed System

(i) Complain Registration System: The proposed system has a user-friendly grievance register that enables students to submit complaints regarding academic and administrative issues. This policy will ensure that students can file grievances in a structured manner, receive acknowledgment of their submissions, and track the progress of their grievances to resolutions. This will increase transparency and ensure prompt action by relevant authorities.

(ii) Digital Attendance Tracking: The significant improvement in the proposed system is the transition from manual attendance tracking to digital attendance tracking. This feature allows teachers to access the sessions in real-time via a web interface or mobile app with automatic updates posted to the central database. Students will also have access to their academic records online, which will help them track their academic status. In addition, this feature reduces the administrative workload and eliminates any gaps in attendance records.

(iii) Internal Assessment: To ensure visibility in academic achievement, the proposed system provides access to students' internal assessment scores online. This real-time system provides students with feedback on coursework, projects, and assessments to help them understand their academic progress and areas for improvement. Teachers can enter internal scores directly into the system, simplifying the grading process and eliminating the need for manual record-keeping.

(iv) Online Assignment: The existing platform has excellent capabilities for submitting assignments over the Internet. An assignment can be uploaded by the teacher, and the task completion deadline can be provided along with the instructions. A student is able to submit his or her assignment, check whether the submission has been accepted, and receive a response from the teacher. All of these occur within a single system. This will help the instructor assess the assignments that were uploaded and displayed the scores. This makes the process conducive and manageable for learners and parents.

(v) Elimination of communication barriers: This new system features an inbuilt system to enhance communication between students and their faculty, department heads, and administrators. This system enables users to send messages to each other, ask questions, and solve queries within the system. It also supports activities such as group discussions, seminars, and other forums in which students and teachers can either collaborate for learning purposes or discuss services. This particular benefit will enhance the way communication occurs. This will shorten the time for those seeking answers and change the climate of the place into one that is more interactive.

7. RESULT

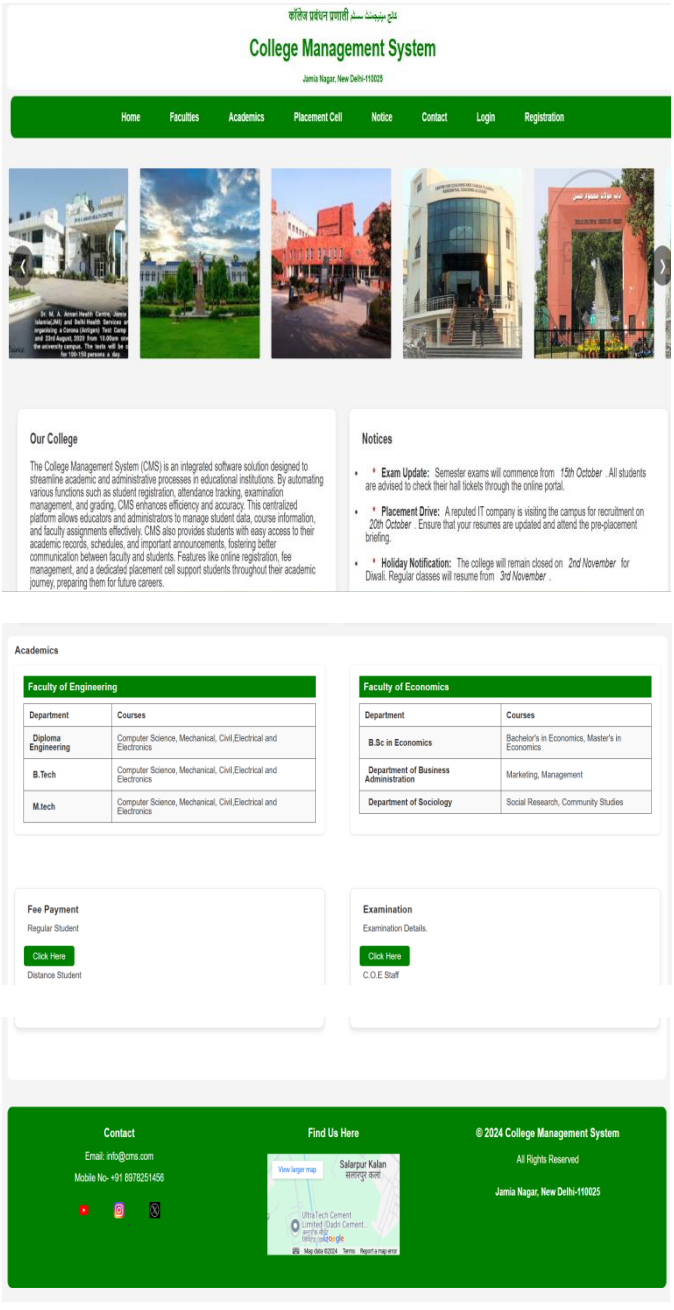

Fig. 3- Home Page of CMS

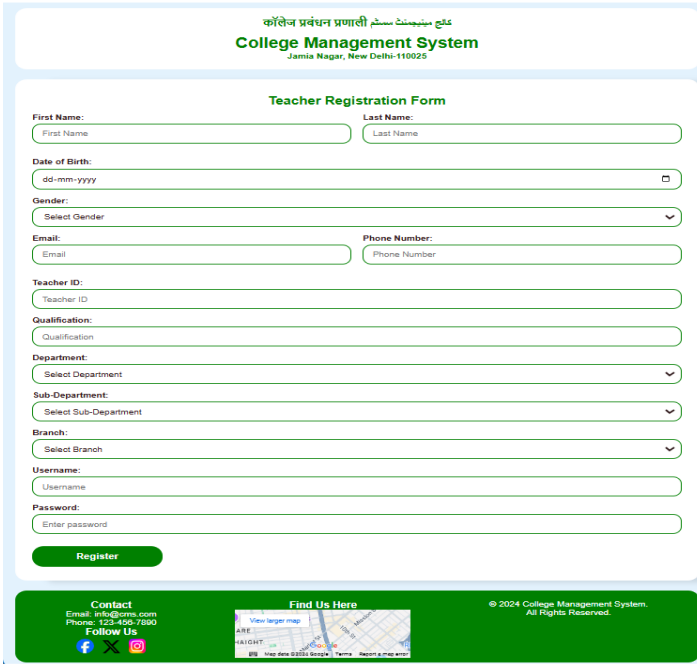

Fig. 4- Registration Form

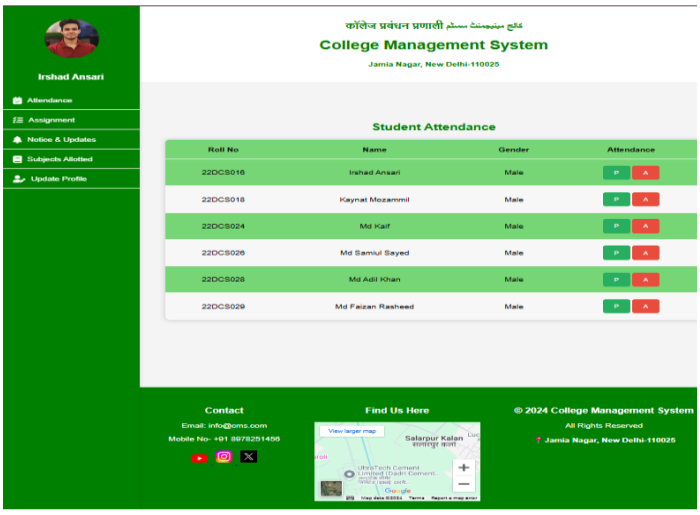

Fig. 5- Teacher Section Dashboard

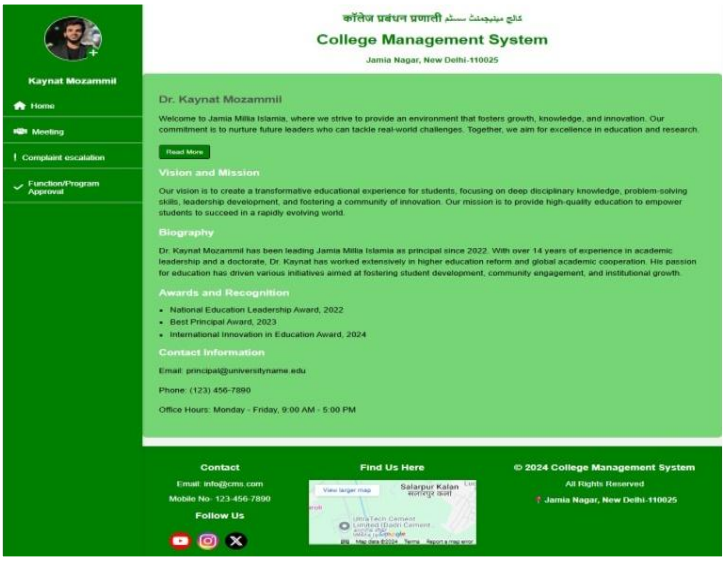

Fig. 6- Principal Section Dashboard

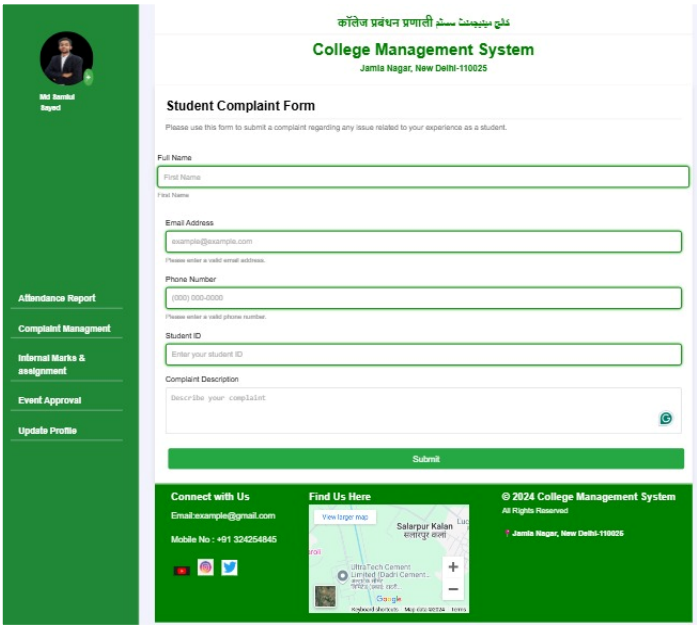

Fig. 7- Student Section Dashboard

8. CONCLUSION AND FUTURE WORK

The proposed College Management System provides a streamlined and efficient way to manage the overall administrative and academic tasks of a college. With a mechanized procedure for handling students' registration processes, records of attendance and routine communication processes reduce human effort. Simultaneously, it minimizes the errors. Overall, productivity is increased. This system allows easy access to information for both students and personnel. This helps them achieve proper coordination, which contributes to a favorable academic environment.

Moreover, secure data storage and paperless operation ensure a positive effect on privacy and environmental conditions. In the future, more features that would improve the functionality of the College Management System will be introduced. These features are as follows:

Integration of Mobile Apps: One is developing a dedicated mobile application that would provide much easier access to information and updates so as not to lose track of students and staff even beyond the college campus.

Artificial Intelligence and data analytics: Analytics that use AI can forecast trends in student performance and provide personalized academic advice for improved performance.

Cloud-based System: This will also make the system cloud-based, and therefore, its hardware dependency on colleges will be eliminated. This ensures that such colleges have a centralized and secure data place.

Online Learning: Additional features can be inculcated to include online courses, virtual classes, recorded lectures, and online evaluations, thereby supporting colleges to become responsive to modern learning environments.

Alumni Management: The feature of alumni management would keep the college in close communication with its graduates, thereby enabling their networking, career support, and continued engagement with the college community.

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