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Mentor Management System

Shreya Jadhav[1], Prachee Sutar[2], Vaishnavi Dardare[3], Swati Dhanade[4]
Electronics & Telecommunication, Mksss's Cummins College of Engineering for Women, Pune, India

Abstract: ***This paper introduces the "Mentor Management System," an innovative Java-based Database Management System (DBMS) web application designed to enhance mentor-mentee interactions and administrative oversight in academic institutions. Addressing the growing demand for efficient mentorship collaborations, the system aims to streamline connections between mentors and mentees while optimizing the overall mentorship process for students, mentors, and administrative personnel.***
The Online Student Mentoring System offers a comprehensive platform facilitating seamless interactions among administrators, mentors, and students. Administrators manage and optimize system operations, ensuring efficiency across all levels. Equipped with specialized tools, mentors engage with students to understand their unique needs, providing personalized guidance that fosters both academic progress and personal development. Students benefit from a user-friendly interface, allowing effortless access to mentorship, query resolution, and tailored insights to enrich their educational experience. Our development focuses on creating a robust system that enables effective mentor-mentee interactions through personalized pairings, addressing student issues, and resolving queries. Distinguishing itself from existing systems, the Mentor Management System emphasizes digital transformation, incorporating features such as mentor-mentee relationship management, query resolution, announcement dissemination, and continuous data availability. The system's adaptive methodology prioritizes user preferences and delivers a user-friendly interface. The Mentor Management System demonstrates significant improvements in fostering productive mentorship relationships, enhancing the frequency and quality of engagement. Through its intuitive interface and robust functionalities, the Mentor Management System represents a transformative advancement in mentorship, significantly benefiting both mentors and mentees while maximizing program outcomes.
Keywords: Mentor Management System, Java-based DBMS, Web application, Academic mentorship.

I. INTRODUCTION

In the dynamic landscape of academic institutions, effective mentorship is crucial in shaping students' educational journeys. Acknowledging the importance of mentorship, our research aims to streamline and enhance the mentorship process, fostering an environment conducive to both academic and personal growth for students. Currently, the college employs a manual and fragmented approach to mentor-student interactions, often resulting in miscommunication, missed opportunities, and inadequate tracking. To address these challenges, we propose the development of a centralized digital platform that facilitates seamless communication, efficient scheduling, and comprehensive monitoring of student activities. While the existing system yields satisfactory results, it has certain limitations. Thus, transitioning to the proposed system is imperative to maintain student engagement throughout their academic years, including during off days. To achieve the intended project outcomes, we have adopted a robust approach utilizing JSP and Servlet technologies. Our system aims to automate administrative tasks and provide insightful analytics to optimize the mentorship experience for students. The Mentor Management System encompasses features for mentor-mentee pairing, communication tools, progress tracking, and feedback mechanisms. Our contributions include developing a comprehensive Mentor Management System that addresses the gaps in existing systems and serves as a valuable tool for academic institutions seeking to enhance their mentorship programs. The remainder of this paper is structured to provide an in-depth exploration of each aspect introduced in this section, contributing to a holistic understanding of our project. In conclusion, our Mentor Management System is a forward-looking solution designed to redefine and optimize mentorship in academic settings. The subsequent

II. LITERATURE SURVEY

This paper presents a comparative analysis of traditional mentor systems and the proposed Mentor Management System (MMS) leveraging JSP and Servlet technologies. The analysis identifies key challenges in traditional systems, such as limited reach and lack of real-time updates in announcements, time-consuming and error-prone manual leave approval processes, face-to-face or email communication methods leading to a lack of centralized tracking and potential for miscommunication in query resolution, inconvenient retrieval and data redundancy in paper-based student information records, and time-consuming and error-prone manual batch allotment processes.

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The proposed MMS addresses these issues through online announcements using JSP and Servlet for improved accessibility and instant updates, automated leave application and approval workflows for time-efficient processes with reduced errors, a centralized query system with tracking and notifications for enhanced communication and easy tracking of queries, a database-driven system for student records ensuring efficient data retrieval and reduced redundancy, and automated batch and mentor assignment for a streamlined process with minimized errors.

These enhancements ensure a more efficient and user-friendly experience for both mentors and mentees by leveraging automation, online platforms, and centralized communication features, leading to faster processes, decreased likelihood of errors, enhanced accessibility, and better mentor-mentee interactions and tracking of important announcements. The significant improvements offered by the proposed MMS over traditional methods are detailed, highlighting the benefits of using advanced web technologies in enhancing efficiency, accessibility, and communication. References include works by M. Kavitha et al., R. F. Alhujaili et al., Rahul et al., Y. Chandra et al., D. Diwakar et al., A. N. Muhammad et al., H. Bhuiyan et al.,. The authors acknowledge the contributors of the datasets and the IEEE community for their support and resources in conducting this research.

The proposed Mentor Management System addresses the limitations of traditional systems by leveraging JSP and Servlet technology. The system introduces real-time online announcements, automated leave approval, centralized query resolution, and a database-driven approach to student information. These enhancements ensure a more efficient and user-friendly experience for both mentors and mentees.

sections of this paper delve into the technicalities and outcomes of our project, offering a comprehensive view of the system's development and impact.

III. METHODOLOGY

The methodology section outlines the systematic approach used to revolutionize the college's student-mentor interaction by implementing a state-of-the-art Online Student Mentor Management System. This section provides a comprehensive overview of the steps and processes followed to achieve the project objectives. It serves as a roadmap for the project team and stakeholders to understand the execution and results of the project.

A. Components of the Methodology

1) Admin Interface

The first component is the Admin Interface, exclusively used by the administration to oversee both student and mentor data. This interface is authenticated with the admin's personal college email and a protected password. The Admin Interface includes navigation buttons for all branches, such as Computer, Electronics & Telecommunication, Mechanical, Instrumentation, and IT. Within each branch, it lists the years starting from the second year and the names of mentors within that branch. By selecting a year, the admin can view divisions (e.g., A, B, C for Computer and Electronics & Telecommunication departments) and batches within those divisions. Additionally, the admin can update details of students, including those who are year down, diploma students, or any other category.

2) Mentor Interface

The second component is the Mentor Interface. When a new mentor joins, they must fill out a registration form on the webpage, providing their name, college email, department, year, phone number, and password. This college email and protected password are used for subsequent logins. The Mentor Interface includes several key functions:

a) *Batch Details:* Each mentor has an allocated batch and a mentor ID to pair with students in their batch. Mentors can view individual student details, including academic, personal, and co-curricular activities.

b) *Leave Application:* Students can submit leave applications via a form, which mentors can approve or reject based on the validity of the reason provided.

c) *Queries:* Students can submit queries regarding college issues, to which mentors can respond directly via the platform.

3) Mentee Interface

The Mentee Interface also requires registration during the initial use. Mentees must provide details such as name, college number (primary key), college email, phone number, date of birth, age, branch, year, division, batch, parents' details, family income, blood group, hobbies, address, photograph, certificates (if any), and a password for authentication. Subsequently, mentees can use their college email and password to log in.

Key functions available to mentees include:

1) *Personal Details:* Each student can view their own personal details.
2) *Batch Details:* Students can see their batchmates' college numbers.
3) *Leave Application:* Students can apply for leave by filling out a form with the reason, date, and time of the leave request. The mentor's decision to approve or reject the leave is visible to the student.
4) *Queries:* This section allows students to discuss college-related queries with their mentors at any time. Responses are filtered, with the most recent replies displayed at the top.
5) *Announcements:* Mentors can make announcements visible only to their batch, ensuring students are kept up to date with important reminders and notifications.

IV. RESULTS

Our evaluation of the Mentor Management System focused on a comprehensive analysis of its functionality and performance across Administrators, Mentors, and Students. We meticulously measured key metrics such as system uptime, response time, and user engagement levels. The primary objective was to assess the system's effectiveness in facilitating mentorship interactions and engaging users. By designing tests that simulated real-life scenarios with varying user numbers and tasks, we evaluated the system's ability to maintain smooth communication, speed, and responsiveness. Comparisons with existing platforms and industry benchmarks provided valuable insights into areas for improvement and efficiency enhancements, ensuring our system stood out.

The results, presented in tables and graphs, highlighted several key findings. There was a significant increase in communication between students and mentors, which fostered better connections and interactions. The system maintained robust performance regardless of user load, demonstrating its scalability and reliability. User feedback indicated high levels of satisfaction, with many finding the system intuitive and effective. These findings confirm that the Mentor Management System meets its design objectives, effectively enhances communication, and achieves high user satisfaction. This comprehensive evaluation provides a strong foundation for further refinements, ensuring continued improvement and success of the system.

V. CONCLUSION

In the current fast-paced educational landscape, effective mentorship is essential for shaping students' academic journeys and personal growth. Recognizing the importance of student-mentor interactions, this study aims to enhance this process through the implementation of a Mentor Management System. The existing manual and fragmented approach to mentor-student interactions in the college leads to miscommunication, missed opportunities, and a lack of comprehensive tracking. To address these challenges, we propose the development of a centralized digital platform that facilitates seamless communication, efficient scheduling, and comprehensive monitoring of student activities. The objectives of this system include enhancing teacher-student communication, monitoring students' academic and non-academic performance—including attendance, achievements, and participation in clubs and co-curricular activities—minimizing issues faced by students, and identifying and encouraging advanced learners.

The Mentor Management System will offer a range of features across different user interfaces. The Admin Interface will allow for the assignment of one mentor per batch, data management (including removal and updating of mentor/mentee information), scheduling and conducting meetings, updating mentor lists annually, and providing comprehensive details of mentees and mentors. It will also include user authentication and role-based access control. The Mentor Interface will provide detailed information about each student in a batch, including personal, academic, medical, and achievement records, as well as involvement in co-curricular activities. Mentors will be able to publish important instructions about events or programs, Access records of previous students, view the history of previous mentors for particular students, make announcements regarding emergency meetings, and manage leave details. The Mentee Interface will offer mentor contact information, a section for submitting issues and queries, information about important events and programs, instructions from administrators or teachers, details of previous mentors, and options for updating the student's profile with personal, academic, medical, and co-curricular achievements. Despite these functionalities, the system may face scalability challenges as it needs to accommodate a growing number of users and data, requiring potential adjustments to handle increased loads efficiently. Additionally, the system's maintenance and troubleshooting might heavily rely on local IT support.

VI. FUTURE SCOPE

This project significantly enhances communication between students and mentors, thereby contributing to the improvement of students' academic performance. Each student is graded according to their performance, and they receive tailored questions based on these grades. Consequently, their grades may improve or decline depending on their subsequent performance, allowing for varying levels of attention to be provided to students based on their individual needs.

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The development of this e-mentoring system demonstrates that such a platform can be effectively implemented in academic institutions, offering an accessible and efficient tool for both mentors and students. This system enables mentors to dedicate more time flexibly, providing precise feedback that can offer proper guidance and solutions to students' problems. Thus, the Mentor Management System not only enhances the mentorship process but also supports the continuous academic and personal development of students, suggesting a promising future for e-mentoring in educational settings.

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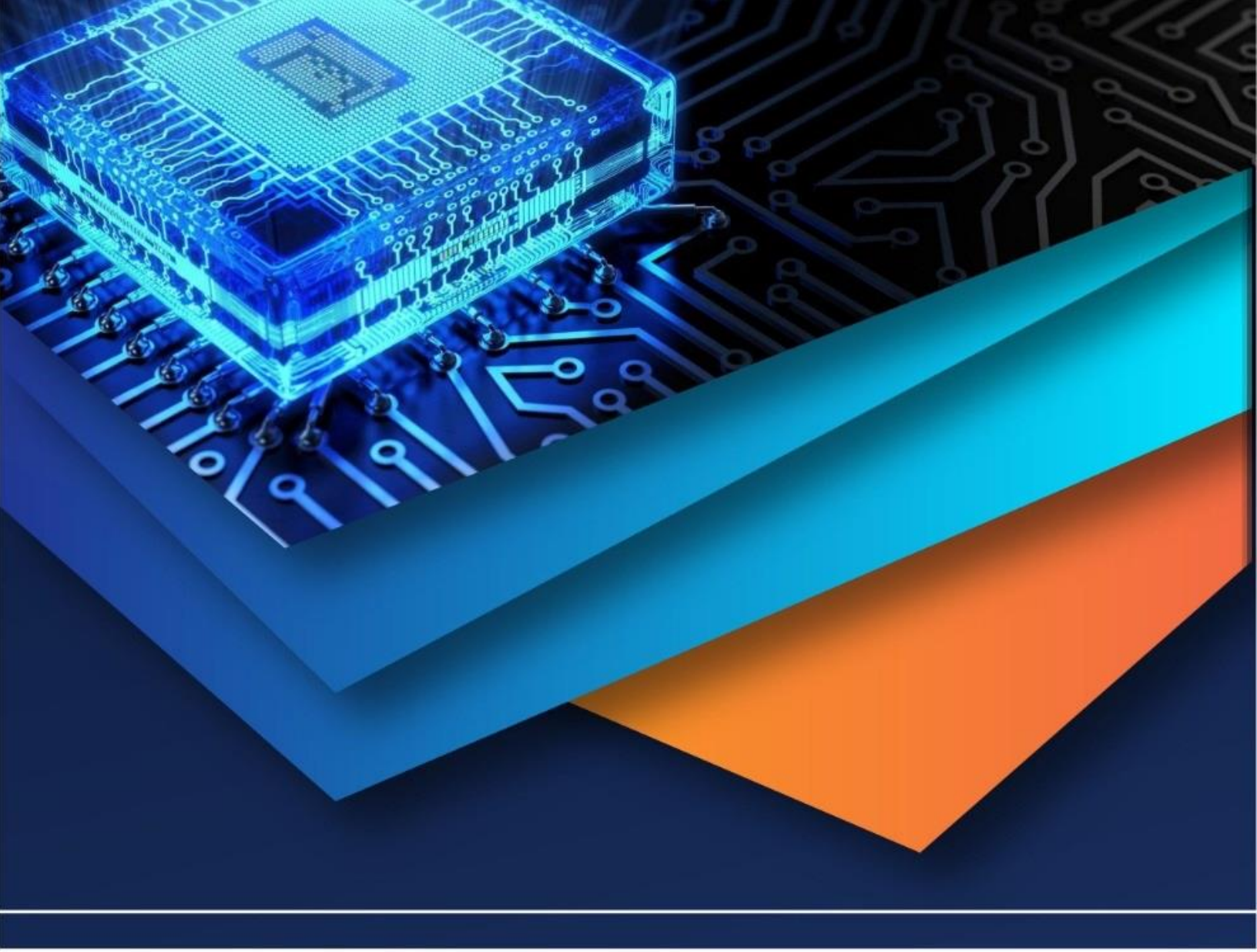
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