

Virtual Project Review System for Streamlined Evaluation and Performance Optimization

PHASE I REPORT

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In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING



**RAJALAKSHMI
ENGINEERING COLLEGE**



RAJALAKSHMI ENGINEERING COLLEGE

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ANNA UNIVERSITY, CHENNAI

NOVEMBER 2024

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

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ACKNOWLEDGEMENT

Initially we thank the Almighty for being with us through every walk of our life and showering his blessings through the endeavor to put forth this report. Our sincere thanks to our Chairman **Mr. S.MEGANATHAN, B.E, F.I.E.**, our Vice Chairman **Mr. ABHAY SHANKAR MEGANATHAN, B.E., M.S.**, and our respected Chairperson **Dr. (Mrs.) THANGAM MEGANATHAN, Ph.D.**, for providing us with the requisite infrastructure and sincere endeavoring in educating us in their premier institution. Our sincere thanks to **Dr. S.N. MURUGESAN, M.E., Ph.D.**, our beloved Principal for his kind support and facilities provided to complete our work in time. We express our sincere thanks to **Dr. P.KUMAR, Ph.D.**, Professor and Head of the Department of Computer Science and Engineering for his guidance and encouragement throughout the project work. We convey our sincere and deepest gratitude to our internal guide, **Mrs. Jananee V**, Department of Computer Science and Engineering, Rajalakshmi Engineering College for her valuable guidance throughout the course of the project. We are very glad to thank our Project Coordinator, **Dr. Kumaragurubaran T, Ph.D.**, Department of Computer Science and Engineering for his useful tips during our review to build our project.

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ABSTRACT

In academia, the management of research projects, especially in the context of final year projects or large-scale research efforts, is still largely handled through manual submission and review processes. This results in inefficiencies such as delays, increased workloads, and potential for errors. Students often face challenges ensuring their submissions adhere to originality, compliance, and deadlines, while supervisors struggle to handle the volume of reviews and provide timely feedback. Administrators are burdened with overseeing the entire review process, maintaining consistency, and ensuring that students and supervisors are aligned in their expectations. Existing systems, although helpful, primarily focus on basic documentation and submission tracking, without integrating key features like real-time progress monitoring, automated report submission, or intelligent feedback mechanisms. These limitations result in bottlenecks, affecting both the quality of academic output and the timely completion of projects. The proposed Academic Review System aims to revolutionize this process by introducing a fully web-based platform designed to automate and streamline research project management. Unlike existing systems, which often lack real-time data access and automated workflows, our platform integrates tools for real-time progress tracking, centralized document management, and automated feedback on submissions. Additionally, it offers security, privacy, and ease of use by incorporating cloud-based services, making it scalable and accessible across multiple platforms. The primary difference between the existing systems and the proposed solution lies in the automation of the submission and review process, the provision of real-time data access, and enhanced communication between students and supervisors, ultimately improving efficiency, accuracy, and user satisfaction.

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LIST OF ABBREVIATIONS

- 1. UI** – User Interface
- 2. UX** – User Experience
- 3. API** – Application Programming Interface
- 4. MVT** – Model-View-Template
- 5. SQL** – Structured Query Language
- 6. JSON** – JavaScript Object notation
- 7. JWT** – JSON Web Token
- 8. PK** – Primary Key
- 9. FK** – Foreign Key
- 10. HTML** – Hypertext Markup Language
- 11. ORM** – Object-Relational Mapping
- 12. URLC** – URL Configuration
- 13. DRF** – Django Rest Framework
- 14. CSRF** – Cross-Site Request Forgery
- 15. DOM** – Document Object Model

CHAPTER 1

INTRODUCTION

1.1 GENERAL

In academic institutions, managing research projects, especially final-year projects, is often hindered by the inefficiencies of manual submission and review processes. Students are required to submit their work, which is then manually reviewed by supervisors, leading to delays, increased workloads. These inefficiencies can affect the quality of academic output and the overall completion of projects. Both students and supervisors face challenges, with students struggling to ensure compliance and originality, while supervisors manage the growing volume of reviews. These inefficiencies stem from the manual nature of the process, which lacks automation and real-time progress tracking. Students may miss deadlines or submit incomplete projects, as they don't have tools to monitor their progress effectively. Similarly, supervisors, faced with a large number of project reviews, often find it difficult to provide timely feedback. This lack of synchronization between students and their supervisors can result in project delays, miscommunication, and reduced academic quality. Administrators are tasked with overseeing the entire system, ensuring consistency and alignment, which adds an additional layer of complexity and contributes to inefficiencies. The proposed solution to these challenges is the development of a fully automated, web-based platform that simplifies the management of research projects. This system automates submissions, reviews, and feedback, allowing students and supervisors to engage with the project process more efficiently. With real-time data access and progress tracking, students can regularly update their research status, while supervisors can monitor progress and provide timely feedback. Centralized document

management ensures that all relevant documents are stored in a single location, making it easier to access, review, and approve submissions. Ultimately, the Virtual Project Review System provides a comprehensive solution to the challenges of academic project management. By automating many of the tedious manual processes, it allows for a more efficient and error-free review system, ensuring that academic research projects are completed on time and to a high standard. This platform not only saves time for students and supervisors but also enhances the quality of academic assessments, ensuring a smoother, more efficient workflow for everyone involved. The proposed Academic Review System takes these solutions further by offering a user-friendly, scalable platform that enhances academic project management. The system is designed to prioritize security, privacy, and accessibility through cloud-based services, ensuring that it can be used on multiple devices and platforms. With features such as automated feedback and real-time progress monitoring, the system improves communication between students and supervisors, leading to a smoother workflow and a more efficient review process. By automating much of the project management process, the system reduces manual workload and improves the overall success rate of academic research projects.

1.2 OBJECTIVE

The Virtual Project Review System aims to revolutionize academic project management by automating submissions, reviews, and feedback mechanisms. This web-based platform addresses the inefficiencies of traditional methods by enabling real-time progress tracking, centralized document management, and intelligent feedback delivery. Designed to enhance communication between students, mentors, and administrators, the system prioritizes security, scalability, and ease of use. By streamlining the project review process, it reduces manual workloads, improves the quality

of academic output, and ensures timely completion of research efforts. The ultimate goal is to create an efficient, user-friendly environment for academic project evaluations. This project aims to:

1. Automation of Submission and Review Processes

Introduce automated workflows for project submissions, reviews, and feedback to minimize manual intervention and errors.

2. Real-Time Progress Monitoring

Provide tools for students and mentors to track research progress continuously, ensuring adherence to deadlines and milestones.

3. Centralized Document Management

Enable secure, cloud-based storage and management of all project documents for easy access and streamlined reviews.

4. Feedback Mechanisms

Integrated feedback features to improve the speed and quality of evaluations.

5. Enhanced Communication and Collaboration

Facilitate seamless interaction between students, mentors, and administrators with real-time notifications and updates.

6. Scalability and Security

Design a scalable platform with robust data protection measures to handle increasing project loads while ensuring privacy and accessibility.

1.3 EXISTING SYSTEM

Existing systems in project management often cater to specific domains, such as engineering and construction, where qualitative methodologies like case studies and interviews are used to optimize

processes. These systems leverage local expertise and context-specific solutions to improve project success rates. For example, integrating native consultants into workflows helps minimize delays and ensures more accurate decision-making in real-time. However, these systems are often limited by their specialized focus, making them less applicable to academic environments. Despite this, their efficiency in addressing domain-specific challenges offers valuable insights into the potential of tailored project management tools for other areas, including education.

An alternative system leverages real-time project progress monitoring through dashboard-based tracking, utilizing data visualization tools to provide stakeholders with comprehensive insights into ongoing activities. This approach allows for the early identification of delays and inefficiencies, enabling timely corrective actions. While commonly used in sectors like construction and engineering, its adaptability makes it suitable for managing large-scale academic projects. However, the limited ability to track financials and resource allocation suggests the need for more flexible solutions to address a wider range of requirements. In this context, SQLite serves as a lightweight database, offering sufficient functionality for project management without the complexities of more advanced solutions.

Dashboard-based systems designed specifically for undergraduate academic projects represent another existing approach. These systems deliver intuitive, user-friendly interfaces for managing submissions and reviews. Real-time feedback and self-regulated learning support are central features, enabling students and mentors to communicate and collaborate more effectively. While these systems have shown promise in academic settings, scalability and integration with broader institutional frameworks remain challenges. Nevertheless, they address critical needs by simplifying

project tracking and fostering better engagement between students and supervisors.

Real-time tracking systems that utilize task management tools have been applied to monitor progress across various fields, including academic projects. These systems are effective in managing deadlines and tracking productivity by providing timely updates that improve accuracy and efficiency. By integrating task management features, they enable continuous monitoring and reporting, which is particularly beneficial in environments with frequent updates and deadlines. However, while these systems work well in fields like engineering and infrastructure, they encounter challenges when applied to academic workflows due to the unique nature of educational project timelines and deliverables.

Systems for tracking graduate student progress often utilize milestone-based dashboards to provide transparency and early interventions. These systems highlight key benchmarks and track individual progress through visually accessible interfaces. By enabling real-time monitoring, they help educators and administrators identify trends and address potential issues proactively. However, their reliance on accurate data input and departmental practices introduces variability in their effectiveness. Despite this, they have proven highly useful in supporting structured evaluations and improving the alignment of academic goals with institutional standards.

Cloud-based project management systems represent a scalable and efficient solution for handling academic projects. These systems automate processes like submission tracking, review management, and feedback distribution, reducing manual workloads and errors. By centralizing data storage and incorporating role-based access controls, they ensure data security and accessibility across multiple devices. While they significantly

improve administrative efficiency, dependency on robust internet infrastructure can be a drawback in areas with limited connectivity. Nonetheless, their scalability and flexibility make them a promising choice for academic institutions aiming to modernize project management workflows.

1.4 PROPOSED SYSTEM

The Academic Review System gathers essential academic data from students, mentors, and coordinators. Students, organized into teams under mentors, submit project reports and documents. Mentors track the progress of multiple teams, providing timely feedback and setting deadlines. Coordinators oversee mentors, ensuring alignment with academic timelines and objectives. Admins have full access to data across all users, making it easy to monitor the entire system. All data, including submission details, mentor feedback, and progress reports, are stored securely in a cloud-based system. This ensures the scalability of the system and reliable data storage, with access control managed via role-based privileges to protect the integrity and privacy of sensitive academic information. Once the data is collected, the system applies preprocessing techniques to ensure it is clean and structured. This involves validating document formats, ensuring that files are uploaded correctly, and normalizing information like deadlines and progress updates. The system handles error detection, notifying users if their submissions do not meet the required criteria, such as incorrect file types or missing information. By preprocessing data, the system ensures accurate reporting for progress tracking, submission status updates, and review management, creating a streamlined workflow for both students and mentors. The platform is divided into specific modules based on the roles of the users—students, mentors, coordinators, and admins. Students use their module to submit documents, check deadlines, and monitor team progress.

Mentors are provided with tools to review submissions, give feedback, and set milestones for their teams. The coordinator's module allows them to oversee multiple mentors and track overall project timelines. The admin module serves as the overarching control panel, enabling full access to all submissions, feedback, deadlines, and user data. Each module is designed to offer ease of use while facilitating seamless interactions between students, mentors, and coordinators. The system uses intuitive interfaces to help users navigate through the various features. For example, mentors can quickly access team progress reports, view pending submissions, and check upcoming deadlines. Clicking on any specific feature, like "Deadlines," navigates the user to a detailed view, showing all relevant deadlines for each team. This allows users to access the most pertinent information in a structured, responsive manner. The system also provides real-time updates and notifications, keeping all users informed about upcoming milestones or feedback requirements.

CHAPTER 2

LITERATURE SURVEY

Smith J., et al., [1] discuss the integration of project management services for international engineering, procurement, and construction projects. This study focuses on overcoming logistical challenges by aligning resources and timelines across multinational teams. The authors highlight the significance of adopting standardized systems to enhance communication and collaboration. Key findings demonstrate how these services reduce inefficiencies and foster stakeholder alignment throughout project lifecycles.

Jones M., et al., [2] introduce a project progress monitoring service using geospatial servers to track developments in real time. By leveraging advanced spatial visualization tools, this system enhances the decision-making process for project managers. The research underlines the importance of real-time geospatial data in identifying bottlenecks and ensuring timely interventions. It also emphasizes how geospatial servers foster better coordination among teams dispersed across large geographical areas. This innovative approach is particularly beneficial for infrastructure projects, providing actionable insights that contribute to improved project outcomes and operational efficiency.

Johnson P., et al., [3] propose a dashboard-based system designed to manage undergraduate IT degree final-year projects. This system centralizes project tracking and simplifies communication between students and supervisors. The study highlights the tool's ability to provide real-time updates and ensure that academic milestones are met. Additionally, the research demonstrates the dashboard's positive impact on reducing delays and improving project planning. The authors advocate for integrating such

systems into academic institutions to enhance student accountability and project management efficiency.

Brown R., et al., [4] explore the design and analysis of a real-time progress tracking system, presenting a practical case study. This system facilitates transparency by providing stakeholders with real-time updates on project developments. The research highlights the importance of integrating real-time tracking for timely decision-making and identifying potential delays. It further discusses challenges in implementation, including usability and data integration, offering solutions to enhance system functionality. The study underscores the value of such systems in achieving greater accountability in project management processes.

Miller E., et al., [5] examine methods for tracking student progress in graduate programs using tailored data management systems. Their research identifies metrics for monitoring academic achievements and supporting students effectively. The study emphasizes how such systems enhance student retention by enabling timely interventions for those facing challenges. The authors propose strategies to align institutional goals with individual academic paths, fostering a supportive environment for learning. This work contributes to the development of effective progress tracking mechanisms in higher education.

Taylor H., et al., [6] review recommender systems in higher education, focusing on their role in academic decision-making. The study explores how machine learning algorithms can personalize course selection and career planning for students. It emphasizes the transformative potential of such systems in enhancing user satisfaction and educational outcomes. Challenges related to data privacy and algorithm biases are also addressed, providing a balanced perspective on system implementation. The paper offers valuable

insights into improving academic guidance through technology-driven solutions.

Anderson F., et al., [7] present a student management system designed to streamline administrative processes and academic record-keeping. The study showcases how this system integrates student data into a single platform, simplifying access for faculty and students alike. The research emphasizes the importance of scalability and adaptability, ensuring that the system meets the needs of diverse educational institutions. The authors highlight the system's ability to reduce administrative burdens while enhancing overall operational efficiency.

Thomas G., et al., [8] explore the use of Moodle-based learning management systems (LMS) to improve student engagement and learning outcomes. This study demonstrates the interactive features of Moodle, such as collaborative tools and real-time feedback mechanisms. The authors discuss how these features encourage active participation and improve knowledge retention. Additionally, the scalability and adaptability of Moodle-based LMS make it a preferred choice for diverse educational environments. The research underscores the transformative impact of LMS in modern education.

Jackson S., et al., [9] analyze a peer review system designed to enhance academic publishing processes through advanced algorithms. This study highlights how the system addresses inefficiencies, such as delayed reviews and mismatched expertise. By automating certain aspects of the peer review process, the system ensures timely feedback and equitable evaluations. The authors emphasize its potential to improve transparency and fairness in academic publishing. This innovative approach contributes to the evolution of peer review methodologies in scholarly communication.

Roberts T., et al., [10] present a cloud-based platform for managing university research projects. This system supports seamless collaboration and resource sharing across teams, enhancing research efficiency. The study discusses the scalability of cloud platforms in accommodating diverse research needs and workflows. It also highlights the system's role in fostering interdisciplinary collaboration and innovation. By addressing challenges in traditional research management, the authors propose a robust solution for advancing academic research practices.

Moore L., et al., [11] propose a progress-tracking system tailored for business projects, emphasizing simplicity and effectiveness. The study highlights how the system enables real-time updates and better decision-making. By focusing on user-friendly design, the authors address challenges in adoption and usability. The system's impact on improving accountability and transparency in business operations is also discussed. This research offers practical insights for integrating progress-tracking tools into corporate environments.

Walker C., et al., [12] examine project management systems for large organizations, focusing on their development and implementation. The study discusses challenges in scaling project management tools to meet the needs of complex organizational structures. It highlights how these systems improve coordination and resource allocation across departments. The authors propose strategies to enhance the adaptability of such tools in dynamic business environments. This work contributes to understanding the role of technology in managing large-scale projects effectively.

Young K., et al., [13] present an academic project information management system aimed at streamlining data organization and accessibility. The study highlights the system's role in improving

communication and collaboration among academic stakeholders. It discusses how the system simplifies the management of project milestones and deliverables. The authors emphasize the importance of user-centered design in ensuring the system's effectiveness and adoption.

Harris A., et al., [14] introduce Project Zone, an advanced management system for software development projects in undergraduate programs. The study highlights the system's ability to track project progress and provide actionable insights. By integrating collaborative tools, Project Zone fosters teamwork and accountability among students. The research also discusses the system's potential to enhance project planning and execution.

Senthil Pandi S., et al., [15] explore augmented reality for educational purposes, focusing on real-time interactivity and engagement. The study discusses how augmented reality can enhance learning experiences through immersive content. It highlights the potential of such technologies in revolutionizing traditional educational methods.

Stewart B., et al., [16] examine virtual project management and its application in distributed teams. The study discusses how virtual platforms improve coordination and productivity in remote work settings. It highlights the importance of leveraging technology to address challenges in global project management.

Parker J., et al., [17] focus on online teaching and learning project management, emphasizing the role of digital tools in education. The study explores how these tools enhance collaboration and streamline administrative tasks. It also highlights their impact on improving student engagement and learning outcomes.

Watson C., et al., [18] propose a Django-based student record management system designed to simplify data organization. The study highlights how the system improves accessibility and usability for academic institutions. It discusses the scalability of the platform and its potential to adapt to diverse educational contexts.

Deepak Kumar K., et al., [19] present an LSTM-based approach to PERT analysis for construction project management. The study highlights how this model improves project timeline predictions and resource allocation. It emphasizes the importance of integrating machine learning into traditional project management methods.

Carter M., et al., [20] explore secured web-based alumni network systems, focusing on enhancing communication and data security. The study highlights how such platforms foster collaboration and engagement among alumni. It discusses the potential of these systems in supporting alumni relations and institutional development.

CHAPTER 3

SYSTEM DESIGN

3.1 GENERAL

3.1.1 SYSTEM FLOW DIAGRAM

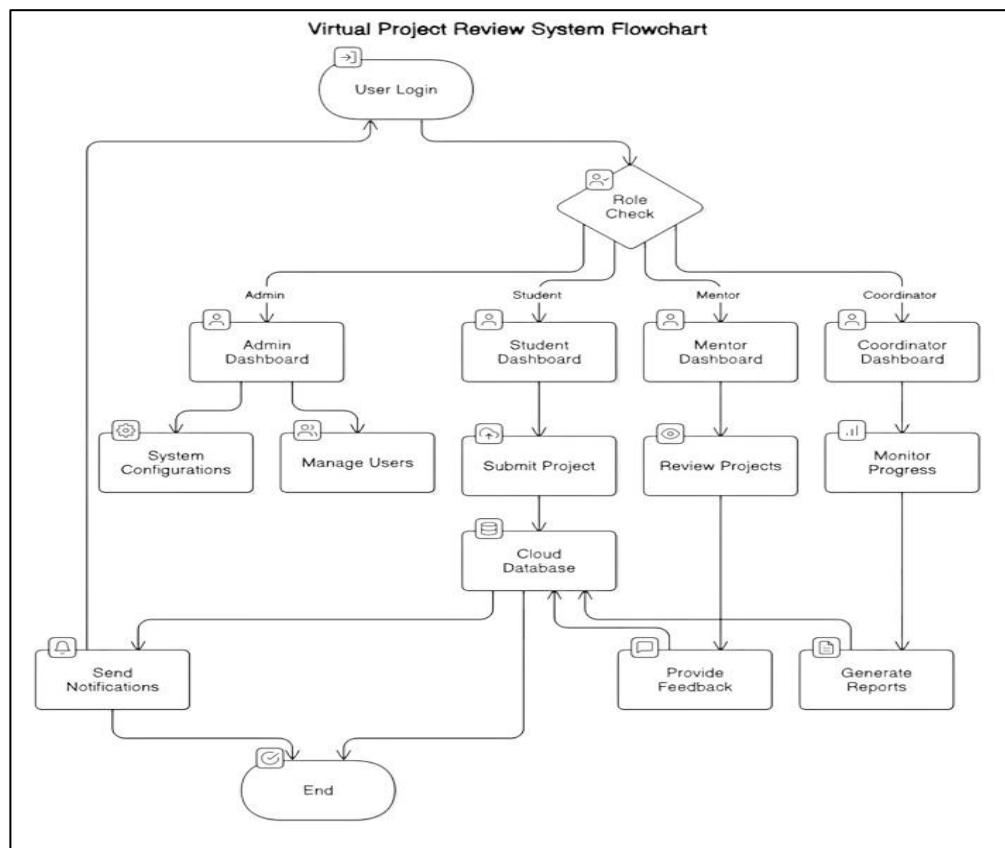


Fig. 3.1.1 SYSTEM FLOW DIAGRAM

In the Figure 3.1.1, it illustrates a structured process for managing project reviews. Users log in and are directed to specific dashboards based on their roles (Admin, Student, Mentor, or Coordinator). Admins handle system configurations and user management, while students submit projects that are stored in a cloud database. Mentors review the submitted projects and provide feedback, while coordinators monitor overall progress and generate reports.

3.1.2 SEQUENCE DIAGRAM

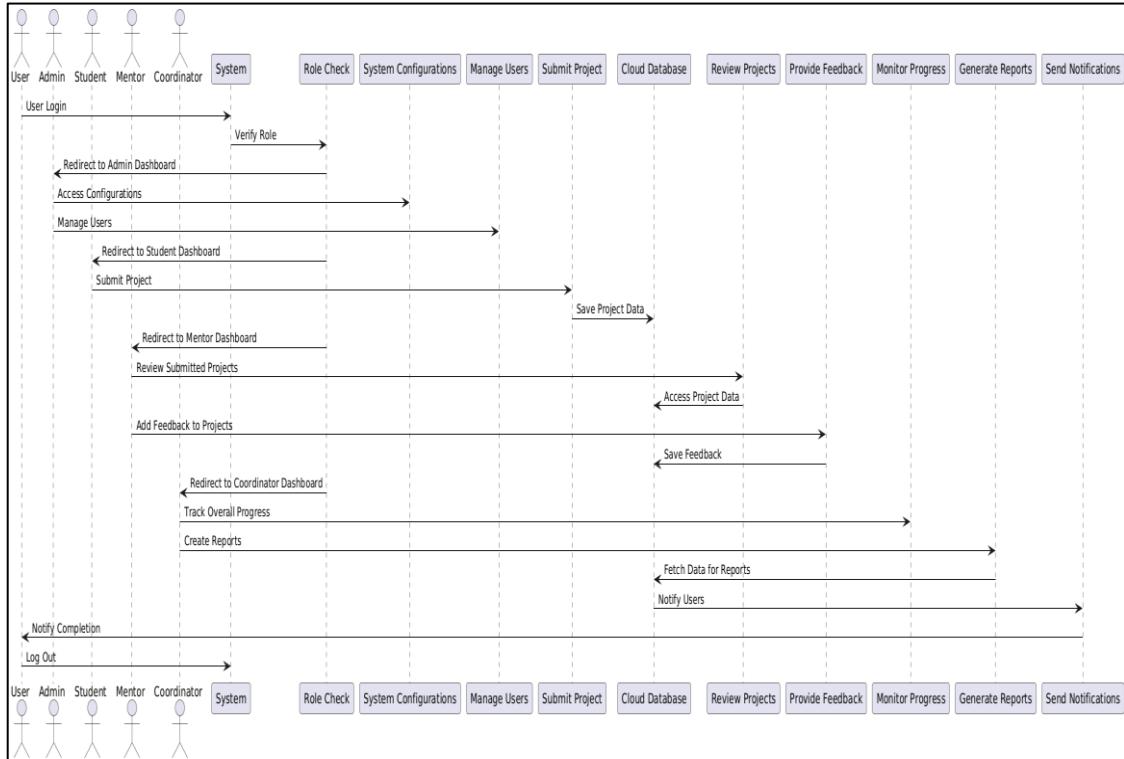


Fig. 3.1.2 SEQUENCE DIAGRAM

The Figure 3.1.2 depicts the interaction between a user and the system components: Login System, Database, Progress Tracker, and Report Generator. The user begins by entering login credentials, which the Login System verifies with the Database. Once authenticated, the system displays the login result. The user then initiates progress tracking, where the Progress Tracker retrieves data from the Database and returns it to display the user's progress. If a progress report is needed, the Report Generator fetches the necessary data from the Database and returns it for the user to view the final report.

3.1.3 CLASS DIAGRAM

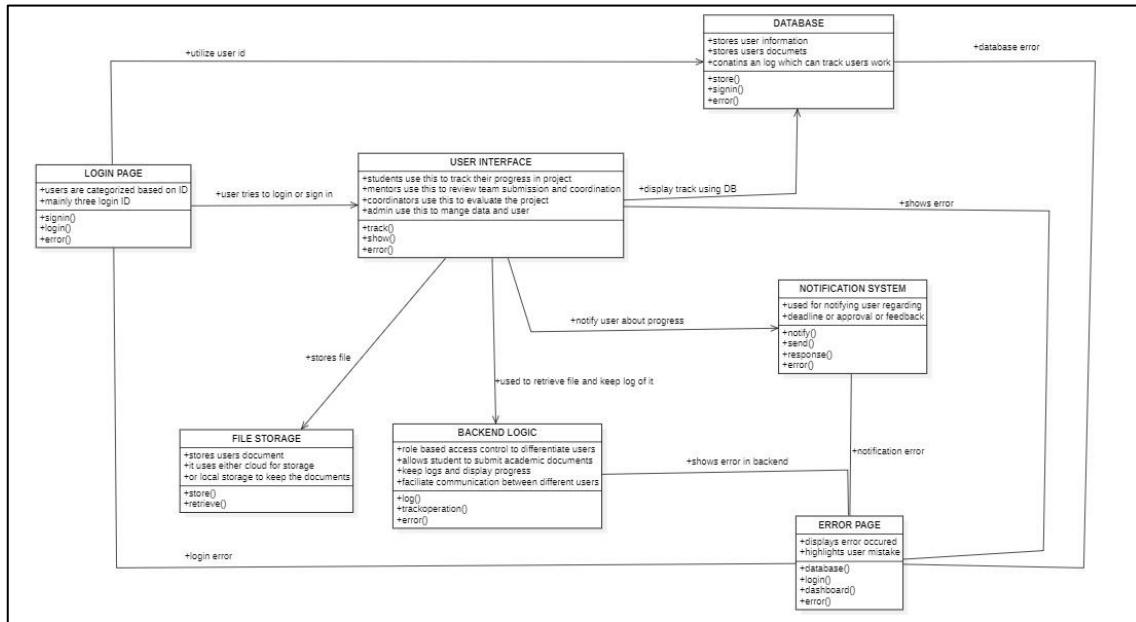


Fig. 3.1.3 CLASS DIAGRAM

The Figure 3.1.3 outlines the components of a system designed for project management and tracking. The Login Page handles user authentication, categorizing users into roles and directing them to the appropriate interface. The User Interface allows students to track progress, mentors to review submissions, coordinators to evaluate work, and admins to manage data. File Storage securely stores user documents, supporting both cloud and local storage. The Database stores user details, documents, and logs for activity tracking. The Backend Logic implements role-based access control, ensures smooth data flow, and manages communications between components. A Notification System alerts users about deadlines, approvals, or feedback. The Error Page provides feedback on login or system issues, enhancing usability. Each component interacts seamlessly to support efficient project management.

3.1.4 USE CASE DIAGRAM

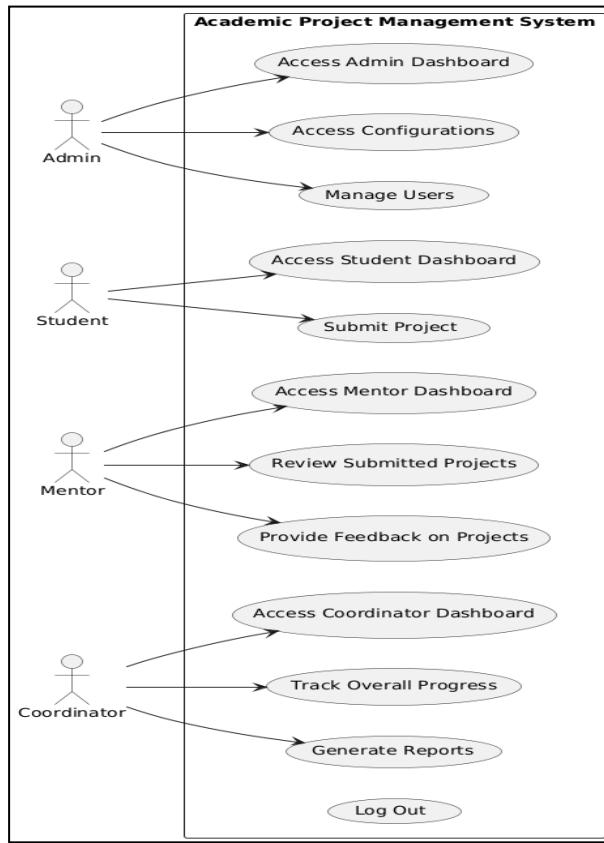


Fig. 3.1.4 USE CASE DIAGRAM

The Figure 3.1.4 represents an Academic Project Management System, outlining the interactions between different user roles and the system functionalities. The system comprises four primary actors: Admin, Student, Mentor, and Coordinator, each having specific responsibilities and access levels. The Admin oversees the entire system by managing users, accessing the admin dashboard, and configuring system settings. Students use the platform to access their dashboard and submit projects, ensuring streamlined project submissions. Mentors play a critical role in reviewing these submitted projects and providing constructive feedback through their dedicated dashboard. Coordinators are responsible for monitoring the overall progress of projects and generating detailed reports to maintain efficient tracking and documentation.

3.1.5 ARCHITECTURE DIAGRAM

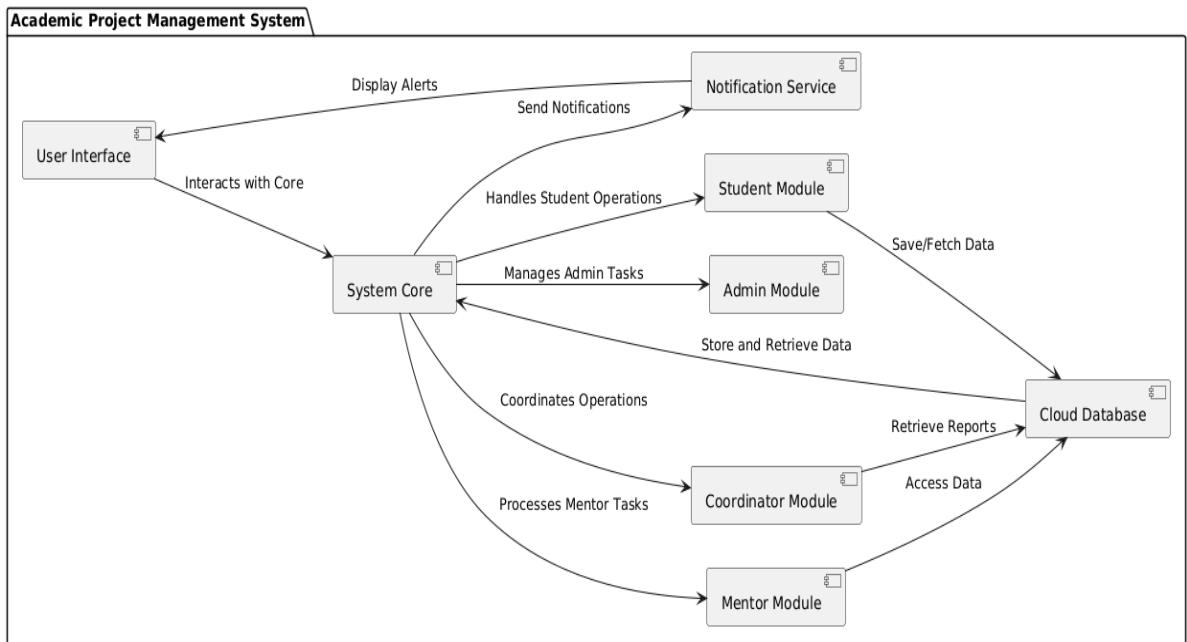


Fig. 3.1.5 ARCHITECTURE DIAGRAM

The Figure 3.1.5 depicts the structure of an Academic Project Management System, emphasizing the interaction between its core components. At the center is the System Core, which serves as the primary interface, coordinating operations across various modules. The User Interface interacts directly with the core to display alerts and provide seamless user interaction. The Notification Service sends updates and alerts as needed, enhancing communication. The Student Module handles student-related tasks, while the Admin Module manages administrative functions. The Mentor Module processes mentor-related activities, and the Coordinator Module oversees coordination and reporting tasks. All modules are integrated with a Cloud Database, which stores, retrieves, and manages the system's data efficiently. This architecture ensures smooth communication and operation between modules, providing a centralized and robust system for academic project management.

3.1.6 ACTIVITY DIAGRAM

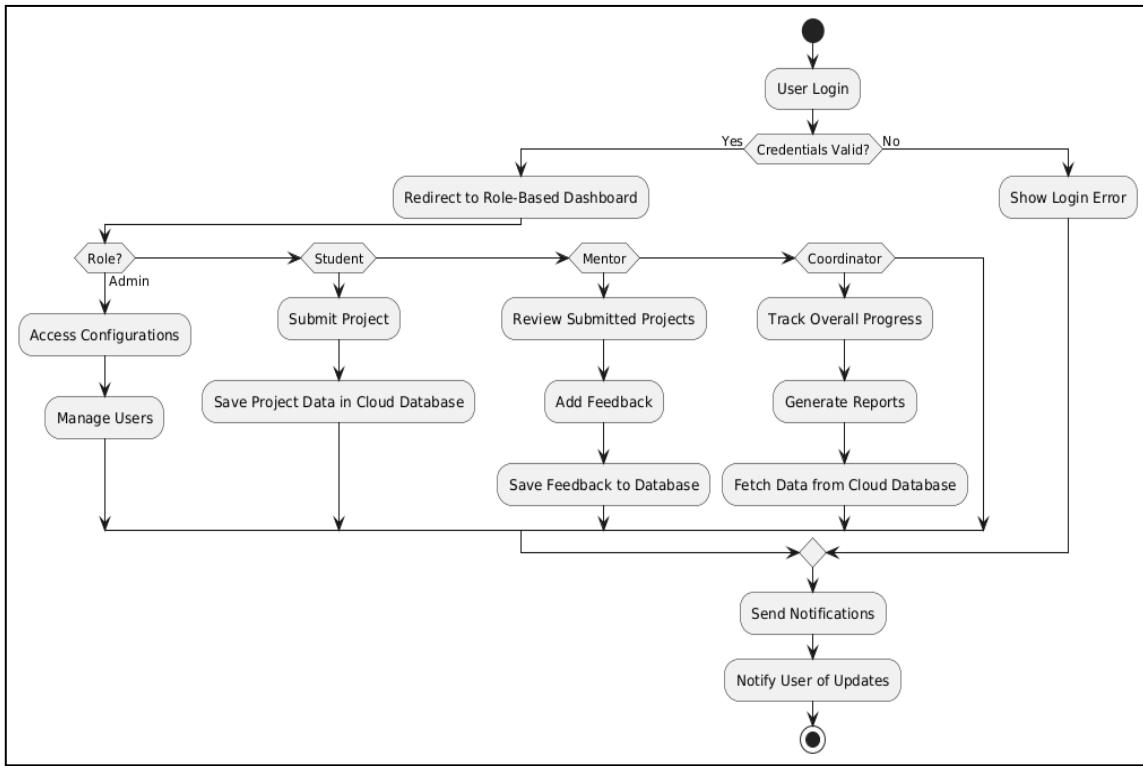


Fig. 3.1.6 ACTIVITY DIAGRAM

The above figure 3.1.6 outlines the workflow of a system, divided into five main modules: Authentication (Login) Module, Backend Logic Module, File Storage Module, Notification System Module, and UI Module. The user initiates the process by opening the application, entering credentials, and submitting the login request. The Authentication Module validates these credentials. If valid, the user is forwarded to the Backend Logic Module; otherwise, an error message is displayed. The Backend Logic Module handles user requests, performs data retrieval or storage, executes calculations like deadlines, and ensures appropriate permissions are checked. The File Storage Module supports file upload/download operations and manages file versions. Notifications such as reminders or feedback are handled by the Notification System Module, ensuring users stay informed.

3.1.7 COMPONENT DIAGRAM

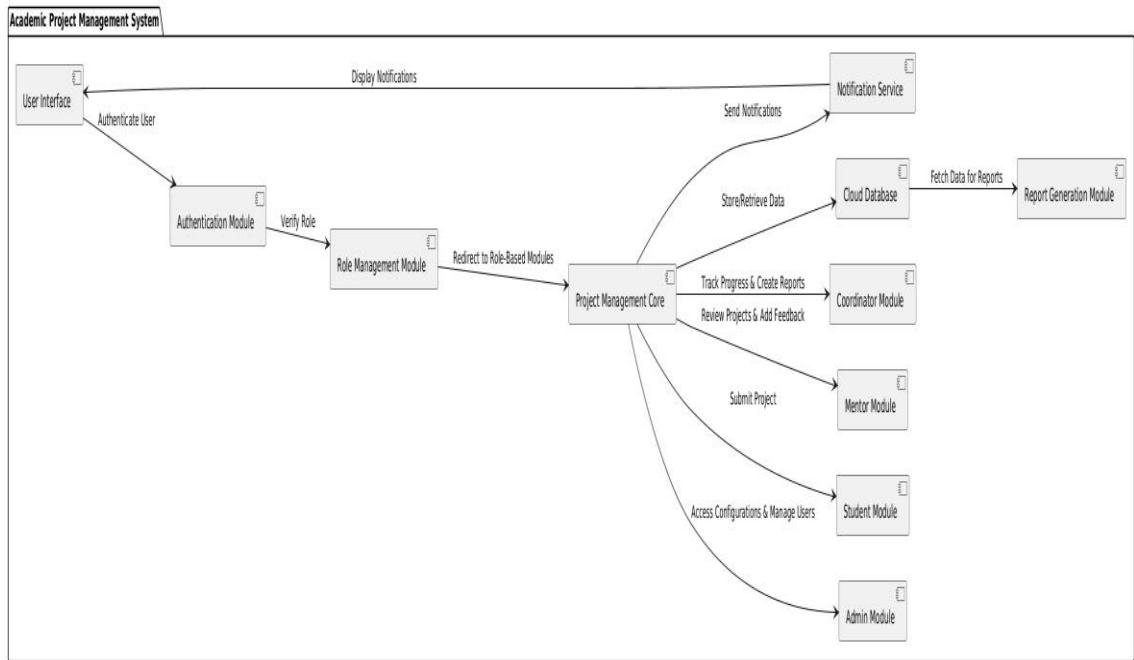


Figure 3.1.7 COMPONENT DIAGRAM

This Figure 3.1.7 outlines the structure and interactions within an Academic Project Management System, detailing how various modules work together. The User Interface serves as the entry point, authenticating users through the Authentication Module. Once authenticated, the Role Management Module verifies user roles and redirects them to the appropriate role-based modules within the Project Management Core. The core system integrates several modules, including the Coordinator Module for tracking progress and generating reports, the Mentor Module for reviewing projects and providing feedback, the Student Module for submitting projects, and the Admin Module for managing configurations and users. Data storage and retrieval are handled by the Cloud Database, which also supports the Report Generation Module for fetching data and creating detailed reports. Notifications are sent via the Notification Service, ensuring effective communication throughout the system.

3.1.8 COLLABORATION DIAGRAM

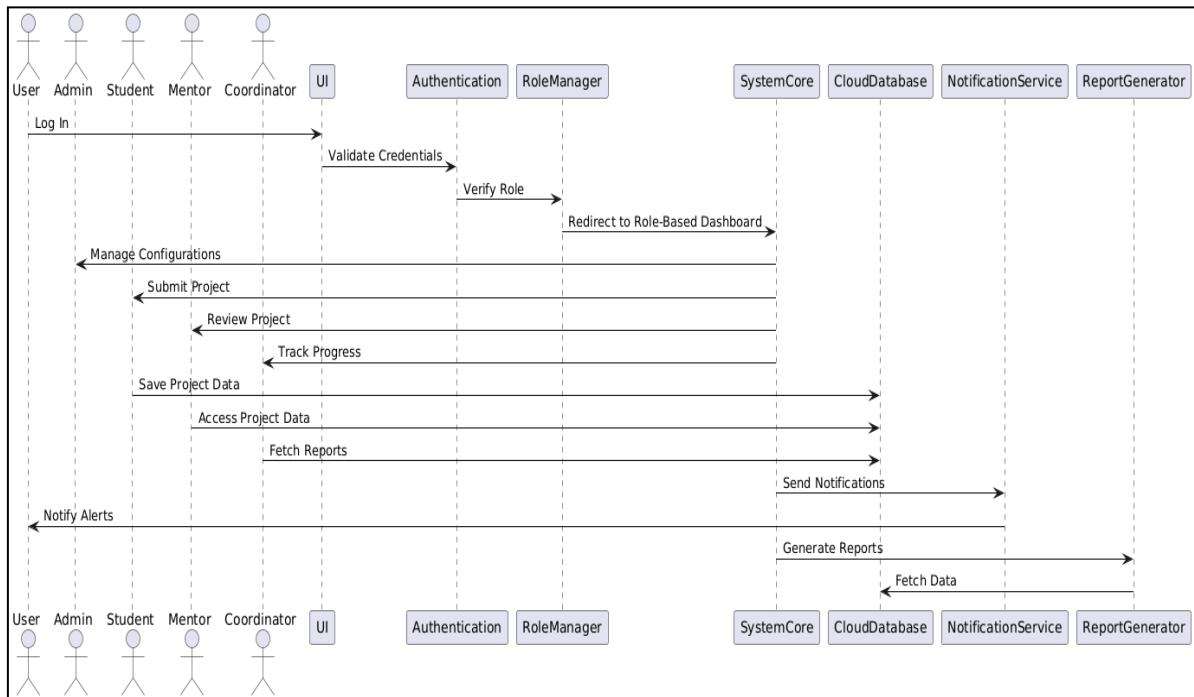


Figure 3.1.8 COLLABORATION DIAGRAM

This Figure 3.1.8 depicts the Academic Project Management System, showcasing interactions between different stakeholders, including the Student, Admin, Supervisor, Automated System, Document Management System, and Coordinator. The process begins with the student submitting project details, which are forwarded by the admin to the supervisor and automated system for storage and confirmation. Students then submit reports, triggering an automated compliance check that generates success or failure notifications. In case of compliance failure, students are prompted for revisions. The system also enables tracking of project progress, where updates are communicated between the stakeholders. The coordinator oversees the review process, consolidating feedback from various stakeholders. The cycle concludes with final feedback provided to the student, ensuring effective collaboration and streamlined project management.

CHAPTER 4

PROJECT DESCRIPTION

4.1 METHODOLOGIES:

1. Student Module

The Student Module in the Virtual Project Review System is designed to support students in managing and presenting their projects for review. It serves as a centralized hub where students can submit project drafts, track review feedback, access resources, and communicate with mentors and coordinators. By enabling easy access to submission guidelines, review schedules, and progress tracking, this module helps students stay organized and focused on project development. The module allows students to upload project files, view deadlines, and access mentors' and coordinators' feedback. It also sends notifications for important updates, such as feedback availability or upcoming review dates. With a user-friendly interface, students can keep track of project milestones and ensure they are meeting all necessary criteria for each review stage. This module improves the efficiency of project submissions by providing automated reminders, reducing the chance of missed deadlines, and consolidating all feedback in one accessible location. Through structured submission and review processes, students can focus on enhancing their projects, making the entire review experience smoother and more efficient. In the Virtual Project Review System, the Student Module plays a pivotal role by facilitating active student participation. It streamlines project review preparation, encourages timely submissions, and supports a structured approach to continuous improvement, contributing to better project outcomes.

2. Mentor Module

The Mentor Module is tailored to assist mentors in guiding students through the project review process. It provides mentors with tools to review project submissions, give structured feedback, and monitor the progress of assigned students. This module facilitates direct engagement, ensuring mentors can support students effectively at each review stage. Mentors can use the module to access project files, leave comments, rate project submissions, and communicate directly with students. The module also provides tools for tracking students' progress, ensuring that feedback is timely and relevant. Automated notifications help mentors stay informed about upcoming reviews or submission updates, allowing them to provide well-timed support. This module enhances efficiency by consolidating all mentoring activities in one platform. The automated reminders and accessible project overviews reduce the time mentors spend on tracking and organizing, allowing them to focus on providing quality feedback. Within the Virtual Project Review System, the Mentor Module is essential for fostering meaningful mentorship. It supports the delivery of timely, structured feedback, helping students refine their projects and meet review standards. Through effective mentoring, this module contributes to high quality project outcomes and a productive review process.

3. Admin Module

The Admin Module serves as the backbone of the Virtual Project Review System, enabling system administrators to manage users, oversee project workflows, and ensure smooth system functionality. This module grants administrators control over user accounts, roles, access permissions, and data integrity, ensuring the platform operates effectively. Admins can use this module to assign roles, monitor user activities, generate system reports, and resolve technical issues. With comprehensive data access, they

can track the performance of all user groups, generate usage reports, and ensure that review protocols are maintained. This module also allows administrators to address system updates, provide audit trails, and ensure system security. This module significantly improves project efficiency by providing centralized oversight and control. Through streamlined management of roles and permissions, the Admin Module minimizes access issues, secures sensitive data, and ensures all system users have the resources they need for productive engagement. In the Virtual Project Review System, the Admin Module is critical for creating a reliable and secure review environment. It maintains system stability and user accountability, supporting students, mentors, and coordinators in achieving project milestones and ensuring system integrity.

4. Coordinator Module

The Coordinator Module is designed to help coordinators manage project schedules, allocate mentors, and oversee project reviews. This module provides coordinators with tools to schedule reviews, monitor student progress, assign mentors to specific projects, and ensure that all projects meet quality standards throughout the review phases. Through this module, coordinators can set review dates, track project submissions, and access student and mentor reports. They can communicate directly with both mentors and students, providing clear guidance on project expectations and feedback. With an organized interface, coordinators can track multiple projects and ensure that all participants adhere to the project timeline. The module improves the system's efficiency by reducing administrative overhead and simplifying the management of project review cycles. By centralizing data, reports, and schedules, it allows coordinators to handle larger student groups, maintain project quality, and ensure timely reviews. In the Virtual Project Review System, the Coordinator Module acts as a bridge

between mentors and students. oversight, ultimately supporting project quality and alignment with system objectives.

4.1.1 RESULTS AND DISCUSSION:

The Academic Review System exhibited strong performance in managing and streamlining academic research processes. The system accurately handled submissions and feedback, with success in managing document uploads, tracking progress, and sending notifications across teams and mentors. The submission review process, including file validation and progress tracking, performed with a high degree of reliability. Mentors were able to review multiple teams simultaneously, offering detailed feedback and tracking overall team progress without any significant delays. Coordinators effectively managed multiple mentors, ensuring that academic projects proceeded on schedule. Admins had complete access to all data, further enhancing the system's reliability and oversight capabilities. The system demonstrated success in providing real-time feedback on submission status and project milestones. Mentors could easily navigate through the "Team Progress" and "Deadlines" modules, with better feedback accessibility compared to existing manual methods. Students appreciated the clarity and speed with which they received feedback, while mentors found the tools intuitive for managing multiple teams under their supervision. Coordinators successfully utilized the system's monitoring tools to compare the progress of different teams, ensuring that all academic guidelines were adhered to. The system's preprocessing module efficiently validated document formats and provided instant feedback to students on any errors or missing information. Teams reported satisfaction with the ease of checking submission deadlines and monitoring progress through their dashboards, thus reducing the chances of missed deadlines. A challenge was identified in

scenarios where a mentor had to manage a large number of teams, which led to delays in reviewing all categories of Work submissions on time. Future updates to the system will include a mentor-assistant feature, using AI to prioritize team reviews based on submission deadlines and progress.

Key Accomplishments:

- Team and Mentor Hierarchical Structure: The system successfully implemented a hierarchical structure, allowing coordinators to manage multiple mentors, and mentors to oversee multiple student teams, creating an organized and scalable workflow.
- Admin module system: The introduction of admin module significantly improved the ability to handle multiple users by dividing them into groups . Access and privilege management by admin enables a safe space for submission tracking and progress updates for all users.
- Data Security and Privacy: The use of robust encryption methods, ensured secure data management and retrieval, protecting sensitive academic information.

CHAPTER 5

CONCLUSION AND WORK SCHEDULE

The proposed Virtual Project Review System significantly enhances the efficiency of academic project management compared to existing manual systems. By aiding key processes such as submissions, reviews, progress tracking, and feedback, the system eliminates many of the delays and errors associated with traditional methods. This not only reduces the workload for both students and supervisors but also improves the quality and timeliness of feedback, allowing for more structured and informed project development. Compared to existing models, this system can save considerable time—potentially reducing the review process duration—while ensuring better communication and coordination between students, supervisors, and administrators, ultimately leading to more successful academic outcomes.

Future Enhancements:

- i. Scalability:** To accommodate larger academic programs, future iterations will focus on enhancing the system's scalability, allowing it to handle a greater volume of submissions and feedback without delays.
- ii. Advanced Mentor Tools:** The addition of AI driven mentor-assistant tools will further streamline mentor workflows, helping them prioritize tasks and offer timely feedback to their teams.
- iii. Enhanced Reporting Tools:** Future versions of the system will include advanced reporting tools for coordinators, offering detailed comparisons of team performances and project progress across different academic departments.
- iv. Integration of Analytics:** Incorporating analytics features for performance tracking and data visualization will provide mentors and

coordinators with deeper insights into student team performances and submission trends.

v. Mobile Accessibility: Improving the system's mobile responsiveness will enable students and mentors to access their dashboards and submissions from any device, further increasing accessibility.

5.1 FOR PHASE 2

In academic research, plagiarism detection often relies on identifying direct textual matches, leaving conceptual overlaps and idea-level similarities unaddressed. An advanced system powered by AI can transcend these limitations by analyzing the deeper structure of submissions, including research methodologies, argumentation flow, and conceptual frameworks. Using natural language processing (NLP) and machine learning, such a system can evaluate the originality of ideas by comparing them against a vast database of academic works, identifying nuanced overlaps that traditional tools might miss. This approach enhances fairness and accuracy, promoting genuine intellectual contributions while mitigating inadvertent similarities.

Moreover, integrating AI-based plagiarism detection into academic workflows can streamline the review process for coordinators and mentors. By generating detailed similarity reports with context-based explanations, the system not only highlights potential issues but also provides actionable insights for researchers to improve their work. This fosters a culture of ethical research practices and encourages creativity while maintaining academic integrity. Such a solution aligns with the growing need for innovation in plagiarism detection, making it particularly valuable for institutions aiming to uphold high academic standards in research and publication.

CHAPTER 6

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CHAPTER 7

APPENDIX

7.1 APPENDIX 1:

SAMPLE CODE:

models.py

```

from django.db import models
from django.contrib.auth.models import User
from django.utils import timezone

class Category(models.Model):
    name = models.CharField(max_length=100)

class Task(models.Model):
    name = models.CharField(max_length=100)
    category = models.ForeignKey(Category,
        on_delete=models.CASCADE)
    assigned_to = models.ForeignKey(
        User,
        on_delete=models.CASCADE,
        null=True,
        blank=True
    )
    start_date = models.DateTimeField()
    end_date = models.DateTimeField()
    priority = models.IntegerField(default=1)
    description = models.TextField(default="")

```

```

location = models.CharField(max_length=255, default="")
organizer = models.CharField(max_length=100, default="")

class Post(models.Model):
    image = models.ImageField(
        default="default_foo.png", upload_to ="post_picture")
    caption = models.TextField()
    date_posted = models.DateTimeField(default = timezone.now)
    author = models.ForeignKey(User, on_delete = models.CASCADE)

    def __str__(self):
        return f'{self.author.username}\'s Post- {self.title}'

    def save(self, *args, **kwargs):
        super().save(*args, **kwargs)
        img = Image.open(self.image.path)
        if img.height > 400 or img.width > 400:
            output_size = (300, 300)
            img.thumbnail(output_size)
            img.save(self.image.path)

class Comment(models.Model):
    category = models.ForeignKey(Category,
        on_delete=models.CASCADE, related_name='comments')
    user = models.ForeignKey(User, on_delete=models.CASCADE)
    content = models.TextField()
    created_at = models.DateTimeField(auto_now_add=True)

    class Meta:
        ordering = ['-created_at']

```

```
def __str__(self):
    return f'Comment by {self.user.username} on {self.category.name}'
```

views.py

```
from django.contrib.auth import login, logout
from django.contrib.auth.decorators import login_required
from django.utils import timezone
from django.shortcuts import render
from django.shortcuts import render, get_object_or_404
from django.contrib import messages
from .models import Category, Task, Comment
from django.shortcuts import render, redirect
from .models import Category
from .models import Task
from django.urls import reverse
from django.contrib.auth.forms import UserCreationForm,
AuthenticationForm
from django.contrib.auth.models import User
from django.contrib.auth.decorators import login_required,
user_passes_test
from django.contrib.admin.views.decorators import staff_member_required

from django.contrib.auth.decorators import login_required

def is_admin(user):
    return user.is_superuser

admin_required = user_passes_test(lambda user: user.is_superuser)
```

```

def user_login(request):
    if request.method == 'POST':
        form = LoginForm(request, request.POST)
        if form.is_valid():
            user = form.get_user()
            login(request, user)
            if user.is_superuser: # If the user is an admin
                return redirect('category_list')
            else: # If the user is a normal user
                return redirect('user_tasks_list')
        else:
            form = LoginForm()
    return render(request, 'task_management_system_app/login.html',
    {'form': form})

```

```

@login_required
def user_tasks_list(request):
    tasks = request.user.tasks.all()
    return render(request,
    'task_management_system_app/user_tasks_list.html', { 'tasks': tasks })

```

```

class RegistrationForm(UserCreationForm):
    class Meta:
        model = User
        fields = ['username', 'password1', 'password2']

```

```

class LoginForm(AuthenticationForm):
    class Meta:
        model = User
        fields = ['username', 'password']

def register(request):
    if request.method == 'POST':
        form = RegistrationForm(request.POST)
        if form.is_valid():
            user = form.save()
            # login(request, user)
            return redirect('login')
    else:
        form = RegistrationForm()
    return render(request, 'task_management_system_app/register.html',
                  {'form': form})

def LogoutPage(request):
    logout(request)
    return redirect("login")

@login_required
@admin_required
def delete_task(request, task_id):
    if request.method == 'POST':
        task = Task.objects.get(id=task_id)
        task.delete()

```

```
return redirect(reverse('category_list'))\n\n@login_required\n@admin_required\n\ndef create_task(request):\n    if request.method == 'POST':\n        # Retrieve data from the POST request\n        name = request.POST.get('name')\n        category_id = request.POST.get('category')\n        start_date = request.POST.get('start_date')\n        end_date = request.POST.get('end_date')\n        priority = request.POST.get('priority')\n        description = request.POST.get('description')\n        location = request.POST.get('location')\n        organizer = request.POST.get('organizer')\n        assigned_to_id = request.POST.get('assigned_to')\n        category = Category.objects.get(pk=category_id)\n        task = Task.objects.create(\n            name=name,\n            category=category,\n            start_date=start_date,\n            end_date=end_date,\n            priority=priority,\n            description=description,\n            location=location,\n            organizer=organizer,\n            assigned_to_id=int(assigned_to_id)\n        )
```

```

# Redirect to the task list page
return redirect('category_list')

else:
    categories = Category.objects.all()
    users = User.objects.all()
    return render(request,
'task_management_system_app/create_task.html', {'categories': categories,
'users': users})

@login_required
@admin_required
def update_task(request, task_id):
    task = Task.objects.get(pk=task_id)
    if request.method == 'POST':
        # Update task fields based on form data
        task.name = request.POST.get('name')
        task.start_date = request.POST.get('start_date')
        task.end_date = request.POST.get('end_date')
        task.priority = request.POST.get('priority')
        task.description = request.POST.get('description')
        task.location = request.POST.get('location')
        task.organizer = request.POST.get('organizer')
        task.assigned_to_id = request.POST.get('assigned_to')
        task.save()
        return redirect('category_list')

else:
    # Render update task page with task data

```

```
    return render(request,  
    'task_management_system_app/update_task.html', {'task': task})
```

```
@login_required
```

```
@admin_required
```

```
def category_list(request):
```

```
    categories = Category.objects.all()
```

```
    return render(request,
```

```
'task_management_system_app/category_list.html', {'categories':  
categories})
```

```
@login_required
```

```
@admin_required
```

```
def create_category(request):
```

```
    if request.method == 'POST':
```

```
        name = request.POST.get('name')
```

```
        Category.objects.create(name=name)
```

```
        return redirect('category_list')
```

```
    return render(request,
```

```
'task_management_system_app/create_category.html')
```

```
@login_required
```

```
@admin_required
```

```
def delete_category(request, category_id):
```

```
    category = Category.objects.get(pk=category_id)
```

```
    if category.task_set.exists():
```

```

messages.error(
    request, "You cannot delete this category as it contains tasks.")

else:
    category.delete()
    messages.success(request, "Category deleted successfully.")

return redirect('category_list')

@login_required
@admin_required
def category_tasks(request, category_id):
    category = get_object_or_404(Category, pk=category_id)
    tasks = category.task_set.all()
    return render(request,
'task_management_system_app/category_tasks.html', {'category': category,
'tasks': tasks})

@login_required
@admin_required
def task_chart(request):
    categories = Category.objects.all()
    pending_counts = {}
    for category in categories:
        pending_counts[category.name] = Task.objects.filter(
            category=category,
            start_date__gt=timezone.now()
        ).count()
    return render(request, 'task_management_system_app/task_chart.html',
{'pending_counts': pending_counts})

def add_category_comment(request, category_id):

```

```

if request.method == 'POST':
    category = get_object_or_404(Category, id=category_id)
    content = request.POST.get('content')
    Comment.objects.create(
        category=category,
        user=request.user,
        content=content
    )
    return redirect('category_tasks', category_id)

```

7.1.1 OUTPUT SCREENSHOTS

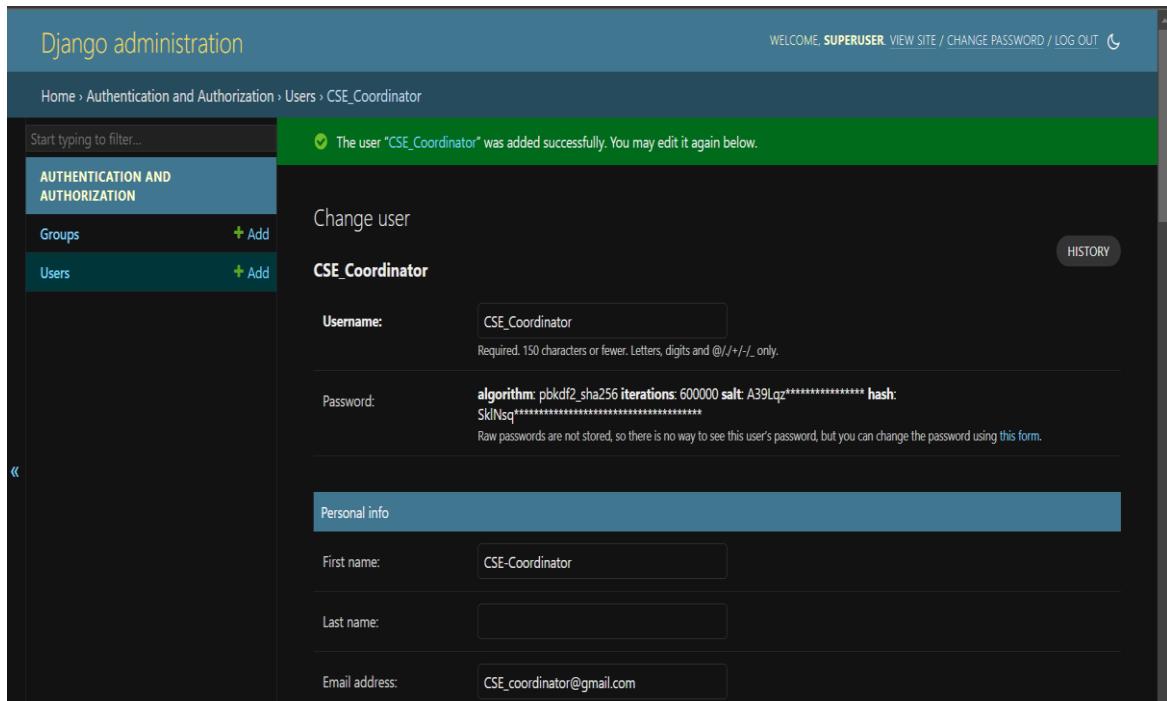


Fig 7.1.1.1 Admin dashboard

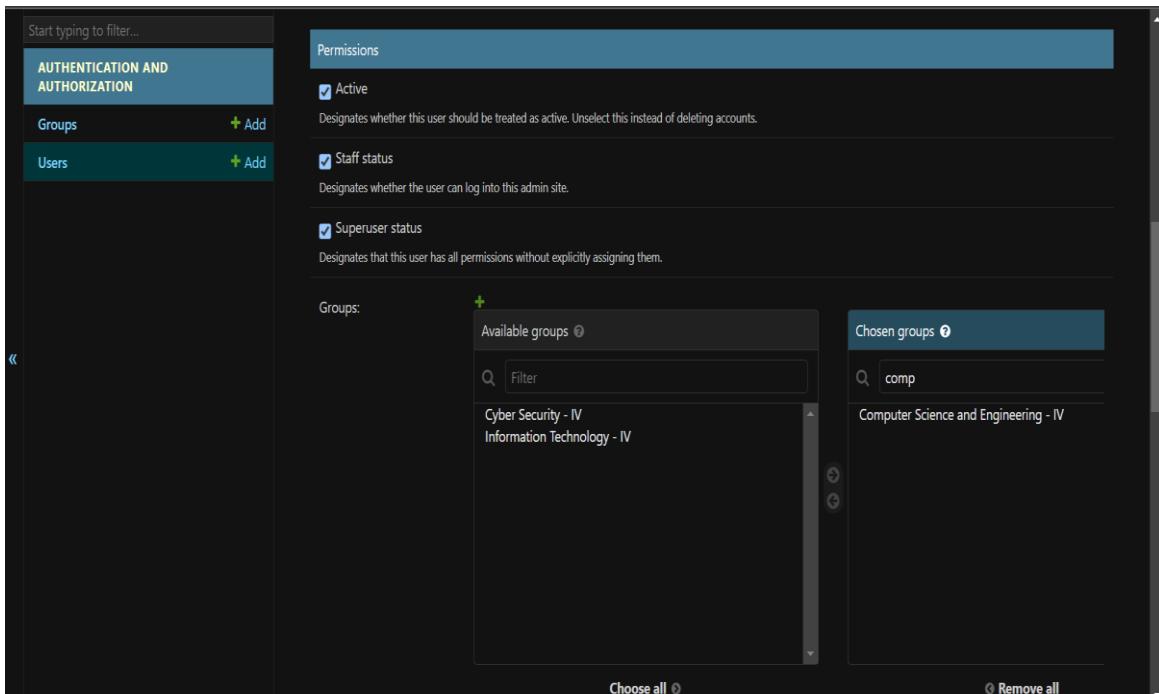


Fig 7.1.1.2 Groups selection

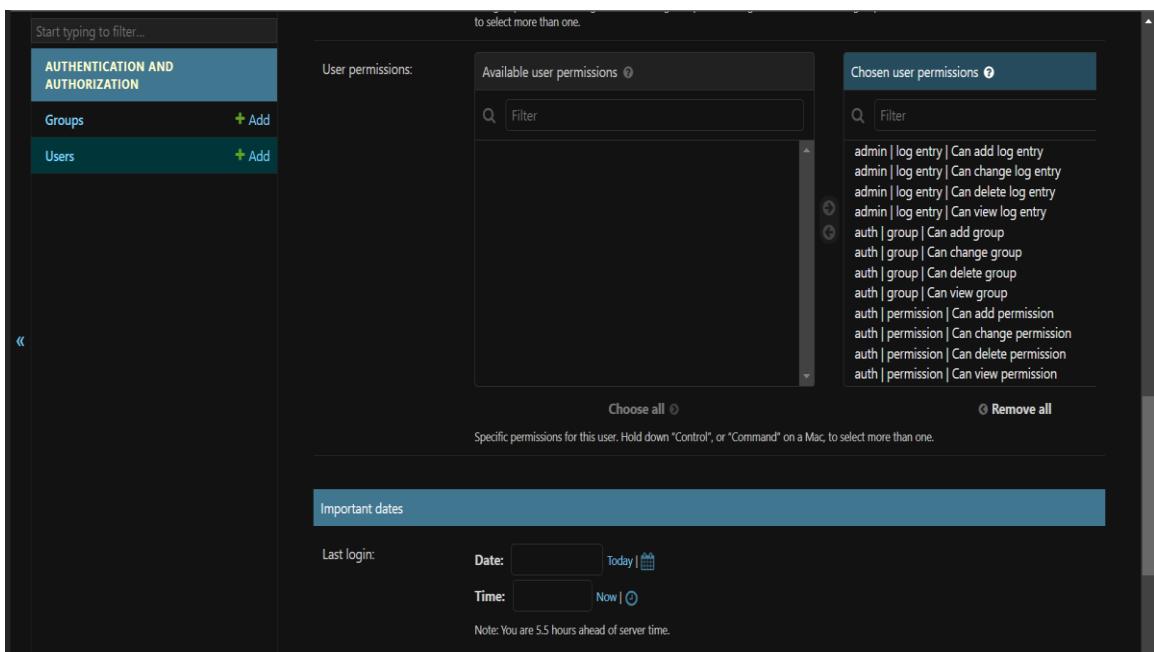


Fig 7.1.1.3 Enabling User Permissions

Django administration

Home > Authentication and Authorization > Groups > Computer Science and Engineering - IV

Start typing to filter...

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

Change group

Computer Science and Engineering - IV

Name: Computer Science and Engineering - IV

Permissions:

Available permissions

Chosen permissions

Choose all Remove all

admin | log entry | Can add log entry
 admin | log entry | Can change log entry
 admin | log entry | Can delete log entry
 admin | log entry | Can view log entry
 auth | group | Can add group
 auth | group | Can change group
 auth | group | Can delete group
 auth | group | Can view group
 auth | permission | Can add permission
 auth | permission | Can change permission
 auth | permission | Can delete permission
 auth | permission | Can view permission

Fig 7.1.1.4 Enabling Group permissions

Add task

task Name:

Category:

User:

Start Date:

End Date:

Priority:

Description:

Location:

Organizer:

Submit

Fig 7.1.1.5 Add tasks window

Update task

Name:

 Start Date:

 End Date:

 Priority:

 Description:

 Location:

 Organizer:

Fig 7.1.1.6 Update tasks window

Review-2 tasks

Task name	Assigned to	Start Date	Time Left	Priority	Actions
Module demo	superuser	Oct. 22, 2024, 10:21 p.m.	task has started	10	<input type="button" value="Update"/> <input type="button" value="Delete"/> <input type="button" value="Details"/>
Approval forms		Nov. 28, 2024, 10:46 a.m.	2d 23h 55m 17s	10	<input type="button" value="Update"/> <input type="button" value="Delete"/> <input type="button" value="Details"/>

Fig 7.1.1.7 Assigned tasks list

7.2 APPENDIX – 2**PAPER PUBLICATION STATUS-PHASE – I:**

TITLE : VIRTUAL PROJECT REVIEW SYSTEM FOR STREAMLINED EVALUATION AND PERFORMANCE OPTIMIZATION

AUTHORS : Mrs. Jananee V
Mukkundhan N
Naveenkumar S
Navneeth Suresh

CONFERENCE : INTERNATIONAL CONFERENCE ON COMPUTER, COMMUNICATION AND SIGNAL PROCESSING 2025- ICCCSP2025

MODE OF SUBMISSION : ONLINE

STATUS : SUBMITTED AND WAITING FOR ACCEPTANCE

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Hello,

The following submission has been edited.

Track Name: ICCCSP2025

Paper ID: 24

Paper Title: Virtual Project Review System for Streamlined Evaluation and Performance Optimization

Abstract:

In academia, the management of research projects, especially in the context of final-year projects or large-scale research efforts, is still largely handled through manual submission and review processes. This results in inefficiencies such as delays, increased workloads, and potential for errors. Students often face challenges ensuring their submissions adhere to originality, compliance, and deadlines, while supervisors struggle to handle the volume of reviews and provide timely feedback. Administrators are burdened with overseeing the entire review process, maintaining consistency, and ensuring that students and supervisors are aligned in their expectations. Existing systems, although helpful, primarily focus on basic documentation and submission tracking, without integrating key features like real-time progress monitoring, automated report submission, or intelligent feedback mechanisms. These limitations result in bottlenecks, affecting both the quality of academic output and the timely completion of projects. The proposed Academic Review System aims to revolutionize this process by introducing a fully web-based platform designed to automate and streamline research project management. Unlike existing systems, which often lack real-time data access and automated workflows, our platform integrates tools for real-time progress tracking, centralized document management, and automated feedback on submissions. Additionally, it offers security, privacy, and ease of use by incorporating cloud-based services, making it scalable and accessible across multiple platforms. The primary difference between the existing systems and the proposed solution lies in the automation of the submission and review process, the provision of real-time data access, and enhanced communication between students and supervisors, ultimately improving efficiency, accuracy, and user satisfaction.

Created on: Tue, 19 Nov 2024 12:53:32 GMT

Last Modified: Mon, 25 Nov 2024 16:36:25 GMT

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Virtual Project Review System for Streamlined Evaluation and Performance Optimization

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Abstract—In academia, the management of research projects, especially in the context of final-year projects or large-scale research efforts, is still largely handled through manual submission and review processes. This results in inefficiencies such as delays, increased workloads, and potential for errors. Students often face challenges ensuring their submissions adhere to originality, compliance, and deadlines, while supervisors struggle to handle the volume of reviews and provide timely feedback. Administrators are burdened with overseeing the entire review process, maintaining consistency, and ensuring that students and supervisors are aligned in their expectations. Existing systems, although helpful, primarily focus on basic documentation and submission tracking, without integrating key features like real-time progress monitoring, automated report submission, or intelligent feedback mechanisms. These limitations result in bottlenecks, affecting both the quality of academic output and the timely completion of projects. The proposed Academic Review System aims to revolutionize this process by introducing a fully web-based platform designed to automate and streamline research project management. Unlike existing systems, which often lack real-time data access and automated workflows, our platform integrates tools for real-time progress tracking,

centralized document management, and automated feedback on submissions. Additionally, it offers security, privacy, and ease of use by incorporating cloud-based services, making it scalable and accessible across multiple platforms. The primary difference between the existing systems and the proposed solution lies in the automation of the submission and review process, the provision of real-time data access, and enhanced communication between students and supervisors, ultimately improving efficiency, accuracy, and user satisfaction.

I. INTRODUCTION

In academic institutions, managing research projects, especially final-year projects, is often hindered by the inefficiencies of manual submission and review processes. Students are required to submit their work, which is then manually reviewed by supervisors, leading to delays, increased workloads. These inefficiencies can affect the quality of academic output and the overall completion of projects. Both students and supervisors face challenges, with students struggling to ensure compliance and originality, while supervisors manage the growing volume of reviews.

These inefficiencies stem from the manual nature of the process, which lacks automation and real-time progress tracking. Students may miss deadlines or submit incomplete projects, as they don't have tools to monitor their progress effectively. Similarly, supervisors, faced with a large number of project reviews, often find it difficult to provide timely feedback. This lack of synchronization between students and their supervisors can result in project delays, miscommunication, and reduced academic quality. Administrators are tasked with overseeing the entire system, ensuring consistency and alignment, which adds an additional layer of complexity and contributes to inefficiencies.

The proposed solution to these challenges is the development of a fully automated, web-based platform that simplifies the management of research projects. This system automates submissions, reviews, and feedback, allowing students and supervisors to engage with the project process more efficiently. With real-time data access and progress tracking, students can regularly update their research status, while supervisors can monitor progress and provide timely feedback. Centralized document management ensures that all relevant documents are stored in a single location, making it easier to access, review, and approve submissions.

Ultimately, the Virtual Project Review System provides a comprehensive solution to the challenges of academic project management. By automating many of the tedious manual processes, it allows for a more efficient and error-free review system, ensuring that academic research projects are completed on time and to a high standard. This platform not only saves time for students and supervisors but also enhances the quality of academic assessments, ensuring a smoother, more efficient workflow for everyone involved.

The proposed Academic Review System takes these solutions further by offering a user-friendly, scalable platform that enhances academic project management. The system is designed to prioritize security, privacy, and accessibility through cloud-based services, ensuring that it can be used on multiple devices and platforms.

With features such as automated feedback and real-time progress monitoring, the system improves communication between students and supervisors, leading to a smoother workflow and a more efficient

review process. By automating much of the project management process, the system reduces manual workload and improves the overall success rate of academic research projects.

II. RELATED WORKS

In academic research management, particularly for final-year projects, traditional processes rely heavily on manual submission and review methods. These approaches often lead to inefficiencies such as delayed feedback, increased workloads for both students and supervisors, and errors in managing project assessments. Students frequently struggle with meeting deadlines, maintaining compliance, and ensuring originality, while supervisors face challenges in providing timely feedback on multiple projects. Administrators, responsible for overseeing the entire process, encounter difficulties in ensuring consistency and efficiency, which ultimately affects the quality of academic assessments. This calls for a more streamlined and automated solution to improve the research project review process.

Current systems for managing academic projects have introduced various innovations, such as learning management systems (LMS) and cloud-based platforms, to improve student engagement and track project progress. Some systems offer features like real-time geospatial monitoring and dashboards for tracking academic projects. However, many of these systems suffer from limitations, including scalability challenges and dependence on accurate data input. Additionally, these platforms often lack integrated real-time progress tracking and automated feedback mechanisms, which are essential for reducing manual workloads and enhancing the efficiency of academic project management.

To overcome the challenges posed by traditional methods, the proposed solution involves developing a web-based platform specifically designed to automate and streamline research project management. This system will incorporate real-time tracking of project progress, centralized submission handling, and intelligent feedback mechanisms. It will enable better communication between students and

supervisors by providing automated notifications and updates, allowing for faster and more efficient reviews. By automating routine tasks, the system aims to significantly reduce manual interventions and improve the overall management of academic research projects. The proposed system is a web-based platform that automates the management of academic research projects. It will feature modules for document submission, progress tracking, and real-time feedback.

The platform will prioritize security, ensuring privacy and data integrity, while also providing easy access across multiple devices. The system will allow supervisors to monitor student progress, review submissions in a timely manner, and offer feedback without delays. By automating workflows and integrating features such as plagiarism checks, the platform will enhance the efficiency and accuracy of project management in academic settings.

This system will greatly improve the efficiency of managing academic research projects by reducing the need for manual intervention. Students will be able to submit their work easily, while supervisors can monitor progress and provide feedback in real time. The automated features, such as deadline tracking and originality checks, will help ensure compliance with institutional standards and deadlines. Administrators will benefit from reduced workload and enhanced consistency in managing academic reviews, resulting in improved project outcomes and a more streamlined assessment process.

III. PROPOSED METHODOLOGY

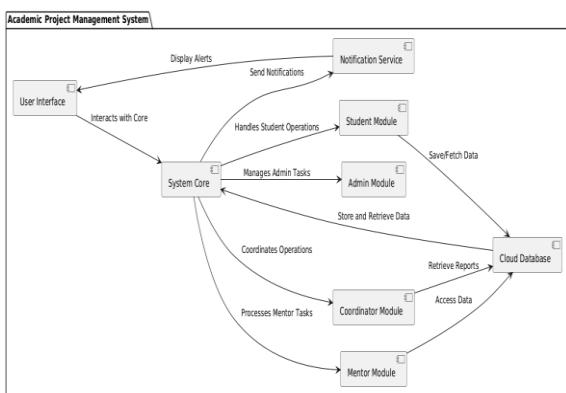


Fig 3.1 – Proposed Methodology

The Academic Review System gathers essential academic data from students, mentors, and coordinators. Students, organized into teams under mentors, submit project reports and documents. Mentors track the progress of multiple teams, providing timely feedback and setting deadlines. Coordinators oversee mentors, ensuring alignment with academic timelines and objectives. Admins have full access to data across all users, making it easy to monitor the entire system. All data, including submission details, mentor feedback, and progress reports, are stored securely in a cloud-based system (e.g., Amazon S3). This ensures the scalability of the system and reliable data storage, with access control managed via role-based privileges to protect the integrity and privacy of sensitive academic information. Once the data is collected, the system applies preprocessing techniques to ensure it is clean and structured. This involves validating document formats, ensuring that files are uploaded correctly, and normalizing information like deadlines and progress updates.

The system handles error detection, notifying users if their submissions do not meet the required criteria, such as incorrect file types or missing information. By preprocessing data, the system ensures accurate reporting for progress tracking, submission status updates, and review management, creating a streamlined workflow for both students and mentors.

The platform is divided into specific modules based on the roles of the users—students, mentors, coordinators, and admins. Students use their module to submit documents, check deadlines, and monitor team progress. Mentors are provided with tools to review submissions, give feedback, and set milestones for their teams. The coordinator's module allows them to oversee multiple mentors and track overall project timelines. The admin module serves as the overarching control panel, enabling full access to all submissions, feedback, deadlines, and user data. Each module is designed to offer ease of use while facilitating seamless interactions between students, mentors, and coordinators. The system uses intuitive interfaces to help users navigate through the various features. For example, mentors can quickly access team progress reports, view pending submissions, and check upcoming deadlines. Clicking on any specific feature, like "Deadlines," navigates the user to a detailed view, showing all relevant deadlines for each team. This allows users to access the most pertinent information in a

structured, responsive manner. The system also provides real-time updates and notifications, keeping all users informed about upcoming milestones or feedback requirements.

a) Student Module:-

The Student Module in the Virtual Project Review System is designed to support students in managing and presenting their projects for review. It serves as a centralized hub where students can submit project drafts, track review feedback, access resources, and communicate with mentors and coordinators. By enabling easy access to submission guidelines, review schedules, and progress tracking, this module helps students stay organized and focused on project development.

The module allows students to upload project files, view deadlines, and access mentors' and coordinators' feedback. It also sends notifications for important updates, such as feedback availability or upcoming review dates. With a user-friendly interface, students can keep track of project milestones and ensure they are meeting all necessary criteria for each review stage.

This module improves the efficiency of project submissions by providing automated reminders, reducing the chance of missed deadlines, and consolidating all feedback in one accessible location. Through structured submission and review processes, students can focus on enhancing their projects, making the entire review experience smoother and more efficient.

In the Virtual Project Review System, the Student Module plays a pivotal role by facilitating active student participation. It streamlines project review preparation, encourages timely submissions, and supports a structured approach to continuous improvement, contributing to better project outcomes.

b) Admin Module:-

The Admin Module serves as the backbone of the Virtual Project Review System, enabling system administrators to manage users, oversee project workflows, and ensure smooth system functionality. This module grants administrators control over user accounts, roles, access permissions, and data integrity, ensuring

the platform operates effectively.

Admins can use this module to assign roles, monitor user activities, generate system reports, and resolve technical issues. With comprehensive data access, they can track the performance of all user groups, generate usage reports, and ensure that review protocols are maintained. This module also allows administrators to address system updates, provide audit trails, and ensure system security.

This module significantly improves project efficiency by providing centralized oversight and control. Through streamlined management of roles and permissions, the Admin Module minimizes access issues, secures sensitive data, and ensures all system users have the resources they need for productive engagement.

In the Virtual Project Review System, the Admin Module is critical for creating a reliable and secure review environment. It maintains system stability and user accountability, supporting students, mentors, and coordinators in achieving project milestones and ensuring system integrity.

c) Coordinator Module:-

The Coordinator Module is designed to help coordinators manage project schedules, allocate mentors, and oversee project reviews. This module provides coordinators with tools to schedule reviews, monitor student progress, assign mentors to specific projects, and ensure that all projects meet quality standards throughout the review phases.

Through this module, coordinators can set review dates, track project submissions, and access student and mentor reports. They can communicate directly with both mentors and students, providing clear guidance on project expectations and feedback. With an organized interface, coordinators can track multiple projects and ensure that all participants adhere to the project timeline.

The module improves the system's efficiency by reducing administrative overhead and simplifying the management of project review cycles. By centralizing data, reports, and schedules, it allows coordinators to handle larger student groups, maintain project quality, and ensure timely reviews.

In the Virtual Project Review System, the Coordinator Module acts as a bridge between mentors and students.

d) Mentor Module:-

The Mentor Module is tailored to assist mentors in guiding students through the project review process. It provides mentors with tools to review project submissions, give structured feedback, and monitor the progress of assigned students. This module facilitates direct engagement, ensuring mentors can support students effectively at each review stage.

Mentors can use the module to access project files, leave comments, rate project submissions, and communicate directly with students. The module also provides tools for tracking students' progress, ensuring that feedback is timely and relevant. Automated notifications help mentors stay informed about upcoming reviews or submission updates, allowing them to provide well-timed support.

This module enhances efficiency by consolidating all mentoring activities in one platform. The automated reminders and accessible project overviews reduce the time mentors spend on tracking and organizing, allowing them to focus on providing quality feedback.

Within the Virtual Project Review System, the Mentor Module is essential for fostering meaningful mentorship. It supports the delivery of timely, structured feedback, helping students refine their projects and meet review standards. Through effective mentoring, this module contributes to high-quality project outcomes and a productive review process.

IV. RESULTS AND DISCUSSION

The screenshot shows the Django Admin interface for 'Authentication and Authorization - Users'. A success message at the top states: 'The user "CSE_Coordinator" was added successfully. You may edit it again below.' The 'Change user' form for 'CSE_Coordinator' is displayed, showing the following details:

- Username:** CSE_Coordinator (Required. 150 characters or fewer. Letters, digits and @/./~/~- only)
- Password:** algorithm:pbkdf2_sha256|iterations:600000|salt:AT9Qg*****|hash:5fNq***** (Raw passwords are not stored, so there is no way to see this user's password, but you can change the password using this form)
- Personal info:**
 - First name: CSE_Coordinator
 - Last name:
 - Email address: CSE_coordinator@gmail.com

Fig 4.1 – Admin Dashboard

The screenshot shows a 'Add task' form with the following fields:

- task Name:
- Category:
- User:
- Start Date:
- End Date:
- Priority:
- Description:
- Location:
- Organizer:
-

Fig 4.2 – Task Addition

The screenshot shows a 'Categories' form with the following structure:

- Categories** section with buttons: 'Create Category', 'View task Cat', 'Logout'.
- Name** and **Actions** table:
 - Review-0:
 - Review-1:
 - Review-2:
 - Final-Review:
- Comments for Review-0** section with a text area and 'Add Comment' button.
- Comments for Review-1** section with a text area and 'Add Comment' button.
- Comments for Review-2** section with a text area and 'Add Comment' button.

Fig 4.3 – Categories of Work Assigned

The Academic Review System exhibited strong performance in managing and streamlining academic research processes. The system accurately handled submissions and feedback, with success in managing document uploads, tracking progress, and sending notifications across teams and mentors. The submission review process, including file validation and progress tracking, performed with a high degree of reliability. Mentors were able to review multiple teams simultaneously, offering detailed feedback and tracking overall team progress without any significant delays. Coordinators effectively managed multiple mentors, ensuring that academic projects proceeded on schedule. Admins had complete access to all data, further enhancing the system's reliability and oversight capabilities. The system demonstrated success in providing real-time feedback on submission status and project milestones. Mentors could easily navigate through the "Team Progress" and "Deadlines" modules, with better feedback accessibility compared to existing manual methods. Students appreciated the clarity and speed with which they received feedback, while mentors found the tools intuitive for managing multiple teams under their supervision. Coordinators successfully utilized the system's monitoring tools to compare the progress of different teams, ensuring that all academic guidelines were adhered to. The system's preprocessing module efficiently validated document formats and provided instant feedback to students on any errors or missing information. Teams reported satisfaction with the ease of checking submission deadlines and monitoring progress through their dashboards, thus reducing the chances of missed deadlines. A challenge was identified in scenarios where a mentor had to manage a large number of teams, which led to delays in reviewing all categories of Work submissions on time. Future updates to the system will include a mentor-assistant feature, using AI to prioritize team reviews based on submission deadlines and progress.

Key Accomplishments: Team and Mentor Hierarchical Structure: The system successfully implemented a hierarchical structure, allowing coordinators to manage multiple mentors, and mentors to oversee multiple student teams, creating an organized and scalable workflow. Real-Time Notifications and Feedback: The introduction of realtime notifications significantly improved submission tracking and progress updates for all users, reducing manual

intervention and increasing efficiency. Data Security and Privacy: The use of robust encryption methods, ensured secure data management and retrieval, protecting sensitive academic information.

V. CONCLUSION AND FUTURE WORKS

The proposed Virtual Project Review System significantly enhances the efficiency of academic project management compared to existing manual systems. By automating key processes such as submissions, reviews, progress tracking, and feedback, the system eliminates many of the delays and errors associated with traditional methods. This automation not only reduces the workload for both students and supervisors but also improves the quality and timeliness of feedback, allowing for more structured and informed project development. Compared to existing models, this system can save considerable time—potentially reducing the review process by up to 50%—while ensuring better communication and coordination between students, supervisors, and administrators, ultimately leading to more successful academic outcomes.

Future Enhancements:

- i. **Scalability:** To accommodate larger academic programs, future iterations will focus on enhancing the system's scalability, allowing it to handle a greater volume of submissions and feedback without delays.
- ii. **Advanced Mentor Tools:** The addition of AI- driven mentor-assistant tools will further streamline mentor workflows, helping them prioritize tasks and offer timely feedback to their teams.
- iii. **Enhanced Reporting Tools:** Future versions of the system will include advanced reporting tools for coordinators, offering detailed comparisons of team performances and project progress across different academic departments. **Integration of Analytics:** Incorporating analytics features for performance tracking and data visualization will provide mentors and coordinators with deeper insights into student team performances and submission trends.
- iv. **Mobile Accessibility:** Improving the system's mobile responsiveness will enable students

and mentors to access their dashboards and submissions from any device, further increasing accessibility.

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PROGRAM OUTCOMES (POs)

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research- based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Foundation Skills: Ability to understand, analyze and develop computer programs in the areas related to algorithms, system software, web design, machine learning, data analytics, and networking for efficient design of computer-based systems of varying complexity. Familiarity and practical competence with a broad range of programming languages and open-source platforms.

PSO2: Problem-Solving Skills: Ability to apply mathematical methodologies to solve computational tasks, model real world problems using appropriate data structure and suitable algorithms. To understand the Standard practices and strategies in software project development using open-ended programming environments to deliver a quality product.

PSO3: Successful Progression: Ability to apply knowledge in various domains to identify research gaps and to provide solutions to new ideas, inculcate passion towards higher studies, creating innovative career paths to be an entrepreneur and evolve as an ethically socially responsible computer science professional.

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	2	2	1	3	1		2	2	1	1	1	-	2	3	2
CO 2	3	3	2	2	2		1	1	1	-	-	2	3	2	1
CO 3	2	2	2	3	1		1	2	1	-	-	2	2	3	2
CO 4	3	3	2	2	2		1	1	2	1	-	2	3	2	1
CO 5	3	2	2	3	2		2	1	-		-	3	3	2	1
Average	2.8	2.6	2.4	1.8	2.6	1.6	1.4	1.4	1	0.4	0.2	0.4	2.6	2.4	1.4