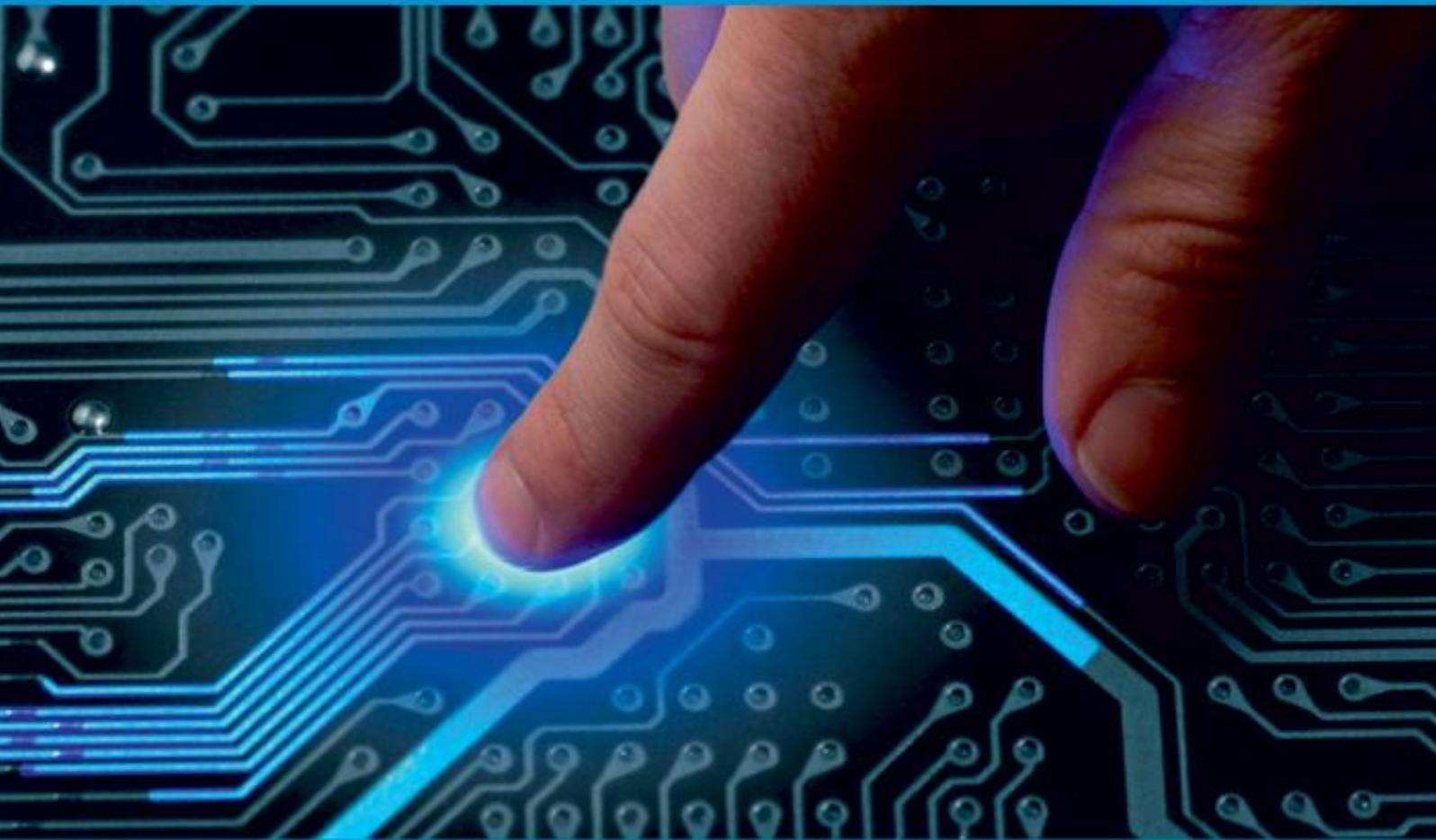




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Mechanism for Implementing Effective Feedback System for Staff Assessment and Improvement in Educational Institute

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ABSTRACT: This research paper presents the design and implementation of a Faculty Feedback System, which comprises a desktop application for administrators and a mobile application for students. The system aims to streamline the feedback process in educational institutions by providing a convenient platform for students to submit feedback on faculty members. The desktop application is developed using React, while the mobile application is built using Flutter. MongoDB is utilized as the database management system to store feedback data securely.

This paper discusses the system architecture, implementation details, and the technologies employed in developing the applications. Furthermore, the system includes reporting functionalities and employs data visualization techniques to evaluate faculty performance effectively

KEYWORDS: Faculty Feedback, Management System, Desktop Application, Mobile Application, React, Flutter, MongoDB

I. INTRODUCTION

The introduction section provides an overview of the Faculty Feedback System, outlining its purpose and objectives. It discusses the importance of feedback in educational institutions and introduces the desktop and mobile applications developed for the system.

Feedback is a cornerstone of academic improvement, providing valuable insights into faculty performance and teaching effectiveness. However, traditional feedback collection methods often prove inefficient and cumbersome, leading to low response rates and delayed dissemination of feedback. To address these challenges, we propose the development of a Faculty Feedback System. This system aims to streamline the feedback process by offering a user-friendly platform for students to provide feedback on faculty members. Through the integration of a desktop application for administrators and a mobile application for students, the system seeks to enhance accessibility and convenience in feedback submission. Our research paper presents the design and implementation of this system, highlighting its architecture, user interface, functionality, and database management. By leveraging technologies such as React for desktop application development, Flutter for mobile applications, and MongoDB for database management, we aim to create a robust and efficient feedback management solution. The Faculty Feedback System promises to revolutionize feedback practices in educational institutions, fostering a culture of continuous improvement and accountability. In subsequent sections, we delve deeper into the intricacies of the system's design, implementation, and testing, paving the way for enhanced feedback processes in academic settings

II. RELATED WORK

The related work section delves into a comprehensive review of existing research and systems related to feedback management in educational contexts, drawing insights from a range of scholarly sources.[1] Abubakar, Hilman, and Kaliappen (2018) presents innovative tools for measuring global academic performance, highlighting the importance of

new metrics and approaches.[2] Abu Kassim and Buniyamin (2015) explore the evaluation of teaching quality using student online feedback data.[3] Emphasizing the significance of leveraging digital platforms for assessment.[4] Jedhe et al. (2017) discuss an online feedback system, focusing on its implementation and effectiveness in gathering student input. Nguyen, Chen, and Rauterberg (2012) delve into an online feedback system tailored for public speakers, underscoring its utility in enhancing communication skills.[5] Nirmal (2016) presents insights on students' feedback in engineering education, emphasizing its value and potential applications.[6] Patel Agrawal, Gangani, and Vishwakarma (2018) discuss a college feedback system. Illustrating practical implementations and outcomes. [7] Sanni, Adedoyin, and Oloyede (2013) detail a web-based integrated library system with internet security features highlighting the integration of technology in educational settings.[8] Shrivastava et al. (2017) propose an online student feedback analysis system with sentiment analysis capabilities, showcasing advancements in data analytics for feedback interpretation.[9] Sivasankari et al. (2016) explore an online feedback system using Semantic Web (SW) technology for faculty evaluation emphasizing the role of innovative technologies in educational assessment.[10] Tong, Wang, Tan, and Teo (2013) contribute an empirical study on information contribution to online feedback systems from a motivation perspective. Shedding light on factors influencing feedback engagement and effectiveness. Collectively, these references underscore the diversity of approaches and technologies employed in feedback systems within educational contexts, providing valuable insights and informing the development and implementation of the proposed Faculty Feedback System.

III. PROPOSED SYSTEM

The proposed Faculty Feedback System represents an innovative solution to enhance feedback processes in educational institutions. Built on modern technologies such as React for the desktop application and Flutter for the mobile counterpart, the system ensures a seamless user experience across devices. MongoDB serves as the centralized database, offering scalability and flexibility in data management. Key features of the proposed system include streamlined feedback submission, comprehensive reporting functionalities, and intuitive data visualization techniques to facilitate data-driven decision-making. RESTful APIs enable real-time communication between applications, ensuring data synchronization and accessibility. Security measures, including encryption and authentication mechanisms, are implemented to protect sensitive information and ensure data privacy. The system prioritizes user-centric design principles, incorporating usability testing and feedback loops to optimize user experience. By centralizing feedback data and automating reporting processes, the system aims to improve transparency, accountability, and overall teaching quality within educational institutions. Future enhancements may include integration with learning management systems and advanced analytics capabilities to further enhance feedback analysis and decision support. Overall, the proposed system represents a significant step towards modernizing feedback management practices and promoting continuous improvement in educational settings.

IV. SYSTEM ARCHITECTURE

The system architecture of the Faculty Feedback System is designed to be modular, scalable, and efficient, utilizing a microservices-based approach. The architecture consists of several key components, including frontend applications developed using React for the desktop interface and Flutter for the mobile application. These frontend applications communicate with backend services through RESTful APIs. The backend services are implemented using Node.js and interact with a MongoDB database for data storage and retrieval. Authentication and authorization are managed using JWT (JSON Web Tokens) for secure user authentication.

The system follows a layered architecture pattern, with clear separation of concerns between presentation, business logic, and data access layers. Docker containers are used for containerization, enabling easy deployment and scalability across different environments. Continuous integration and deployment pipelines are implemented to automate the testing and deployment processes. The architecture prioritizes fault tolerance and high availability by utilizing load balancers and horizontal scaling techniques. Monitoring and logging are integrated using tools like Prometheus and ELK stack to ensure system health and performance optimization. Overall, this system architecture is designed to support the system's objectives of reliability, scalability, and security while enabling seamless user experiences across different devices and platforms.



Fig1. System Architecture

V. SIMULATION RESULTS

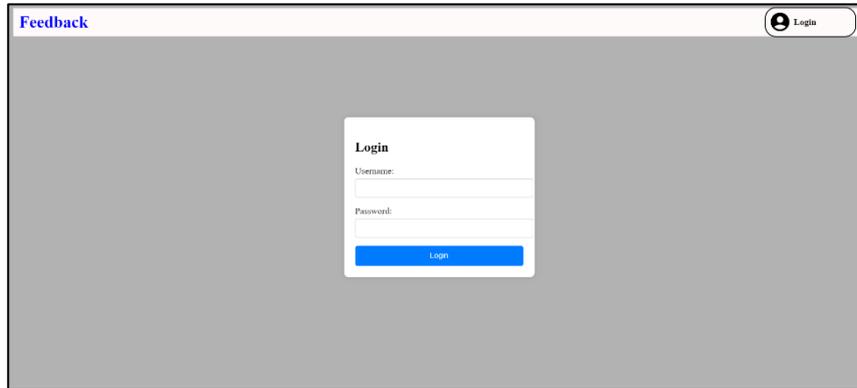


Fig1.Login Page

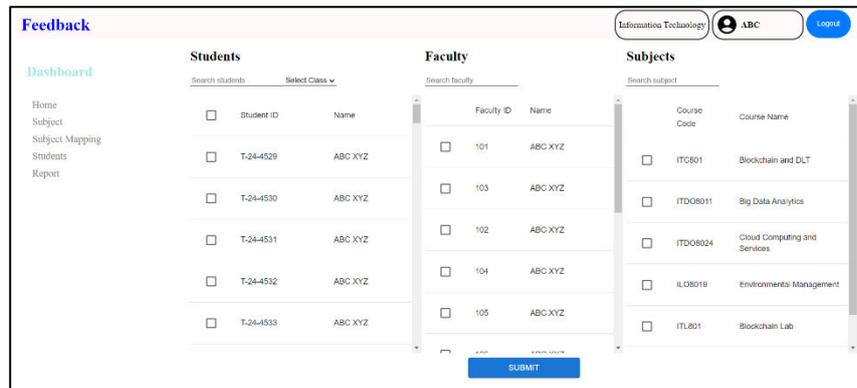


Fig2.Subject Mapping

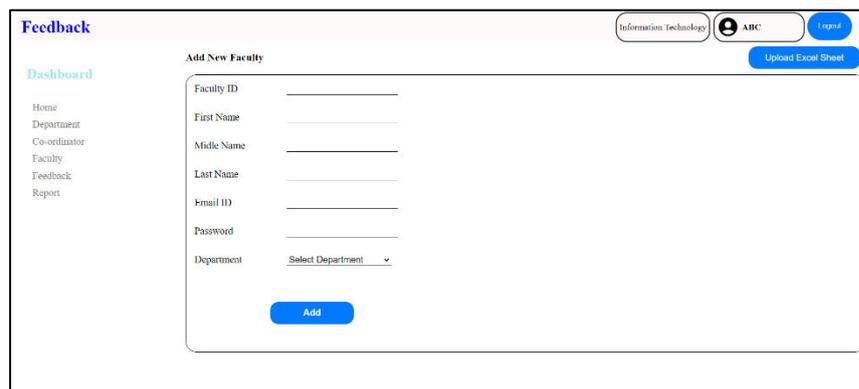


Fig3.Add Faculty

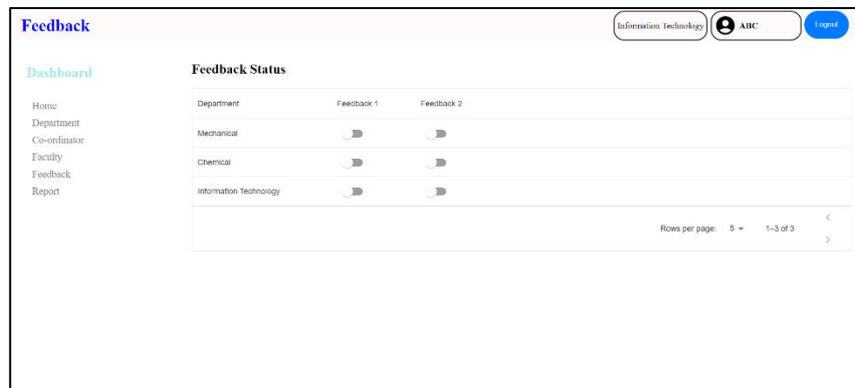


Fig4.Feedback Status

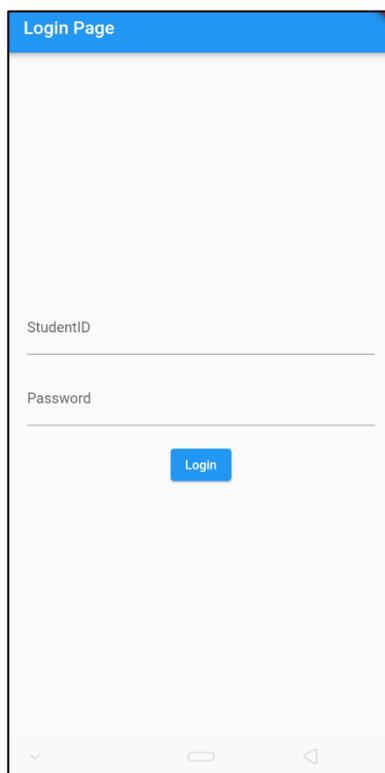


Fig5.Student Login

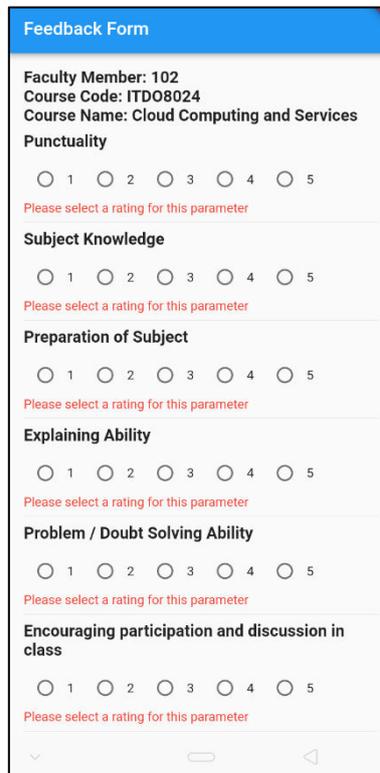


Fig6.Feedback Form

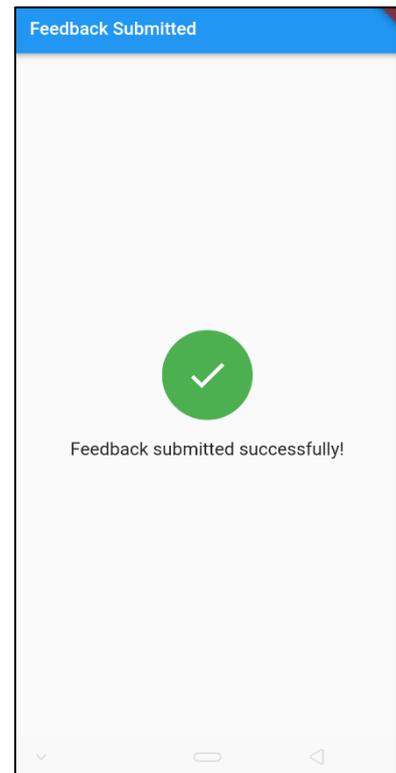


Fig7.Submitted Feedback Result



Organisation Name
Individual Feedback Report

Academic Year 2023-24 (Second Half of 2023)

Feedback Date: 20-04-2024

Feedback No: 1

Faculty Name: ABC V XYZ

Course Code & Name: IITL405-Operating System

Program: **Information Technology**

Semester: 7

No of Faculty teaching the class: 6

Division: BE

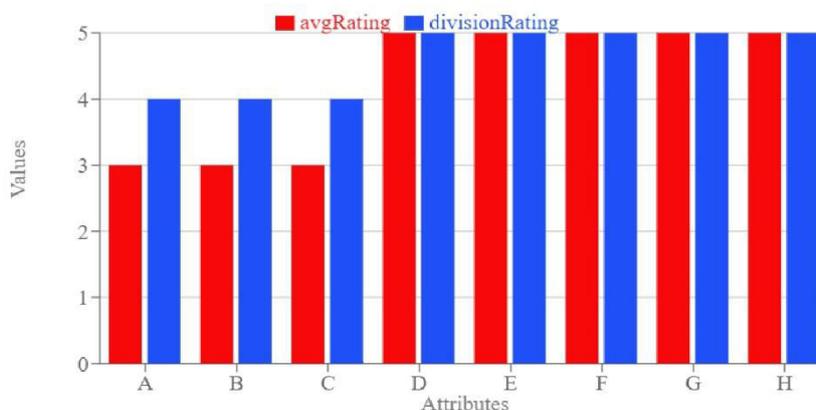
No of students Participated: 1

Batch: B1

Attribute wise Faculty Score on scale (1-5) - Below 2: Poor, 2 To < 3: Below Average, 3 To < 4: Average, 4 To < 4.5: Good, 4.5 and above: Excellent

Attribute	Description	Faculty Score (FS)	Division Average (DA)	Percentage Difference (PD)*	Performance (Based on faculty score)
A	Punctuality	3.00	4.00	-25.00	Average
B	Subject Knowledge	3.00	4.00	-25.00	Average
C	Preparation of Subject	3.00	4.00	-25.00	Average
D	Explaining Ability	5.00	5.00	0.00	Excellent
E	Problem / Doubt Solving Ability	5.00	5.00	0.00	Excellent
F	Encouraging participation and discussion in class	5.00	5.00	0.00	Excellent
G	Use of real-life examples and physical models	5.00	5.00	0.00	Excellent
H	General Behaviour with students	5.00	5.00	0.00	Excellent

*PD = [(FS*100) / DA] – 100



Concluding remarks from the committee:

Appreciable performance in attributes: D E F G H

Need to work on attributes: A B C

Convener, Feedback Committee

Fig8.Faculty Feedback Report

VI. CONCLUSION AND FUTURE WORK

In conclusion, the Faculty Feedback System offers a robust solution to enhance feedback processes in educational institutions, promoting transparency, accountability, and continuous improvement. By leveraging modern technologies like React, Flutter, and MongoDB, the system provides a seamless user experience across desktop and mobile platforms. Key features such as streamlined feedback submission, comprehensive reporting, and intuitive data visualization empower administrators to make data-driven decisions and drive teaching quality improvements.

Looking ahead, future work will focus on several areas of enhancement. Firstly, the system will be further optimized for scalability to accommodate growing user bases and data volumes. Additionally, integration with learning management systems will be explored to facilitate seamless data exchange and holistic student engagement analysis. Advanced analytics capabilities will be developed to provide deeper insights into feedback trends and faculty performance. Moreover, ongoing user feedback will inform iterative improvements to the user interface and overall system usability. Lastly, research will continue to explore emerging technologies and best practices to ensure that the Faculty Feedback System remains at the forefront of feedback innovation in educational environments. This comprehensive approach to future work will solidify the system's position as a transformative tool for fostering excellence in teaching and learning.

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