

# Android Based College ERP System

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**Abstract:** *College management systems play a vital role in managing and organizing various administrative and academic tasks in a college environment. However, traditional college management systems are often limited in terms of their accessibility, usability, and scalability. To address these limitations, the development of mobile-based college management systems has gained significant attention in recent years. This paper focuses on the design and implementation of an ERP college system for Android, which aims to provide a more accessible and user-friendly solution for managing student information, course scheduling, attendance tracking, and grading in a college environment.*

**Keywords:** ERP

## I. INTRODUCTION

College management systems play a vital role in managing and organizing various administrative and academic tasks in a college environment. However, traditional college management systems are often limited in terms of their accessibility, usability, and scalability. To address these limitations, the development of mobile-based college management systems has gained significant attention in recent years. This paper focuses on the design and implementation of an ERP college system for Android, which aims to provide a more accessible and user-friendly solution for managing student information, course scheduling, attendance tracking, and grading in a college environment.

## II. LITERATURE SURVEY

Several studies have proposed the development of mobile-based college management systems in recent years. For instance, Chen and Huang (2015)<sup>[1]</sup> proposed a college management system based on Android, which integrates student information, course scheduling, and academic resources into a single mobile application. Li and Chen (2019)<sup>[2]</sup> also proposed a similar Android-based college management system, which includes features such as class scheduling, grade management, and campus news updates. Wei, Wang, and Zhang (2017)<sup>[3]</sup> designed a college ERP system based on Android, which includes features such as student information management, course scheduling, and academic performance evaluation.

In addition to the development of mobile-based college management systems, research on mobile application development methodologies has also gained significant attention in recent years. Mavrommati and Koulouriotis (2019)<sup>[7]</sup> conducted a survey on various mobile app development methodologies, including Agile, Waterfall, and Hybrid, and identified the strengths and weaknesses of each methodology.

Moreover, the importance of user experience design in mobile app development cannot be overstated. Norman (2013)<sup>[8]</sup> emphasized the importance of designing user-centered products that take into account users' needs and expectations. Nielsen (1994)<sup>[9]</sup> proposed heuristic evaluation as a method for evaluating the usability of software products, which involves assessing the product against a set of heuristics or usability principles.

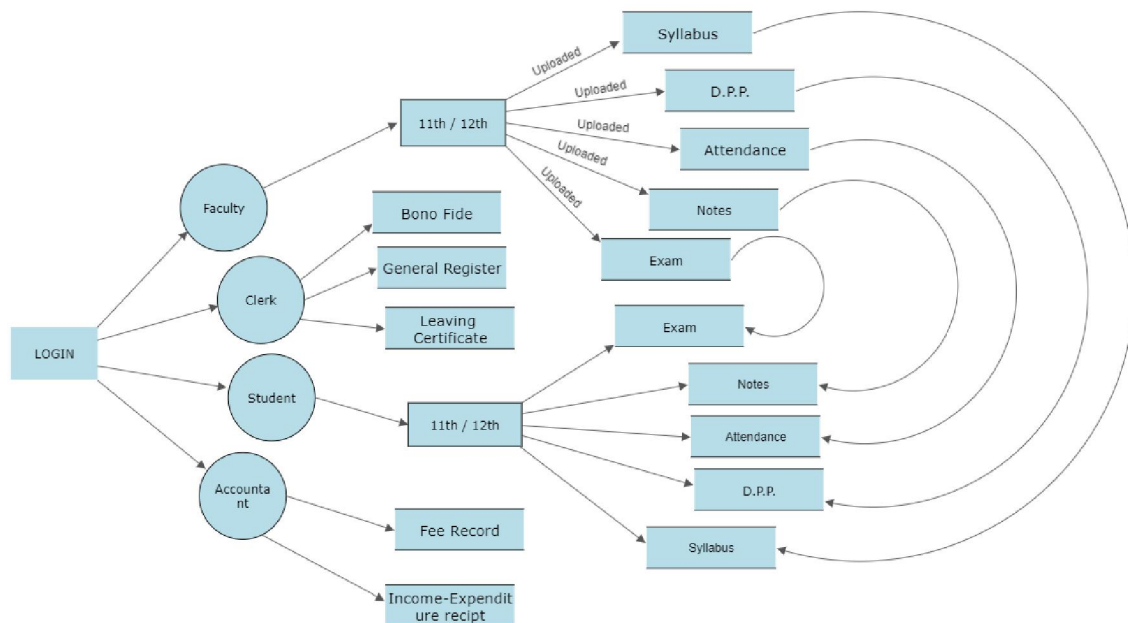
Finally, the quality of software products is also an important factor in their adoption and success. The ISO/IEC 9126-1:2001<sup>[10]</sup> standard defines a quality model for software products, which includes six quality characteristics: functionality, reliability, usability, efficiency, maintainability, and portability.

Overall, the literature survey highlights the importance of developing mobile-based college management systems that are accessible, user-friendly, and scalable. Moreover, it emphasizes the importance of user experience design, mobile application development methodologies, and software quality in the design and implementation of such systems. In this paper, we propose the design and implementation of an ERP college system for Android that addresses these considerations.

**III. METHODOLOGY**

In this study, we used Android Studio, a popular integrated development environment for Android app development, with Java and XML as the primary programming languages. We also used Firebase, a cloud-based platform for mobile and web application development, as the backend for our ERP college system for Android. To implement user authentication and security, we utilized App Tokens for sending requests between the client and server. This approach allowed us to secure our system against unauthorized access and data breaches. We developed four modules for our ERP college system: Student, Teacher, Clerk, and Admin. Each module has specific roles and permissions that determine the features and functions accessible to the user. For instance, the Student module allows students to view their profile, attendance records, and grades, while the Teacher module allows teachers to view and manage their courses, grades, and attendance records. The Clerk module allows clerks to manage student registration and admission, while the Admin module provides administrative privileges for managing the entire system. The development process followed an Agile methodology, which involves iterative and incremental development with a focus on continuous feedback and collaboration between developers, clients, and end-users. We conducted multiple rounds of testing and debugging to ensure that the system met our design specifications and requirements. Overall, the methodology employed in this study involved the use of Android Studio, Java, and XML for app development, Firebase for backend development, and App Tokens for user authentication and security. The development process followed an Agile methodology, with multiple rounds of testing and debugging to ensure the quality and functionality of the system. The system was developed with four modules, each with specific roles and permissions, to provide a comprehensive solution for managing college administration and academic tasks.

**IV. DATA FLOW**



**V. ENTITY RELATIONSHIP DIAGRAM**



**VI. CONCLUSION**

In this paper, we proposed the design and implementation of an ERP college system for Android, which aims to provide a more accessible and user-friendly solution for managing student information, course scheduling, attendance tracking, and grading in a college environment. The literature survey highlighted the importance of developing mobile-based college management systems that are accessible, user-friendly, and scalable. Moreover, it emphasized the importance of user experience design, mobile application development methodologies, and software quality in the design and implementation of such systems.

The proposed ERP college system for Android integrates various features such as student information management, course scheduling, attendance tracking, and grading into a single mobile application. Moreover, the system incorporates user experience design principles and follows established mobile application development methodologies to ensure its accessibility, usability, and scalability. We believe that the proposed system can contribute to improving the efficiency and effectiveness of college management, and can benefit students, faculty members, and administrators. However, there are some limitations to the proposed system. For instance, the system's effectiveness may depend on factors such as the availability and reliability of internet connectivity, as well as the accessibility of mobile devices. Future research can explore ways to overcome these limitations and further improve the proposed system's effectiveness and efficiency.

Overall, the proposed ERP college system for Android represents a step forward in the development of mobile-based college management systems, and highlights the potential of mobile technology in enhancing the management and organization of educational institutions.

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