International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 07 | July - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

A Digital Approach to Efficient Hostel Management

Moe Moe Zaw

Department of Applied Information Technology, Naypyitaw State Polytechnic University

---

Abstract - Managing student accommodations in university hostels can be challenging due to the large number of students and various tasks involved. Traditional manual methods often lead to errors, delays and difficulties in keeping accurate records. To address these problems, this paper introduces a Hostel Management System that uses a database to help manage student housing more effectively. The system keeps track of important information such as student details, room information, which student stays in which room, records of when students take leave from the hostel, payment information and user accounts for system access. It is created using MySQL for the database and PHP for the programming part. With this system, administrators can easily add, update and organize data without mistakes that often happen with manual work. By reducing paperwork and errors, the system helps the hostel run more smoothly and allows staff to provide better services.

Key Words: Hostel Management System, Web-Based System, University Hostel, Administrative Efficiency

1. INTRODUCTION

Managing student hostels at a university is very important because students need a safe and comfortable place to live. But it can be hard to keep track of all the students, their rooms and payments when many students live there. Doing this work by hand can take a long time and cause mistakes, like giving the wrong room or losing important papers.

Usually, hostels use paper records or simple spreadsheets to manage information. These ways take a lot of time and can be confusing, especially when there is a lot of information. Papers can be lost or damaged and spreadsheets can get messy. This makes it hard to assign rooms, keep track of money and approve when students want to leave the hostel for some time.

Today, computers can help make this work easier and faster. A system that uses a database can store all the information in one place. Hostel staff can find and change information quickly without mistakes. Using a computer program for managing hostels helps the university give better services and makes life easier for everyone.

This paper talks about a new Hostel Management System that was made to help with these problems. The system keeps information about students, rooms, payments, leaves and user accounts all in one place. It uses MySQL for storing data and PHP for building the program. This makes the system easy to use and reliable.

The system's main purpose is to reduce mistakes and paperwork. It helps hostel staff manage information quickly and correctly. This means they can keep better records, watch over the hostel more easily and help students faster. In the end, this system makes hostel management better for University.

2. Literature Review

In [1], the paper talks about creating a web-based system to help manage hostels. The system keeps all information in one database, which makes work easier and reduces mistakes. Hostel staff can quickly update records and manage tasks like assigning rooms and tracking payments without using paper. This helps the hostel run more smoothly.

This study in [2] is about making a computer system to help manage a hostel in Nigeria. It keeps track of student details, room assignments, and payments. The system helps reduce problems caused by doing things by hand. It also makes managing the hostel faster and more accurate.

The authors first studied how the hostel was managed manually to find problems like delays and mistakes [3]. They then designed a web-based system with a database to store student info, room details, payments, and leave requests. The system was built using MySQL for the database and PHP for the web programming, with a user-friendly interface. They tested the system to make sure it worked well and fixed any errors. Finally, they set up the system on a web server so hostel staff could use it easily online.

In [4], the study explores a digitalized approach to hostel management, focusing on integrating RFID technology for student gate access control. The system aims to automate visitor tracking and entry permissions, reducing the workload on hostel staff. It discusses the benefits of combining digital record management with smart identification technology to improve security and data accuracy in hostels.

The paper presents a web-based hostel management system developed using HTML, PHP, and MySQL [5]. The methodology includes requirement analysis, system design, and implementation of a centralized database. Role-based access control is used for security, and the system supports key functions like student registration, room allocation, fee management, and leave tracking. Automated reporting features help administrators with data monitoring and decision-making.

In [6], to fix problems with manual record-keeping, Diyaolu and team (2024) created an online hostel management system for a school in Nigeria. They used web tools like HTML, CSS, PHP, and MySQL to build it. The system automates tasks like assigning rooms and managing records, making the process faster, safer, and more reliable. This work adds to the growing support for using digital systems to improve hostel management.

3. Literature Review

In [1], the paper talks about creating a web-based system to help manage hostels. The system keeps all information in one database, which makes work easier and reduces mistakes. Hostel staff can quickly update records and manage tasks like assigning rooms and tracking payments without using paper. This helps the hostel run more smoothly.

This study in [2] is about making a computer system to help manage a hostel in Nigeria. It keeps track of student details, room assignments, and payments. The system helps reduce problems

caused by doing things by hand. It also makes managing the hostel faster and more accurate.

The authors first studied how the hostel was managed manually to find problems like delays and mistakes [3]. They then designed a web-based system with a database to store student info, room details, payments, and leave requests. The system was built using MySQL for the database and PHP for the web programming, with a user-friendly interface. They tested the system to make sure it worked well and fixed any errors. Finally, they set up the system on a web server so hostel staff could use it easily online.

In [4], the study explores a digitalized approach to hostel management, focusing on integrating RFID technology for student gate access control. The system aims to automate visitor tracking and entry permissions, reducing the workload on hostel staff. It discusses the benefits of combining digital record management with smart identification technology to improve security and data accuracy in hostels.

The paper presents a web-based hostel management system developed using HTML, PHP, and MySQL [5]. The methodology includes requirement analysis, system design, and implementation of a centralized database. Role-based access control is used for security, and the system supports key functions like student registration, room allocation, fee management, and leave tracking. Automated reporting features help administrators with data monitoring and decision-making.

In [6], to fix problems with manual record-keeping, Diyaolu and team (2024) created an online hostel management system for a school in Nigeria. They used web tools like HTML, CSS, PHP, and MySQL to build it. The system automates tasks like assigning rooms and managing records, making the process faster, safer, and more reliable. This work adds to the growing support for using digital systems to improve hostel management.

This paper is organized as follows: Section 1 introduces the background and objectives of the study. Section 2 presents the literature review. Section 3 describes the system design and development methodology. Section 4 discusses the implementation and key features of the hostel management system. Section 5 provides implementation of the system. Finally, Section 6 concludes the paper and outlines future work.

4. System Development

The Hostel Management System was developed as a web-based application to provide an easy and efficient way to manage hostel operations. The system uses HTML, CSS, JavaScript and jQuery to create interactive and user-friendly web pages that hostel staff can access through any modern web browser. The backend is built with PHP which handles all the server-side processing, while MySQL serves as the database to securely store all hostel-related data.

The system supports multiple user roles to ensure that only authorized personnel can access specific features. These roles include:

Admin: Has full control over the system and can manage all aspects including students, rooms, payments, leaves and user accounts.

Male Hostel Admin: Manages male student records, room assignments and leave information.

Female Hostel Admin: Handles female student details, room management and leave information.

Finance Admin: Oversees all hostel fee payments, payment records and financial reports.

Table -1: User Roles and Features

Role	Features / Permissions
Admin	- Full access to all system controls and features - Create/manage user accounts for all roles -Add, view, edit, delete student records (male/female) -Manage room information (add/view/edit rooms) -Assign students to rooms and update assignments -Insert, view (by date), and edit leave records -Manage all payment records (view by month or student name) -Generate/download reports (students, rooms, leaves, payments) in CSV and PDF
Male Hostel Admin	-Manage student records for **male hostel** only -Add and update student details - iew students by academic year -Assign students to rooms and update assignments -Manage leave records (insert/edit) -View available rooms -Generate/download reports (students, rooms, leaves) in CSV and PDF
Female Hostel Admin	-Manage student records for **female hostel** only -Add and update student details -View students by academic year -Assign students to rooms and update assignments -Manage leave records (insert/edit) -View available rooms -Generate/download reports (students, rooms, leaves) in CSV and PDF
Finance Admin	-Manage hostel fee payments -Insert and update payment records -View payments by month or student name -Generate/download financial reports in CSV and PDF

Database Design

The hostel management system needs a database to store and organize all important information such as student details, room numbers, fees, visitors, and complaints. Each part of the system has its own table in the database, and these tables are connected to each other. The ER (Entity-Relationship) Diagram below shows how the tables are linked and how the data is related. This helps us clearly understand how the system works and how the information is stored and used.

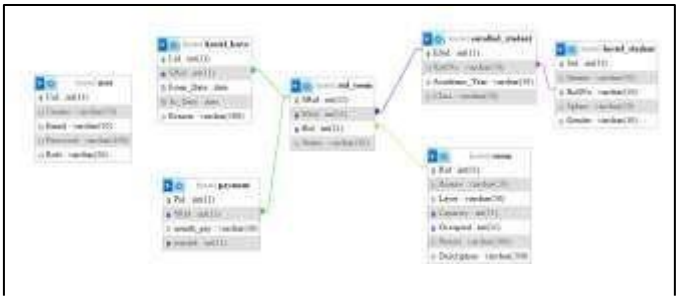

Fig -1: ER-Diagram

Tables and their stored information

The database is made up of several tables. Each table stores a different type of information needed for the hostel system to

work properly. Below are the tables and what kind of data they keep.

Table -2: Database Tables and Their Stored Information

No.	Table Name	Information Stored
1	hostel_user	System users (admins, staff) with login credentials and roles
2	hostel_student	Basic student details (name, roll number, phone number, gender)
3	hostel_enrolled_student	Enrollment details of students (roll number, academic year, class)
4	hostel_room	Room details (room name, floor/layer, capacity, occupancy, hostel block, description)
5	hostel_std_room	Mapping of enrolled students to rooms with current status
6	hostel_leave	Student leave records (dates and reasons for leaving hostel temporarily)
7	hostel_payment	Monthly payment records made by students (month, remarks)

5. Implementation

The Hostel Management System (HMS) was developed as a web-based application using PHP for backend development, MySQL for the database, and HTML/CSS with Bootstrap for the frontend interface. The implementation phase focuses on integrating all modules and ensuring proper functionality, user interaction, and data consistency.

The development environment consisted of:

- XAMPP Server (Apache + MySQL)
- PHP 8.x
- MySQL Database
- Web Browser (Google Chrome for testing)
- Code Editor: Visual Studio Code

The HMS was installed on a local server and accessed via a web browser using localhost/hostelms.

System Interface

Login Page

This is the login page of Hostel Management System for all users.

Fig -2: Login Page

Hostel Students Information

This page shows the information of the students who stays in university hostel.

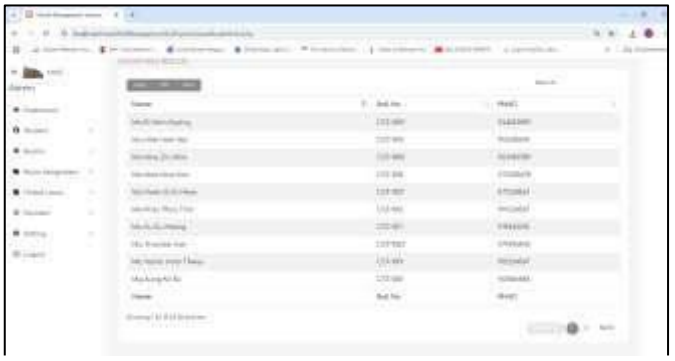

Fig -3: Students Information Page

Edit Hostel Student Information

In this page, the admin can edit the information of the hostel students.

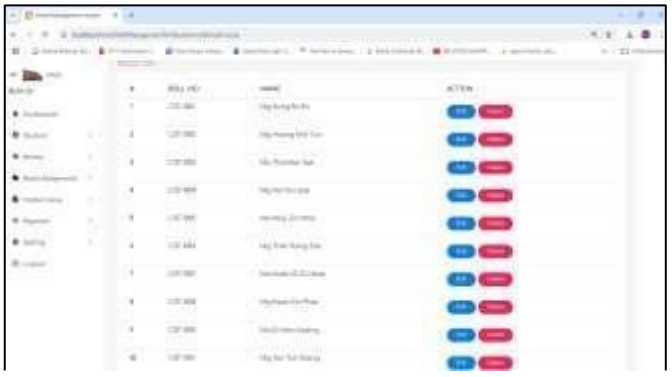

Fig -4: Edit Student Information Page

Insert Room Info Page

In this page, the admin can insert hostel room information by hostel name and layer.

Fig -5: Insert Room Page

View Room Information Page

This page shows the capacity and occupied number of students by hostel and layer.

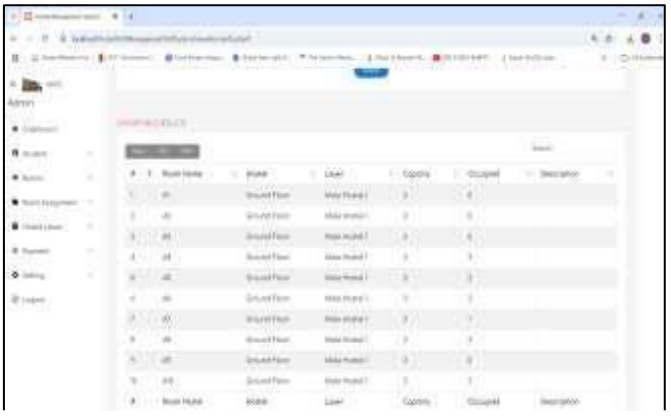

Fig -6: View Room Info Page

Edit Room Info Page

In this page, the admin can update the room information or delete the room.

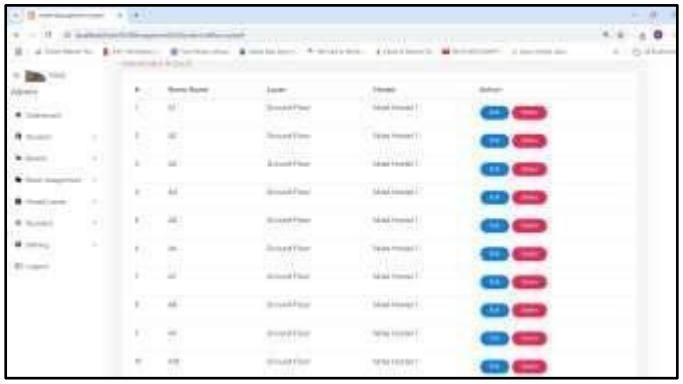

Fig -7: Edit Room Info Page

View Available Rooms Page

In this page, the admin can see the available rooms to assign students.

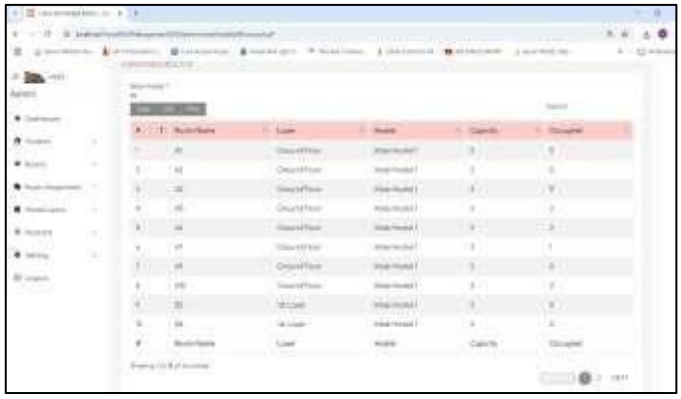

Fig -8: View Available Rooms Page

Student_Room Page

This page is to assign students to available room. The admin can search the students by academic year and class and assign to the room.

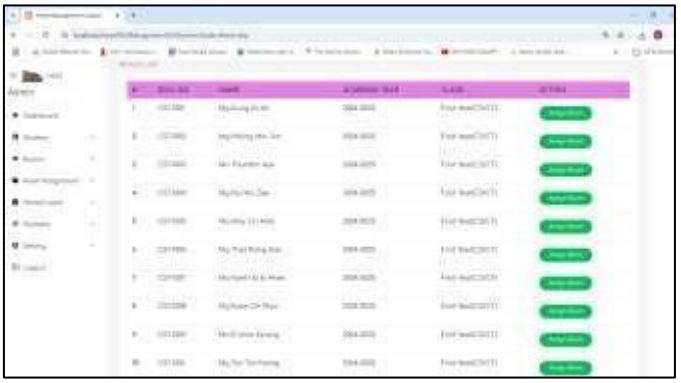

Fig -9: Student_Room Page

View Room Info by Room Number Page

In this page, the admin can see which student stays in which room.

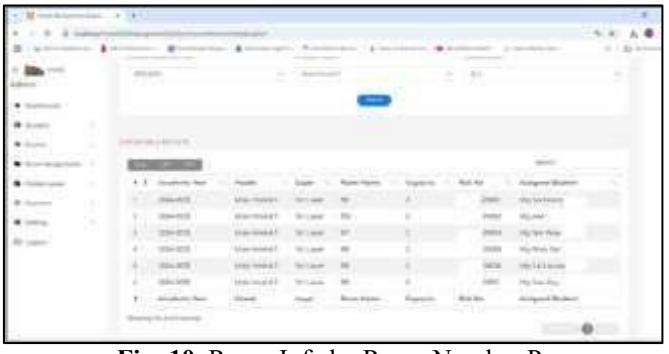

Fig -10: Room Info by Room Number Page

Change Room Page

With this page, the admin can assign a student to a different room.

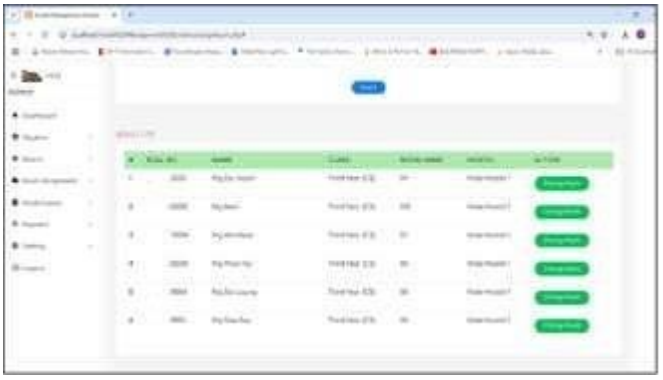

Fig -11: Change Room Page

Insert Leave Page

This page allows the admin to record a student's leave from the hostel.

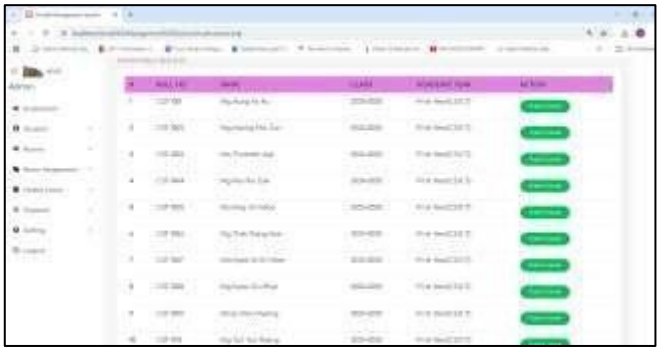

Fig -12: Insert Leave Page

View Leave Page

The admin can filter student leave records by a specific date range on this page.

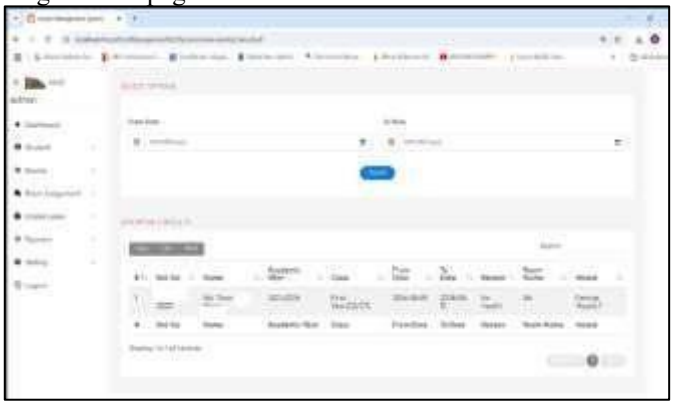

Fig -13: View Leave Page

View Payment Page

This page shows the admin all hostel fee payment records.

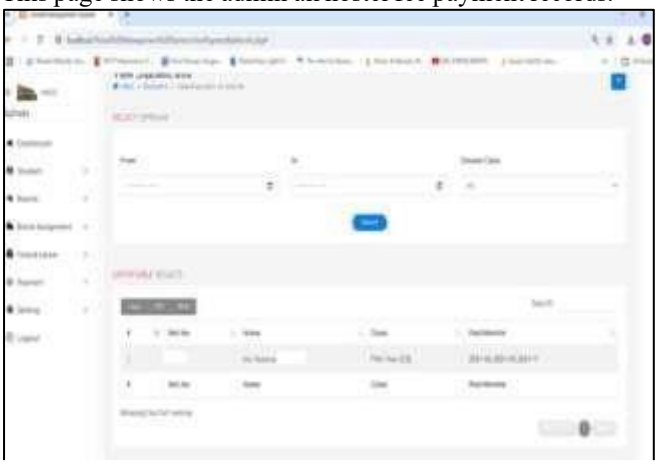

Fig -14: View Payment Page

6. CONCLUSIONS

The Hostel Management System makes it easier for universities to manage hostel tasks like student registration, room assignment, leave records, fee collection and various reports. It replaces manual work with a computer-based system that is faster, more accurate and more organized. By using this system, hostel staff can save time and reduce mistakes. The system also helps the administration keep track of all hostel activities in one place. The design is easy to use and the data is kept safe through secure login and user roles. After testing, the system works well and shows that it can improve university hostel services. In the future, adding a mobile app or linking with biometric systems can make it even better. Overall, this system is a good solution for universities that want to improve hostel management and give better performance to hostel staffs.

REFERENCES

1. Rahman, M., & Islam, S. (2023). Development of Web-Based Hostel Management System. Bangladesh Journal of Computer Networks and IT, 8(1), 45-55
2. Diyaolu, M., & Olawale, A. “Development of an E-Based Hostel Management System.” International Journal of Computer Applications, vol. 10, no. 4, 2023, pp. 12-20 Springer-Verlag, Berlin Heidelberg New York (1997) 415–438
3. Chaudhri, K., & Kevat, R. “Study of Digitalized Hostel Management System.” International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), vol. 7, no. 2, March–April 2021, pp. 366–371
4. Chaudhri, K., & Kevat, R. “Study of Digitalized Hostel Management System.” International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), vol. 7, no. 2, March–April 2021, pp. 366–371
5. Mani, S., Surya, R., & Kumar, B. V. “Hostel Management System.” International Journal of Research Publication and Reviews 5, no. 6 (June 2024): 3032–3035. Accessed July 26, 2025.
6. Diyaolu, A. M., Abodunrin, O. B., Adedamola, A. A., Ogunode, R. S., & Omoloba, O. (2024) Development of an E-Based Hostel Management System. International Journal of Innovative Science and Research Technology (IJISRT), 1000–1009