Edustay: Digital Platform for Student Housing and Nearby Facilities

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Abstract:

Students migrating to new cities for higher education frequently encounter difficulties in finding safe, affordable, and reliable accommodation near their educational institutions. Traditional approaches such as broker-based searching, physical visits, and personal references are inefficient, time-consuming, and lack transparency. In many cases, students also face challenges due to unverified information and limited knowledge about nearby essential facilities.

EduStay is proposed as a digital platform that provides a centralized solution for student housing and related services. The system allows students to view verified room, hostel, and mess facility listings along with information about nearby essential facilities such as banks, bus stops, and medical stores. By digitalizing accommodation data and making it easily accessible through a mobile platform, EduStay reduces dependency on brokers and simplifies the accommodation search process. The proposed system aims to improve efficiency, transparency, and convenience for students relocating for education.

Keywords— Student Accommodation Management, Hostel Management System, Mobile Application, Digital Housing Platform, Centralized Accommodation System, Nearby Facility Information

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I. INTRODUCTION

In recent years, the number of students migrating to different cities for higher education has increased significantly. One of the most critical challenges faced by these students is finding suitable accommodation near their colleges. Due to lack of local knowledge, students often depend on brokers or informal contacts, which leads to higher costs, misinformation, and unsafe living conditions.

Traditional accommodation search methods involve physical visits, phone inquiries, and broker negotiations. These methods are not only time-consuming but also lack transparency and reliability. In addition, students often struggle to find information about nearby essential facilities such as banks, medical stores, and transportation options, which are crucial for daily living.

EduStay is designed to address these challenges by providing a centralized digital platform for student accommodation. The platform enables students to access verified information about rooms, hostels, and mess facilities along with nearby essential services. By integrating accommodation data into a single system, EduStay simplifies decision-

making and improves the overall experience of students relocating to new cities.

II. LITERATURE SURVEY

With the rapid growth in the number of students relocating to different cities for higher education, the need for efficient and reliable student accommodation management systems has increased significantly. Traditional accommodation searching methods such as manual inquiries, broker dependency, and physical visits are time-consuming and often lack transparency and accuracy. To overcome these challenges, various researchers and developers have proposed digital and web-based solutions for hostel and student housing management. These systems focus on automating accommodation processes, improving data management, and providing centralized access to housing information.

In order to understand the existing approaches, technologies, and limitations related to student accommodation management, a detailed review of previous research work has been carried out. The following literature survey presents a summary and analysis of **fourteen research papers** related to hostel management systems, student accommodation platforms, and digital housing solutions, which have been studied to gain insights and to support the development of the **EduStay** project. This paper presents a computerized hostel management system designed to replace manual hostel registration and record processes with an efficient digital solution. It uses PHP and MySQL to improve reliability, reduce paperwork, and speed up accommodation allocation. The study emphasizes better data handling and time management in student housing.[1] The HOME project explores a digital infrastructure to integrate student accommodation search into existing European mobility services. It aims to support international students by improving transparency and accessibility of housing options and defining quality labels for accommodation. The project benefits cross-institutional housing search.[2] This research develops an e-based hostel management solution that evolves from manual file systems to digital data handling for room details, student records, and hall allocation. It highlights user-friendly, secure, efficient solutions, and reduced manual tasks compared to traditional systems.[3] The paper proposes a web-based system for residential housing, focusing on digital record keeping and automation to organize resident data and housing tasks. It highlights how digital solutions can replace manual procedures for better accuracy and reduced workload.[4] This paper explores the use of blockchain technology to bring enhanced transparency, security, and tamper-resistant transactions in hostel booking systems. It suggests decentralized ledger mechanisms can improve trust and reduce fraud in accommodation allocations.[5] The study discusses a centralized portal for managing student accommodation and hostel services, emphasizing digital management and online access. It highlights administrative efficiency improvements over traditional methods.[6] This paper focuses on creating a web platform for dormitory management, automating student records, room assignments, and maintenance tasks. The study shows enhanced administrative workflow and transparency.[7] This project develops a hostel reservation system that enables students to find and book hostels online with relative information on room details and facilities. It introduces features like pricing categories, user reviews, and interactive maps for easier decision-making.[8] This research presents another online hostel management system to handle accommodation activities digitally. It focuses on automating room allocation and reducing manual errors, improving efficiency and service in hostel operations.[9] This paper discusses an Android-based hostel management application that automates room allocation, fee management, and other hostel processes. It highlights secure authentication, notifications, and user profile management for improved user experience.[10] This study proposes a web application for managing hostel functions like room allocation, billing, complaints, and notices. It aims to reduce manual work and provide efficient, automated processes and communication for

students and administrators.[11] This paper presents a web-based hostel management platform that handles student registration, room allocation, maintenance, and reporting with real-time access to critical data to improve administrative decisions and service delivery.[12] The research work proposes a web system to automatically allocate rooms, manage hostel records, and fund tracking. It focuses on reducing the complexity and inefficiency of manual processes in hostel operations.[13] This research proposal emphasizes the need for digital solutions to manage growing hostel accommodations due to increasing student populations. It highlights problems of manual processes and advocates for computerized management to improve efficiency.[14].

III. PROBLEM STATEMENT

Students relocating to new cities for higher education often face major difficulties in finding safe, affordable, and suitable accommodation near their educational institutions. The traditional process of searching for hostels, rooms, or mess facilities is mostly manual and depends on brokers, personal visits, and unverified information. This results in time consumption, lack of transparency, higher costs, and unreliable accommodation details.

There is a need for a centralized digital platform that provides verified accommodation listings along with nearby essential facility information to help students make faster and better decisions. Therefore, the EduStay project aims to develop an Android-based student accommodation management system that simplifies accommodation searching and improves accessibility, reliability, and transparency.

IV. PROPOSED SYSTEM

The proposed system, **EduStay**, is designed to overcome the limitations observed in existing student accommodation management methods. Current systems rely heavily on manual searching, brokers, and unverified information, which leads to increased time consumption, higher costs, and lack of transparency for students. In addition, most existing approaches do not provide centralized access to accommodation details and nearby essential facilities.

EduStay introduces a centralized digital platform that enables students to access verified accommodation information through a mobile application. The system simplifies the process of searching for rooms, hostels, and mess facilities near educational institutions. By providing structured and reliable information, the proposed system improves efficiency, transparency, and user convenience compared to traditional methods.

A. TABLE I

Comparison Between Existing System and Proposed System

Parameter	Existing System	Proposed System (EduStay)
Accommodation Search	Manual and broker-based	Digital and centralized
Data Accuracy	Unverified and inconsistent	Verified and reliable
Time Consumption	High	Reduced
Transparency	Low	High
Nearby Facility Information	Not available	Available
Accessibility	Limited	Mobile-based access
Student Convenience	Low	Improved

B. Advantages of Proposed System Over Existing System

1. Reduces dependency on brokers and manual searching
2. Provides centralized and verified accommodation information
3. Saves time and effort for students
4. Improves transparency in accommodation selection

5. Enhances decision-making using nearby facility information

V.   METHODOLOGY

The methodology of the EduStay system follows a structured and systematic approach to ensure reliable development and proper implementation of the proposed solution .The system adopts a client–server architecture to provide a centralized digital solution for student accommodation management. The methodology focuses on system design, workflow implementation, and integration of frontend, backend, and database components to ensure smooth functionality and reliability.

A.   System Design

The EduStay system is developed using a client–server architecture consisting of the following components:
1. Frontend: Android application developed using Java
2. Backend: Python-based server using the Flask framework
3. Database: MySQL database designed and managed using MySQL Workbench
4. API Handling: Postman platform for API handling

The Android application serves as the user interface for students to access accommodation details. The backend processes user requests and manages data operations, while the MySQL database stores information related to users, accommodation listings, mess facilities, and nearby essential services. The modular design ensures scalability, easy maintenance, and future enhancement of the system.

B.   Workflow Implementation

The workflow of the EduStay system is designed to provide a simple and efficient user experience. The workflow focuses on user interaction with the system for viewing accommodation details.

1.   User Workflow

a. User Registration and Login: Students register and log in to the EduStay Android application using valid credentials.
b. Home Screen Navigation: After successful login, users can access available options such as:

    1. Viewing room and hostel listings
    2. Viewing mess facility information
    3. Viewing nearby essential facilities

c. Accommodation Selection: Users browse through available accommodation options and select suitable rooms or mess facilities based on their requirements.
d. Viewing Nearby Facilities: The system displays information about nearby facilities such as banks, medical stores, and transportation services to assist students in decision-making.
e. Confirmation: The selected accommodation details are confirmed and stored in the system for reference.

C.   Backend Processing

The backend of EduStay is developed using Python with Flask framework, which handles all application logic. Flask APIs process requests from the Android application, retrieve required data from the database, and send responses back to the frontend. The backend ensures secure data handling, proper request validation, and smooth communication between system components.

D.   API Handling and Testing

The APIs developed using Flask are tested using the Postman platform. Postman is used to validate API endpoints such as user authentication, accommodation data retrieval, and facility information access. This testing ensures that APIs function correctly before integration with the Android application, improving system reliability and performance.

E.   Database Design and Management

The database is designed using MySQL Workbench to store structured information related to users, accommodation details, and nearby facilities. Proper table relationships and constraints are defined to maintain data consistency and integrity. The centralized database enables efficient data retrieval and reduces redundancy.

F. System Integration and Testing

After individual module development, the Android frontend, Flask backend, and MySQL database are integrated. Functional testing is performed to verify correct data flow and system behaviours. The system is tested to ensure accuracy, usability, and smooth operation under normal usage conditions.

G. Deployment and Validation

The final system is deployed in a controlled environment for validation. System performance is evaluated based on response time, correctness of displayed information, and user interaction flow. The validation confirms that the EduStay system meets the objectives defined in the synopsis report and successfully addresses the identified problem of student accommodation management.
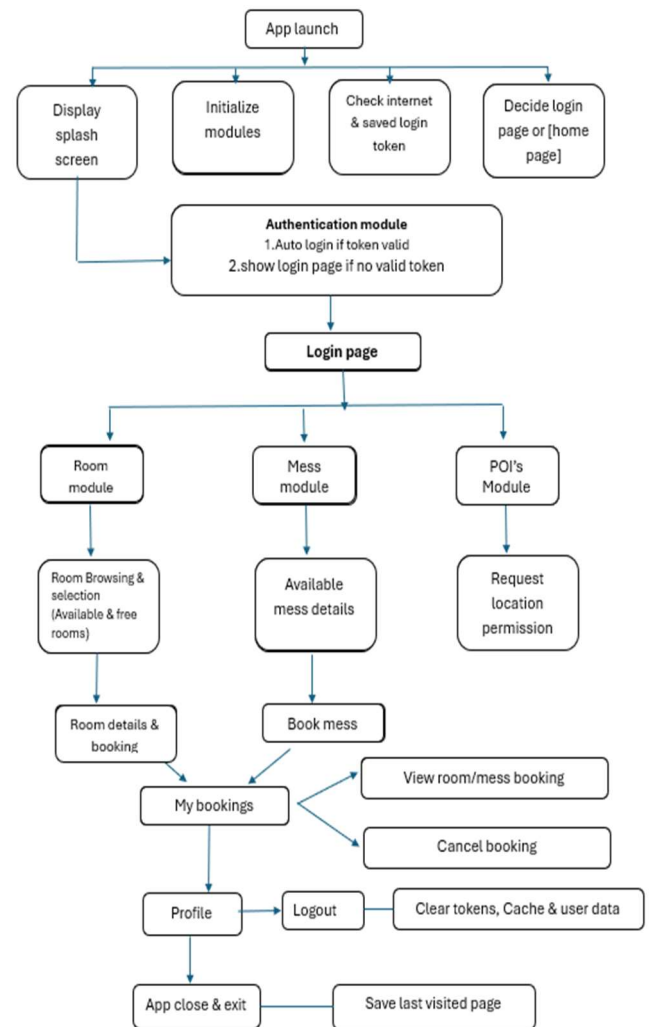

Fig.1 Workflow diagram of EduStay App

VI. FUTURE SCOPE

The future enhancements include:
1. Automatic rent payment reminders
2. Advanced verification system for owners and students
3. Expansion of the system to support multiple colleges or cities
4. Additional automation to improve accommodation management

VII. RESULTS & DISCUSSION

A. Key Findings

1. The system significantly reduces the time required to search for accommodation.
2. Centralized and verified listings improve reliability and trust.
3. Nearby facility information enhances student decision-making.
4. Mobile accessibility increases ease of use and convenience.

B. Challenges and Limitations

1. Verification of accommodation providers and listings is currently performed manually.
2. Automated rent payment reminders are not implemented in the current version.
3. The system depends on regular data updates by administrators or owners.
4. Advanced automation features are limited in the present implementation.

VIII. CONCLUSION

EduStay provides an effective digital solution for managing student accommodation and nearby facilities. By centralizing verified accommodation data and offering essential location-based information, the system reduces dependency on brokers and manual searching. The project demonstrates how a mobile-based centralized platform can solve real-world problems faced by students. The system improves accessibility, transparency, and efficiency in accommodation selection. EduStay is a practical, scalable, and socially beneficial system suitable for student housing management.

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