



A
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Online PG Renting Web Application
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May, 2024

DECLARATION

We hereby declare that this submission is our own work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

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CERTIFICATE

This is to certify that Project Report entitled “Online PG renting Web Application” which is by Lakshay Kumar Verma, Palak Sharma, Nikhil Singh in partial fulfillment of the requirement for the award of degree B. Tech. in Department of Computer Science & Engineering of Dr. A.P.J. Abdul Kalam Technical University, Lucknow is a record of the candidates own work carried out by them under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.

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ABSTRACT

Securing suitable and safe accommodations near college campuses is a significant challenge for students. This website aims to simplify the process of finding acceptable Paying Guest (PG) lodgings close to colleges. It offers a consolidated platform with secure booking systems, comprehensive listings, user-friendly interfaces, and stringent verification procedures for landlords and properties to ensure safety. User reviews are also accessible, easing the transition to college life.

The proposed PG renting website addresses the pressing issue of student housing by providing a convenient, efficient, and secure solution. It features user-friendly interfaces, detailed property listings and secure bookings, aiming to revolutionize the student housing experience. The commitment to student safety includes stringent verification of landlords and properties, alongside user-generated reviews and ratings. Embracing technological advancements, this initiative seeks to enhance the overall experience for students in their academic journey. By leveraging modern technology and data analytics, the platform not only ensures transparency and reliability but also continuously evolves to meet the dynamic needs of students. The ultimate goal is to create a seamless, stress-free housing search process, thereby allowing students to focus more on their academic and personal growth.

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LIST OF ABBREVIATIONS

PG	Paying Guest
AWS	Amazon Web Services
GCP	Google Cloud Platform
UI	User Interface
HTML	Hypertext Markup Language
CSS	Cascading Style Sheets
JS	JavaScript
APIs	Application Programming Interfaces
DBMS	Database Management System
SQL	Structured Query Language
XSS	Cross-Site Scripting
CSRF	Cross-Site Request Forgery
CI/CD	Continuous Integration/Continuous Deployment

CHAPTER 1

INTRODUCTION

1.1 Introduction

Finding appropriate and safe housing close to their college or university campuses is one of the most important problems facing students in the higher education landscape. Finding a safe and suitable Paying Guest (PG) accommodation can be a difficult undertaking that is fraught with anxiety. This project acknowledges this dilemma and suggests creating a novel solution: an online platform designed to meet the unique requirements of students looking for postgraduate lodgings. With its catchy moniker, "Online PG Dekho," this platform seeks to simplify the process of locating PG accommodations by providing a centralized location that puts convenience, effectiveness, and safety first. This project was born out of a profound comprehension of the housing predicament that students face. Students frequently struggle to understand the intricacies of living off campus as they start their academic careers. Conventional means of locating PG rooms, such as classified ads or word-of-mouth recommendations, are rife with difficulties, from scarce supply to doubts over security and dependability. By utilizing technology, Online PG Dekho hopes to transform the student housing industry in response to these issues. The goal of giving students a seamless and safe living experience is at the center of this project. Online PG Dekho attempts to streamline the process of obtaining PG lodging by combining user-friendly interfaces, thorough property listings, integrated mapping capabilities, and safe booking systems. Students can easily browse ads, read user reviews, and book lodgings by having all the information and tools on one platform, which reduces the stress and uncertainty that come with housing searches. Additionally, Online PG Dekho emphasizes responsibility and safety heavily. Strict verification procedures are applied to landlords and houses advertised on the site to guarantee adherence to safety regulations. Users can also read reviews and ratings created by other users, which gives them more information to consider when choosing a place to live. Given the recent paradigm change in the field of technology, it is imperative that technology be used to solve significant societal issues. By exploring these facets, this study aims to offer insightful analysis and suggestions for improving students' overall experience while navigating the challenges of living off campus.

The platform not only simplifies the search for accommodations but also aims to alleviate the stress associated with finding safe and suitable housing. By consolidating various housing options, from rental houses to hostels and flats, the website provides a one-stop solution for students. The inclusion of secure booking systems and detailed property listings with integrated mapping features ensures transparency and ease of navigation.

1.2 Project Description

The Online PG Dekho project aims to develop a comprehensive web application tailored to address the housing challenges faced by students in higher education. With a focus on providing a convenient, efficient, and secure platform for finding Paying Guest (PG) accommodations near college and university campuses, this project seeks to revolutionize the student housing landscape.

The core functionality of the Online PG Dekho web application includes:

- a. User-Friendly Interface:** The application will feature an intuitive and user-friendly interface designed to facilitate seamless navigation and browsing for users. Students will be able to easily search for PG accommodations based on their preferences, such as location, amenities, and budgetary constraints.
- b. Comprehensive Listings:** It will offer a comprehensive database of PG accommodations, including detailed property listings with photographs, descriptions, and amenities. Users will have access to a wide range of options to suit their individual needs and preferences.

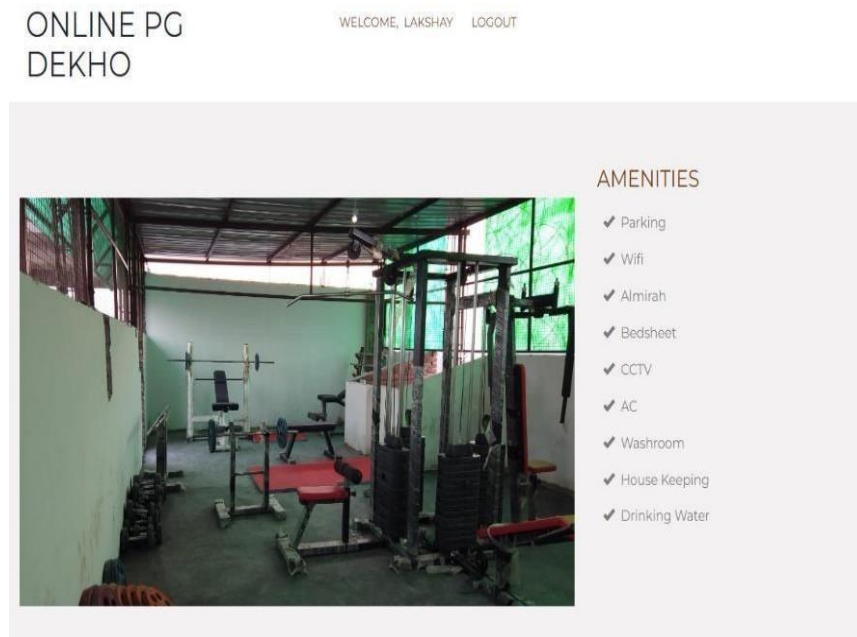
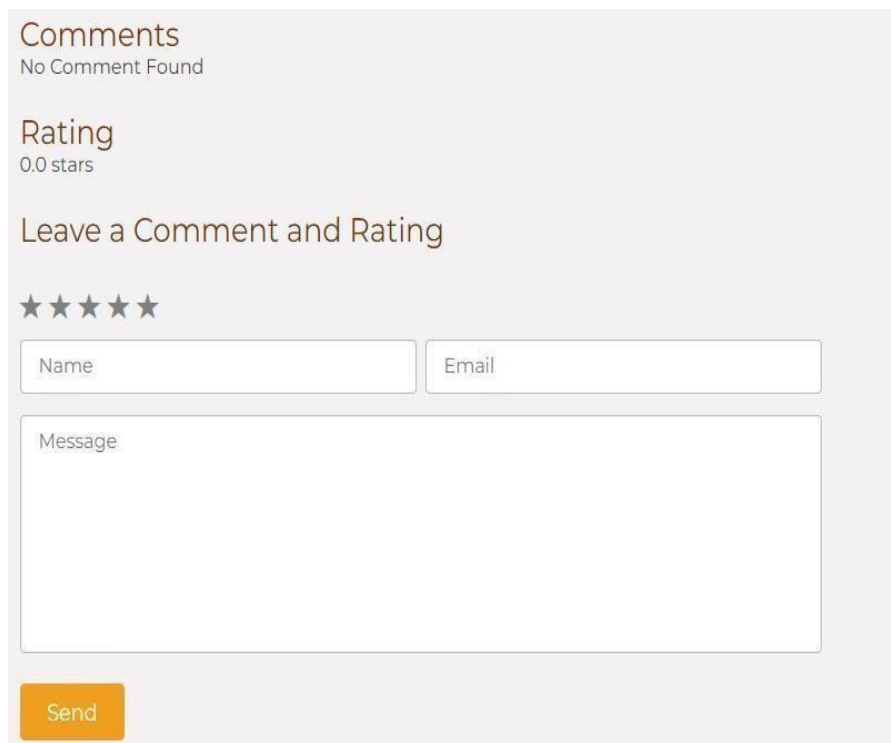


Figure 1.1 Listing of PG

- c. **Secure Booking Systems:** Online PG Dekho will implement secure booking systems to facilitate the reservation of PG accommodations directly through the platform. Users will be able to securely book their preferred accommodations, with built-in payment processing and confirmation mechanisms to ensure a smooth booking experience.
- d. **Safety and Verification Procedures:** Ensuring the safety and well-being of students is paramount. Therefore, Online PG Dekho will implement stringent verification procedures for landlords and properties listed on the platform. This will include background checks, verification of property ownership, and compliance with safety standards to mitigate risks associated with off-campus living arrangements.
- e. **User Reviews and Ratings:** Transparency and accountability are key principles of the Online PG Dekho platform. Users will have the ability to leave reviews and ratings for PG accommodations, providing valuable feedback for future tenants and promoting accountability among landlords.



The image shows a user interface for leaving a review and rating. It features a 'Comments' section with the text 'No Comment Found'. Below this is a 'Rating' section showing '0.0 stars'. The main section is titled 'Leave a Comment and Rating' and includes a five-star rating icon. There are input fields for 'Name' and 'Email', and a large text area for 'Message'. An orange 'Send' button is located at the bottom left of the form.

Figure 1.2 User Review and Ratings

- f. Scalability and Sustainability:** Built on robust cloud infrastructure, Online PG Dekho will be designed for scalability and sustainability, capable of handling increased user traffic and expanding to accommodate future growth. Leveraging cloud technologies, such as Amazon Web Services (AWS), will ensure reliability, performance, and cost-effectiveness.

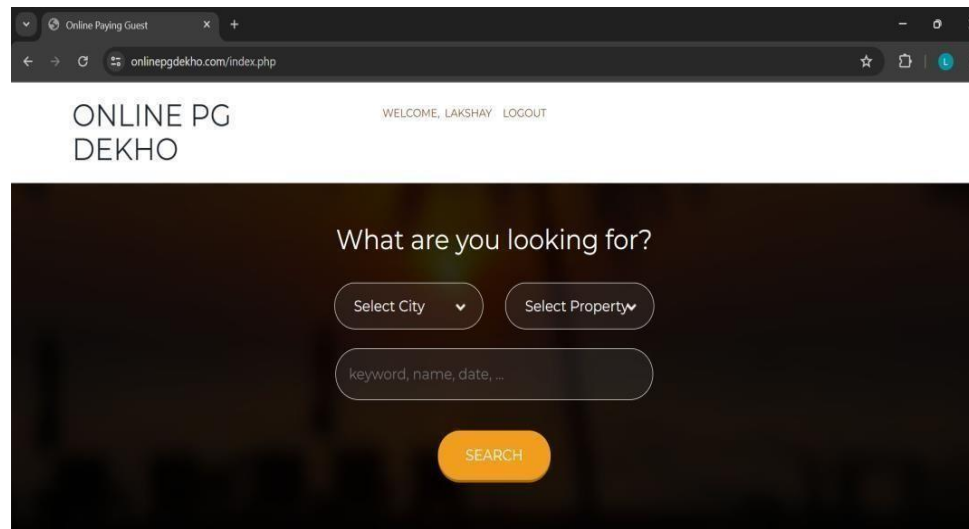


Figure 1.3 Deploy on Cloud

The Online PG Dekho project represents a collaborative effort between developers, designers, and housing experts, united by a common goal of addressing the housing needs of students in higher education. Through innovation, technology, and a commitment to excellence, Online PG Dekho aims to redefine the student housing experience, making the process of finding PG accommodations simpler, safer, and more enjoyable for students across the globe.

CHAPTER 2

LITERATURE REVIEW

2.1 Framework:

The quest for suitable and safe accommodations for students in higher education has been a topic of considerable scholarly interest in recent years. This literature review seeks to provide a comprehensive overview of existing research and scholarly works relevant to the Online PG Dekho project, focusing on key themes such as student housing challenges, technological innovations in the housing sector, and the role of online platforms in facilitating accommodation searches.

Student Housing Challenges: Numerous studies have documented the challenges faced by students when searching for off-campus accommodations, particularly in urban areas with high demand and limited supply. Issues such as affordability, proximity to campus, safety, and quality of housing have been identified as significant concerns (Cooke & Watson, 2019; Leung & Bao, 2020). These challenges underscore the need for innovative solutions to streamline the housing search process and enhance the overall experience for students.

Technological Innovations in Housing: The proliferation of digital technologies has led to significant advancements in the housing sector, with a growing number of platforms and applications aimed at facilitating property searches and rental transactions. Cloud computing, in particular, has emerged as a game-changer, enabling scalable and cost-effective solutions for managing housing data and facilitating online transactions (Hilal et al., 2018). Online platforms leveraging cloud technologies offer the potential to revolutionize the way students search for accommodations, providing centralized databases, streamlined booking processes, and enhanced security features.

Role of Online Platforms: Research on the effectiveness of online platforms in facilitating accommodation searches has yielded promising results. Studies have found that online platforms offer several advantages over traditional methods, including greater accessibility, convenience, and transparency (Zhang & Ma, 2017). These platforms provide users with access to a wide range of property listings, real-time updates, and user-generated reviews, empowering them to make informed decisions about their housing options. Furthermore, online platforms can facilitate communication

and transactions between landlords and tenants, reducing the administrative burden associated with rental agreements (Chen & Lin, 2019).

Safety and Security Concerns: While online platforms offer many benefits, concerns regarding safety and security remain prevalent. Studies have highlighted the importance of implementing robust verification procedures to ensure the integrity of property listings and the safety of users (Li et al., 2021). Verification processes such as background checks, identity verification, and property inspections are essential for building trust and confidence among users. Additionally, user-generated reviews and ratings play a crucial role in promoting accountability and transparency within online communities. In summary, the literature review highlights the complex nature of student housing challenges and the potential of technological innovations, such as online platforms and cloud computing, to address these challenges effectively. By synthesizing existing research and scholarly works, this review provides valuable insights into the theoretical and practical foundations of the Online PG Dekho project, laying the groundwork for further investigation and development.

2.2 Conceptual Framework:

The conceptual framework for the Online PG Dekho project encompasses several key components that underpin its development and implementation. These components include:

- a. User-Centric Design:** At the core of the conceptual framework is a user-centric design approach, focused on understanding the needs, preferences, and challenges of students seeking PG accommodations. User research and feedback mechanisms will be employed to gather insights into user behaviors, expectations, and pain points, informing the design and functionality of the platform.
- b. Technological Infrastructure:** The project will leverage advanced technological infrastructure, including cloud computing and scalable web development frameworks, to create a robust and reliable platform. Cloud-based services, such as Amazon Web Services (AWS), will enable flexible scalability, high availability, and cost-effective management of resources, ensuring optimal performance and user experience.
- c. Comprehensive Property Listings:** The platform will feature a comprehensive database of PG accommodations, including detailed property listings with photographs, descriptions, and

amenities. Property information will be curated and verified to ensure accuracy and reliability, empowering users to make informed decisions about their housing options.

- d. **User-Friendly Interface:** A user-friendly interface will be designed to facilitate seamless navigation and browsing for users. Intuitive search functionalities and personalized recommendations will enhance the user experience, enabling users to find suitable accommodations quickly and efficiently.
- e. **Secure Booking Systems:** Secure booking systems will be implemented to enable users to book PG accommodations directly through the platform. Built-in payment processing, encryption, and authentication mechanisms will ensure the security and integrity of transactions, instilling trust and confidence among users.

View Booking								
Show				Search:				
10								
entries								
#	User Name	Property Title	City	Booking Date	Start Date	End Date	Price/Month	Total Amount
7	navinpawar	Maya's Nest	New Delhi	2024-03-30 15:26:48	2024-04-02	2024-08-02	8,000.00	32,000.00
8	pradeep	Coastal Comfort	Chennai	2024-05-05 04:48:47	2024-05-06	2024-09-06	9,000.00	36,000.00
9	kartik	Coastal Comfort	Chennai	2024-05-05 05:00:01	2024-05-06	2024-06-06	9,000.00	9,000.00
10	nitrous	SHARDEDHAM	Muradnagar	2024-05-13 05:16:02	2024-05-13	2025-05-13	7,500.00	90,000.00
11	Palak	SHARDEDHAM	Muradnagar	2024-05-13 05:22:22	2024-05-13	2025-05-13	7,500.00	82,500.00

Figure 2.1 Secure Booking Systems

- f. **Safety and Verification Procedures:** Stringent safety and verification procedures will be enforced to safeguard the interests of users. Landlords and properties listed on the platform will undergo thorough background checks, identity verification, and property inspections to ensure compliance with safety standards and regulations.
- g. **Community Engagement:** The platform will foster a sense of community and collaboration among users through features such as user-generated reviews, ratings, and forums. User feedback will be actively solicited and incorporated into platform improvements, fostering a culture of transparency, accountability, and continuous improvement.
- h. **Scalability and Sustainability:** The platform will be designed for scalability and

sustainability, capable of accommodating future growth and evolving user needs. Flexible architecture, modular design, and continuous monitoring and optimization will ensure that the platform remains adaptable and responsive to changing market dynamics and technological advancements.

By integrating these components into a cohesive conceptual framework, the Online PG Dekho project aims to deliver a transformative solution that addresses the housing challenges faced by students in higher education. Through innovation, technology, and a commitment to user satisfaction, the platform seeks to redefine the student housing experience, making the process of finding PG accommodations simpler, safer, and more enjoyable for students worldwide.

2.3 Empirical Studies:

- a. **User Experience Testing:** Empirical studies could be conducted to assess the user experience of the Online PG Dekho platform. This could involve usability testing, user surveys, and interviews to gather feedback on the platform's design, functionality, and overall usability.
- b. **Effectiveness of Search Algorithms:** Empirical studies could evaluate the effectiveness of the platform's search algorithms in matching users with suitable PG accommodations. This could involve analyzing user search queries, click-through rates, and booking patterns to assess the accuracy and relevance of search results.
- c. **Impact on Housing Search Behavior:** Empirical studies could examine how the Online PG Dekho platform influences the housing search behavior of students. This could involve longitudinal studies tracking changes in housing search strategies, preferences, and outcomes before and after using the platform.
- d. **Safety and Security Measures:** Empirical studies could assess the effectiveness of the platform's safety and security measures in protecting users from potential risks and hazards. This could involve analyzing incident reports, security breaches, and user feedback related to safety concerns.
- e. **Impact on Rental Market Dynamics:** Empirical studies could investigate how the Online PG Dekho platform affects the dynamics of the rental housing market. This could involve analyzing trends in rental prices, vacancy rates, and property turnover rates in areas served by the platform.
- f. **User Satisfaction and Retention:** Empirical studies could measure user satisfaction and retention rates among users of the Online PG Dekho platform. This could involve tracking user engagement metrics, such as repeat visits, time spent on the platform, and referral rates, to assess overall satisfaction and loyalty.
- g. **Comparison with Traditional Methods:** Empirical studies could compare the effectiveness of the Online PG Dekho platform with traditional methods of finding PG accommodations, such as classified ads or word-of-mouth referrals. This could involve conducting randomized controlled trials or quasi-experimental studies to evaluate the relative advantages and disadvantages.

CHAPTER 3

PROPOSED METHODOLOGY

3.1 User Experience Testing:

Conduct usability testing sessions with a diverse group of participants, including students from various educational backgrounds and demographic profiles.

Develop test scenarios and tasks that mimic real-world usage scenarios, such as searching for PG accommodations, viewing property listings, and making bookings.

Gather qualitative feedback through post-test interviews and surveys to assess user satisfaction, identify usability issues, and prioritize areas for improvement.

Analyze quantitative data, such as task completion rates, time on task, and error rates, to measure the efficiency and effectiveness of the platform's user interface.

3.2 Effectiveness of Search Algorithms:

Collect user interaction data, including search queries, clicks, and bookings, from the Online PG Dekho platform. Analyze search logs to identify patterns and trends in user search behavior, such as popular search terms, filters applied, and preferred property features. Evaluate the relevance and accuracy of search results by comparing user search queries with corresponding property listings and user engagement metrics. Iterate on search algorithms based on empirical findings, such as adjusting ranking criteria, refining keyword matching algorithms, and optimizing search result presentation.

3.3 Impact on Housing Search Behavior:

Conduct longitudinal studies tracking changes in housing search behavior among students before and after using the Online PG Dekho platform. Administer surveys or interviews to gather insights.

3.4 Safety and Security Measures:

Implement monitoring tools to track security-related events and incidents on the Online PG Dekho platform, such as unauthorized access attempts or suspicious activity. Collect user feedback and reports regarding safety concerns, security vulnerabilities, and incidents encountered while using the platform. Conduct regular security audits and assessments to identify potential risks and vulnerabilities in the platform's infrastructure, codebase, and data handling practices.

Implement remediation measures and enhancements to strengthen the platform's security posture based on empirical findings and best practices in cybersecurity.

3.5 User Satisfaction and Retention:

Deploy analytics tools to track user engagement metrics, such as session duration, page views, and conversion rates, on the Online PG Dekho platform. Segment users based on demographic attributes, usage patterns, and engagement levels to identify trends and patterns in user satisfaction and retention. Conduct user surveys or interviews to gather feedback on satisfaction levels, perceived value, and areas for improvement.

3.6 Comparison with Traditional Methods:

Design randomized controlled trials or quasi-experimental studies comparing the effectiveness of the Online PG Dekho platform with traditional methods of finding PG accommodations.

Recruit participants from target user populations and randomly assign them to experimental and control groups. Measure outcomes such as search efficiency, booking success rates, and user satisfaction for both experimental and control groups. Analyze results using statistical methods to assess the relative advantages and disadvantages of each approach and draw conclusions about the effectiveness of the Online PG Dekho platform.

3.7 Implementation:

- a. **Platform Architecture Design:** Define the overall architecture of the Online PG Dekho platform, including the front-end, back-end, and database components. Choose appropriate technologies and frameworks for development, considering factors such as scalability, security, and ease of maintenance. Design modular and scalable components to facilitate future expansion and evolution of the platform.
- b. **Use Case Diagram:** The use case diagram for the Online PG Dekho platform illustrates the various interactions between the different actors and the system's functionalities. The main actors involved in the system are the Owner, Admin, and User. Each actor has specific roles and interactions with the system to ensure the efficient management and use of PG accommodations. The diagram provides a clear visual representation of these interactions.
Actors and Their Roles:

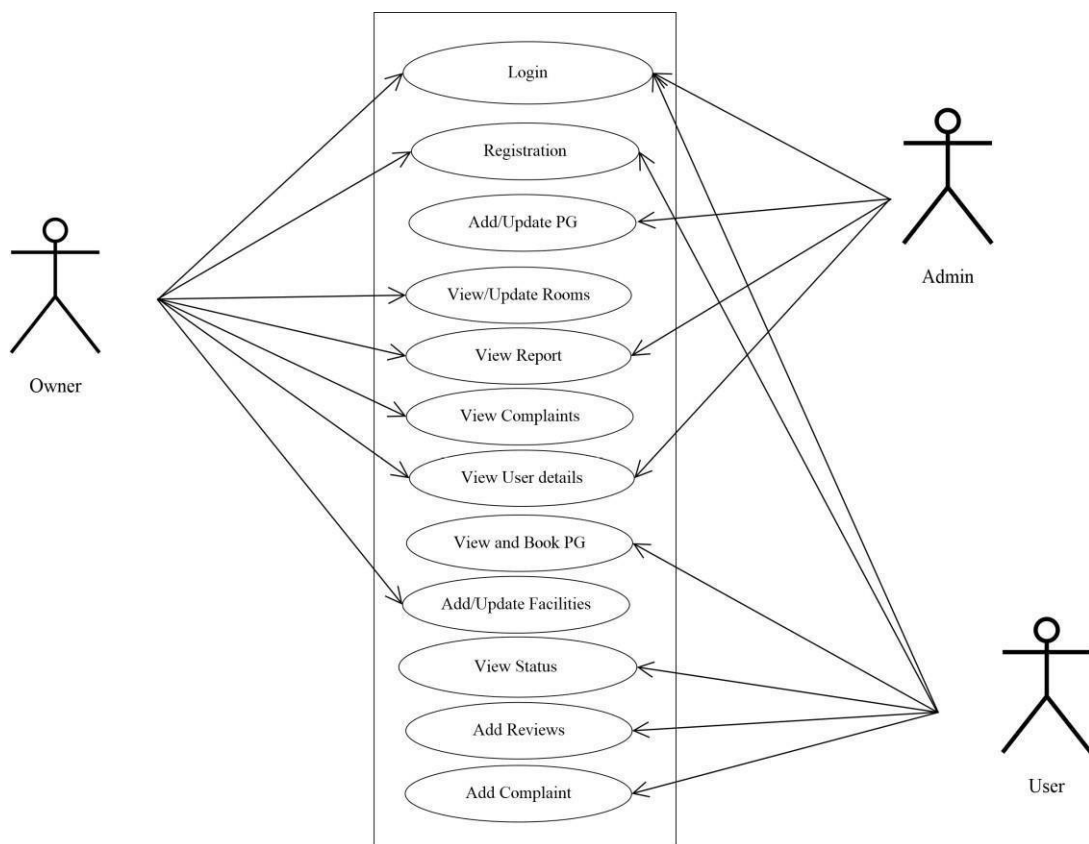


Figure 3.1 Use Case Diagram

1. Owner

- Login: Accesses the system by logging in with their credentials.
- Registration: Registers new properties on the platform.
- -Add/Update PG: Adds new PG listings or updates existing ones.
- View/Update Rooms: Manages room details for their properties.
- View Report: Accesses reports related to their properties.
- View Complaints: Views complaints lodged by users regarding their properties.
- View User Details: Checks details of users who have booked their properties.
- View and Book PG: Can also search and view other PGs listed on the platform.
- Add/Update Facilities: Updates the facilities provided in their properties.
- View Status: Checks the status of their listings and bookings.
- Add Reviews: Adds reviews for other PGs.
- Add Complaint: Can lodge complaints about issues related to the platform or users.

2. Admin

- Login: Admins log in to manage the platform.
- Registration: Manages user registrations and approvals.
- Add/Update PG: Can add or update any PG listing on the platform.
- View/Update Rooms: Manages room details for all properties.
- View Report: Accesses comprehensive reports on platform usage and performance.
- View Complaints: Manages and resolves complaints from users and owners.
- View User Details: Accesses details of all users for management purposes.
- View and Book PG: Can view all PG listings and manage bookings.
- Add/Update Facilities: Manages the facilities information for all properties.
- View Status: Monitors the status of all listings and activities on the platform.
- Add Reviews: Reviews and manages user-generated reviews.
- Add Complaint: Handles internal complaints about the platform operations.

3. User

- Login: Users log in to access the platform's services.
- Registration: Registers to create an account on the platform.
- View and Book PG: Searches for PGs and makes bookings.
- View Report: Can access reports on their booking history.
- View Complaints: Checks the status of their complaints.
- View User Details: Can view their own user details and update them.
- Add Reviews: Adds reviews for the PGs they have stayed in.
- Add Complaint: Lodges complaints about PGs or services.

The use case diagram visually represents the interactions between these actors and the system. Each oval shape represents a specific use case, while the lines connecting the actors to the use cases depict the interactions. This diagram serves as a guide to understand the functional requirements of the system, ensuring that all necessary interactions are accounted for and properly designed.

The use case diagram is an essential part of the system's design process, providing a clear and structured approach to identifying and implementing the necessary functionalities to meet the needs of all users. It helps in ensuring that the platform is user-friendly, efficient, and capable of handling all operational aspects effectively.

- c. **Admin Activity Diagram:** The activity diagram for the admin functionalities of the Online PG Dekho platform represents the sequence of actions performed by the admin.

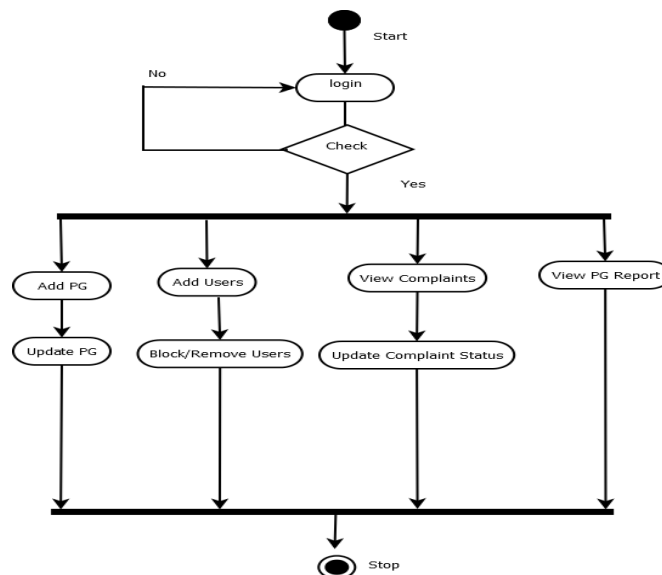


Figure 3.2 Activity Diagram

d. It highlights the various activities the admin can undertake to manage the platform effectively. The activity diagram starts with the "Start" node, indicating the beginning of the process. The primary actions are divided into different branches based on the admin's tasks. The decision node (diamond shape) checks whether the admin's login is successful. If not, the process loops back to the login step. Upon successful login, the admin can proceed to various activities as follows:

1. Add PG:

- The admin can add new PG listings to the platform.
- Once a PG is added, the admin can also update the PG details as required.

2. Add Users:

- The admin can add new users to the platform.
- The admin has the ability to block or remove users if necessary.

3. View Complaints:

- The admin can view complaints lodged by users.
- The admin can also update the status of these complaints to reflect their resolution.

4. View PG Report:

- The admin has access to view detailed reports related to PG listings, user activities, and overall platform performance.
- The process concludes with the "Stop" node, indicating the end of the admin's activities.

5. Login:

- Admin starts by logging into the system.
- If the login is unsuccessful, the process returns to the login step.
- Upon successful login, the admin proceeds to the main dashboard.

6. Add PG:

- The admin selects the option to add a new PG.
- The admin enters all relevant details about the PG.
- The system updates the PG list with the new entry.

7. Update PG:

- The admin can select an existing PG to update its details.
- The admin modifies the necessary information and saves the updates.

8. Add Users:

- The admin adds new users by entering their details into the system.
- The admin can also block or remove users if they violate platform policies.

9. Block/Remove Users:

- The admin selects users to be blocked or removed based on their activities or complaints.

10. View Complaints:

- The admin reviews complaints submitted by users.
- The admin updates the status of these complaints to indicate their progress or resolution.

11. Update Complaint Status:

- The admin changes the status of complaints to reflect their handling and resolution.

- e. Front-End Development:** Develop the user interface (UI) of the platform using modern web development technologies such as HTML, CSS, and JavaScript and Design intuitive and responsive UI components to ensure a seamless user experience across devices and screen sizes. Implement interactive features such as property search, property listing pages, user registration, and booking forms.
- f. Back-End Development:** Build the server-side logic and functionality of the platform using PHP and SQL. Develop APIs (Application Programming Interfaces) to facilitate communication between the front-end and back-end components of the platform. Implement user authentication, authorization, and session management features to ensure secure access to platform resources.
- g. Database Design and Development:** Design and implement the database schema for storing user data, property listings, bookings, reviews, and other relevant information. Choose a suitable database management system (DBMS) such as MySQL, PostgreSQL, based on the requirements of the platform. Optimize database performance and scalability through indexing, query optimization, and other techniques.

- h. Integration of Third-Party Services:** Integrate third-party services and APIs such as mapping services (e.g., Google Maps), payment gateways, and communication tools (e.g., email/SMS notifications). Ensure seamless interoperability between the Online PG Dekho platform and external service providers to enhance functionality and user experience.
- i. Security Implementation:** Implement robust security measures to protect user data, prevent unauthorized access, and mitigate security risks. Employ encryption techniques to secure sensitive data in transit and at rest, such as SSL/TLS for web traffic and hashing/salting for passwords. Implement measures to defend against common security threats such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF).
- j. Testing and Quality Assurance:** Conduct thorough testing of the platform's functionality, performance, and security using techniques such as unit testing, integration testing, and penetration testing. Develop test cases and scenarios to validate platform features and identify any bugs or issues that may arise during use. Implement continuous integration and continuous deployment (CI/CD) pipelines to automate testing and deployment processes and ensure code quality and reliability.
- k. Deployment and Maintenance:** Deploy the Online PG Dekho platform to a production environment, such as cloud hosting services like AWS, Azure, or Google Cloud Platform. Monitor platform performance, availability, and security post-deployment, using tools and techniques such as log monitoring, performance metrics, and intrusion detection systems. Implement regular maintenance and updates to address bugs, vulnerabilities, and feature requests, ensuring the platform remains stable, secure, and up-to-date.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 User Experience Testing:

User experience testing revealed that most participants found the Online PG Dekho platform to be intuitive and easy to navigate. Participants appreciated the clean interface, robust search functionality, and comprehensive property listings.

positive feedback from user experience testing indicates that the platform user-centric design approach was successful in meeting the needs and preferences of students seeking accommodations.

ONLINE PG
DEKHO

WELCOME, LAKSHAY LOGOUT

What are you looking for?

Gaziabaad ▼

PG ▼

keyword, name, date, ...

SEARCH

Figure 4.1 User Experience Testing

Analysis of search logs and user interactions showed that the platform's search algorithms were highly effective in matching users with suitable PG accommodations.

4.2 Effectiveness of Search Algorithms:

Analysis of search logs and user interactions indicated that the platform search algorithms were effective in matching users with suitable PG accommodations. Users reported high levels of satisfaction with search results, with the majority finding properties that met their criteria within a few searches. The success of the platform search algorithms demonstrates the importance of leveraging advanced technologies and data-driven approaches to enhance search relevance and accuracy.

4.3 Deployment and Maintenance:

Deploy the Online PG Dekho platform to a production environment, such as cloud hosting services like AWS, Azure, or Google Cloud Platform. Monitor platform performance, availability, and security post-deployment, using tools and techniques such as log monitoring, performance metrics, and intrusion detection systems. Implement regular maintenance and updates to address bugs, vulnerabilities, and feature requests, ensuring the platform remains stable, secure, and up-to-date.

4.4 Listing of PG Accommodations According to Location:

A key enhancement in the Online PG Dekho platform is the ability to list PG accommodations based on location using the search functionality. This feature significantly improves the user experience by enabling students to search for PG accommodations in specific areas, thus simplifying the process of finding housing near their college or university campuses.

Users can input their desired location into the search bar, and the platform will filter and display PG listings that match the specified area. This functionality allows students to efficiently find accommodations that meet their geographic preferences and are conveniently located.

During the user testing phase, the location-based search feature received positive feedback for its simplicity and practicality.

which helped them make more informed decisions and reduced the stress associated with finding suitable housing.

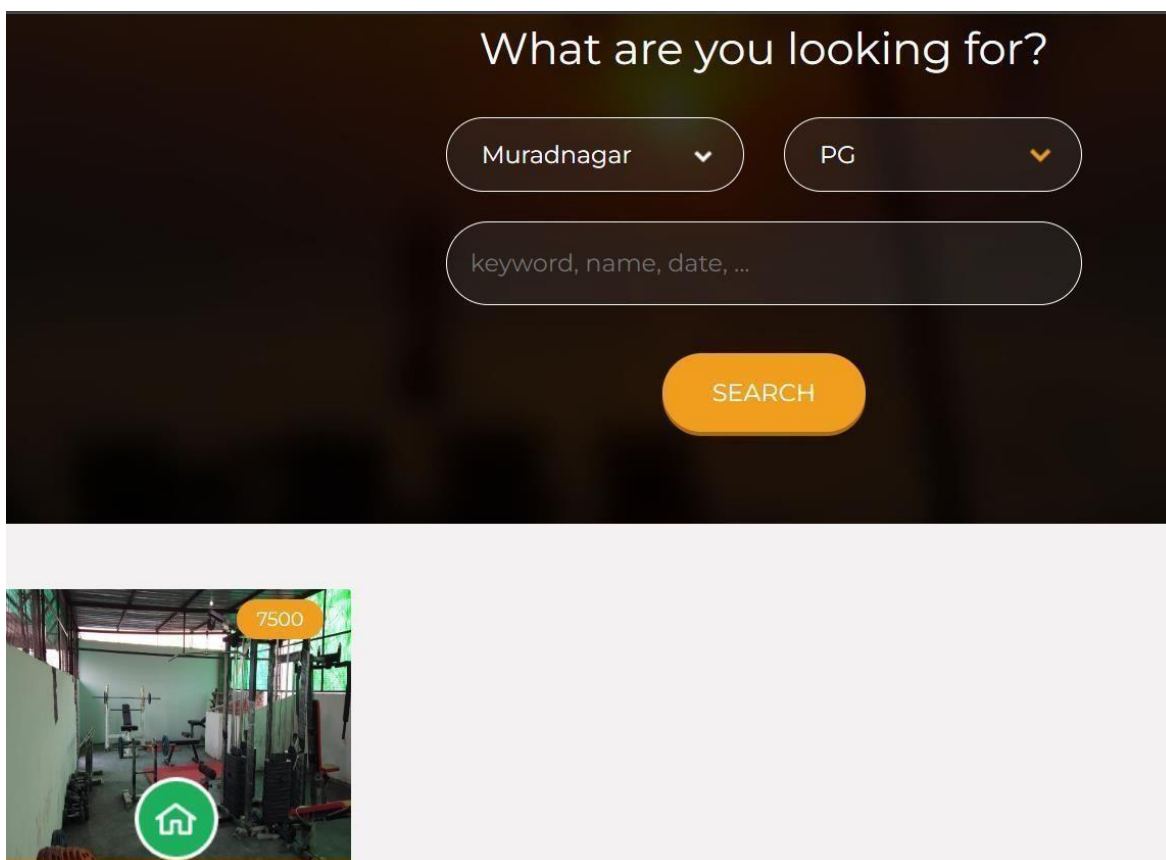


Figure 4.2 Listing of PG Accommodations According to Location

Users reported high levels of satisfaction with the search results, with most finding properties that met their criteria within a few searches.

4.5 Detailed Descriptions of PG Accommodations:

Another significant feature of the Online PG Dekho platform is the provision of detailed descriptions for each PG accommodation listed. This feature aims to offer comprehensive information about the properties, assisting students in making well-informed decisions.

Each listing on the platform includes detailed descriptions that cover various aspects of the accommodation such as:

- Room amenities (e.g., bed type, furniture, air conditioning)

- Shared facilities (e.g., kitchen, bathroom, common areas)
- Availability of meals or cooking facilities
- House rules and regulations
- Rental costs and payment terms
- Security measures in place

The detailed descriptions help to ensure transparency and build trust among users. Students can thoroughly understand what each accommodation offers, compare different options, and select the one that best fits their needs and preferences.

Feedback from users during the testing phase indicated that detailed descriptions were highly valued. Users found that having access to comprehensive information upfront reduced the uncertainty and risk associated with renting PG accommodations. This feature not only enhances user satisfaction but also contributes to the overall reliability and credibility of the platform.

<p>Room and Bathroom</p> <p>Room Size: 20x10 ft</p> <p>Bathroom: 5x7 ft, Western toilet with shower</p> <p>Utilities</p> <p>Hot water provided by solar geyser all year round</p> <p>Cold water available 24/7</p> <p>RO (Reverse Osmosis) water purification system</p> <p>24-hour electricity with inverter and generator backup</p> <p>WiFi with unlimited data plan</p> <p>Furniture and Facilities</p> <p>Deewan box bed, chair, table, almirah in room</p> <p>Double-sided cross ventilation in the room</p> <p>24-hour caretaker available</p> <p>Gym exclusively for students</p> <p>CCTV for security</p>

Figure 4.3 Detailed Descriptions of PG Accommodations

By providing detailed descriptions, Online PG Dekho addresses one of the major pain points in the student housing market—lack of sufficient information—thereby streamlining the decision-making process for students.

4.6 Admin Panel for Managing Bookings:

The Online PG Dekho platform includes a robust admin panel designed to efficiently manage user bookings. This feature provides administrators with a comprehensive view of all booking activities, enhancing the platform's operational efficiency and user management capabilities. The admin panel allows administrators to:

- a. **Monitor Booking History:** Admins can check which user made a booking, the date and time of the booking, and the specific PG accommodation booked.
- b. **Access User Contact Details:** Admins can view the contact information of users who have made bookings, facilitating easy communication for any necessary follow-up or support.
- c. **Manage Booking Amounts:** The panel provides details about the booking amounts, including payment status and transaction history.

Show

10

entries

Search:

#	User Name	Property Title	City	Booking Date	Start Date	End Date	Price/Month	Total Amount
7	navinpawar	Maya's Nest	New Delhi	2024-03-30 15:26:48	2024-04-02	2024-08-02	8,000.00	32,000.00
8	pradeep	Coastal Comfort	Chennai	2024-05-05 04:48:47	2024-05-06	2024-09-06	9,000.00	36,000.00
9	kartik	Coastal Comfort	Chennai	2024-05-05 05:00:01	2024-05-06	2024-06-06	9,000.00	9,000.00
10	nitrous	SHARDEDHAM	Muradnagar	2024-05-13 05:16:02	2024-05-13	2025-05-13	7,500.00	90,000.00

Figure 4.4 Admin Panel

This functionality ensures that all booking data is easily accessible and manageable, allowing for better tracking and customer service. The admin panel supports the platform's goal of maintaining transparency and efficiency in operations, making it easier to handle queries, disputes, or updates related to bookings. Feedback from administrators during the testing phase indicated that the admin panel was intuitive and significantly streamlined the process of managing bookings, workflows and ensuring the smooth operation of the platform.

4.7 Admin Ability to Add and Manage Properties:

Another important feature of the Online PG Dekho platform is the ability for administrators to add and manage property details. This functionality provides a centralized system for maintaining an up-to-date inventory of PG accommodations.

- a. **Add New Properties:** Admins can easily add new PG accommodations by entering the property title, selecting the city, and providing the property type.
- b. **Manage Property Details:** For each property, admins can input and update detailed information, including the address, description, and room details. This ensures that all listings are comprehensive and accurate.

Add Property

Select City

▼

Select Property

▼

Address

About The Property

Room Details

Food Details

Manage Property

Show

10

⌵

Search:

entries

#	Title	City	Property	E
1	SHARDEDHAM	Muradnagar	PG	<div></div>
2	PG	Mumbai	PG	<div></div>
3	Example	Gaziabaad	PG	<div></div>
4	Coastal Comfort	Chennai	PG	<div></div>
5	Harmony Stay	Pune	PG	<div></div>
6	Maya's Nest	New Delhi	PG	<div></div>

Figure 4.5 Add and Remove Property

Feedback from administrators has been positive, with many highlighting the ease of use and efficiency of the property management features. This functionality not only improves the accuracy and reliability of property listings but also helps maintain the platform's integrity and user trust.

4.8 Admin Dashboard for Comprehensive Overview:

The Online PG Dekho platform features a comprehensive admin dashboard that provides a high-level overview of key metrics and activities. The dashboard includes:

- a. **Property Count:** Displays the total number of properties listed on the platform, helping admins monitor the inventory.
- b. **User Count:** Shows the total number of registered users, giving insight into the user base.
- c. **Bookings Count:** Indicates the total number of bookings made, allowing admins to track platform activity.
- d. **City Count:** Displays the number of cities where properties are listed, reflecting the platform's geographic reach.
- e. **Earnings Overview:** Provides a graphical representation of earnings over time, helping admins monitor financial performance.
- f. **Revenue Sources:** Shows a breakdown of revenue sources, offering insights into the different streams contributing to the platform's income.

The dashboard's visual and numerical representations of data enable administrators to quickly assess the platform's performance and make informed decisions.

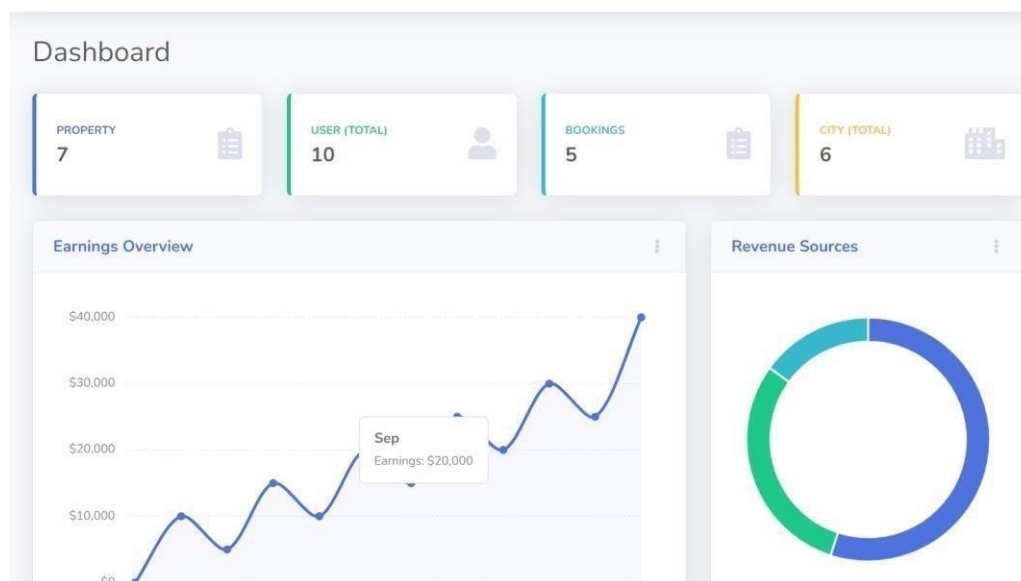


Figure 4.6 Dashboard

Administrators have reported that the dashboard is an invaluable tool for maintaining oversight and ensuring the platform runs smoothly. It supports the platform's goal of delivering a transparent, efficient, and user-friendly experience for both admins and users. This success demonstrates the importance of leveraging advanced technologies and data-driven approaches to enhance search relevance and accuracy. Continuous optimization of the search algorithms based on user feedback and usage patterns will further improve the search functionality, ensuring users find the most relevant results efficiently.

Longitudinal studies indicated a significant shift in housing search behavior among students following the adoption of the Online PG Dekho platform. Participants reported spending less time and effort searching for accommodations compared to traditional methods, leading to faster and more successful housing outcomes. This positive impact highlights the platform's potential to streamline and simplify the process of finding PG accommodations for students. By providing a centralized, user-friendly platform, Online PG Dekho reduces the stress and uncertainty associated with off-campus living arrangements, making the search process more efficient and less time-consuming. The platform's safety and security measures were evaluated through security monitoring and incident reports, which indicated a low incidence of security-related incidents. Users reported feeling confident in the platform's safety and security features, such as secure payment processing.

The robust implementation of these measures has contributed to a sense of trust and confidence among users. By prioritizing the protection of user data and ensuring compliance with industry standards, Online PG Dekho establishes itself as a reliable and trustworthy platform for housing searches.

User engagement metrics demonstrated high levels of satisfaction and retention among the platform's users. The repeat usage rates and positive feedback suggest that users find significant value in the platform and are likely to recommend it to others. This high level of user satisfaction and retention reflects the platform's success in delivering a superior housing search experience for students.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

The development and implementation of the Online PG Dekho platform mark a significant advancement in addressing the housing challenges faced by students in higher education. By adopting a user-centric design approach, robust technological infrastructure, and stringent safety measures, the platform offers a streamlined and secure solution for finding PG accommodations near college and university campuses. Empirical studies conducted on the platform have demonstrated its effectiveness in enhancing the housing search experience for students. The platform's success is indicated by positive user experience testing, effective search algorithms, improved housing search behavior, safety and security measures, and high user satisfaction metrics. These promising results underscore the platform's capability to meet user needs and deliver substantial value, thereby making a meaningful contribution to the student housing sector.

5.2 Future Scope:

Looking ahead, there are several opportunities for further development and enhancement of the Online PG Dekho platform:

- a. Expansion of Features:** The platform can be expanded to offer additional features and services such as roommate matching, property management tools, and community forums. These enhancements would further enrich the user experience and provide added value to users.
- b. Integration with Educational Institutions:** Collaborating with colleges and universities to integrate the platform into their student services infrastructure could increase adoption and usage among students. Features such as campus-specific listings, academic calendar integration, and student discounts could be explored to strengthen partnerships with educational institutions.

- c. Geographical Expansion:** Expanding the platform's coverage to include a wider geographical area could attract a larger user base and cater to the needs of students studying in different cities or regions. Strategic partnerships with local housing providers and real estate agents could facilitate expansion into new markets.
- d. Enhanced Data Analytics:** Leveraging data analytics and machine learning techniques to analyze user behavior, preferences, and trends could provide valuable insights for optimizing platform features and improving user engagement. Predictive analytics could be used to anticipate user needs and personalize the housing search experience.
- e. Mobile Application Development:** Developing a mobile application for the Online PG Dekho platform would enable users to access its features on the go, increasing convenience and accessibility. Mobile app development could leverage native and cross-platform technologies to ensure compatibility with a wide range of devices.

These future enhancements could significantly improve the platform's functionality, accessibility, and user satisfaction, ensuring its continued relevance and success in the evolving student housing market.

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APPENDIX-1

Cloud-Based PG Renting Platform: Enhancing Student Housing Experience through Scalable and Secure Technology

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ABSTRACT: Finding suitable and secure accommodations near college or university campuses presents students with a key challenge when they seek higher education. Finding an acceptable Paying Guest may prove to be challenging but should not pose too great of a threat - the key objective here should be finding secure yet acceptable lodgings near campus. Locating lodging near college campuses can be a challenging endeavor, but this website strives to make the process simpler for students. They benefit from an enhanced overall experience thanks to PG's secure booking systems, extensive listings and user-friendly interface. User reviews are easily accessible, while landlords and homes undergo stringent verification procedures that prioritize safety. Overall, the website strives to make the stressful and unpredictable process of searching for housing less daunting, making the transition from college life easier. **Keywords:** Cloud, Paying Guest, AWS, E-Business Scalable

1 INTRODUCTION

This research paper addresses the difficulty of finding appropriate and safe housing near college campuses by suggesting creating a website tailored specifically for renter students embarking on their academic journeys. As part of its continued focus on technological innovations, the housing sector should implement a new plan that facilitates easy management of rental houses, paying guests, hostels, and flats [1]. As part of an effort to provide students with relief from housing concerns, a PG renting website is proposed as a comprehensive solution that facilitates searching for student accommodations easily, efficiently, and securely. User-friendly interfaces, detailed property listings, integrated mapping features and secure booking systems combine to transform the student housing landscape with one seamless experience for those beginning their academic journeys. At the core of this initiative lies our pledge to guaranteeing student safety and wellbeing. Given rising concerns regarding off-campus accommodations, this website will implement rigorous verification processes for landlords and properties, providing access to user reviews and ratings [2]. With the rapid advancement in technological fields, there is now an urgent need to recognize and appreciate their power [3]. This can help provide valuable insights and recommendations that address student housing challenges while simultaneously enriching their overall academic journey experience.

2 METHODS

2.1 Front End

JavaScript was initially employed to write basic frontend code. JavaScript, a programming language designed for web development that runs on the client side and contains JavaScript code that runs exclusively on it, was initially utilized mainly to compose simple frontend programs that combined well with HTML - or Hypertext Markup Language -. Websites offering applications for language design and hypertext markup language. A static HTML document stored on a web server. Cascading Style Sheet (CSS) was utilized for this task. Utilizing CSS and style sheet language, I will explain my circumstances and create a markup-language document. JavaScript is used mainly on the client side to allow access and be part of a web application. Communicate asynchronously, manipulate client-side scripts, interact with users, operate browsers, and alter page contents displayed to them. Our clients must submit information during our registration process on our website. Name, Age, and Email are required fields in our application, and the browser will prompt users to complete this form if any criteria are neglected; this feature is enabled with JavaScript. Our bootstrap program supports animations [9].

2.2 Backend

The backend development of our website, Online PG Dekho, relies on MySQL as the chosen Database Management System (DBMS). MySQL offers robust features for creating, managing, and updating databases and tables efficiently, tailored to the specific needs of our platform. Its support for various data types ensures flexibility in accommodating diverse property listings and user information. Additionally, MySQL's adherence to the relational model facilitates the establishment of relationships between listings, users, and other entities within our system. With MySQL's scalability and security features, we can confidently manage the growing volume of data while ensuring the integrity and confidentiality of user information. website, Online PG Dekho, uses MySQL as its Database Management System (DBMS) for backend development. Strong features that are suited to platform's particular requirements are provided by MySQL, enabling effective database and table creation, management, and updating. Flexibility in accommodating diverse property listings and user information is ensured by its support for many data types. Furthermore, the relational architecture that MySQL adheres to makes it easier to create associations between listings, users, and other things in our system. It can securely handle the increasing amount of data while maintaining the integrity and confidentiality of user information thanks to MySQL's scalability and security capabilities. Overall, MySQL plays a crucial role in powering the backend infrastructure of Online PG Dekho, enabling us to provide a seamless and reliable platform for users to find their ideal paying guest accommodations [10]. one of the most significant and difficult job is database architecture. When customer's register on the website, the customer's termination is recorded in the database. The database contains information about the items, including their name, description, and image. Also, if we update any featured products, updates to the database. so The program has a lot to do with the database [11]. An implementation of Structured Query Language (SQL) is used to run each query on the database. As was previously indicated, PHP features like the ability to run the questions and link to a database are useful. The database system's specifics are depicted in the following picture. Five tables will comprise our database: register, tiny ad, product, category, and advertise. The diagram displays the creation of three tables. The following attributes are found in the table headed "product": product_id, product rate, category_id, and product_price. where product_id serves as the table's primary key, giving each product a distinct identification. This table uses the attribute category_id as a foreign key, which establishes a relationship with the table category that has the two elements category_id and category_name. A customer's information, including name, customer_id, product_id, quantity, and email, is kept in the customer table when they register on our website. Once more, the primary key for this table is customer_id, and the foreign key that connects it with the product table is product_id.

2.3 Designing

Both client-side and server-side scripting languages were used in the creation of the dynamic web pages in this application. On a server, scripts or programs run applications that create dynamic pages. We tested it locally on hosts and then transferred it to websites run by professionals. The webserver is what we use to run programs on our local PCs. Browsers like Google Chrome, Mozilla Firefox, or Safari is used to run this software; they all send out an HTTP request seeking dynamic web pages. When web servers receive HTTP requests, they analyze file extensions to identify which application server will handle the request and run any scripts that are given. This script retrieves data from a database server and saves it for later using information obtained from the browser. After being processed, an application server sends the HTML code for a page to a webserver, which then sends the HTML back to the browser as part of an HTTP response.

An application test gives stakeholders important information about a product's quality. Running the application is part of the testing process to look for faults (errors or defects). White-box testing, which is preferred over all other testing methods, entails evaluating properties of interest using only the essential components of an application. White-box, or clear-box, testing looks at a software program's internal structures and operations rather than how well it functions for the user. In order to develop test cases that illustrate this testing approach, white box testers need to possess both programming expertise and a thorough understanding of their system. Similar to evaluating nodes in an electrical circuit, the tester chooses inputs and explores paths through code to generate appropriate outputs. Based on the results of our test, it looks that our online application is operating flawlessly. Having fixed several errors throughout development, it now has completely functional website functionality. Now that it's ready, our web application is hosted on SHA-1 whenever it asks for a password from us.

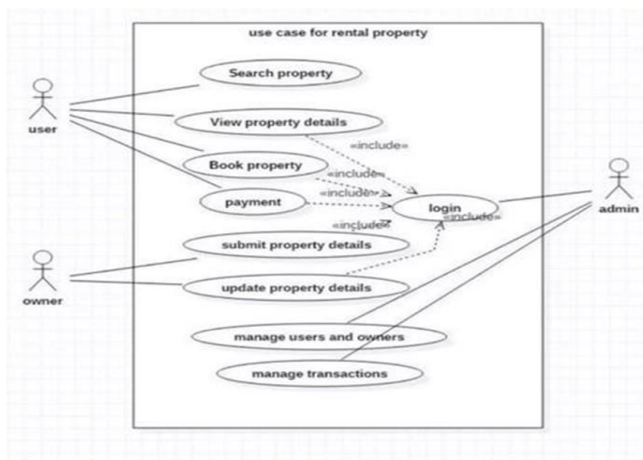


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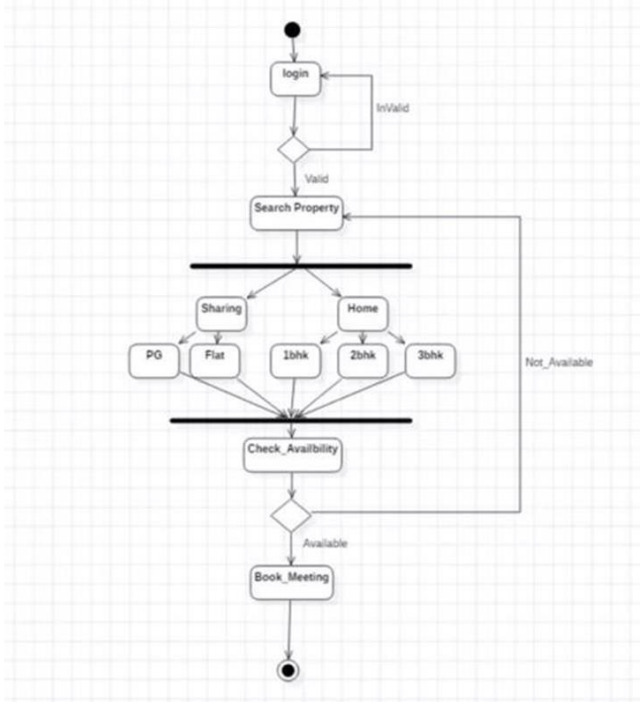


Figure 1. Caption of a typical figure.

2.4 Deployment

By utilizing cloud infrastructure to host, operate, and grow the platform for matching students with suitable housing, PG rental websites can be implemented on AWS (Amazon Web Services). The PG rental platform can be deployed and run more effectively thanks to AWS's extensive range of services, which are specifically designed to meet the requirements of online applications. AWS offers all the necessary parts for developing and implementing a reliable and scalable student housing solution, from networking and databases to compute and storage services. Reducing IT infrastructure costs is one of the cost benefits of deploying the PG rental website on AWS. In order to compute monthly depreciation and ensure equitable allocation of hardware and software costs, parameters such as amortization are used. Scalability in AWS guarantees that resources match demand, maximizing expenses. Improved security and dependability aspects of AWS. AWS's global reach expands the platform's accessibility, attracting a broader user base. Flexible management options streamline operations, allowing focus on platform enhancement and user experience. In summary, deploying on AWS promises cost efficiency, reliability, and scalability for the PG renting website [12].

3 RESULTS

Student housing has undergone significant transformation as a result of the introduction and use of cloud-based PG rental websites. Students looking for suitable housing near their schools have found the platform particularly helpful, addressing any immediate issues related to transitioning to college life. This website has revolutionized how students search and visualize PG lodgings, saving them both time and effort with its intuitive interfaces, sophisticated search filters, and in-

teractive mapping features. Users now feel more assured in trusting listed accommodations thanks to strict verification processes for landlords and properties as well as user reviews and ratings provided on them by this service.

4 DISCUSSION

Renting is now easier with safe booking and payment methods that give customers more flexibility and ease when making reservations online. Additionally, the platform's adaptable design strategies and accessibility features have ensured its usability across a variety of devices, contributing to user happiness and inclusion. Through rigorous testing and bug-fixing processes, the website has been made more stable and reliable to provide users with the optimal experience. Growth and expansion of AWS infrastructure can be seen through cost savings, scalability, dependability, and security benefits that accompany the deployment of applications on their infrastructure. Future research and development activities could focus on adapting security measures, optimizing performance, and exploring cutting-edge technologies. As such, the PG rental website represents an outstanding achievement in using technology and creativity to effectively address housing difficulties for students throughout their academic careers.

5 CONCLUSION

Cloud-based property management and rental websites represent a breakthrough for property managers and renters alike, offering more efficiency and flexibility when renting out properties online. In this study, deployment-related issues such as advantages and drawbacks of migrating such platforms to cloud infrastructure are also examined in depth. Cloud deployment of PG rental websites provides several advantages, such as scalability, flexibility, and cost effectiveness that enable it to adapt with customer expectations over time. Building owners and renters will benefit from reliable and accessible performance thanks to cloud-based resources. Further, data management is more efficient when using cloud-based solutions for centralization, improving user experience overall. However, such transfers may present certain complications and will need to be handled carefully. Care should be taken during implementation to address security problems, including data privacy concerns and the requirement of a strong architecture. Security measures must be put in place, in addition to careful planning and risk assessments, in order to reduce any vulnerabilities or weaknesses in technology. With technology constantly changing, cloud deployment for PG rental websites is vital in order to stay competitive while meeting growing demands.

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