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

Nikhil Singh, Palak Sharma, Lakshay Kumar Verma, Ankur Bhardwaj

Department of CSE, KIET Group of Institutions, Ghaziabad, India

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.

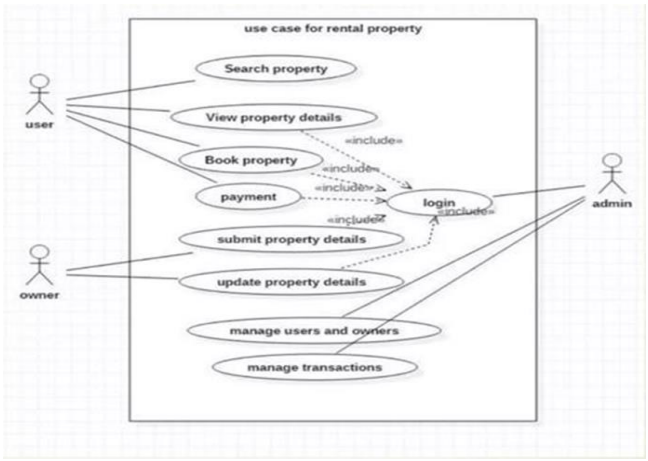

Figure 1. Caption of a typical figure.

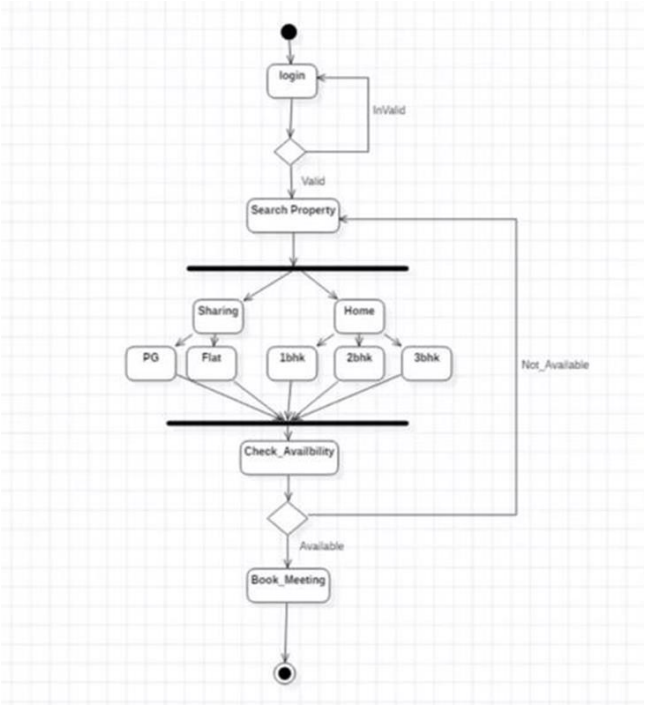

Figure 1. Caption of a typical figure.

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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