



CampusNest : A Student Accommodation Locator

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Abstract : This research introduces an advanced student accommodation locator, CampusNest, tailored to revolutionize the housing search experience for students of CHRIST (Deemed To Be University) Bangalore, specifically those seeking accommodations in and around the SG Palya area. Access to suitable housing is a critical concern for students, especially in areas like SG Palya, where proximity to educational institutions is crucial. Existing accommodation search platforms often fail to meet students' needs due to limited booking options, fragmented search results, and opaque review systems. In response, CampusNest emerges as a transformative solution, providing real-time information on availability, room amenities, and associated costs at hotels and PGs. The platform's intuitive online search options streamline the booking process, enhancing transparency and convenience for students. By addressing these prevalent challenges, CampusNest aims to significantly enhance the overall housing search experience for students pursuing education away from home in the SG Palya vicinity.

IndexTerms - Student Accommodation, SG Palya, Aggregated results, Realtime information, MERN.

I. INTRODUCTION

Access to suitable accommodation is not merely a convenience but a fundamental necessity for students, especially those pursuing higher education away from their hometowns. In the bustling locale of S.G. Palya, Bangalore, where CHRIST (Deemed to be University) stands as a beacon of academic excellence, the demand for quality student housing is ever present. The convergence of educational institutions, bustling city life, and the quest for a comfortable living space makes S.G. Palya a hotspot for accommodation seekers. However, the quest for suitable student housing is often fraught with challenges. From the struggle to find available options to the opacity surrounding crucial information like amenities, costs, and reviews, students encounter numerous roadblocks in their search. These hurdles not only add stress to an already demanding academic journey but also detract from the overall experience of studying away from home.

Recognizing these challenges, the research endeavors to delve into the specific pain points faced by students of CHRIST (Deemed To Be University) when seeking accommodation in the S.G. Palya vicinity. Through an exhaustive analysis, we aim to shed light on the prevalent issues plaguing the current landscape of accommodation search and propose a transformative solution in the form of CampusNest. CampusNest, built on the robust MERN (MongoDB, Express.js, React.js, Node.js) stack, represents a paradigm shift in the way students discover and secure accommodation. With a comprehensive platform that allows hostels to be listed and booked seamlessly, CampusNest addresses the multifaceted needs of students with a plethora of advanced features. One of the key highlights of CampusNest is its extensive array of filter options, empowering students to tailor their search based on hostel type, facilities, and even roommate according to departments. This granular level of customization ensures that each student can find accommodation that perfectly aligns with their preferences and requirements. Moreover, CampusNest prioritizes transparency and authenticity, offering a robust review system where users who have booked a hostel can share their experiences. This invaluable feedback mechanism not only fosters trust but also enables prospective tenants to make informed decisions. Incorporating cutting-edge technology, CampusNest integrates Google Maps functionality to provide precise location details of listed hostels, further enhancing the user experience. Additionally, with seamless Stripe payment integration, the platform simplifies the booking and payment process, ensuring a hassle-free experience for users.

By addressing the prevalent challenges head-on and leveraging the power of technology, CampusNest aims to redefine the accommodation search experience for students of CHRIST (Deemed to be University) in S.G. Palya. Through the research and proposed solution, it is endeavor to alleviate the burdens associated with finding suitable housing, allowing students to focus wholeheartedly on their academic pursuits and thrive in their educational journey.

II. LITERATURE REVIEW

The literature on student accommodation in Bangalore provides valuable insights into the evolving landscape of housing solutions for university students. The research endeavors to comprehensively understand the state of student accommodation in Bangalore, shedding light on the burgeoning demand for organized housing solutions amidst the backdrop of inadequate existing options. This exploration entails an insightful overview of Bangalore's education landscape, delving into the intricate factors propelling the necessity for student housing while also scrutinizing the myriad challenges students encounter within current

facilities, coupled with an examination of governmental support initiatives in this domain. Presenting a strategic blueprint for the establishment of a new student housing facility, the study meticulously weighs various considerations such as prime location selection, potential collaboration avenues with stakeholders, adept pricing strategies, and the provisioning of indispensable amenities. It further accentuates the latent potential for exponential growth within Bangalore's organized student housing sector, underlining the imperative for concerted action and innovation in this sphere [1].

Concurrently, a distinct study spearheaded by Mohsin Iqbal and associates meticulously probes into the profound influence of accommodation on the academic trajectory of university students. Their empirical findings compellingly underscore that nuanced factors encompassing personal space, privacy assurances, and ready availability of conducive study environments substantially shape students' scholastic attainments, with discernible correlations between access to such amenities and heightened academic prowess. Moreover, the research illuminates a salient disparity wherein students living independently tend to outperform their counterparts saddled with familial responsibilities, thereby advocating for the implementation of affordable accommodation models augmented by tailored academic-supportive facilities [2].

In a parallel vein, a meticulously conducted case study illuminates the prevalent discontent amongst students with respect to prevailing hostel conditions, underscoring the paramount importance of instituting a culture of continuous improvement predicated upon astute feedback assimilation to fortify student satisfaction levels [3]. Moreover, a groundbreaking investigation delves into the intricate decision-making paradigms guiding travelers' interactions with accommodation information hosted on online booking platforms. This seminal research underscores the pivotal role played by transparent and credible information dissemination in galvanizing traveler trust and subsequent booking behaviors, thus signaling imperative managerial implications for accommodation providers to meticulously refine their informational architectures to foster enhanced customer trust [4].

Also, an exhaustive analysis scrutinizes the multifaceted satisfaction drivers underpinning budget-conscious backpackers' lodging decisions, spotlighting tangible benchmarks such as optimal location provisioning and robust facility infrastructures, alongside intangible facets encompassing the geniality and adeptness of hostel staff, thus furnishing invaluable insights for hostel management entities to deftly cater to the diverse needs of their clientele and bolster service quality standards [5].

Another study by Simpeh and Shakantu presents a model for guiding the provision, adaptation, and management of on-campus student accommodation spaces and services, emphasizing the role of essential spaces and services in promoting students' living, learning, leisure, and well-being [6]. Utilizing the Kano model of customer satisfaction, the study underscores the importance of addressing both functional necessities and amenities to enhance student satisfaction and overall well-being, offering practical implications for estate, facility, and hostel managers.

In parallel, investigations into the strategies utilized by academically successful college students with disabilities shed light on the challenges and opportunities within higher education settings [7]. Despite a substantial increase in the population of students with disabilities in colleges, persistent challenges such as a lack of faculty understanding and low utilization of available services persist. The study emphasizes the need for better understanding and accommodation of students with disabilities to enhance their academic experiences and success.

In the global context, concerns over student accommodation quality (SAQ) in developing countries like Ghana prompt empirical research to identify and prioritize SAQ dimensions from students' perspectives [8]. This shift towards private participation in providing student housing underscores the importance of understanding student preferences to enhance accommodation services effectively. Similarly, in regions experiencing a significant increase in university education, such as Saudi Arabia, challenges encountered by undergraduate students studying away from their hometowns pose psychological, financial, and nutritional challenges [9]. Despite limited prior research, investigations into these challenges are crucial as they can impact students' mental health and overall adjustment to their academic environment.

In conclusion, the literature review underscores the importance of addressing the evolving landscape of student accommodation, including its impact on academic performance, challenges within hostel conditions, decision-making paradigms in online booking platforms, and satisfaction drivers for budget-conscious students. Furthermore, the studies emphasize the need for tailored solutions to enhance student accommodation experiences and support academic success in diverse higher education settings.

III. RESEARCH METHODOLOGY

The development of CampusNest follows a structured approach aimed at ensuring efficiency, transparency, and responsiveness to user needs. The project employs the Agile software development methodology, known for its iterative and collaborative nature, allowing for flexibility and adaptability throughout the development process. In the initial phase, extensive research is conducted to understand the specific requirements and pain points of students seeking accommodation near CHRIST (Deemed To Be University) in S.G. Palya. This involves stakeholder interviews, surveys, and market analysis to gather comprehensive insights. Following this, the development process progresses through iterative cycles, with continuous feedback loops driving enhancements and refinements. The development team collaborates closely with end-users to prioritize features and functionalities based on their importance and impact. Each iteration involves the design, implementation, testing, and integration of new features, ensuring a seamless and user-centric experience. The final phase encompasses rigorous testing, user training, and deployment, culminating in the launch of CampusNest as a robust and user-friendly platform that revolutionizes the accommodation search experience for students. Modules and architecture of the project are mentioned below:

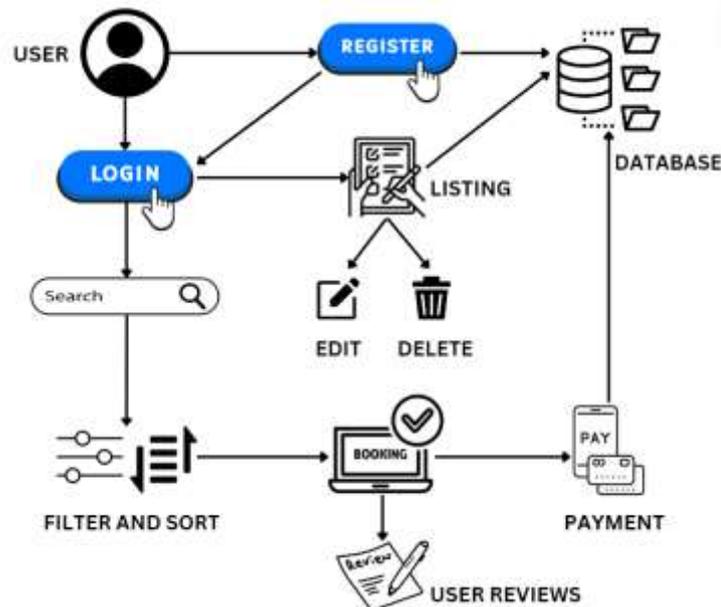


Fig 3.1: Architecture of CampusNest

3.1 Web Application

Through the web application, CHRIST (Deemed To Be University) students gain access to a user-friendly platform enabling them to register and explore a diverse range of nearby accommodations, including both hostels and private rooms. Users, including students, owners, and administrators, can securely sign in to their respective accounts to begin utilizing the platform's features.

3.2 Database Integration

MongoDB integration in website architecture optimizes user experience through expedited query processing for personalized accommodation listings. Administrators benefit from its scalability and real-time updates, ensuring efficient data management and high-performance operations.

3.3 Filter Option

CampusNest streamlines the accommodation search process with a range of filters. Users can refine searches by hostel rating (1-5 stars), type (budget, luxury, etc.), amenities (WiFi, parking, etc.), department (Computer Science, Business, etc.), and budget (Rs 5000 - Rs 20000). This user-centric approach ensures students find suitable accommodations tailored to their preferences and needs efficiently.

3.4 Search Functionalities

CampusNest offers diverse search options for accommodations in S.G. Palya, including location, distance, and bed filters. Users can refine searches based on proximity to landmarks and occupancy needs, ensuring efficiency and flexibility in finding ideal accommodations.

3.5 Hostel Listing

In the CampusNest web application, hostel owners have the capability to add their accommodations, providing essential details for potential tenants. They can input information such as hostel name, locality, city, description, pricing, star rating, and type. Additionally, owners can specify roommate preferences and department affiliations to attract suitable tenants. The platform also accommodates detailed hostel information including distance from key locations, bed availability, precise geolocation, and images for visual representation. This comprehensive listing process ensures that hostel owners can effectively showcase their offerings and attract the desired demographic.

3.6 Payment Gateway

In CampusNest, the payment process is seamlessly integrated with the Stripe payment gateway, ensuring a secure and efficient transaction experience for users. With Stripe, users can make payments for hostel bookings with confidence, as the platform supports various payment methods and provides robust security measures to safeguard sensitive information. Whether users are paying for accommodation reservations or additional services, the Stripe payment gateway ensures smooth transactions, enhancing user satisfaction and trust in the platform.

3.7 Admin

As the administrator of CampusNest, they have complete access to all platform functionalities, including user account management, hostel listings, and transaction monitoring. Their responsibilities extend to ensuring smooth operations, addressing issues, and maintaining compliance. Their proactive approach aims to optimize user experience and uphold CampusNest as a trusted accommodation locator.

3.8 Bookings

In the Booking section of CampusNest, users are presented with essential features to facilitate accommodation reservations. Each user is provided with options to select the desired hostel, specify the number of guests, and input check-in and check-out dates. These features ensure a seamless booking experience, enabling users to secure accommodations tailored to their preferences with ease and precision.

3.9 Location

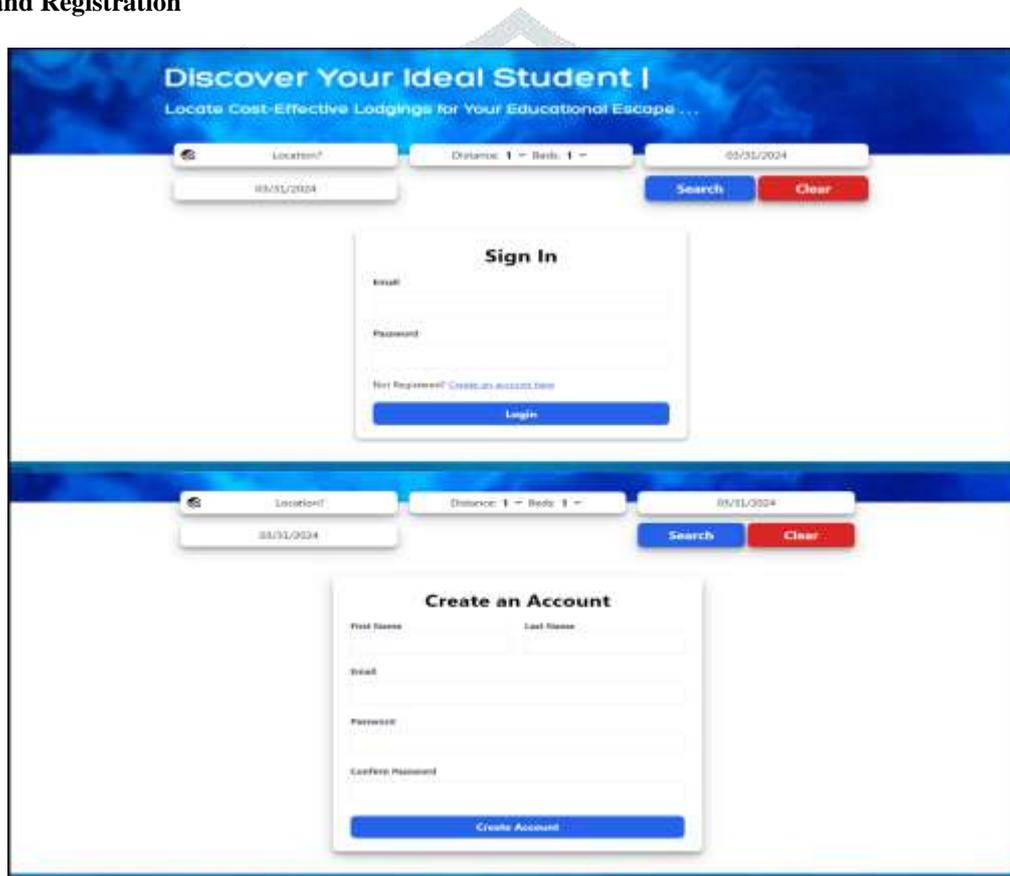
The Location section of the CampusNest application caters specifically to CHRIST University students, offering access to nearby accommodations primarily situated in the S.G Palya area of Bangalore. Through the website, students can conveniently explore hostel options in close proximity to the university campus, ensuring ease of access and convenience in their accommodation search.

3.10 Reviews and Ratings

In the Location section of CampusNest, students have the opportunity to submit reviews after their stay in a particular hostel. These reviews serve as valuable insights for other students, aiding them in making informed decisions when selecting accommodations. By leveraging peer feedback, students can assess the suitability of hostels and make choices that align with their preferences and requirements.

IV. PROJECT WORKFLOW AND DISCUSSION

4.1 User Login and Registration



The image displays two screenshots of the CampusNest website's user interface. The top screenshot shows the 'Sign In' form, which includes fields for 'Email' and 'Password', a 'Login' button, and a link for 'Not Registered? Create an account here'. The bottom screenshot shows the 'Create an Account' form, which includes fields for 'First Name', 'Last Name', 'Email', 'Password', and 'Confirm Password', along with a 'Create Account' button. Both screenshots feature a search bar at the top with a location input, distance and beds filters, and a date selector.

Fig 4.1: Login/Registration Page

CampusNest captures its user's details through login and registration forms. The login form is available on clicking the "Sign In" button on the top right corner of the website. The form requires users to enter their email and password to continue. On the same form, users can click the "Create an account here" link to access the registration form. To register to CampusNest, users need to enter their name, email and password.

4.2 Hostel Listings

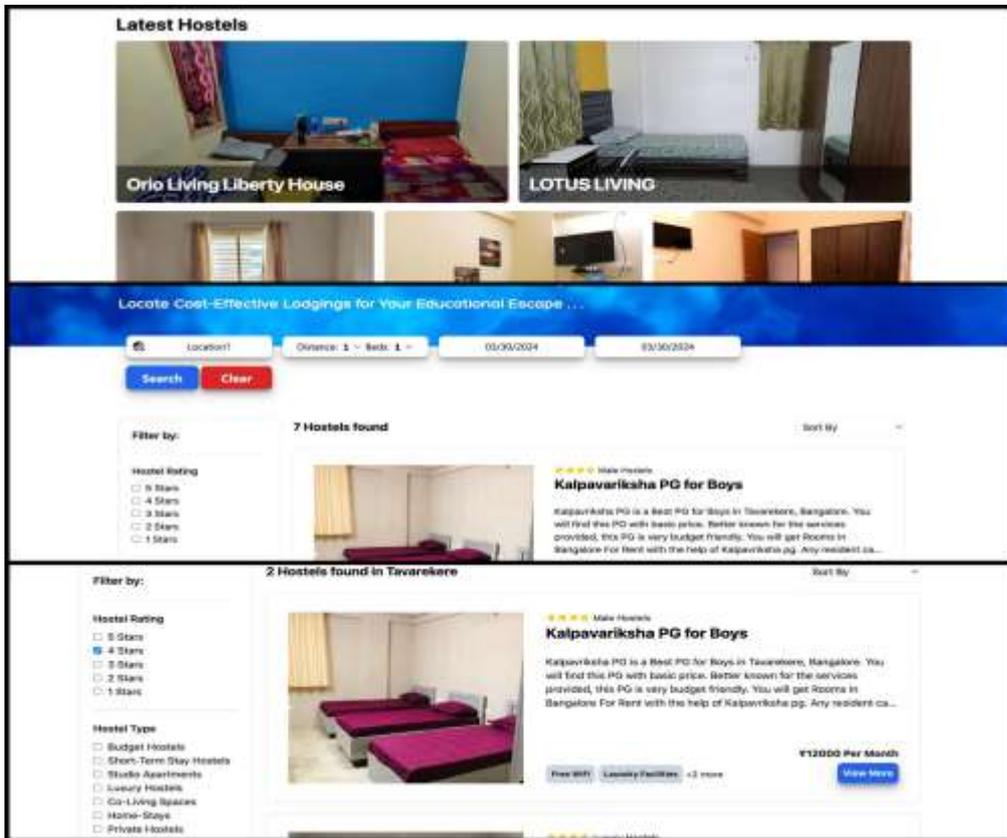


Fig 4.2: Homepage and Search Results

CampusNest elegantly displays the listed hostels on its website. The homepage of CampusNest shows the hostels as cards in the order of recently added. Users can also search for listed hostels based on their location, distance from university, occupancy type and duration of stay. The listed hostels can then be further filtered or sorted through a range sorting and filtering options.

4.3 User Bookings and Listings

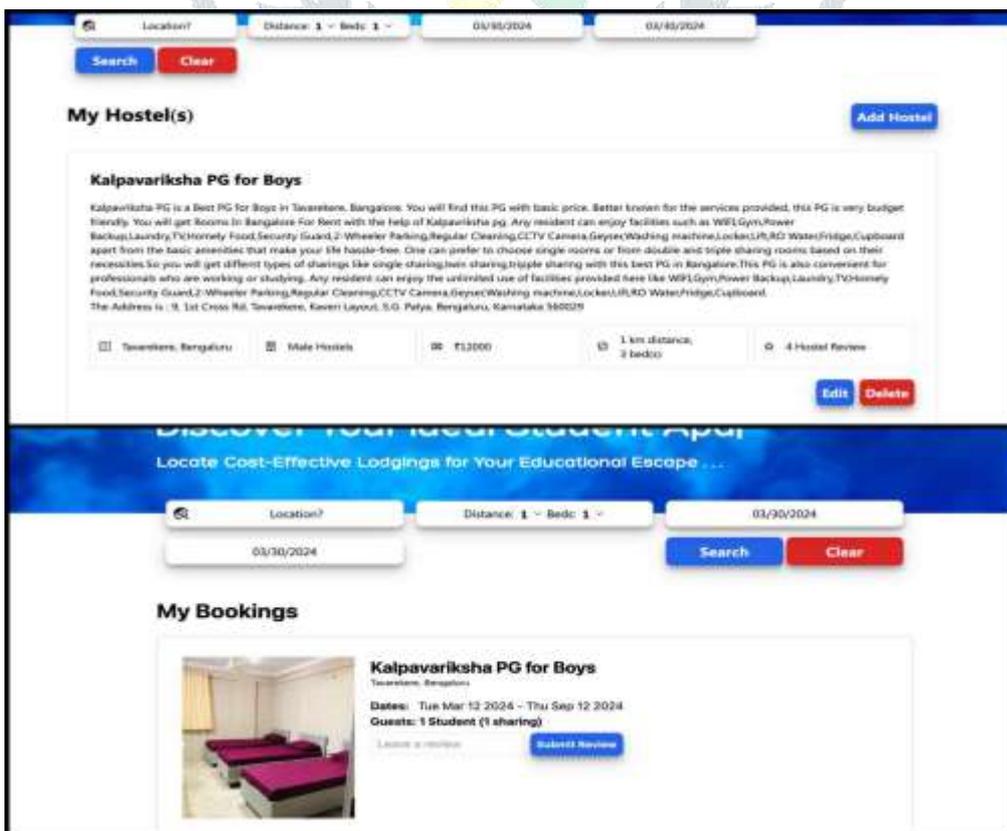


Fig 4.3: 'My Hostels' and 'My Bookings' Pages

In the 'My Bookings' tab of the CampusNest website, users can view the hostels that they have booked. There is also a form for submitting reviews against that booking. Users are also able to list their own hostels in the "My Hostels" tab of the website. Here users can view their already listed hostels or list more hostels. There are options to delete listings or edit them as required.

4.4 Payment Gateway

The screenshot displays a payment gateway interface. At the top, there are search filters for 'Location!', 'Distance: 1', 'Beds: 1', and a date '03/31/2024'. Below these are input fields for '07/31/2024' and buttons for 'Search' and 'Clear'. The main content is divided into two columns. The left column, titled 'Your Booking Details', shows the location 'Pelagia Paradise PG for Boys, 5G Palya, Bengaluru', check-in 'Sun Mar 31 2024', check-out 'Wed Jul 31 2024', a total length of stay of '4.1 Months', and '1 Student' guests. The right column, titled 'Confirm Your Details', contains fields for 'First Name' (with 'test' entered), 'Last Name' (with 'Name' entered), and 'Email' (with 'test@gmail.com' entered). Below these is a 'Your Price Summary' section showing a 'Total Cost: ₹92000.00' (excluding taxes and charges). At the bottom, there are 'Payment Details' fields for 'Card number' and 'MM/YY CVC', followed by a 'Confirm Booking' button.

Fig 4.4: Payment Gateway

Users while booking their hostels in CampusNest are redirected to payment page. The payment form is integrated to the website using Stripe. The form takes in user's name, email, card number, date of expiration and CVV. None of these details are stored in CampusNest's website. The form is completely handled at Stripe's end.

V. FUTURE SCOPE

Looking ahead, CampusNest possesses promising avenues for future growth and refinement. One key aspect involves ongoing enhancement of features to better cater to user needs, including real-time availability updates and virtual accommodation tours. Geographical expansion represents another opportunity, with plans to broaden coverage to encompass more universities and educational institutions across Bangalore and potentially beyond. Developing a mobile application version of CampusNest is also on the agenda, enabling greater accessibility and on-the-go accommodation searches for users. Community-building initiatives, such as discussion forums and networking opportunities, aim to foster a sense of belonging and collaboration within the CampusNest platform. Furthermore, leveraging data analytics and machine learning algorithms will provide valuable insights into user preferences and booking trends, facilitating optimization of the platform's functionality and user experience. The project also has a scope of being scaled to many more localities, cities and states, targeting students of various institutions. Through these strategic efforts, CampusNest is poised to continue its trajectory as a leading accommodation locator, providing invaluable support to students in their quest for suitable housing options.

VI. CONCLUSION

In conclusion, CampusNest offers a comprehensive solution to streamline the accommodation search process for students of CHRIST (Deemed To Be University) in Bangalore. With its user friendly interface, diverse search options, and integration of peer reviews, the platform empowers users to find suitable accommodations efficiently and effectively. By facilitating seamless interactions between students, hostel owners, and administrators, CampusNest fosters a supportive community environment conducive to academic success and personal wellbeing. Through continuous innovation and user feedback, CampusNest remains committed to enhancing the overall student living experience, ensuring that students can focus on their academic pursuits with peace of mind.

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