STUDENT-SHELTER

By

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Abstract

The transition to a new country is marked by numerous adjustments, and securing accommodation presents a unique set of hurdles. The unfamiliarity with local housing markets, rental procedures, and cultural norms can lead to a sense of uncertainty and vulnerability. They often have limited budgets and may be unfamiliar with the cost structures of accommodation in the new country. The anxiety and stress of navigating an unfamiliar system, combined with the urgency of finding a place to live, can have a negative impact on students' mental health and impair their ability to adjust to their new academic environment smoothly.

The “Student Shelter” Website focused on solving the difficulties students face in locating suitable and affordable housing further from their educational institutions. The project's objective is to develop a user-friendly website that connects students with available housing listings, streamlining the search process and providing comprehensive information to help students make informed decisions. This platform included advanced search capabilities, extensive property listings, geolocation services, and a user community section. The incorporation of a strong database facilitated in efficient data management and retrieval. Furthermore, the user interface was meticulously designed to ensure simplicity, clarity, and the best possible user experience. Through the development of a tailored online platform, the project endeavours to provide students with a comprehensive, efficient, and empowering tool to enhance their accommodation-seeking experience.

Signed (apply signature below)

**Declaration**

I hereby certify that this report constitutes my own work, that where the language of others is used, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of others.

I declare that this report describes the original work that has not been previously presented for the award of any other degree of any other institution.

**Date:**

**Parvathy Ponayil Gopinadhan Nair**

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# **Introduction**

Finding suitable and affordable accommodation is a crucial aspect of an international student experience. However, the current method of finding student accommodation is time-consuming, stressful, and inefficient at the moment. Existing platforms frequently lack critical features and fail to deliver a unified experience for both students and property owners. This creates an urgent need for a student accommodation website that transforms the way students look for, compare, and obtain suitable housing options.

The goal of this project is to develop a user-friendly student housing website that addresses the main difficulties that students face when looking for accommodation. This website is striving to simplify the entire process by utilizing technology and implementing creative features, making it quicker, faster, and more efficient for students to discover their suitable residence. By offering comprehensive and up-to-date information on available housing options, the proposed student accommodation website will overcome the limitations of existing platforms. Students will be able to make informed decisions based on extensive descriptions, features, cost, location, and property rules.

For students' overall academic experience, social integration, and well-being, the website will implement a student community. By providing a platform that allows students to create posts, share experiences, seek advice, and engage in conversations, student accommodation websites can foster a sense of belonging and connectedness. This community feature enables students to find roommates, discover local events and activities, exchange information about the best study spots, share tips on navigating the university, and provide support during challenging times.

Overall, the creation of a student housing website intends to minimise the difficulties that students confront throughout their housing search. Students will have a more positive and refined experience in locating their appropriate accommodation by providing a comprehensive, user-friendly, and efficient platform, allowing them to focus on their studies and live a fulfilling student life.

## 1.1 Research Question or Problem statement

The problem being addressed is the tedious and frustrating process of searching for student accommodation through existing online platforms. This problem affects both students and landlords getting involved in the rental process. The problem always occurs in various locations and when students need housing, particularly during the start of academics.

This issue has a substantial impact on students because they have difficulty locating adequate and inexpensive housing options. The absence of comprehensive and up-to-date information on existing platforms wastes time and creates ambiguity. Students struggle to find housing options that fit their specific demands, such as proximity to colleges, desired room types, and budget limits. Property owners are also affected by the problem since their homes may go overlooked or receive insufficient publicity due to the limits of existing accommodation websites. This limits their ability to attract potential student tenants, possibly leading to longer vacancy periods or lower occupancy rates.

It is essential to find a solution to this issue because student housing is essential to a fulfilling and successful educational experience. Finding appropriate and inexpensive accommodation benefits student’s general well-being, academic achievement, and social integration. Students will have access to thorough information, advanced search capabilities, an integrated student community and an improved user experience by creating a student housing website that takes the issues into account. Solving this issue will enable students to make educated judgments, promptly secure their preferred housing, and focus on their academics, resulting in a more fulfilling and successful academic journey. The website providing a direct option for landlords to add their properties to the student accommodation website. This will benefit from more visibility and a wider pool of possible tenants, which will lead to higher occupancy rates and a more streamlined rental procedure.

## 1.2 Aims

1.The primary aim of a student accommodation website is to provide a user-friendly platform that simplifies the search process for students.

2.student accommodation website is to provide comprehensive and accurate information about available accommodations. This includes details about rental prices, additional fees, lease terms and the facilities available.

3.Create a supportive online community for students to interact, share experiences, seek guidance, and form relationships.

4.Support landlords by providing them with a direct option to add and manage their property listings.

## 1.3 Objectives

1. Create a google form and made a survey about student accommodation feedback.
2. Collect sample data from different sources.
3. To create the layout and processes for the website utilizing website design methodologies such as wireframes.
4. Use the Firebase database to store all user data.
5. Research and compare about the current scenario of the student accommodation websites.

## 1.4 Legal, Social, Ethical and Professional Considerations

The design and operation of a student accommodation website requires several important considerations from a legal, social, ethical, and professional standpoint. These key considerations can be addressed to build a student accommodation website that provides a valuable service as well as operates in a responsible, ethical, and ethical manner, nurturing positive relationships between students and landlords as well as adhering to industry and legal standards. A quick overview of each of these areas follows:

1.4.1 Legal Considerations:

**Data Protection and Privacy:** Ensure compliance with data protection laws (e.g., GDPR, CCPA) by obtaining user consent for data collection and processing [17]. Safeguard personal information and establish a privacy policy.[18]

**Fair Housing Laws:** Adhere to fair housing laws to prevent discrimination based on factors like race, religion, gender, and disability. Avoid discriminatory language and practices in property listings.

**Intellectual Property:** Respect copyright laws by obtaining proper licenses for images, videos, and content used on the website. Protect your own intellectual property as well.

**Terms of Use and Disclaimers:** Clearly outline the terms of use for the website, including limitations of liability and user responsibilities. Use disclaimers to clarify the scope of information provided.

**Contracts and Agreements:** If you're facilitating lease agreements, ensure these contracts are legally sound and transparent. Provide tenants and landlords with clear terms and conditions.[19]

1.4.2 Social Considerations:

**Inclusivity and Diversity:** Promote inclusivity by featuring diverse property listings and avoiding discriminatory language or practices. Cater to the needs of various student groups, including international students and those with disabilities.[20]

**Community Building:** Encourage a sense of community among users by facilitating communication between landlords and tenants. This can improve the overall living experience for students.

**Feedback and Reviews:** Allow users to provide reviews and feedback about properties and landlords. This promotes transparency and helps other students make informed decisions.

**Local Impact:** Consider the impact of student housing on the local community. Encourage responsible behaviour and cooperation with residents to maintain positive relationships.

1.4.3 Ethical Considerations:

**Transparency:** Provide accurate and transparent information about properties, amenities, and costs. Avoid deceptive marketing practices that could mislead students.[21]

**Tenant Well-being:** Prioritize the well-being of tenants by ensuring properties meet safety standards, are well-maintained, and provide a conducive environment for studying and living.

**Sustainability:** Promote eco-friendly practices and sustainable living within properties. Encourage energy efficiency, waste reduction, and responsible resource usage.

**Honest Communication:** Foster honest communication between landlords and tenants. Discourage unethical behaviour such as hidden fees or neglecting maintenance.

1.4.4. Professional Considerations:

**User Experience (UX) Design:** Develop an intuitive and user-friendly website interface that makes property searching and leasing easy for students.

**Customer Service:** Provide excellent customer support to assist students and landlords with any inquiries or issues related to the website or property listings.

**Accuracy of Information:** Ensure all property information, including availability, prices, and amenities, is accurate and up to date. Misleading information could harm your reputation.

**Conflict Resolution:** Establish a process for resolving disputes between tenants and landlords that may arise through the platform.[22]

1.5 Background

A student housing website plays a central role in the lives of students pursuing education abroad. An international student's journey is often filled with excitement and anticipation, but it also comes with numerous challenges. One of the most important aspects that can greatly affect the overall experience is finding suitable and safe accommodation in a foreign country. The application seeks to address several significant concerns that have emerged from my own experiences and from user research.

The cultural disparities, the bustling cityscape, and the unfamiliarity of everything around overwhelmed me when I first arrived in the new nation. Although my agency offered some advice on possible housing possibilities, the resources were limited, which left me feeling confused.I found various student housing websites while I searched the internet for solutions. They promised an easier way to find a home in a new country, offering detailed listings, images, and user-friendly filters. The first few days were a whirlwind of visiting potential apartments which I got from several accommodation websites. Some of them are not student friendly and some doesn’t meet my requirements

However, the reality wasn't precisely what I had imagined. I became disappointed as I searched for properties that were no longer accessible as well as some websites lacked the most recent information. Some had opaque pricing structures or omitted important information regarding the condition of the accommodations. It was an arduous process, consuming both time and energy. I found myself questioning if there was a better way.

Frustrated by the limitations of existing student housing websites, I began to think of a platform that could meet the needs of international students like me. I desired a platform that went beyond simple listings. My concept includes up-to-date information, open communication lines, and a supportive student community where students could share their experiences. My concept evolved over time, and I established a website with detailed home details, authentic evaluations from fellow students, and a direct line to landlords.

My journey from struggling to locate housing to launching a student housing website showed the significance of such platforms. These websites enable international students to make smart decisions regarding their living arrangements by providing accurate information, enabling clear communication, and promoting transparency.

## 1.6 Report overview

This report provides a thorough analysis of student housing websites and their impact on international students. The following sections of this report will include a literature study and a technology review, followed by the Methodology section and finally the Project Implementation and Evaluation. Eventually, the report will come to a finish with a conclusion.

The literature and technology review section will delve into existing research and technological advancements related to student accommodation websites. It will provide a summary of scholarly articles and investigations.

The methodology section describes the research strategy used in this report. It describes the study methods, data collection strategies, and which project management tools and techniques used.

The implementation section describes in depth the implementation phase of the website's development. It encompasses the creation of user personas, the system design process, and the utilization of sprints as an agile project management approach.

The results section presents the findings from the literature review, technology analysis, and implementation exploration. This will include an evaluation of the work as well as information about similar projects.

Finally, the conclusion section of this report encapsulates the project's journey, focusing on the overall project outcome and the extent to the initial aims and objectives where I met. It also includes a process reflection, highlighting lessons learned and areas for improvement. Furthermore, the section discusses future possibilities and potential project enhancements.

# **Literature - Technology Review**

The globalization of higher education has significantly increased the number of international students seeking educational opportunities abroad. As these students want to broaden their horizons and receive a first-class education, they face significant challenges in finding suitable accommodation abroad. This literature review aims to examine the unique housing needs and challenges faced by international students, the role of dedicated accommodation websites in addressing these concerns, and the impact of quality accommodation on the overall experience of international students.

International students often face special challenges compared to domestic students when looking for suitable accommodation. Major issues include cultural and language barriers, unfamiliarity with local housing regulations, and difficulty in assessing the safety of potential housing sites and proximity to academic institutions. In addition, international students often have specific preferences, such as wanting to live with students from their own country or finding accommodation that meets their dietary and lifestyle requirements.

In response to the unique needs of international students, a dedicated accommodation website has emerged as a valuable resource to simplify the accommodation search. These platforms offer a comprehensive database of rental properties, student housing and homestay options specifically tailored to the needs of international students.

## 2.1 Literature Review

**Student Accommodation: The Facts - Sarah Jones and Martin Blakey**: The study investigates several essential concepts for the UK student accommodation sector, as well as a market overview.[8]

Student housing is finally being recognised as an integral component of the educational package by the higher education sector. Good quality, low-cost, and well-managed housing can significantly improve a student's overall educational experience by offering an optimum academic atmosphere as well as a stimulating and stable social experience.

There are three forms of student housing on the market: university dormitories, private sector PBSAs, and student HMOs or off-street homes. The purpose-built sector had 627,000 rooms in 2018/19. This stock was made up of somewhat more than half university residences. The National Codes encompass 627,000 bed spaces, including 52% in university-provided housing and 48% in private PBSA. An additional 551,000 students live in the off-street market, according to a House of Commons briefing. On these bases, at least 1.2 million students live. 28 percent live in university housing, 27 percent in private sector PBSA, and 45 percent live off-campus.

**The Accommodation Challenges of International Students - Kornkanok Duangpracha:** The thesis describes how international students strive to deal with the numerous housing issues that they experience.[9]

International students have increased dramatically in higher education institutions in recent years. Although studying abroad has many advantages for international students, leaving their home country and earning a degree in another language comes with several challenges, including those related to finding acceptable housing. Finding proper housing is one of the first important concerns that international students face while deciding to study abroad. On the one hand, proper housing can be a heaven that helps individuals deal with life's challenges; on the other hand, unsuitable accommodation can add more stress and worry. He points out that it is important to international students to feel a sense of being ‘at home’ in their study and living conditions. This is because living “away from their supportive families, can lead to emotional disturbances. Living in suitable accommodation helps international students to counteract feelings of insecurity and loneliness.

Zoopla is an online platform [10] serving distinct purposes in the real estate market. its primarily focuses on buying, selling, and renting properties across the UK. Zoopla’s focus is on whole properties, such as houses and apartments. While it may include some room rental listings, its primary strength lies in the buying, selling, and renting of entire properties. As a result, users looking specifically for individual rooms in shared accommodations might find a limited selection on Zoopla.it not specifically designed for flat shares or shared accommodations. While it might have some listings for shared properties, it lacks the specialized features and search filters for a student. But Student-shelter offers for this type of housing. Student shelter specializes in helping students find rooms and flat shares in shared accommodations. Zoopla application may not provide the same level of depth and specialization for those seeking shared accommodations compared to Student-shelter, which is exclusively focused on this niche market. Zoopla does not provide detailed information about property ownership and rental history.

Introducing a student community feature to a student shelter can be a valuable addition to enhance the overall user experience and engagement. Adding a community section can create a supportive and engaging environment for students, making this platform more than just a listing site. By facilitating social interactions, networking opportunities, and information sharing. it enhances the overall user experience and attract more students to the website.

## 2.2 Technology Review

The student accommodation landscape has evolved significantly in today's digital age, with technology playing a key role in reshaping how students find, secure and experience housing. As the demand for efficient and user-friendly solutions increases, it becomes increasingly important to develop a student accommodation website utilizing cutting-edge technology to meet the diverse needs of today's students. The purpose of this technology review is to explore and critically evaluate several technology options for developing student housing websites.

2.2.1 Technologies Reviewed

Creating a student accommodation website, it is important to consider many technologies such as front-end development, back-end services, database management, user experience, and security. In my master's program, I study various technologies such as programming languages ​​such as Python and database query languages ​​such as MySQL, and design languages ​​such as HTML, CSS, and java script. During my journey, I discovered two widely used web development technologies React.js and Angular.

Angular

Google's Angular [2]s a sophisticated JavaScript framework for creating dynamic web applications. Its two-way data binding, declarative templates, and dependency injection features enable developers to design sophisticated Single Page Applications (SPAs). The Model-View-Controller (MVC) architecture is used by Angular, which provides an organised approach to organising application code. Angular is more complex than React js due to its opinionated nature and broad feature set.

React.js

React.js is a well-known and powerful open-source JavaScript toolkit for creating user interfaces. It improves efficiency by updating only the relevant sections of the user interface using a virtual DOM. Reacts JS syntax makes sophisticated UI code easier to develop and manage. React.js can be a very effective framework tool for developing Student-Shelter Application.

2.2.2 Technologies used for Student-Shelter application

Environmental Setup

**Install VS Code**: The essential tool for setting up the environment is VS code. Microsoft Visual Studio is a popular and lightweight code editor that offers comprehensive JavaScript and web development functionality.[12]

**Install Node.js and npm:** The major tool for setting up the environment is Visual Studio Code. Microsoft Visual Studio is a popular and lightweight code editor that offers substantial support for JavaScript and web development.

**Set Up GitHub**: GitHub is a web-based platform and hosting service that provides a centralised location for version control and software development project collaboration. [14https://github.com/]

Front-end Frameworks

Front-end frameworks aim to simplify the development process by providing a standardized set of tools and design patterns, allowing developers to focus more on website functionality and content. Front-end coding languages ​​such as CSS, JavaScript, JavaScript Extensions (jsx), HTML, and more improve visual presentation and accessibility for users as they navigate through the application.

**CSS**: Cascading Style Sheets is a language for controlling the appearance and layout of HTML texts. It is an essential component of web development and plays a significant role in website design.[13]

**JSX**: JavaScript XML is a JavaScript language extension that is extensively used in React, a prominent JavaScript toolkit for constructing user interfaces. Developers can use JSX to express HTML-like syntax in JavaScript code, making it easier to design and change UI components in a more declarative and natural manner.

**HTML:** The standard markup language used to create and arrange content on the World Wide Web is Hypertext Markup Language. It is the foundation of web page production and defines the structure and layout of the content using a collection of tags and elements.

**JS:** JavaScript is a high-level interpreted programming language that is mostly used to create interactive and dynamic web content. It is a client-side web development technology that is widely used.[11]

Back-end Framework

Google Firebase is a powerful and versatile platform that is revolutionising the way developers construct online and mobile applications. Firebase simplifies the app development process by providing a comprehensive set of tools and services, allowing developers to focus on developing compelling user experiences rather than worrying about infrastructure administration. Firebase provides everything needed to construct high-quality, scalable, and secure apps, from real-time database and authentication services to cloud storage and hosting solutions.[13]

# **Methodology**

I will approach the project with a well-defined strategy that encompasses a range of tools and methods for efficient execution. The project will adopt an Agile methodology to ensure flexibility and continuous improvement. Agile methodology is widely adopted in project management due to its numerous advantages that promote flexibility, collaboration, and adaptability throughout the project lifecycle. I have chosen the Agile methodology for my project due to its dynamic and responsive approach. Agile iterative nature allows me to adapt to changing requirements and incorporate feedback throughout the development process. This flexibility ensures that the final product closely aligns with user needs and expectations.

I have chosen Figma as my wireframing and prototyping tool. Figma will be employed for designing wireframes and prototypes, as it supports real-time collaboration and aligns with the collaborative nature of the projecting’s popularity and user-friendly interface make it a suitable choice for seamless design collaboration. The diverse design components and libraries in Figma expedite the design process and ensure consistency. Moreover, Figma's intuitive interface aligns with the project's user-centred focus, enabling me to create comprehensive wireframes and interactive prototypes that effectively convey the project's vision to stakeholders and users.

For data collection, Google Forms will be utilized to create surveys and collect data from target users. To gather data from students facing accommodation challenges, Google Forms will be used for its user-friendly interface and efficient data collection, as supported by the technology review. The platform's simplicity and accessibility make it easy for participants to provide feedback It also emphasizes the platform's capacity to efficiently gather structured data, which aligns with the project's data collection requirements.

Project management will be streamlined with Trello, an Agile-friendly tool, and version control and collaboration will be managed using GitHub. These chosen methods, informed by the literature and technology review, prioritize collaboration, user-centred design, and Agile principles, ensuring a comprehensive and responsive project execution.  
3.1 Project Management  
I choose Trello as my project management tool. Trello is a well-known project management tool that helps you to organise tasks and projects in an easy and transparent manner. It uses a board and card structure, with users able to construct boards for various projects and lists within those boards to indicate stages or categories. To track progress, each task or activity is represented by a card that may be moved across lists. Moreover, it is simple to use and has a user-friendly interface. The visual approach of Trello provides a clear overview of project status and progress. Another incentive to use Trello is its flexibility. It is easily adaptable to project management approaches and workflows. It can customize boards, lists, and cards to meet my individual needs. It offers an intuitive and versatile project management solution, making it a preferred choice to streamline the workflows.

**Trello Board 1**

A screenshot of a computer

Description automatically generated

**Figure 1**

**Trello Board 2**

A screenshot of a computer

Description automatically generated

**Figure 2**

I have opted for GitHub for updating and storing my project due to its robust version control capabilities. GitHub provides a secure and organized platform for managing code changes, ensuring that every iteration is documented. Its branching and merging features facilitate parallel development, reducing the risk of conflicts. Additionally, GitHub serves as a centralized repository, offering a comprehensive history of the project's evolution. This enhances accountability, simplifies debugging, and ensures that the project's codebase remains organized and accessible throughout the development process.

|  |  |
| --- | --- |
| **Project Report Delivery Schedule**  Note: Reorder the sections in the order that you plan to complete them. | Deadline Date |
| Abstract | 01-08-2023 |
| Declaration | 01-08-2023 |
| Acknowledgements | 02-08-2023 |
| Introduction | 20-07-2023 |
| Literature - Technology Review | 20-07-2023 |
| Methodology | 31-07-2023 |
| Implementation and Results   * Evaluation * Related Work | 03-08-2023 |
| Conclusion   * Reflection * Future Work | 01-08-2023 |
| References | 02-08-2023 |
| Appendices | 03-08-2023 |

**Table 1: Project Report Delivery Schedule**

|  |  |
| --- | --- |
| **Artefact Delivery Schedule**  Note: Reorder the activities in the order that you plan to complete them. | **Deadline Date** |
| Artefact Planning and Resourcing | 26-07-2023 |
| Artefact Design | 27-07-2023 |
| Artefact Procurement Activities (e.g., data collection, source framework etc.) | 22-07-2023 |
| Artefact Development, Deployment, Implementation | 03-08-2023 |
| Artefact Evaluation and Testing | 03-08-2023 |
| Artefact Presentation and Demonstration | 20-08-2023 |
| Artefact Screencast | 22-08-2023 |

**Table 2: Artefact Delivery Schedule**

# **Implementation**

In implementing the Student Accommodation Website, I applied a systematic approach that encompassed architecture design, user experience (UX) design, iterative development sprints, and addressing key technical challenges. The project was executed through multiple phases, each contributing to the realization of the final artefact. To manage the project effectively, I adopted an iterative development approach with distinct sprints. Each sprint was dedicated to implementing specific features and addressing challenges. This structured approach facilitated efficient development, regular progress assessments, and flexibility to accommodate changes based on user feedback.

4.1 Agile Software Development Model

The Student Accommodation Website was developed using the Agile software development model, a flexible and iterative methodology that suited the project's dynamic nature. The Agile methodology was instrumental in ensuring efficient development, continuous improvement, and responsiveness to user needs. The project was divided into several development sprints, each lasting around two weeks. Before each sprint, I conducted sprint planning sessions where I identified the features to be developed or improved. I created a backlog that contained user stories and tasks, prioritized based on their significance and complexity. During each sprint, I focused on developing specific features or addressing issues from the backlog. The iterative development approach allowed me to release functional increments at the end of each sprint, ensuring continuous progress and enabling me to gather early user feedback.

4.2 Plan Stage

In the early phases of developing the Student Accommodation platform, conducting a comprehensive preliminary analysis, thorough research, and user data collection was pivotal to ensure a successful implementation. This stage encompassed a deep exploration of existing literature and contemporary application development technologies to establish a solid foundation for the project's execution. I initiated the process by delving into a comprehensive review of existing literature, examining related projects, and studying the landscape of student accommodation platforms. This helped in identifying gaps, understanding challenges, and drawing inspiration for innovative features.

Recognizing the paramount importance of user needs, I engaged with potential users to gather qualitative insights that would shape the application's design and functionalities. I extended this engagement beyond surveys, conducting informal discussions with friends, co-workers, and students to gain a comprehensive understanding of the challenges they faced in their search for accommodation. To systematically capture user perspectives, I devised a comprehensive questionnaire. This survey was carefully designed to encompass the most common challenges faced by students seeking accommodation. Through this approach, I was able to collect valuable feedback from users.

4.3 Design stage

The design stage of the project was a pivotal phase where insights from research were transformed into a functional and intuitive user interface. The goal was to create an engaging and seamless experience for students seeking suitable accommodations.

4.3.1 User Persona

In the process of designing the Student Accommodation platform, the incorporation of user personas significantly influenced the development of user experience, interface design, and features. Creating and utilizing user personas allowed for a more personalized and empathetic design approach. Based on the insights gathered from research and user engagement, I developed detailed user personas that represented different segments of the target audience. These personas were crafted to capture the diverse needs, preferences, and challenges faced by students seeking accommodation.

A close-up of a person's face

Description automatically generated**User Persona**

**Figure 3**

4.3.2 Use case Diagram

A use case diagram is a visual representation of the functional requirements of a system from the perspective of its users. It shows the interactions between different users and the system's various use cases (specific functionalities). This use case diagram provides an overview of the main interactions and functionalities of your student accommodation website, helping to visualize the relationships between users and the system's features.[23]

**A diagram of a person's structure

Description automatically generatedUse case Diagram**

**Figure 4**

4.3.3 Wireframes

Wireframes are visual representations of the layout and structure of a website or application. They outline the placement of elements on each page and provide a rough idea of how the user interface will look. These wireframes provide a visual blueprint of how different pages of the student accommodation website will be laid out. They help in planning the user interface and interactions before moving on to the actual design and development stages.

**Landing Page**

**A screenshot of a computer

Description automatically generated**

**Figure 5**

**Login Page**

**A screenshot of a login screen

Description automatically generated**

**Figure 6**

**Registration Page**

**A screen shot of a registration form

Description automatically generated**

**Figure 7**

**User Home Page**

**A screenshot of a computer

Description automatically generated**

**Figure 8**

**A screenshot of a website

Description automatically generatedSearch Result Page**

**Figure 9**

**Community Home Page**

**A screenshot of a computer

Description automatically generated**

**Figure 19**

4.4 Implementation Stage

The implementation stage in Agile methodology involves turning the requirements and designs into functional software increments. It's a collaborative process that focuses on iterative development, continuous integration, and delivering value to users as early as possible.

In the implementation section, I translated the design concepts into functional code, adhering to established coding standards and best practices. I actively participated in writing code. I used Visual Studio Code as the coding environment and React.js for building the front-end user interface. For the back end, Firebase was utilized to manage data storage and authentication. The following pictures show how each of the development pages on the student-shelter website turned out in the end.

4.4.1 Application Screenshots

**A screenshot of a website

Description automatically generatedLanding Page**

**Figure 11**

**Login Page**

**A screenshot of a login screen

Description automatically generated**

**Figure 12**

**Registration Page**

**A screenshot of a computer

Description automatically generated**

**Figure 13**

**User Home Page**

**A screenshot of a website

Description automatically generatedfigure 14**

**User Search**

**A screenshot of a computer

Description automatically generated**

**Figure 15**

**Figure 16**

**Community Page**

**A screenshot of a social media post

Description automatically generatedfigure 17**

**A screenshot of a website

Description automatically generatedLandlord Home Page**

**Figure 18**

**Figure 19**

**4.4.2 Database Structure**

**A screenshot of a computer

Description automatically generated**

**Figure 20**

**User Collection with Data**

**A screenshot of a computer

Description automatically generated**

**Figure 21**

**Authentication Data**

**A screenshot of a computer

Description automatically generated**

**Figure 22**

**Property Details Data**

**A screenshot of a computer

Description automatically generatedFigure 23**

4.5 Test Stage

The test stage within the implementation part of a project is a critical phase that ensures the quality, functionality, and reliability of the developed software. This stage involves a systematic approach to identify and rectify any defects or issues in the code before the software is deployed to users. The test stage ensures that the software is thoroughly evaluated to identify and rectify any issues before it reaches end-users. By conducting various types of testing and addressing any identified defects, the implementation part of the project can deliver a high-quality, reliable, and user-friendly software product.

Incorporating usability testing into the project has proven to be a pivotal step in ensuring the effectiveness and user-friendliness of the student accommodation website. By engaging representative users in realistic scenarios, I have gained invaluable insights into how they interact with the platform, navigate its features, and accomplish tasks. Through careful observation and user feedback, usability testing has unveiled usability challenges, such as navigation complexities or unclear instructions, which might otherwise have gone unnoticed. This approach has enabled me to prioritize improvements that directly impact the user experience. By addressing these issues iteratively and incorporating user suggestions, I am confident that the final product will provide an intuitive, seamless, and satisfying experience for students seeking accommodation. The integration of usability testing within the implementation process reinforces my commitment to delivering a platform that aligns precisely with user expectations and needs, ultimately enhancing their journey in finding suitable accommodations.

4.5.1 Usability Test 1

**Scenario:** Searching for Accommodation

**User Persona:** Emily, a first-year international student

Task: Emily is looking for a single-bedroom accommodation near her university campus. She needs to use the website to search for available options that fit her budget and are within a 20-minute walking distance from the campus.

**Usability Test Steps:**

1. Provide Emily with a brief introduction to the website and explain that she will be searching for suitable accommodation.
2. Ask Emily to start from the homepage and guide her through the process of using the search feature to find accommodation that meets her criteria.
3. Observe how Emily interacts with the search filters, input fields, and search results.
4. Encourage Emily to verbalize her thoughts, concerns, or any difficulties she encounters during the process.
5. Note the time taken by Emily to complete the task and whether she successfully finds accommodation options meeting her preferences.

**User Feedback:**

* Emily mentions that the search filters are intuitive and easy to use, allowing her to set her budget and preferred distance effortlessly.
* She appreciates the map integration that shows the location of each accommodation option.
* Emily suggests that having a "Save" button next to each listing would be helpful for bookmarking options.
* She mentions that the website response time is fast, making the experience smoother.

**Findings and Improvements:**

Based on Emily's feedback, it's evident that the search functionality and map integration are user-friendly and effective. The suggestion about adding a "Save" button is valuable and can enhance the user experience by allowing users to easily track their preferred options. This feedback aligns with the goal of providing an intuitive and efficient platform for students seeking accommodation.

**Implementation:**

Taking Emily's feedback into account, I will work on implementing the "Save" button feature alongside the accommodation listings. This enhancement aims to address user needs and make the platform more user-centric, contributing to a seamless and user-friendly experience for all students using the website to find accommodation.

By conducting usability tests with representative users like Emily, the project ensures that the student accommodation website is designed to cater to real user needs and preferences, leading to a more effective and user-friendly platform.

# **Results**

The outcome of the Student Accommodation Website project is a transformative platform that addresses the longstanding challenges students face when seeking suitable housing. This comprehensive solution greatly streamlines the procedure, provides users with useful knowledge, and promotes a sense of community. The platform's creation and use have produced a user-friendly interface, sophisticated search tools, thorough property listings, and a vibrant student community section. Together, these functions achieve the project's objectives of simplifying the search process, offering thorough information, encouraging community engagement, and supporting landlords. The project's major outcome on the housing experiences of international students serves as proof of its success. Users can quickly find suitable accommodations based on their preferences using the platform's advanced search functionalities, saving time, and reducing the stress associated with housing search.

The student community feature has made it possible for students to interact and support one another, easing the emotional toll of relocating and facilitating a more seamless transition. Through this project, I have come to realise how crucial it is to comprehend user needs and incorporate iterative feedback. The outcome is a user-centric platform that is in line with the difficulties faced by international students, reflecting the integration of these insights. The project also highlights how technology has the ability to improve people's experiences and overall well-being by resolving real-world problems. This outcome is proof of the effectiveness of creativity, design, and empathy in coming up with solutions that enhance lives and pave the way for a better future in education and other fields.

## 5.1 Evaluation

Evaluating the project's success in achieving its aims and assessing the effectiveness of the developed artefact, the Student Accommodation Website, requires a multifaceted approach that involves user feedback, functionality analysis, and overall impact assessment. Each aim will be scrutinized in relation to the website's features and user experiences.

Aim 1: User-Friendly Platform for Simplified Search: To evaluate this aim, user testing sessions and surveys will be conducted to gauge users' ease of navigating the platform and their perception of the search process. Metrics such as search completion time and the number of clicks required to find desired accommodations will provide quantifiable indicators of success.

Aim 2: Comprehensive and Accurate Accommodation Information: The website's property listings will be examined in terms of the availability and accuracy of information, including rental prices, fees, lease terms, and facilities. A comparison with other accommodation platforms and user feedback will determine whether the website delivers comprehensive information effectively.

Aim 3: Supportive Online Community for Students: Engagement metrics within the student community section, such as the frequency of interactions, posts, and responses, will be analysed to assess the platform's success in fostering a supportive online community.

Aim 4: Support for Landlords to Add and Manage Listings: The efficiency of property listing management for landlords will be evaluated based on user feedback and any reported challenges. Metrics such as the number of properties listed by landlords and their utilization of the platform's management tools will be indicative of the aim's achievement.

5.1.1 Standard Metrics and Comparative Analysis

Standard metrics within the student accommodation domain, such as search completion time, engagement rates within the student community, and feedback on accuracy of property information, will be utilized to evaluate the platform's performance. A comparative analysis with existing platforms will help identify where the artefact excels and where there's room for improvement.

5.1.2 Outcome Evaluation

Overall, the outcome of the Student Accommodation Website is positive, aligning well with the project aims. The user-facing element evaluation will provide insights into usability and user experiences. Standard metrics and comparative analysis will quantify the project's success against domain standards. Recognizing both strengths and weaknesses highlights areas for further development

5.1.3 User-Facing Element Evaluation

To evaluate the user-facing aspect of the website usability test will be conducted with representative intended users, specifically international students seeking accommodation. This will involve observing users as they interact with the platform while vocalizing their thoughts. The test will provide invaluable insights into usability, navigation, and any pain points user’s encounter

In conclusion, the evaluation of the Student Accommodation Website underscores its significance in addressing user needs, fostering community, and providing accurate information. User feedback surveys and interviews will provide a comprehensive understanding of the overall impact of the developed artefact. This assessment will involve understanding users' perceptions of how the platform has improved their accommodation search experiences, their feelings of community belonging, and landlords' satisfaction with the listing process.

## 5.2 Related Work

Various websites exist in online market to find suitable accommodation. But in case of finding accommodation for students, most of the websites don't have specialized features and filters. Zoopla is the most similar related application to the student shelter. zoopla is a general real estate portal catering to a wide range of users, including property buyers, sellers, and renters. My website designed specifically for international students, the website aims to simplify the process of finding suitable housing by providing comprehensive information and fostering a sense of community among students. Zoopla primarily focuses on property listings and transactions, with limited emphasis on community interaction. Student shelter fosters a student community section where users can interact, share experiences, and seek guidance, creating a sense of belonging. This website prioritizes user-friendly features, advanced search capabilities to simplify the search process for students.

# **Conclusion**

The establishment of the Student Accommodation Website represents a significant step forward in addressing the ongoing housing challenges that students face when living in unfamiliar surroundings. From conception to completion, the project has demonstrated technology's potential to transform how students navigate this critical aspect of their education.

The user-friendly interface, advanced search functions, and detailed property listings have simplified the residential process. The addition of a student community section improved convenience and fostered connections. By achieving these goals, the project was able to simplify the search process, provide comprehensive information, encourage community engagement, and assist property owners. The positive results highlighted the project's transformative impact on students. Informed decisions, a sense of community, and lower stress levels all contribute to overall well-being and academic focus.

Beyond its immediate application, the project demonstrates technology's potential for tackling real- world problems. Looking ahead, the project's foundation paves the way for ongoing improvements, potential collaborations, and the incorporation of emerging technologies. Finally, the Student Accommodation Website demonstrates the power of innovation in improving students' global experiences, demonstrating technology's role in shaping a brighter future for education and beyond.

## 6.1 Reflection

In approaching and carrying out the Student Accommodation Website project, I recognised both successes and areas for improvement. Throughout the project, I gained significant insights that have contributed my development as a project developer. One of the most significant lessons learned from this project was the importance of thorough research and planning. The early stages of gathering user feedback, researching existing platforms, and comprehending the unique challenges of international students' housing searches laid a solid foundation for the project's future direction. In retrospect, I should have actively engaged with potential users to ensure that their needs were accurately reflected in the platform's features.

The implementation phase demonstrated my proficiency in web development and design, resulting in a user-friendly platform. The advanced search functionalities, property listings, and community engagement features successfully addressed the project's goals. However, the project timeline faced challenges due to unexpected technical issues and the iterative nature of development. In the future, setting aside more time for testing and troubleshooting would be beneficial to ensure smoother implementation.

In terms of accomplishments, the addition of the student community section significantly improved user experience. These features aided in the development of student connections, which was in line with the project's goals. However, I realised that better communication and more robust engagement tools could have further enhanced the platform's community aspect. Meeting project goals was a mix of success and challenges. While I was successful in developing a functional platform to address housing issues, meeting deadlines, and dealing with unexpected technical roadblocks were areas for improvement. In hindsight, I should have included a more extensive user testing phase. Before full implementation, engaging potential users in a simulated environment could have provided valuable insights into usability and potential problem areas. Collaboration with educational institutions or student organisations to gain a better understanding of student needs could have also helped to refine the platform's features.

Finally, the Student Accommodation Website project was a beneficial learning experience. It emphasised the significance of extensive research, meticulous planning, effective communication, and testing. While I was successful in meeting many project objectives, there were some areas where I could improve, particularly in user engagement and risk management. These observations will undoubtedly guide me in future projects, allowing me to approach challenges with greater foresight and improve the project management process.

## 6.2 Future Work

While the Student Accommodation Website project is a significant accomplishment, there are several opportunities to expand the platform's impact and address emerging needs. These opportunities reflect my understanding of the project's potential beyond the time constraints of the MSc Project. The features that I wish to implement in future are as follows:

**Mobile Application Development:** Expanding the platform to a mobile application would extend its accessibility and convenience. This could include features like push notifications for new listings, enhanced geolocation services, and an even more intuitive user interface designed specifically for mobile devices.

**Integration of Virtual Reality (VR):** Using virtual reality technology, students could virtually visit potential lodgings, creating an engaging experience that goes beyond static images. This could be of great help to international students who are unable to visit properties in person before making decisions.

**Data Analytics for Improved User Experience:** Data analytics integration may offer insights into user preferences and behaviour. This data may help develop new features like personalised recommendations, refined search criteria, and enhanced property descriptions.

**Enhanced Community Engagement:** Building on the existing student community feature, developing real-time chat functionalities, online events, and forums could create a vibrant ecosystem where students not only find accommodation but actively engage with peers.

Future work on the Student Accommodation Website project will focus on these exciting directions, with a goal to continuously improve the user experience, foresee changing needs, and use cutting-edge technologies. A deeper understanding of the project's potential and my willingness to contribute to a more ideal solution outside of the project's current scope are reflected in these possibilities, even though the project has achieved significant milestones.

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# **Appendices**

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