Usability Evaluation

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1.Introduction

The Roomer app is a digital booking system for managing shared spaces at student accommodations. A high-fidelity horizontal prototype was created in Figma, showing the main features such as user login, tenant dashboard, room booking, and an admin interface. This section explains the usability evaluation of the Roomer prototype, including usability testing with student users. The goal was to see how easily student residents could use the app for common tasks, find any usability issues, and collect feedback for future design improvements.

2. Goals of the Evaluation

The goal of this usability study was to evaluate the Roomer app's high-fidelity prototype with real student users in terms of its efficiency, effectiveness, robustness, and overall user experience. After several weeks of conceptualizing, prototyping, and refining Roomer, the system needed to be tested for design performance by real users. The evaluation aimed to determine whether the booking process and the navigation panel felt smooth, and whether the students could complete actions such as making or cancelling a reservation without hesitation or confusion.

Given the common frustrations experienced with unclear booking systems in student housing, it was important to ensure that the Roomer app feels genuinely helpful and intuitive for the community it is built for. The evaluation focused on efficiency (time and steps to complete tasks), effectiveness (task success rates and accuracy), robustness (how the interface handles errors or unexpected input), and overall user satisfaction with the experience. By observing real interactions with the Figma prototype, the research aimed to capture both measurable performance data and real behavioural responses, ensuring that Roomer is ready to move forward into development with a strong user-centred foundation.

3. Method Used and Justification

Usability testing was chosen because real users provide real behavioural data. It helps understand how users experience a system. By using standardized instruments such as SEQ and SUS, researchers can obtain measurable and structured feedback that supports better design decisions. These tools make usability testing more objective and comparable across studies.

4. Participants

A total of 4 student tenants participated in the usability test. Usability research shows that the first three users reveal most major issues, while testing beyond five offers diminishing returns, so selecting four participants provided an optimal balance between new insights and avoiding redundant findings (Nielsen, 2000). All were current residents in student housing, representing the app's targeted users. The interviewees were all also part of the need finding task where they were interviewed about their current problems, desired features, and how they would like the interface to be.

In addition to the users, two usability analysts from the development team facilitated the sessions. One analyst acted as the moderator, guiding the participants through the test, and the other served as an observer/note-taker, recording task times, errors, and observations. All participants and analysts were briefed on the test procedure, and wanted to stay anonymous; therefore, their names and genders were kept private.

5. Apparatus

All usability test sessions were conducted using the high-fidelity Figma prototype of Roomer on a standard phone. Participants interacted with the prototype using their fingers. A stopwatch was used to time each task and noted any errors. The testing environment was a quiet room in a student accommodation, simulating a typical setting where a student might use the app. This controlled environment minimized external distractions. For note-taking, one evaluator had a notebook and the recording in order to keep track of each participant's behavior and comments in real time.

6. Tasks

Participants were asked to perform a series of representative tasks on the Roomer app prototype, covering the entire usage cycle of booking and managing room reservations. The tasks were designed to be realistic scenarios for a student resident using Roomer. The specific tasks include:

1. Log in to the app using a valid username and password.
2. Browse the list of shared spaces and view room details.
3. Book a reservation by selecting a specific room and choosing a desired date and time slot.
4. Cancel an existing booking by locating the relevant booking screen.
5. Submit a complaint by accessing the relevant booking.
6. Upload a cleanliness photo for a recently used room.
7. Navigate between app sections.

7. Procedure

Each participant completed the usability test individually. They followed the same set of tasks to maintain consistency. Before starting, participants were informed about the purpose of the study and were told that the prototype was being evaluated, not their skills. Participants were asked to think out loud during the tasks so analysts could better understand their choices and spot any usability problems.

For each task, the moderator read the task out loud, after which the participant tried to complete the task while the observer recorded the task time, errors, and noteworthy behaviors. Right after each task, participants answered the corresponding Single Ease Questions (SEQ) to indicate how hard or easy they thought the task was. These scores were later averaged to determine which tasks were easy and which were more difficult according to the participants.

After all the tasks were completed, participants filled out the System Usability Scale (SUS) questionnaire to give an overall rating of the Roomer app's usability. The SUS results provide a benchmark score that can be compared to industry standards.

8. Debrief

Beyond the numbers, the usability test provided rich qualitative insights. In a short debriefing interview after the questionnaires, the moderator asked participants to share their final thoughts about the Roomer app. This conversation allowed users to elaborate on things they liked or disliked in the prototype that might not have been fully captured by the tasks or questionnaires. Participants were asked questions such as *"Was there anything you found particularly frustrating or confusing?"* and *"What did you like the most about the app?"*. The feedback during debrief was largely positive: for example, users mentioned appreciating the clean interface design. One participant noted, *"I really liked how some things are color-coded."* However, we have also received a constructive criticism as well. One user proposed moving the "View More" section to make submitting a complaint section more easy to find.

9. Results

The table below shows the performance metrics for each task from all participants. It includes the average time spent on each task (in seconds), the number of errors, and short notes on any problems or important observations for each task.

Sr.	Task Description	Task Time (sec)	No. of errors	Problems faced / Comments	
1	Log in to the app using a valid username and password.	15	0		
2	Browse the list of shared spaces and view room details.	19	0		
3	Book a reservation by selecting a specific room and choosing a desired date and time slot.	24	0		
4	Cancel an existing booking by locating the relevant booking screen.	17	0		
5	Submit a complaint by accessing the relevant booking.	30	0		
6	Upload a cleanliness photo for a recently used room.	17	0		
7	Navigate between app sections.	2	0		

Sr.	Task Description	Task Time (sec)	No. of errors	Problems faced / Comments	
1	Log in to the app using a valid username and password.	12	0		
2	Browse the list of shared spaces and view room details.	20	0		
3	Book a reservation by selecting a specific room and choosing a desired date and time slot.	25	0		
4	Cancel an existing booking by locating the relevant booking screen.	9	0		
5	Submit a complaint by accessing the relevant booking.	50	0		
6	Upload a cleanliness photo for a recently used room.	17	0		
7	Navigate between app sections.	3	0		

Sr.	Task Description	Task Time (sec)	No. of errors	Problems faced / Comments	
1	Log in to the app using a valid username and password.	10	0		
2	Browse the list of shared spaces and view room details.	18	0		
3	Book a reservation by selecting a specific room and choosing a desired date and time slot.	24	0		
4	Cancel an existing booking by locating the relevant booking screen.	22	0		
5	Submit a complaint by accessing the relevant booking.	38	0		
6	Upload a cleanliness photo for a recently used room.	20	0		
7	Navigate between app sections.	1	0		

Sr.	Task Description	Task Time (sec)	No. of errors	Problems faced / Comments	
1	Log in to the app using a valid username and password.	11	0		
2	Browse the list of shared spaces and view room details.	17	0		
3	Book a reservation by selecting a specific room and choosing a desired date and time slot.	27	0		
4	Cancel an existing booking by locating the relevant booking screen.	27	0	Couldn't find it at first	
5	Submit a complaint by accessing the relevant booking.	40	0		
6	Upload a cleanliness photo for a recently used room.	22	0		
7	Navigate between app sections.	1	0		

Several participants experienced confusion when attempting to submit a complaint. The first participant expressed frustration because they could not immediately locate this feature. Most users did not realise that complaints were accessed through the Past Bookings section; instead, they initially navigated to My Account, assuming it would be located there. Once they discovered the Past Bookings page, the option became noticeable, but the path to reach it was not intuitive.

Participants also questioned the need for the “View More” button. For actions such as cancelling a booking or submitting a complaint, users expected these options to be visible directly underneath key actions like “Request Key”, rather than being hidden behind an additional menu. This extra step created unnecessary friction and caused uncertainty about where important functions were located.

SEQ Results

The SEQ ratings captured how difficult each task felt to participants immediately after completing it. Scores ranged from 1 (very difficult) to 7 (very easy). The average SEQ score for each task across all four participants is shown below:

Task	Average SEQ score
1. Log in	**7.00**
2. Browse shared spaces	**6.75**
3. Make booking	**5.75**
4. Cancel a booking	**5.25**
5. Submit a complaint	**2.75**
6. Upload cleanliness photo	**5.50**
7. Navigate between app sections	**7.00**

Tasks 1 and 7 got the highest ease-of-use rating, with an average score of 7.0. This means users found logging in and moving between sections very easy.

Tasks 2, 3, 4, and 6 also had high scores. This suggests that most booking-related actions were manageable for users, though not always completely easy.

Task 5, which was submitting a complaint, got the lowest score at 2.75. This shows users found this feature confusing or harder to find than the others.

Overall, most participants found the main tasks easy to complete, according to SEQ responses. However, the complaint submission task was harder and could be improved by making its layout clearer or placing it in a more visible spot.

SUS Results

Each participant completed the System Usability Scale (SUS), which provides a standardized overall usability score out of 100. The SUS scores for each participant were:

- Participant 1: **82.5**
- Participant 2: **85.0**
- Participant 3: **87.5**
- Participant 4: **85.0**

The overall SUS score is: **85/100**

According to the widely used SUS adjective rating scale (Bangor et al., 2013), scores above 80.3 fall into the “Excellent” usability category and systems in this range are typically seen as highly usable, easy to learn, and likely to be recommended by users.

With an overall score of 85, the Roomer app demonstrates strong usability. Participants found the interface intuitive, straightforward, and efficient to operate.

10. Reflection

Conducting this usability evaluation gave us a clearer understanding of how students actually experience the Roomer interface, and it challenged many of the assumptions we had during the design phase. While creating the prototype, we felt confident that most interactions were straightforward; however, watching participants use the system revealed subtle hesitations we simply would not have noticed on our own. For example, one participant commented that although the layout “looked clean”, they did not immediately notice the complaint option because they expected it to be more prominent. Another participant mentioned that navigating between sections felt “surprisingly easy,” which reassured us that our navigation panel was an effective design choice. The average System Usability Score was 85/100.

As observers, it was eye-opening to see how small visual details influenced decision-making. Tasks such as logging in or browsing available rooms were completed effortlessly, which validated our effort to keep the interface simple and uncluttered. However, the complaint submission task consistently required more time and caused more uncertainty. Watching the participants pause, look around the screen helped us understand that this feature needs a clearer hierarchy or a more predictable placement.

From this experience, we learned the importance of testing early and relying on real user behaviour. It is better to do this rather than relying on assumptions. We also realized how valuable it is to balance both positive and negative findings. While participants praised the clean layout and intuitive navigation, their feedback also highlighted areas where the system did not guide them as effectively as we hoped.

For the next iteration, we would prioritize redesigning the complaint workflow so that it feels just as intuitive as the core booking tasks. This could involve repositioning the option and adding clearer visual cues. We would also explore refining the cancellation process. One participant mentioned they were “not fully sure at first where to go,” despite eventually completing the task without errors.

Overall, this evaluation confirmed that Roomer has a strong foundation. It also reminded us that good design is a continuous, iterative process. By integrating the insights from this study, we can move forward with greater confidence.