Activity 6:

1. Goals of the Evaluation:

The purpose of this evaluation was to assess the usability, efficiency and clarity of the redesigned MyLumis high-fidelity mobile prototype. Usability evaluation is generally understood as assessing how easy and enjoyable it is for users to achieve their goals with an interactive system, using a mix of qualitative and quantitative methods to uncover UX issues (Interaction Design Foundation, n.d.). In our case, the evaluation focused specifically on the three core features identified during earlier need-finding and design phases: Room Booking, Rent & Payments and Emergency NFC Unlocking, with the goal of measuring task performance, perceived task difficulty and overall usability while identifying remaining usability problems for final refinement.

2. Justification of Evaluation Method

A combination of usability testing, SEQ, and SUS was selected because these methods provide complementary insights:

1) Usability Testing allowed direct observation of real user behavior, error patterns, and confusion points, offering rich qualitative insights.
2) The SEQ provided task-level quantitative measures of difficulty, identifying which core actions were easiest or most challenging.
3) The SUS delivered a validated overall usability score, enabling comparison with industry standards and objectively confirming the system's usability level.

Together, these methods offered a rigorous and balanced evaluation appropriate for assessing a mobile user interface.

3. Participants:

Five participants (aged 15–26) were selected, all of whom were Lumis residents with experience living in the accommodation. They represented the target user group of the MyLumis system. None had previously used the prototype, ensuring objective and unbiased results.

4. Apparatus:

The evaluation was conducted on a mobile phone, reflecting the real intended use of the MyLumis app. Participants interacted with the high-fidelity Figma mobile prototype displayed in full-screen preview mode.

Additional apparatus included:

1) Stopwatch app for timing each task.
2) Printed usability testing sheets (for errors, comments, timings).

3) Final questionnaires such as SUS (overall usability) and SEQ (task difficulty)

5. Procedure:

Each participant was handed the mobile device with the prototype open on the Home Screen. They were informed that the system was being evaluated and not the participant. Each session lasted between 20 to 25 minutes.

The procedure consisted of:

1) Completing the predefined tasks.

2) The evaluator recorded **task completion time**, **errors**, and **observed** difficulties.

3) After completing the three core tasks (Book a Room, Pay Rent, Unlock Door), participants rated each using the Single Ease Question (SEQ).

4) Participants then completed the System Usability Scale (SUS) questionnaire.

5) A brief informal interview gathered final thoughts.

6. Results:
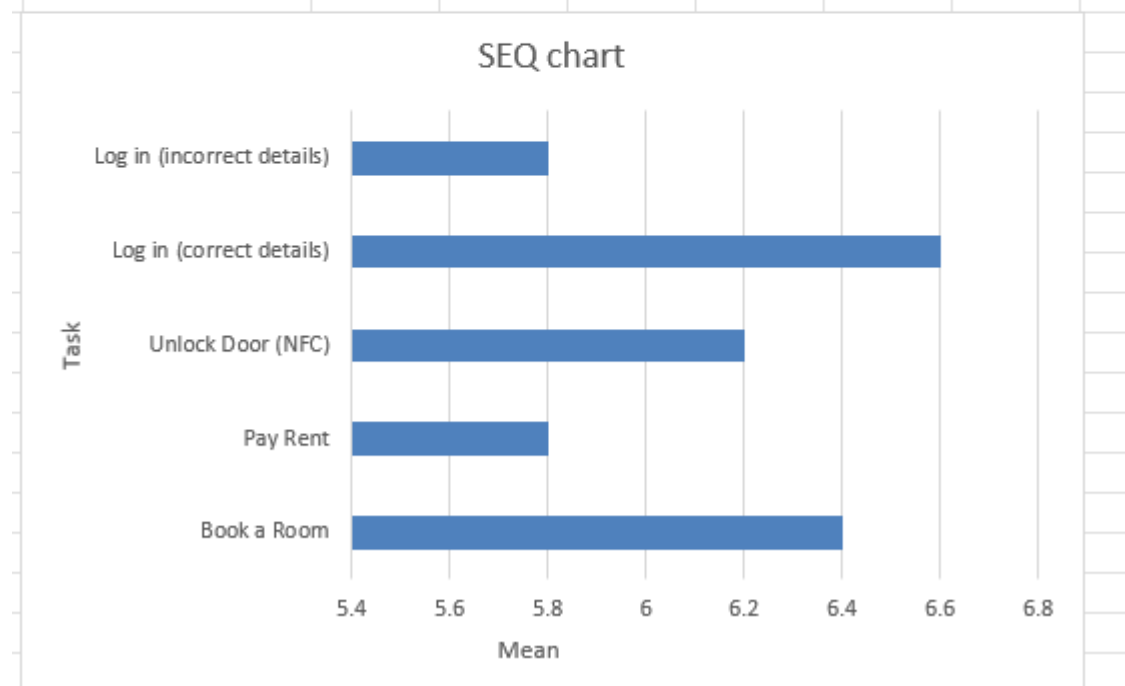
Usability Testing Results:

1. Youssef/20/Male

Sr.	Task Description	Task Time (sec)	No. of Errors	Problems Faced / Comments
1	Open the MyLumis app and navigate to the "Bookings" page.	7	0	Found the Bookings button immediately.
2	Select a room (e.g., Cinema Room) from the list.	6	0	Icons and labels were clear.
3	View all available time slots for that room.	5	0	Time slots easy to scan.
4	Select one or two consecutive time slots.	9	1	Mistapped once due to small spacing but corrected quickly.
5	Confirm the booking and view the confirmation details.	8	0	Understood confirmation without issues.
6	Navigate to the "Rent & Payments" page.	6	0	Recognised the Rent and Payments option easily.
7	Complete the rent payment using Apple Pay or card.	14	1	Hesitated briefly choosing payment method.
8	Return to the home page.	10	0	Not very user friendly as there is no home button and I had to press back multiple times.
9	Open the "Emergency" page and unlock the door using NFC.	10	0	NFC flow was clear and it felt quick and simple.

2. Maria/19/Female

Sr.	Task Description	Task Time (sec)	No. of Errors	Problems Faced / Comments
1	Open the MyLumis app and navigate to the "Bookings" page.	6	0	Needed a second to read all options, then chose correctly.
2	Select a room (e.g., Cinema Room) from the list.	5	0	Very straightforward.
3	View all available time slots for that room.	6	0	Slight pause, then scrolled and understood layout.
4	Select one or two consecutive time slots.	8	0	No problems; liked the clear two-hour blocks.
5	Confirm the booking and view the confirmation details.	7	0	Confirmation screen felt "reassuring".
6	Navigate to the "Rent & Payments" page.	5	0	Recognised icon quickly.
7	Complete the rent payment using Apple Pay or card.	12	0	Very easy once payment method selected.
8	Return to the home page.	9	0	Used back button; commented that a home button would be nicer.
9	Open the "Emergency" page and unlock the door using NFC.	9	0	Understood emergency section immediately.

3.Pablo/25/Male

Sr.	Task Description	Task Time (sec)	No. of Errors	Problems Faced / Comments
1	Open the MyLumis app and navigate to the "Bookings" page.	8	1	First tapped wrong button, then corrected.
2	Select a room (e.g., Cinema Room) from the list.	7	0	Needed a moment to read all room names.
3	View all available time slots for that room.	6	0	Slots list was clear.
4	Select one or two consecutive time slots.	11	1	Tried to select non-consecutive slots initially.
5	Confirm the booking and view the confirmation details.	9	0	No issues with confirmation.
6	Navigate to the "Rent & Payments" page.	7	0	Slight delay but found it without help.
7	Complete the rent payment using Apple Pay or card.	16	1	Unsure for a moment about Apple Pay vs card.
8	Return to the home page.	11	0	Commented that "a visible Home button would be easier than back".
9	Open the "Emergency" page and unlock the door using NFC.	12	0	Understood NFC but asked if there is also a manual fallback.

4.Billy/18/Male

Sr.	Task Description	Task Time (sec)	No. of Errors	Problems Faced / Comments
1	Open the MyLumis app and navigate to the "Bookings" page.	5	0	Very fast; layout felt "obvious".
2	Select a room (e.g., Cinema Room) from the list.	5	0	No problems.
3	View all available time slots for that room.	5	0	Understood the schedule immediately.
4	Select one or two consecutive time slots.	7	0	Smooth selection; liked that clashes are prevented.
5	Confirm the booking and view the confirmation details.	7	0	Booking flow felt "professional".
6	Navigate to the "Rent & Payments" page.	5	0	Clear label and position.
7	Complete the rent payment using Apple Pay or card.	13	0	Slight reading of text, but no difficulty.
8	Return to the home page.	9	0	Used back button without noticing the limitation.
9	Open the "Emergency" page and unlock the door using NFC.	9	0	Described feature as "very reassuring".

5.Korina/25/Female

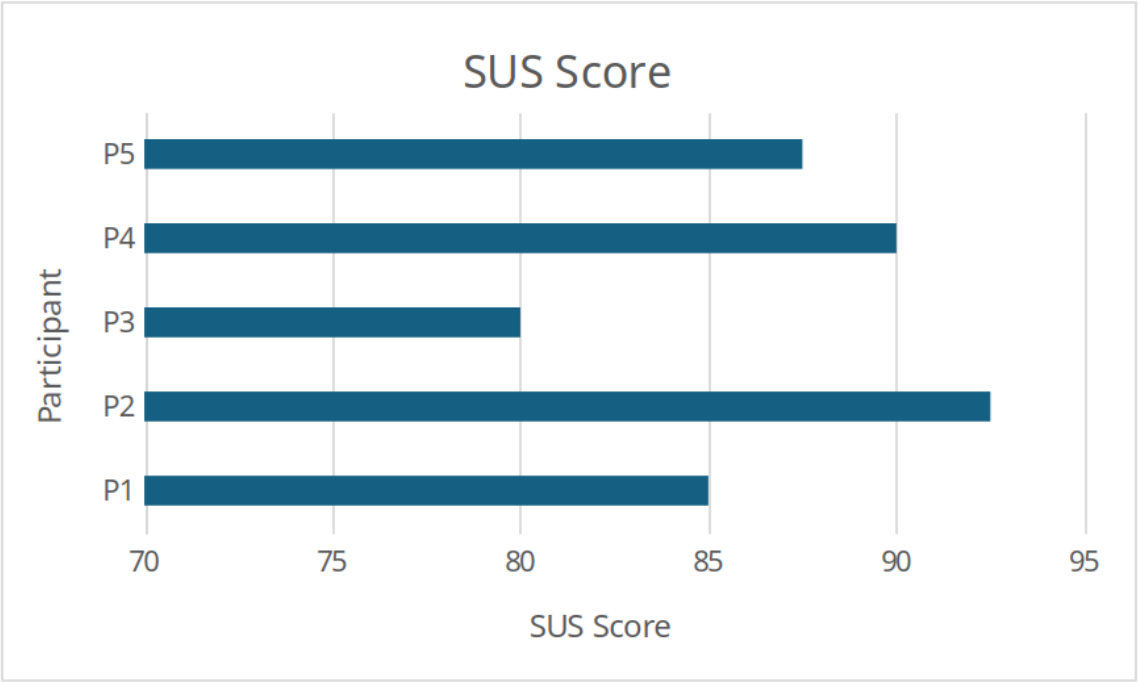| Sr.	Task Description	Task Time (sec)	No. of Errors	Problems Faced / Comments
1	Open the MyLumis app and navigate to the "Bookings" page.	7	0	Needed to read labels first, then selected Bookings.
2	Select a room (e.g., Cinema Room) from the list.	6	0	Easily identified the correct room.
3	View all available time slots for that room.	5	0	No issues.
4	Select one or two consecutive time slots.	10	1	Tried to select more than two slots; system prevented it.
5	Confirm the booking and view the confirmation details.	8	0	Found the confirmation clear.
6	Navigate to the "Rent & Payments" page.	7	0	Slightly slower to find, but still manageable.
7	Complete the rent payment using Apple Pay or card.	15	1	Brief confusion about whether payment was already saved.
8	Return to the home page.	10	0	Mentioned that "a home icon at the bottom would be more intuitive".
9	Open the "Emergency" page and unlock the door using NFC.	11	0	Understood function; happy that it works offline.

SEQ Results:

Task	P1	P2	P3	P4	P5	Mean
Book a Room	6	7	6	6	7	6.4
Pay Rent	6	5	5	7	6	5.8
Unlock Door (NFC)	7	6	6	5	7	6.2
Log in (correct details)	7	6	6	7	7	6.6
Log in (incorrect details)	6	6	5	6	6	5.8

SEQ chart

Sus Results:

#	SUS Question	P1	P2	P3	P4	P5
1	I think that I would like to use this system frequently.	4	5	4	5	5
2	I found the system unnecessarily complex.	1	1	2	1	1
3	I thought the system was easy to use.	4	5	4	5	5
4	I think that I would need the support of a technical person to be able to use this system.	1	1	2	1	1
5	I found the various functions in this system were well integrated.	4	5	4	5	4
6	I thought there was too much inconsistency in this system.	1	1	2	1	1
7	I would imagine that most people would learn to use this system very quickly.	4	5	4	5	4
8	I found the system very cumbersome to use.	1	1	2	1	1
9	I felt very confident using the system.	4	5	4	5	5
##	I needed to learn a lot of things before I could get going with this system.	1	1	2	1	1

Participant	SUS Score
P1	85
P2	92.5
P3	80
P4	90
P5	87.5

SUS Score

7. Discussion of Results:

The results indicate that the redesigned MyLumis application continues to perform strongly in terms of usability, with participants completing all tasks with low error rates and reasonable task times. The Room Booking feature achieved one of the highest SEQ scores (Mean = 6.4), showing that users found the process clear and easy to complete. This confirms that the structured booking system is significantly more intuitive than the previous unstructured group chat method.

The NFC Emergency Unlock feature also scored highly (Mean = 6.2), demonstrating that participants understood how to use the unlock function quickly and felt confident performing the action on a mobile device. The Rent & Payments task received a slightly lower score (Mean = 5.8), suggesting moderate difficulty; some participants hesitated when choosing a payment method or interpreting the payment history interface. Nonetheless, the task was still rated above average and fully completed by all users.

Both login tasks performed well, with correct login scoring 6.6, indicating that users found the authentication flow simple. Incorrect login scored slightly lower (5.8), likely because participants spent time interpreting the error message.

The overall SUS score of 87 places the system in the "Excellent" usability category. This confirms that the interface is easy to use, well-organized, and supportive for both new and experienced users, validating the design decisions made throughout development.

8. Reflection on Usability Findings

The usability evaluation was highly valuable in confirming the strengths of the redesigned MyLumis system. The strong SUS and SEQ results show that the system successfully addresses user frustrations identified earlier in the project. Booking fairness has been restored through structured time slots, rent payments are now clear and multilingual, and emergency door access is reliable through NFC.

The evaluation also highlighted areas for refinement, particularly the need for improved navigation. Introducing a dedicated Home. Despite this, user performance was consistently strong, errors were low, and overall satisfaction was high.

This iterative evaluation strengthened the design, providing precise evidence to inform future improvements