FACULTY OF COMPUTING AND INFORMATICS

CSE6224 – SOFTWARE REQUIREMENTS ENG

GROUP: G07

SESSION: TT4L

PROJECT REPORT

Student Name	Student ID
Yang Jia En	242UC2451Q
Teoh Xuan Xuan	242UC2451P
Tey Jun Cheng	242UC2452Z

Submitted to: Dr. Zarina binti Che Embi

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1.0 Elicitation Execution Sessions

1.1 Brainstorming

1.1.1 Brainstorming: Output

A brainstorming session was conducted among the project team to identify initial system requirements for the university portal. The aim was to explore user needs across different roles (students, lecturers, parents, and administrators), align the team's assumptions, and propose key features for deeper investigation during stakeholder interactions.

This internal session provided a structured environment for idea generation and helped define the scope of elicitation for the remaining techniques.

Activity details:

- Total of 3 members from the project team
- Duration: 45 minutes
- Platform: Microsoft Teams (online session)

Key Outcomes:

- Identified core stakeholder groups: students, lecturers, parents, admins
- Highlighted pain points in existing university systems:
- Complicated login process (e.g., lack of "Remember Me" function)
- Delayed access to announcements and exam timetables
- Manual classroom booking via in-person requests or emails
- No SMS notifications for urgent updates (e.g., tuition fees payment reminder)

Proposed system features:

- Student, parent, lecturer, and admin portals with role-based access
- SMS notification integration for announcements and billing
- Online classroom booking system with approval flow
- Grade, billing, timetable, and attendance viewing modules
- Prioritized user-friendly UI and accessibility features

1.1.2 Brainstorming: Proof of Elicitation

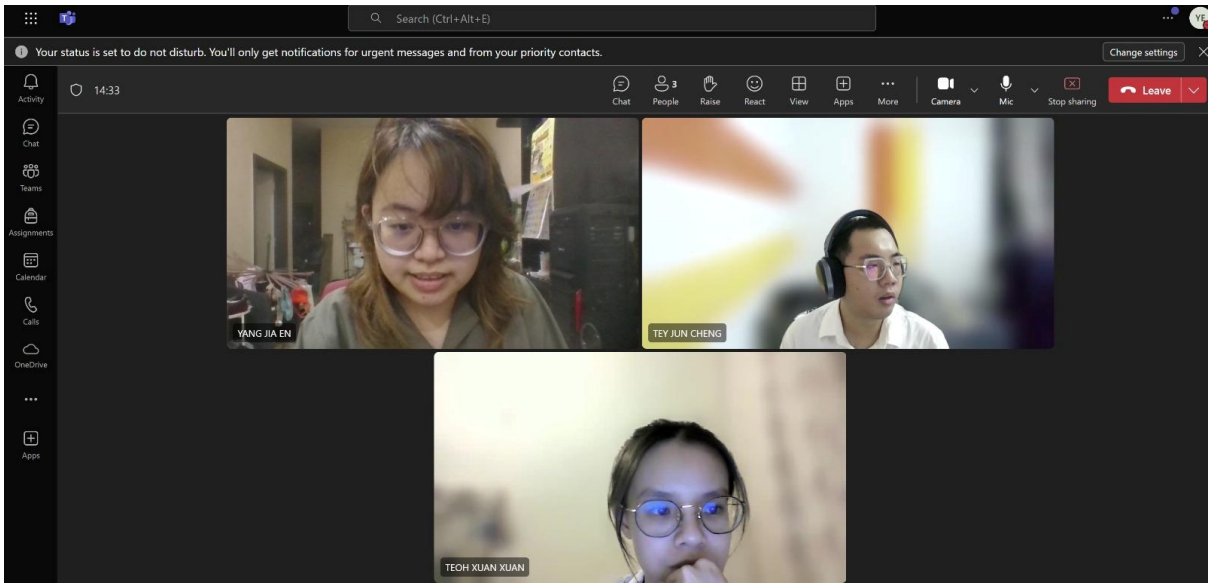

Figure 1.1.2.1: Discussing with our team members

1.2 Surveys and Questionnaires

1.2.1 Questionnaire: Output

To validate and quantify the needs identified during brainstorming and interviews, a structured questionnaire was designed and distributed to stakeholders from different user roles in the university, including students, lecturers, parents, and admins. The questionnaire was aimed at classifying functional expectations using the Kano model and identifying opportunities for improving the university portal.

Distribution Method:

- Google Forms shared via class groups, faculty WhatsApp channels, and email
- Duration: 5 days
- Total responses: 25+ from mixed stakeholder groups

Structure:

- Over 30 structured questions including Kano-style paired questions
- Role-based routing (students, lecturers, parents, admins)
- Combination of Likert scale, multiple choice, and open-ended items

Topics Covered:

- Student Portal Use:
    - Login & session preferences
    - Viewing attendance, grades, billing info, announcements, timetables
    - Classroom booking and feedback mechanisms

- Lecturer Module:
    - Uploading materials
    - Scheduling assessments
    - Sending announcements

- Admin Tools:
    - Managing student inquiries
    - Mass communication and dashboard features

- Parent Access:

    - SMS notification preferences for grades, billing, and attendance

- General:
    - Preferred notification methods
    - Desire for help/support section
    - Suggestions for feature improvements

1.2.1 Questionnaire: Proof of Elicitation

Sample Questions:

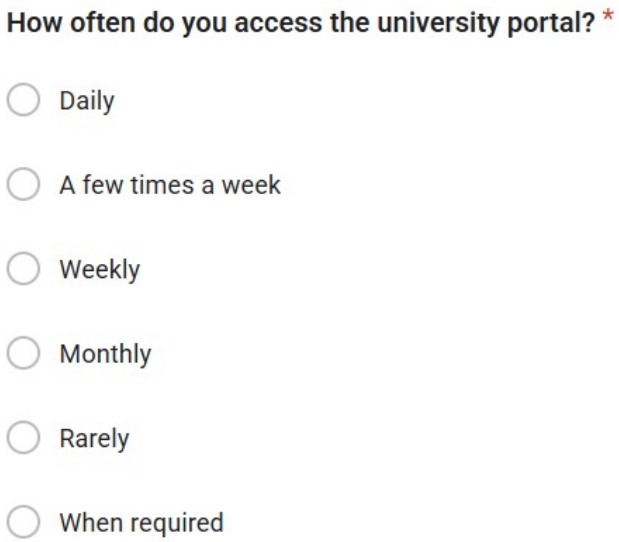

Figure 1: General Question 1

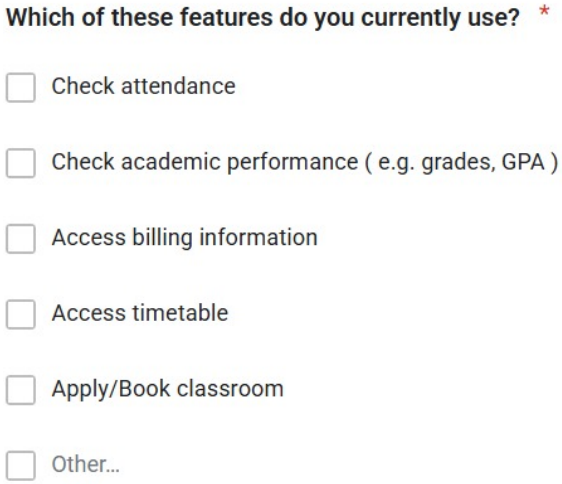

Figure 2: Student Question 1

Figure 3: Student Question 2

How would you feel if you could check your academic performance (e.g., grades, GPA) anytime through the portal? *

1 2 3 4 5

Figure 4: Student Question 3

How would you feel if you could view your billing and payment history in details directly through the portal? *

1 2 3 4 5

Figure 5: Student Question 4

How would you feel if you received tuition fee reminders before the due date? *

1 2 3 4 5

Figure 6: Student Question 5

How would you feel if your full class schedule and exam timetable are display easily viewing? *

1 2 3 4 5

Figure 7: Student Question 6

How important is it to you to have an easier way to book classrooms for assignments or project work? *

1 2 3 4 5

☆ ☆ ☆ ☆ ☆

Figure 8: Student Question 7

How would you feel if you always saw the latest announcements about timetable changes, fee alerts, or campus news? *

1 2 3 4 5

☆ ☆ ☆ ☆ ☆

Figure 9: Student Question 8

How would you feel if you received SMS alerts for things like low attendance or released grades? *

1 2 3 4 5

☆ ☆ ☆ ☆ ☆

Figure 10: Student Question 9

Which method(s) would you prefer for receiving such notifications?

- ○ SMS
- ○ Email
- ○ In-portal alerts
- ○ Mobile app notification
- ○ WhatsApp
- ○ Other...

Figure 11: Student Question 10

Figure 12: Student Question 11

Figure 13: Student Question 12

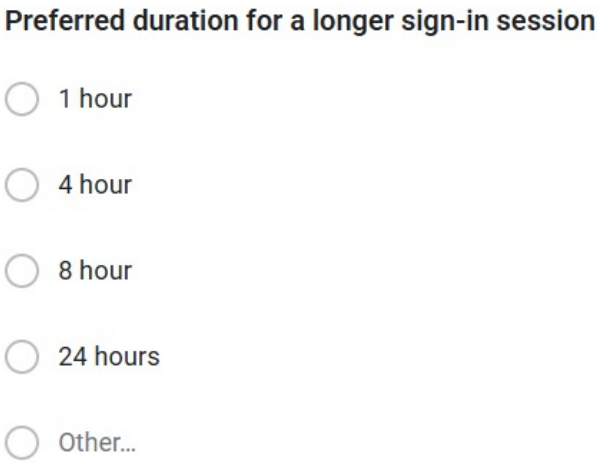

Figure 14: Student Question 13

Figure 15: General Question 2

Would you like to receive important notifications from the university (e.g., your child's low attendance, fee reminders, academic performance updates) via SMS? *

- ○ Yes
- ○ No

Figure 16: Parent Question 1

If yes, which of the following methods would you prefer for receiving these updates?

- ☐ SMS
- ☐ Email
- ☐ In-portal alerts
- ☐ Mobile app notification
- ☐ WhatsApp
- ☐ Other...

Figure 17: Parent Question 2

As a parent, which of the following portal features do you find most useful or important? *

- ☐ Check billing (with full details and copy option)
- ☐ View child's class attendance
- ☐ Keep track of your child's class and exam timetable
- ☐ View academic results or grades
- ☐ Receive updates on important events (e.g., holidays, semester breaks, graduation day)

Figure 18: Parent Queston 3

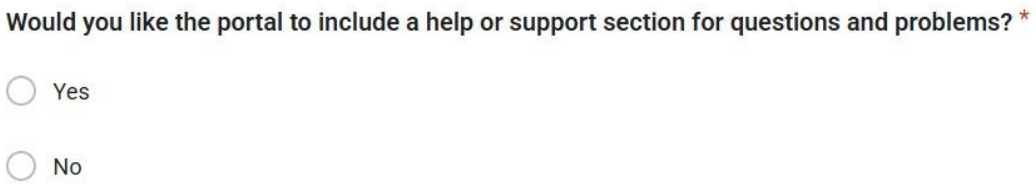

Figure 19: Parent Question 4

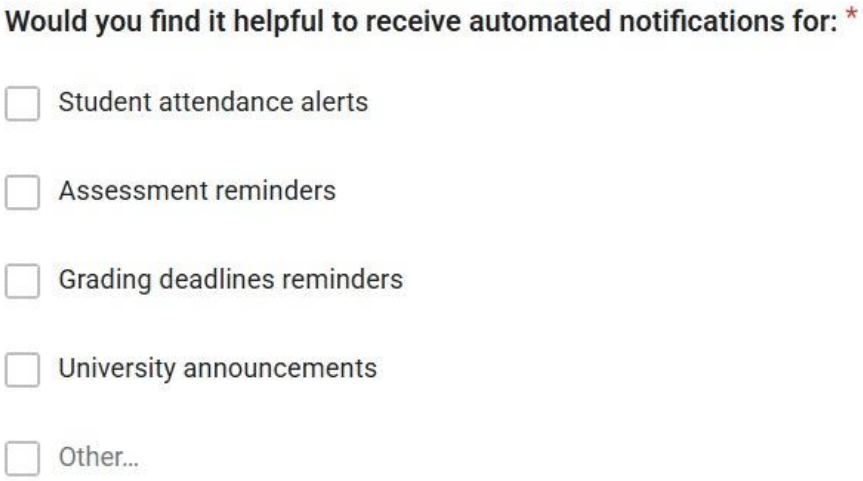

Figure 20: Lecturer Question 1

Figure 21: Lecturer Question 2

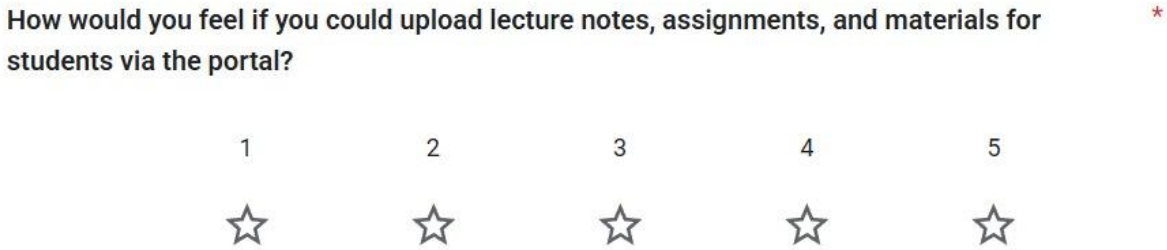

Figure 22: Lecturer Question 3

How would you feel if you were able to post announcements or reminders to students directly through the portal? *

1 2 3 4 5

☆ ☆ ☆ ☆ ☆

Figure 23: Lecturer Question 4

How would you feel if you could schedule and manage assessments from within the portal? *

1 2 3 4 5

☆ ☆ ☆ ☆ ☆

Figure 24: Lecturer Question 5

Have you experienced any problems when using the portal? *

- [ ] Slow loading times
- [ ] Difficulty logging in
- [ ] Missing or inaccurate data
- [ ] Confusing navigation
- [ ] Other...

Figure 25: Lecturer Question 6

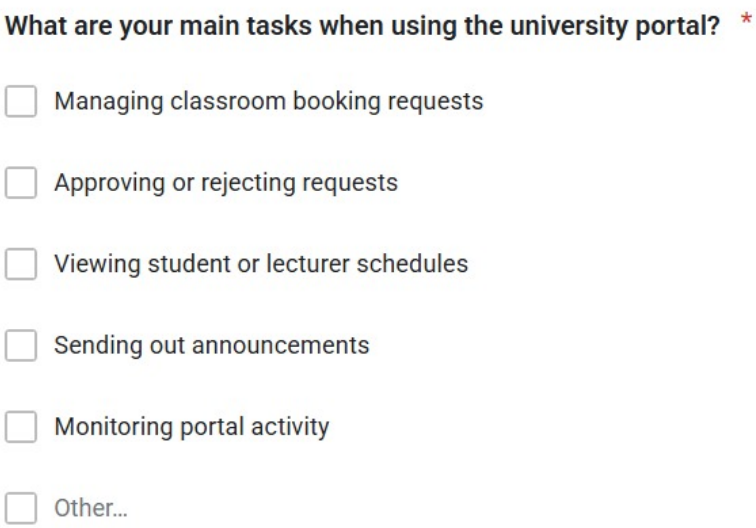

Figure 26: Admin Question 1

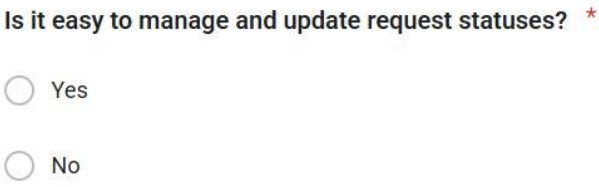

Figure 27: Admin Question 2

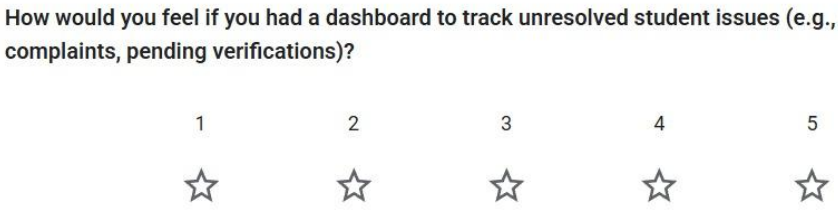

Figure 28: Admin Question 3

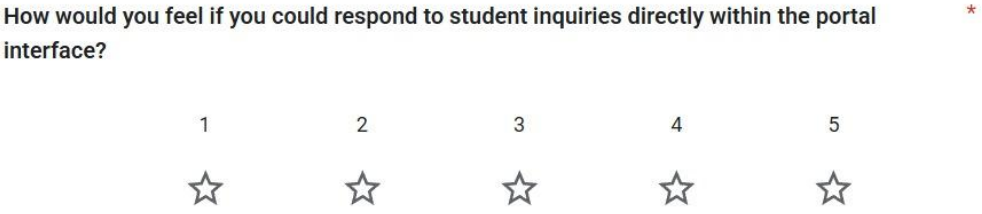

Figure 29: Admin Question 4

Figure 30: Admin Question 5

Link to the google form:

https://forms.gle/LS5xtSN9gfYDV6X67

1.3 Interview

1.3.1 Interview: Output

To gather qualitative insights, a short one-on-one interview was conducted with a student stakeholder to better understand day-to-day usage and challenges of the current university portal. The focus was on identifying functional pain points and evaluating the appeal of potential new features through a Kano-style question set.

Activity details:

- Participant: 1 university student (Participant 01)
- Role: Active portal user (student)
- Duration: ~5 minutes
- Platform: Voice recording (audio only – participant preferred not to appear on camera)

Key Findings:

- The current portal is mainly used for bill payments, academic records, timetables, and announcements.
- Logging in is often frustrating due to frequent OTP prompts and slow loading speeds.

The student suggested the addition of:

- A “remember me” login option
- Confirmation emails after fee payments

Highly valued features:

- Centralized dashboard for attendance, results, and fee tracking
- SMS alerts for deadlines or released results
- Clear display of class and exam timetables

Delighter Suggestion:

- Ability to buy MMU parking stickers online instead of queuing at a physical building

1.3.2 Interview: Proof of Elicitation

Interview was recorded via voice note.

Link to the interview:

https://drive.google.com/file/d/11id5Mvk2kyyic8F7EqLziCZ_IXjenjQ3/view?usp=sharing

1.4 Prototyping

1.4.1 Prototyping: Output

To validate the usability and layout of the University Communication and Services Portal, a set of low-fidelity prototypes was created targeting the student user role. The goal was to visualize key interfaces, test navigation flow, and gather preliminary feedback on feature accessibility and clarity before development.

The prototypes were designed using Figma and focused on core pages that reflect the main use cases for students.

Pages Developed:

- Login Page – Secure sign-in interface with fields for MMU credentials
- Dashboard Page – Centralized summary of announcements, grades, timetable, and quick links
- View Grades Page – Tabular format of course results with GPA summary
- View Attendance Page – Attendance breakdown by course with absence alerts
- View Timetable Page – Weekly calendar view with filters for class and exam schedules
- View Billing Info Page – Overview of payment history, upcoming dues, and receipt downloads
- Book Classroom Page – Booking form with date/time picker and facility options
- View Announcements Page – Feed of campus-wide notices and academic updates

Activity details:

- Platform: Figma
- Duration: 3 days of design iterations
- Reviewers: Internal project team and two student testers
- Feedback method: Verbal walkthrough and comment pins in Figma

Key Feedback Highlights:

- Navigation was intuitive; testers liked the clean layout and role-based flow
- Suggested adding filters for announcements (e.g., urgent, academic, billing)
- Recommended that booking confirmation appears immediately after submission
- Interest in a color-coded timetable to separate lectures and assessments

1.4.2 Prototyping: Proof of Elicitation

Below are the screenshots of all Figma pages.

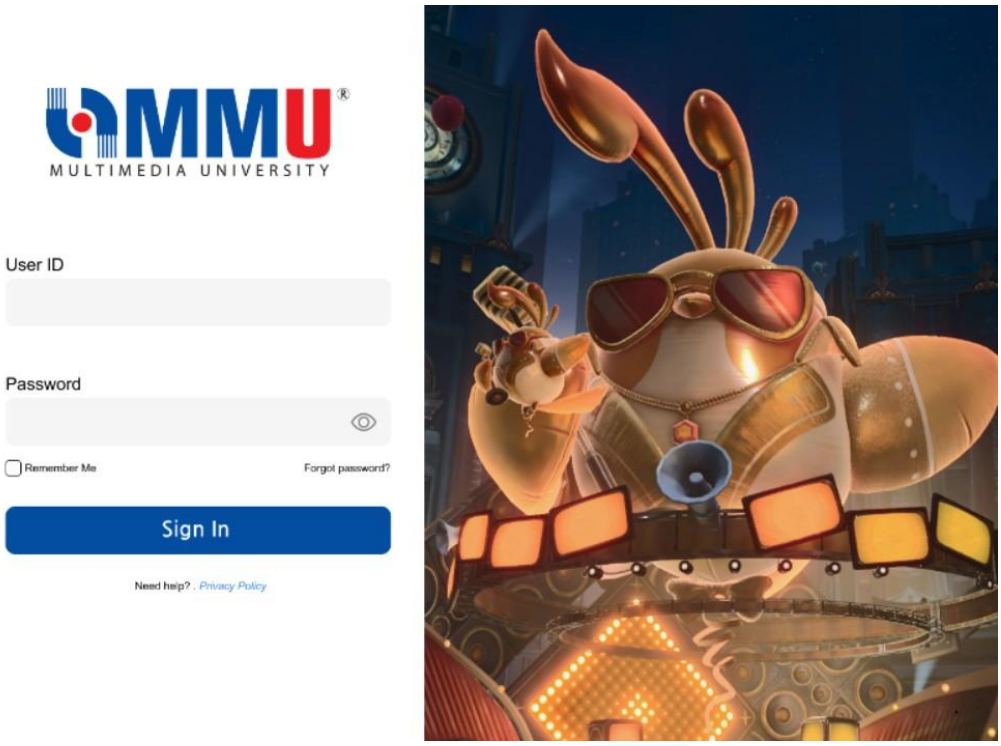

Figure 31: User Log In Page

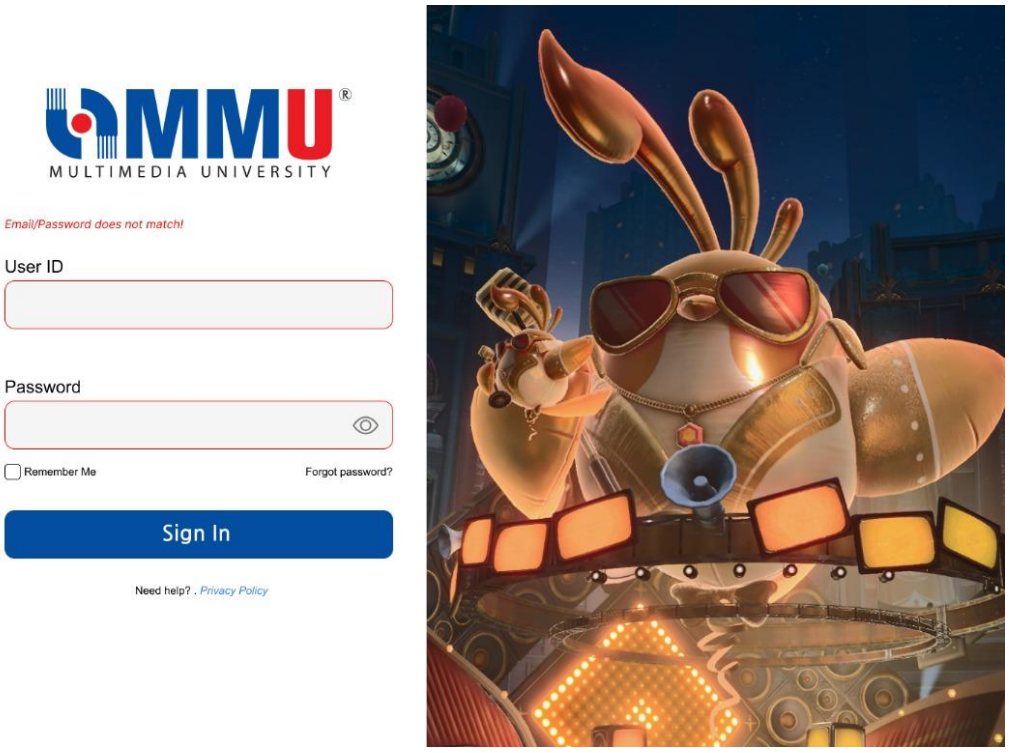

Figure 32: User Log In Page with Error Message

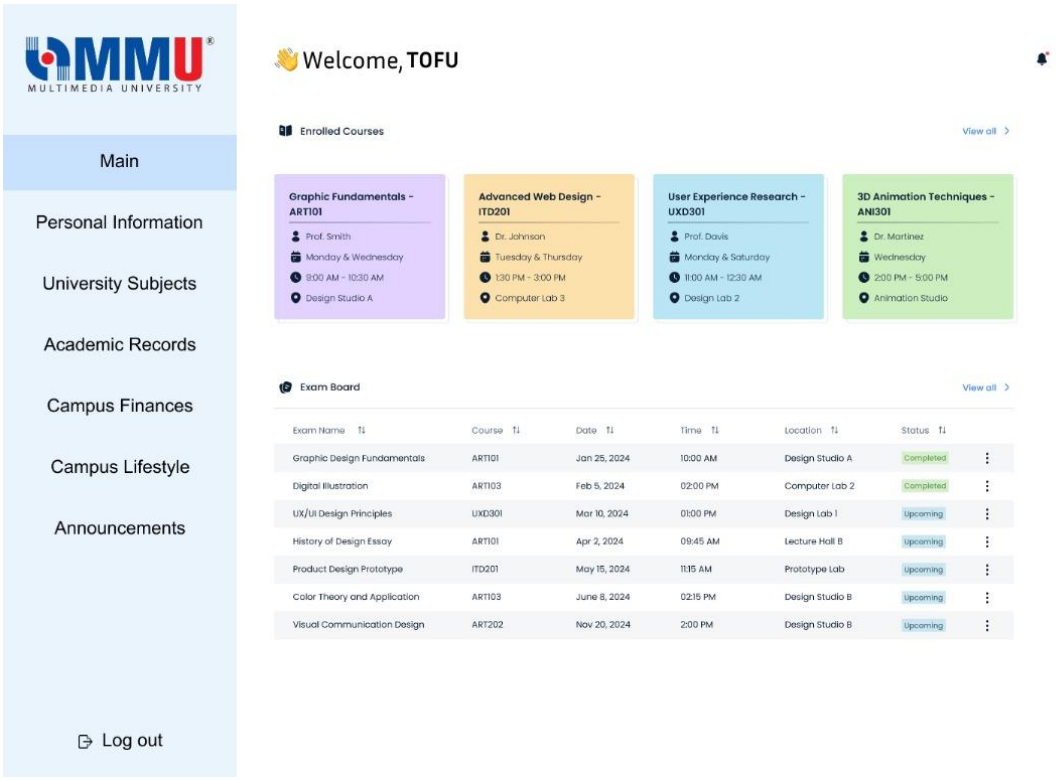

Figure 33: Student Dashboard Page

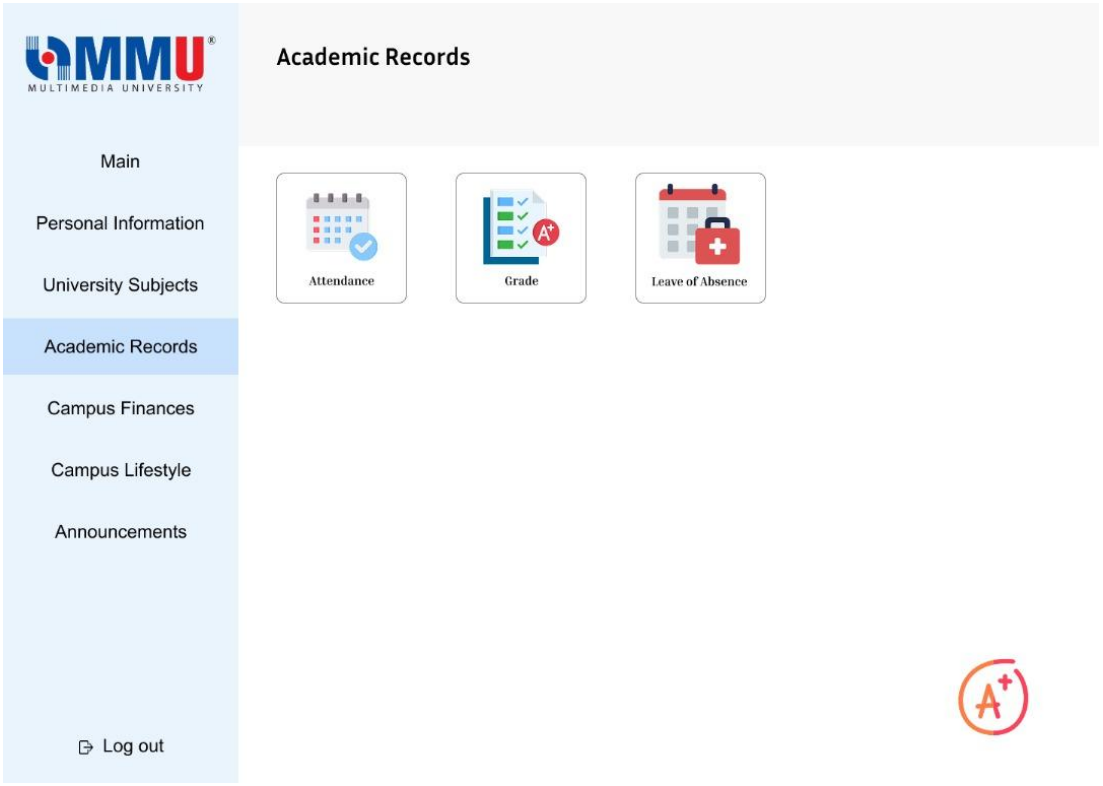

Figure 34: Student View Academic Records Page

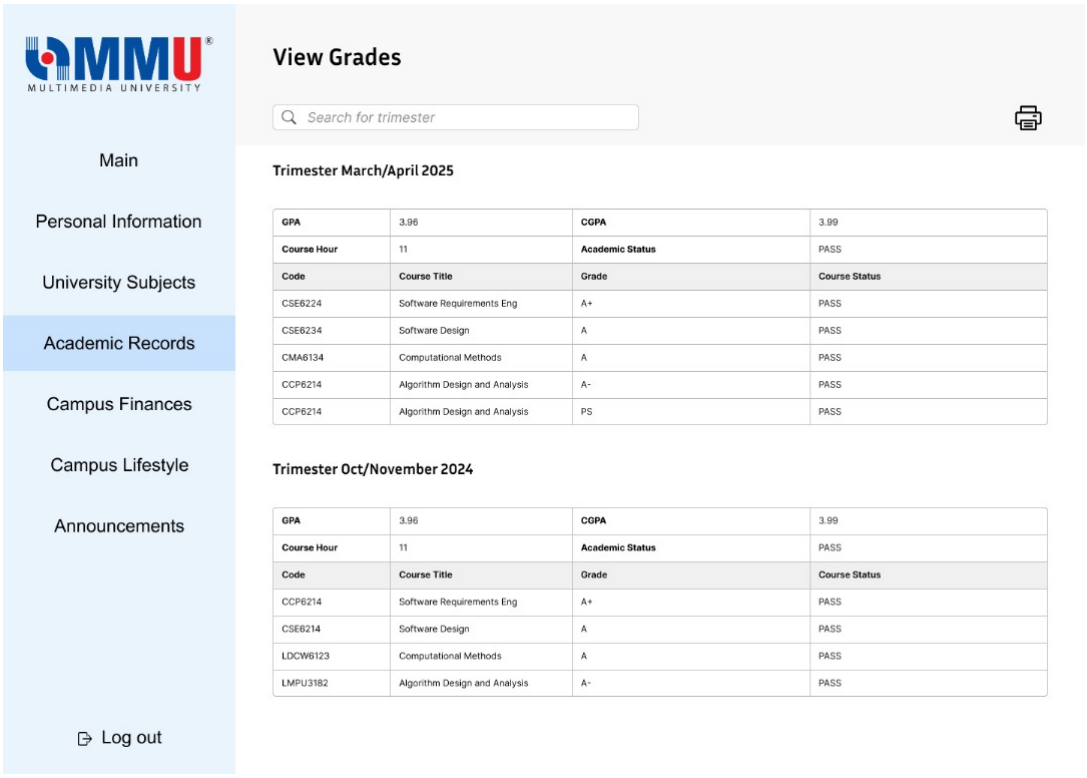

Figure 35: Student View Grades Page

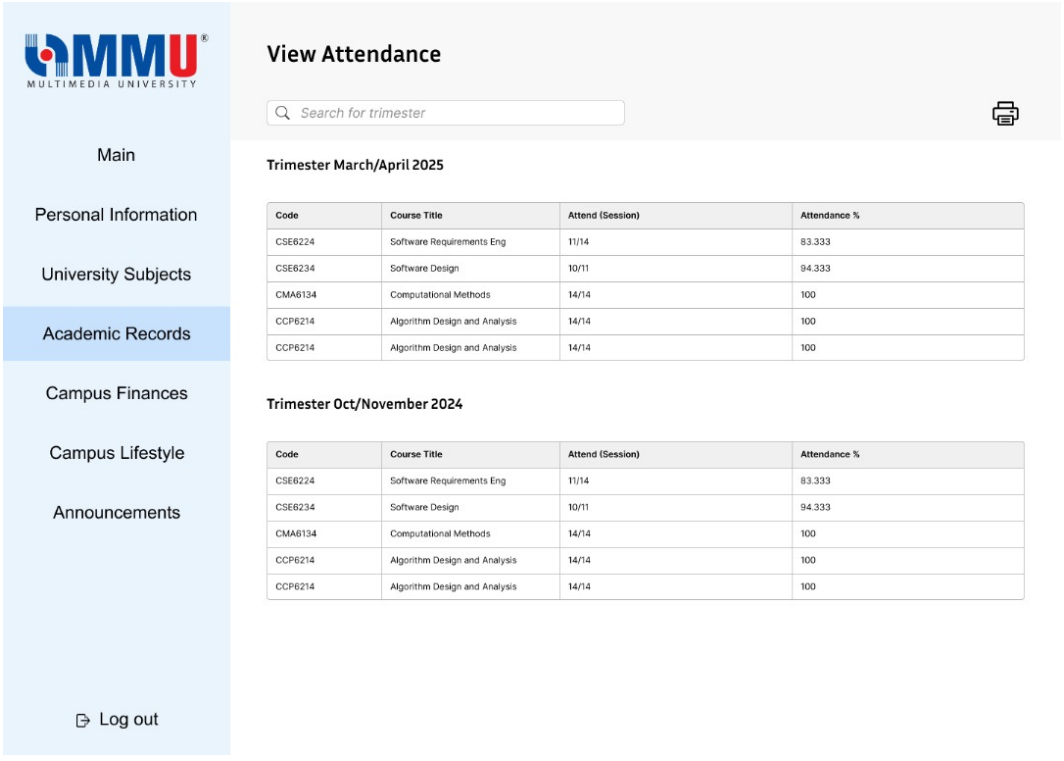

Figure 36: Student View Attendance Page

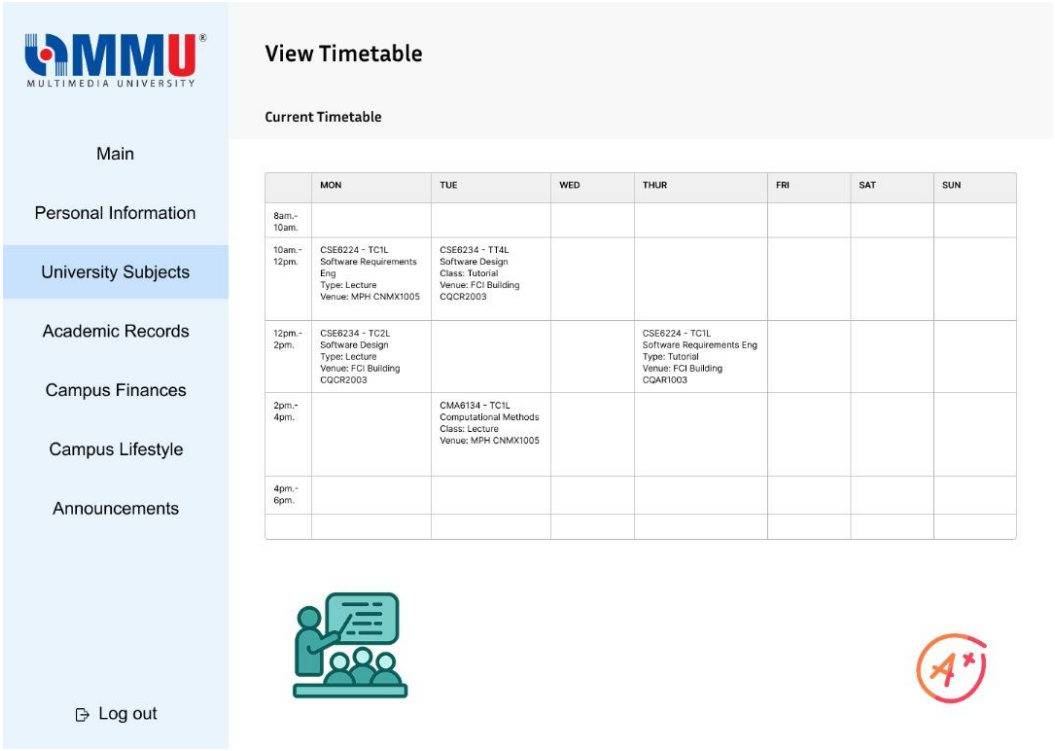

Figure 37: Student View Attendance Page

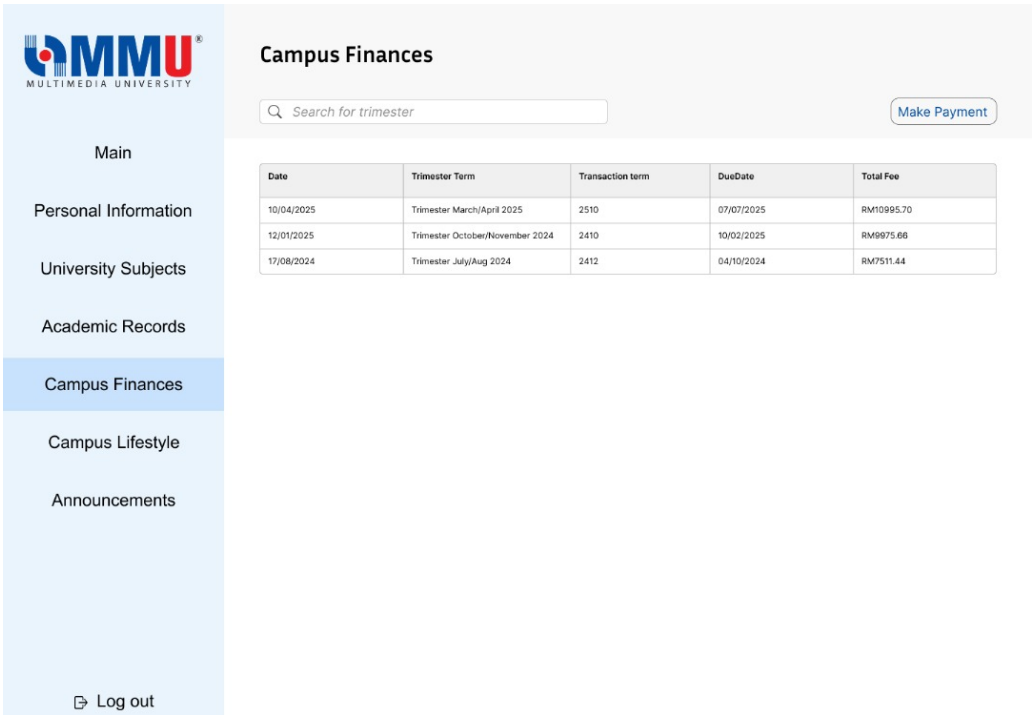

Figure 38: Student View Billing Page 1

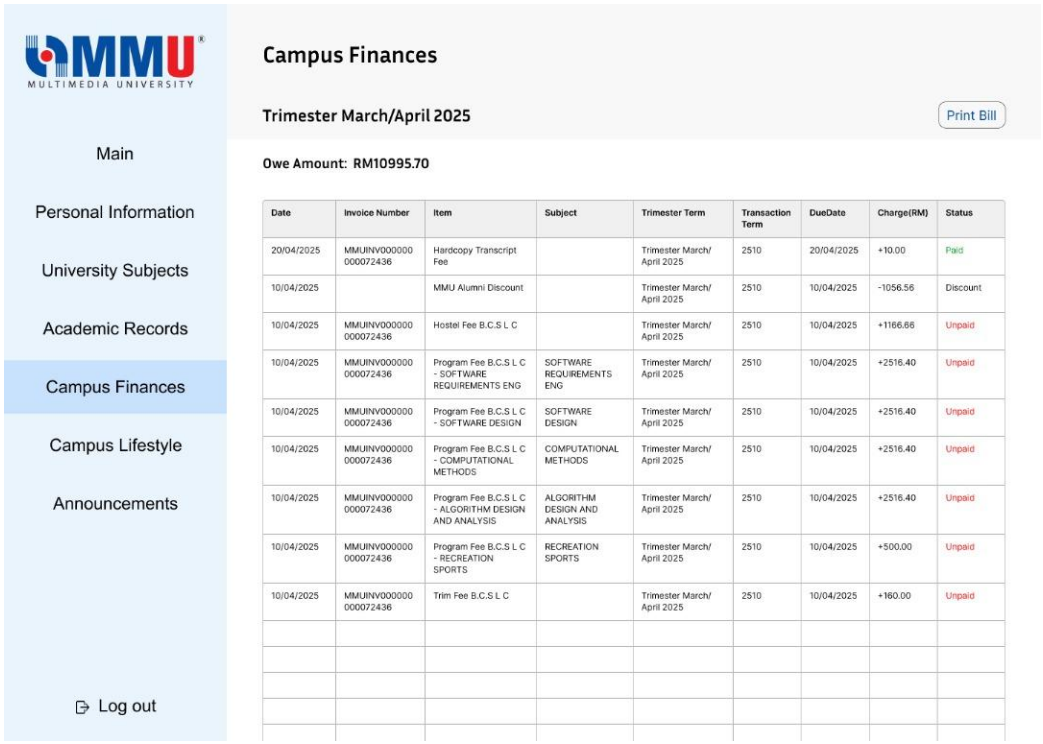

Figure 39: Student View Billing Page 2

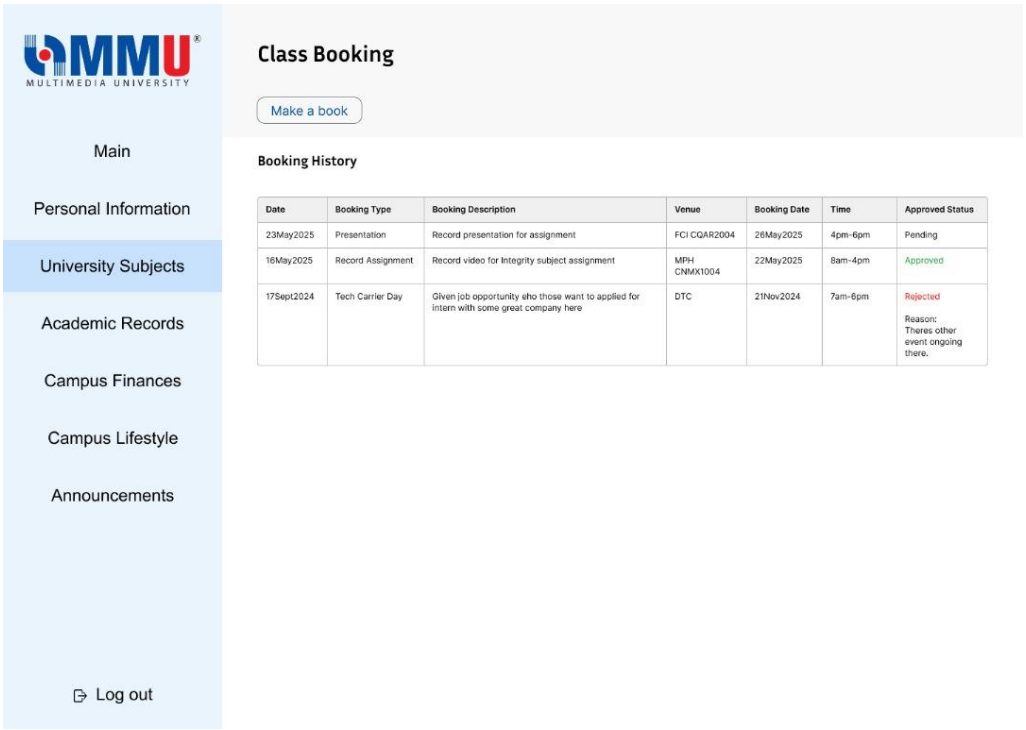

Figure 40: Student Book Class Page

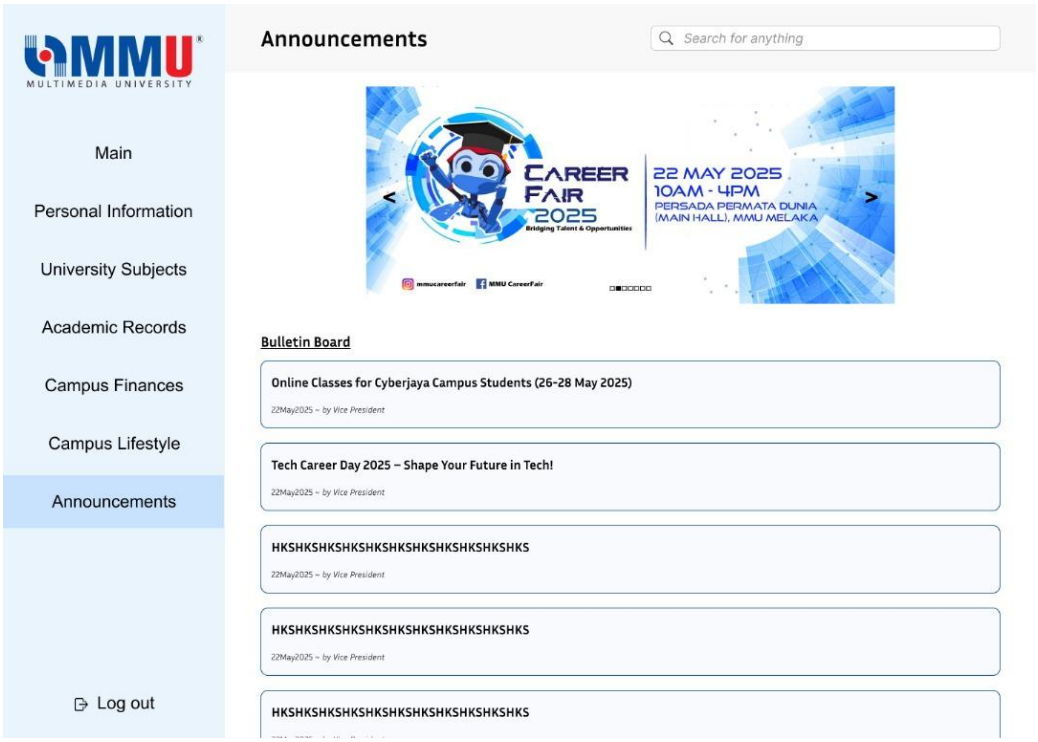

Figure 41: Student Announcements Page

1.5 Perspective-Based Reading

1.5.1 Perspective-Based Reading: Output

Perspective-Based Reading (PBR) was applied to ensure the drafted requirements and scenarios were clear, complete, and relevant from the viewpoint of each major stakeholder. The technique involved reviewing requirement descriptions, mockups, and user stories by role-playing as different users of the system.

The aim was to uncover ambiguities, inconsistencies, or missing functionalities that may not have been evident during initial elicitation or prototyping stages.

Activity details:

- Roles simulated: Student, Lecturer, Parent, Admin
- Reviewers: Internal team members
- Materials reviewed: Draft SRS, questionnaire insights, interview transcript, Figma prototypes
- Review method: Microsoft Word comment tagging + manual checklist for each role

Key Observations from Role-Based Review:

- Student Perspective: Requested longer session durations and easier class schedule access
- Parent Perspective: SMS alerts are important, but notification preferences should be configurable
- Lecturer Perspective: Suggested the ability to bulk upload grades and reuse announcements
- Admin Perspective: Recommended clearer UI for managing classroom bookings and inquiries

Insights from the PBR process led to refinements in the functional requirement section, especially around optional features, role-based visibility, and notification controls.

1.5.2 Perspective-Based Reading: Proof of Elicitation

Table 1: PBR Table

Perspective	Section Reviewed	Comment/Issue Found	Status
Student	Login Flow	"Session times out too fast – no 'Remember Me' option"	Added to SRS
Parent	Billing Notification	"Add toggle to turn SMS on/off per parent preference"	Added to SRS
Lecturer	Assessment Scheduling	"Need calendar sync with class timetable"	Under review
Admin	Booking Approval UI	"No status indicator for pending requests"	Under review

1.6 Summary

To ensure a well-rounded and stakeholder-informed requirement gathering process, five complementary elicitation techniques were employed throughout this project. Each technique contributed uniquely to building a more user-centered and realistic understanding of system needs:

- Brainstorming sessions within the team helped generate the initial feature list and identified assumptions and potential system pain points early in the planning phase.
- A structured interview with a student stakeholder provided deeper insights into real-world frustrations with the current university portal. It also revealed opportunities for enhancing user satisfaction through simple but impactful improvements like persistent login and billing confirmations.
- The questionnaire collected broad feedback from various user roles and allowed us to categorize system features using the Kano model. This enabled feature prioritization based on perceived value, not just frequency of requests.
- Through prototyping, we visualized key student-facing interfaces such as dashboards, timetable, and classroom booking. Early feedback on these mockups helped refine layout decisions and usability before development.
- Finally, Perspective-Based Reading (PBR) allowed team members to simulate different stakeholder viewpoints while reviewing requirements and designs. This helped uncover overlooked needs, gaps in clarity, and role-specific concerns.

2.0 Requirements Categorization

2.1 Requirements Categorization Table

Table 2: Requirements Categorization Table

Requirement	Kano Category (Prediction)	Kano Category (Result)	Reason
Student Login Access	Dissatisfier	Dissatisfier	Essential for access; users frustrated without it
Two-Factor Authentication	Satisfier	Satisfier	Adds security and builds trust, but not strictly necessary
View Grades	Dissatisfier	Dissatisfier	Critical for academic tracking
View Timetable	Satisfier	Satisfier	Helps in planning, but not system-breaking
View Attendance	Dissatisfier	Dissatisfier	Students and parents expect accurate attendance info
View Billing Info	Dissatisfier	Dissatisfier	Transparency on payments is mandatory for students/parents
Book Classroom	Satisfier	Satisfier	Adds convenience; not critical but appreciated
Approve Classroom Booking (Admin)	Dissatisfier	Dissatisfier	Needed for controlling room usage; failure disrupts flow
Upload Materials (Lecturer)	Satisfier	Satisfier	Supports learning; system usable without it but less effective
Submit Grades (Lecturer)	Dissatisfier	Dissatisfier	Core academic requirement; delays impact student progress
Send Announcements (Lecturer/Admin)	Satisfier	Satisfier	Keeps users informed; important but not system-breaking
View Announcements	Satisfier	Satisfier	Users expect regular updates and news

Notify via SMS	Delighter	Delighter	Unexpected but highly welcomed; improves awareness
Application Tutorial	Satisfier	Satisfier	Eases onboarding, but not essential
Accessibility Features	Dissatisfier	Dissatisfier	Required for inclusion; expected by diverse users
System Reliability	Dissatisfier	Dissatisfier	Downtime negatively affects trust and usability
Longer Sign-In Session	Satisfier	Satisfier	Improves convenience but doesn't block core functionality
Remember Me Login Option	Satisfier	Satisfier	Reduces friction for frequent users

2.2 Analysis

The results from our elicitation techniques, particularly the structured questionnaire and interview feedback, were used to classify each system requirement into Kano categories. This classification helped the team prioritize features based on how strongly they influence user satisfaction.

Overview of Categorization

The requirements were classified into the following categories:

- Dissatisfiers (Must-be Features): 9
- Satisfiers (Performance Features): 8
- Delighters (Attractive Features): 1

Dissatisfiers (Must-be)

These are baseline features that users expect to be present. Their absence leads to frustration, but their presence does not significantly increase satisfaction. In our system, features like Login Access, Attendance Viewing, Billing Info, and Submit Grades fall into this category. These were consistently marked as essential across all stakeholder types (students, parents, lecturers, and admins).

Notably, System Reliability and Accessibility Features were also classified as dissatisfiers, indicating that users view stability and inclusive access as non-negotiable.

Satisfiers (One-Dimensional)

These features directly correlate with satisfaction — the better they perform, the more users are satisfied. Features such as View Timetable, Book Classroom, Upload Materials, and Send Announcements fit into this group.

Several features that improve usability but are not critical, like Two-Factor Authentication, Longer Sign-In Session, and Application Tutorials, were also perceived as satisfiers.

Delighters (Attractive)

Only SMS Notifications was classified as a delighter. While not expected by default, its inclusion generated a strong positive response, particularly from parents and students. This implies that implementing this feature could strongly enhance user satisfaction with relatively low effort.

Key Observations

- Stakeholder variation played a crucial role. While students emphasized dashboard visibility, parents valued notification systems, and lecturers highlighted efficiency in uploading and communicating.
- The dominance of dissatisfiers emphasizes the need to ensure all basic operations are robust and reliable before focusing on innovation.
- No requirements were categorized as “Indifferent” or “Reverse,” indicating that all proposed features have at least some value to the users surveyed.

3.0 Conclusion

The Kano analysis confirms that to meet baseline expectations, the team must focus on implementing all dissatisfiers as a minimum viable product. Satisfiers should be optimized for performance, while delighters like SMS alerts can be strategically used to boost engagement and satisfaction. This structured prioritization will allow better allocation of development time and resources based on user-centered value.

Change Log Table

Version	Date	Author	Changes Made
v1.0	23 May 2025	Teoh Xuan Xuan	Added project cover page; created version history log table
v1.1	24 May 2025	Teoh Xuan Xuan	Update Project Title and Table of Content
v1.2	25 May 2025	Yang Jia En	Changed table of contents, added contents
v1.3	25 May 2025	Teoh Xuan Xuan	Check alignment, header and etc.
v1.4	25 May 2025	Teoh Xuan Xuan	Added content 1.1.2