



PREPARED BY GROUP ALPHA

KTDI COLLEGE ROOM RENTAL SYSTEM

SECPH3204-02 SOFTWARE ENGINEERING(WBL)



Overview

The Kolej Tun Dr. Ismail College room rental system project aims to develop a web-based system that allows students to easily request and rent college rooms. The system will automatically calculate the rental price based on the type of room and the number of days the student will stay. After the application is approved, the student will then pay for the room.

Objectives

01

Simplifying the room rental procedure by making it easy for students to find available rooms, view details about the rooms, and complete the rental process without any trouble.

02

Enhancing security by maintaining the security of user information and ensuring that the payment procedure is carried out safely.

03

Streamlining administrative tasks by helping automate administrative processes like handling rental agreements, accepting payments, and producing reports.

04

Improve user experience by providing a better user experience by offering features such as room choices, and user feedback. The system will ensure that any issues or concerns can be addressed in a timely manner.

Problem & Solution

Problem 01

Room Allocation

Problem 02

Transparency and Accessibility

Problem 03

Administrative Burden

Problem 04

Communication and Conflict Resolution

Solution 01

Automate room assignment based on student preferences and availability.



Solution 02

Provide students with access to information on available rooms, rates, and facilities through a user-friendly interface.



Solution 03

Automate administrative tasks such as rental agreements, payment processing, and report generation.



Solution 04

Implement communication channels and dispute resolution mechanisms to facilitate better interaction and conflict resolution.



METHODOLOGY

AGILE METHODOLOGY



- Agile Development: Adopt an Agile approach to enable iterative and incremental development, ensuring flexibility and adaptability to changing requirements.
- Collaborative Development: Emphasizes collaboration and communication among team members, stakeholders, and users throughout the project lifecycle.

Tools, Technologies, and Frameworks



 GitMind

INTERVIEW WITH STAKEHOLDER

STAKEHOLDER #1



En. Hamdan bin Abdul Ghani
Venue: Pejabat KTDI M01, Date: 18 April
2023, Time: 2 pm

STAKEHOLDER #2



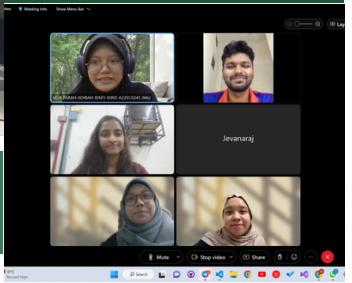
First meeting
Puan Rosnani bt Katip
Venue: Pejabat KTDI M01, Date: 19 April
2023, Time: 2:35 pm

STAKEHOLDER #2



Second meeting
Puan Rosnani bt Katip
Venue: Pejabat KTDI M01, Date: 24 May
2023, Time: 3:30 pm

STAKEHOLDER #3



Jevanaraj A/L Balasuntharam
Venue: Webex meet, Date: 21/5/2023,
Time: 8.30pm



IMPLEMENTATION

Briefly discuss the implementation
of the system

TASK AND ACTIVITIES

Introduce the system's tasks and activities



Requirement Gathering

we conducted meetings with college administrators, students, and staff to understand their needs and gather requirements for the room rental system. This involved identifying key features, user roles, and system constraints.



System Design

Based on the gathered requirements, we created a system design that included the three-tier architecture. The design involved defining the data model, user interfaces, application logic, and integration points.



Database Design

we designed the database schema to store information about students, rooms, bookings, payments, and user feedback. This involved creating tables, defining relationships, and establishing data integrity constraints

TASK AND ACTIVITIES

Introduce the system's tasks and activities



User Interface Development

We developed the user interfaces for different system stakeholders, including the student registration form, room search and booking interface, payment processing screens, and administrative functions. The interfaces were designed to be intuitive, user-friendly, and responsive.



Integration and Testing

We integrated the different software components and conducted comprehensive testing to ensure the system's functionality and performance. This involved unit testing, integration testing, and system testing to identify and fix any issues or bugs.



Deployment and User Training

Once the system was tested and deemed stable, the group deployed it to a web server and conducted user training sessions for college staff and students. This ensured that users understood how to use the system effectively and efficiently.

5 Modules Being Developed:

Modules	Description
Registration and Authentication Subsystem	This module provides essential functionality for students, allowing them to register, log in, reset passwords, and recover forgotten passwords.
Room Rental Subsystem	This module enables students to search for available rooms based on their preferences (e.g., type of room), view room details, make a reservation for rooms, cancel their room bookings, facilitate online payment for room bookings, and file complaints. This module also enables administrators to manage student bookings.
Administration Subsystem	This module provides essential functionalities for both the registrar and the administrator. It enables the registrar to efficiently manage rooms within the college while allowing the administrator to address and resolve complaints effectively.
Payment Management Subsystem	This module allows the registrar to manage payments while enabling the administrator to accept payments and manage payment information.
Reporting Subsystem	This module enables the registrar to approve applications while allowing the administrator to review applications and generate financial reports.

Challenges & Solution

Challenge 01

Scalability



Challenge 02

Payment Security



Challenge 03

User Experience



Challenge 04

Data Integrity

Solution 01

Implemented performance optimizations such as database indexing, caching, and load-balancing techniques.

Solution 02

Collaborated with reputable payment gateway providers and followed best practices for secure payment handling.

Solution 03

Conducted user testing sessions and gathered feedback to iteratively improve the interface and user experience.

Solution 04

Implemented data validation and transaction handling mechanisms to ensure data consistency and integrity.

Solution 05

Utilized well-defined APIs, standardized data formats, and thorough integration testing for seamless integration.

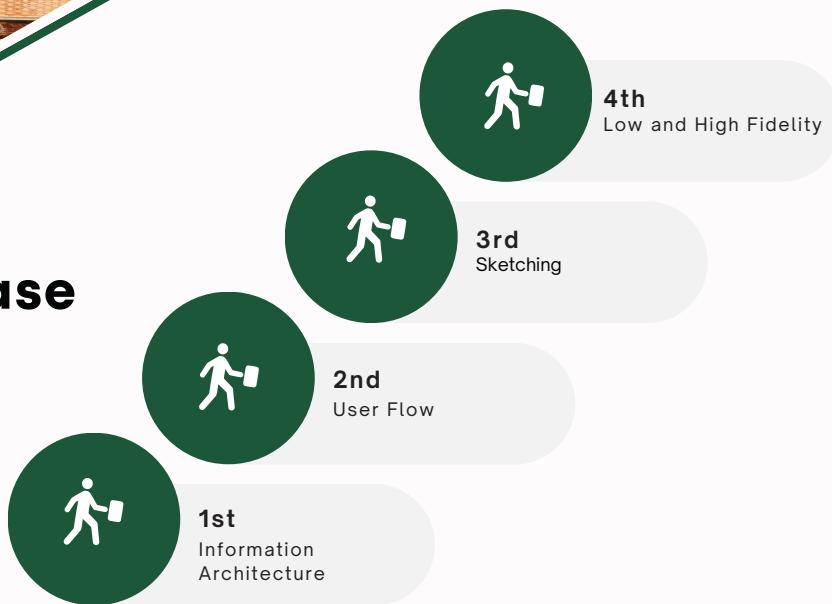


Challenge 05

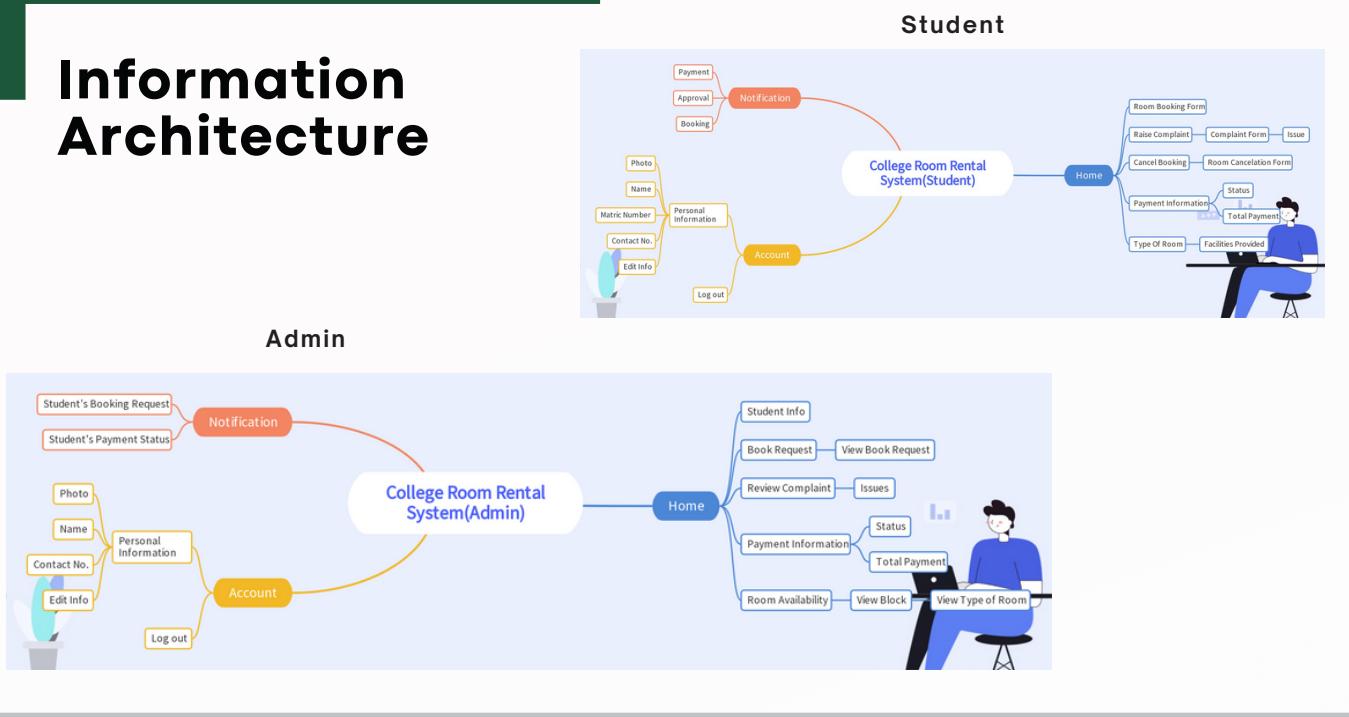
System Integration



Design Phase

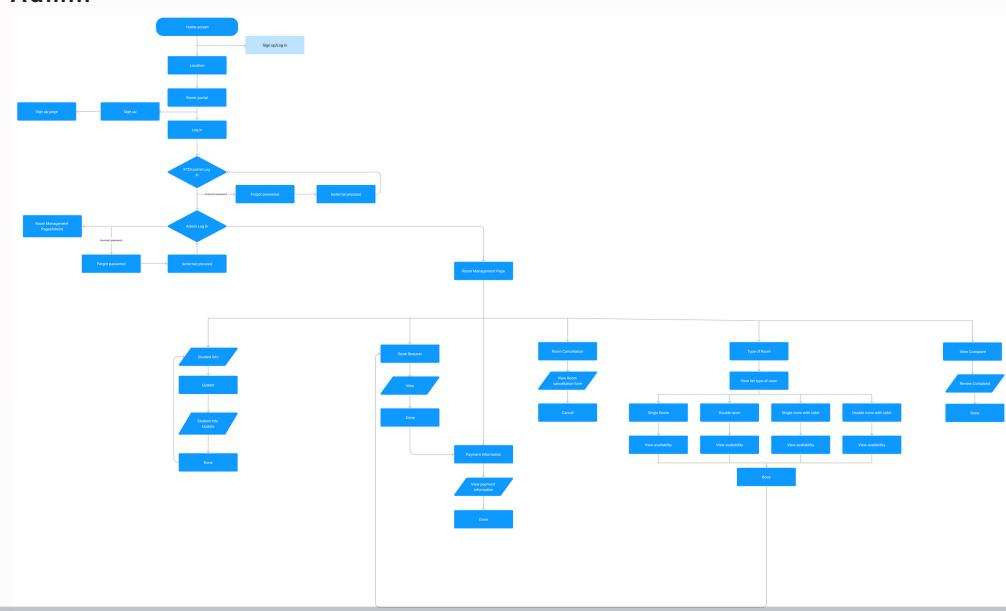


Information Architecture



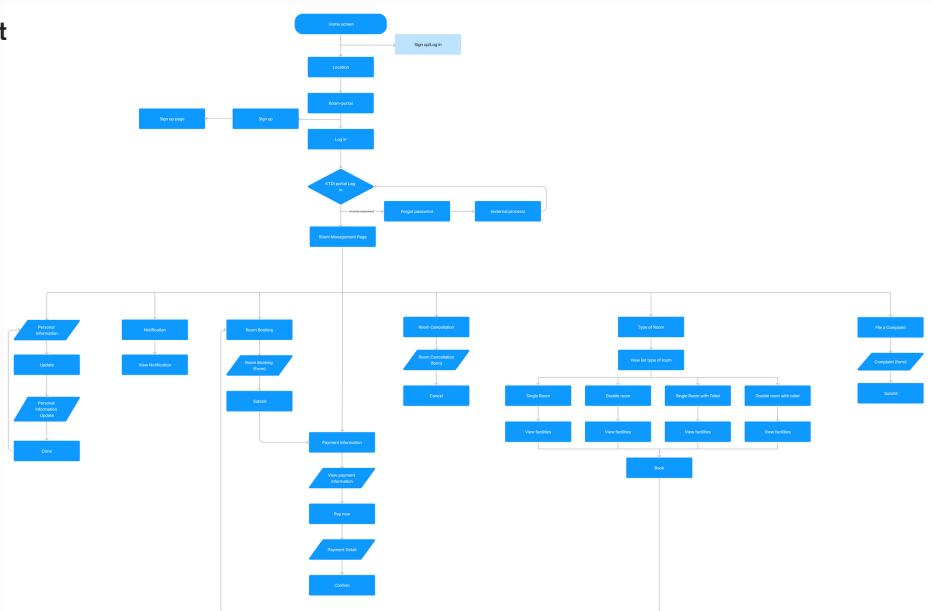
User Flow

Admin



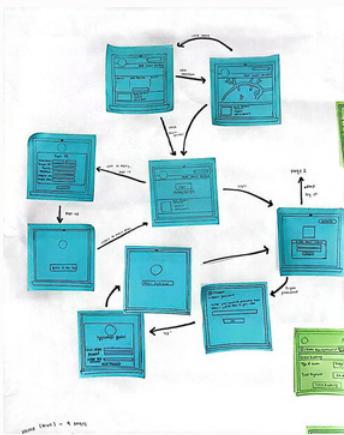
User Flow

Student

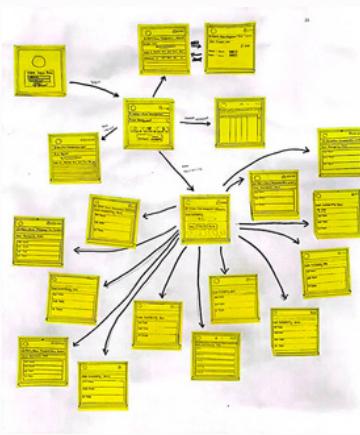


Initial Sketching

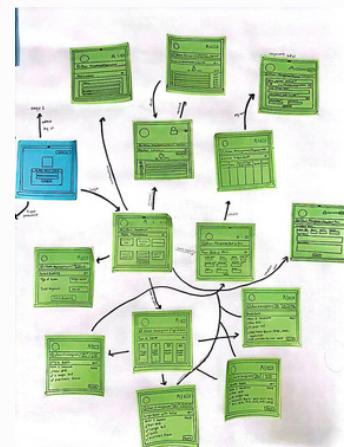
Home



Admin

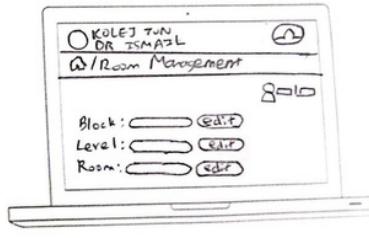
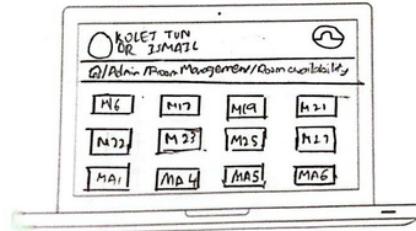
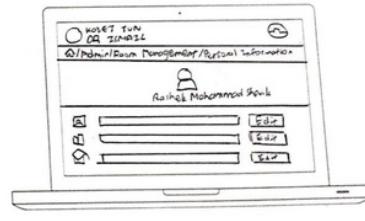
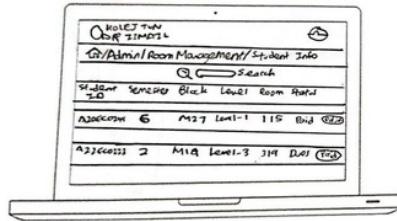


Student



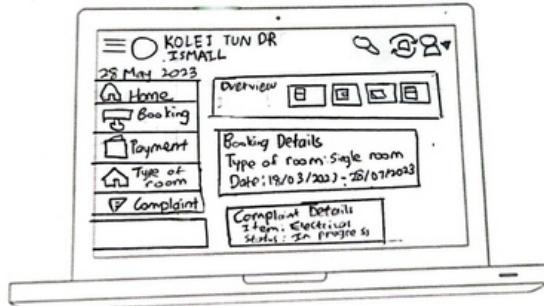
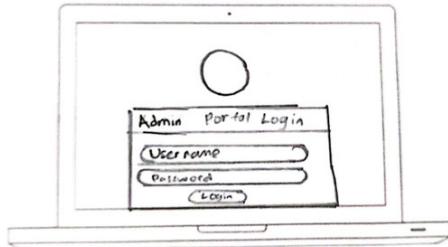
Low Fidelity

Admin



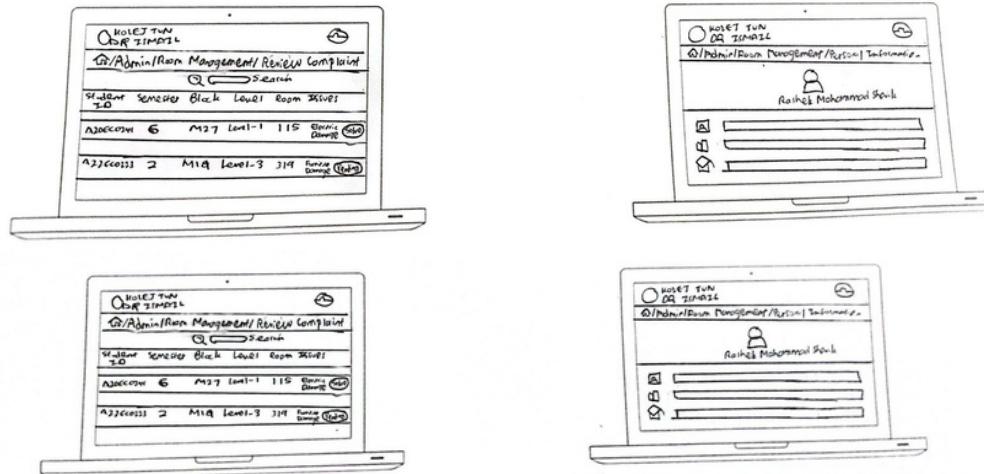
Low Fidelity

Admin



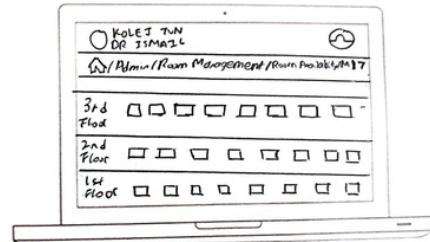
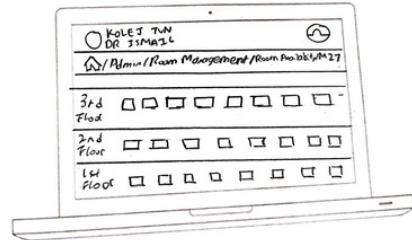
Low Fidelity

Admin



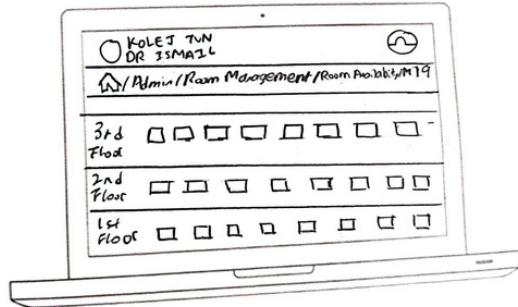
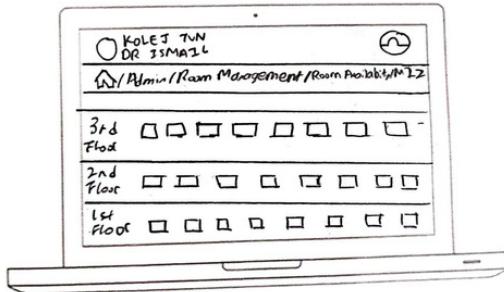
Low Fidelity

Admin



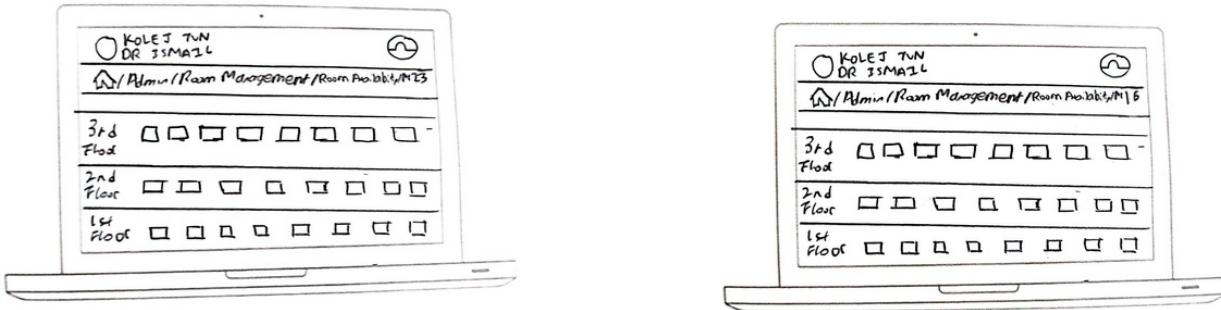
Low Fidelity

Admin



Low Fidelity

Admin



Low Fidelity

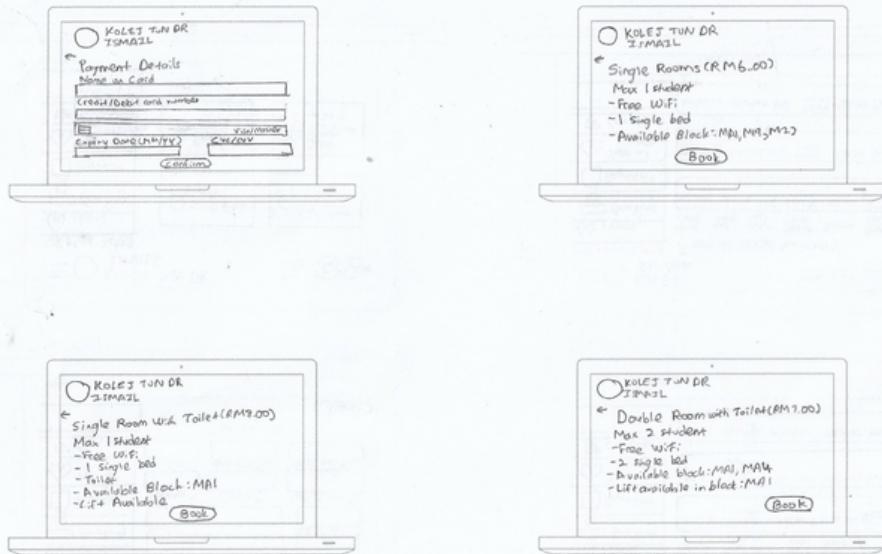
Student

The image contains four separate wireframe sketches of a mobile application interface for room booking, arranged in a 2x2 grid.

- Top Left:** "Room Booking Form". It shows fields for "Student Name", "Phone", "Email", "Check-in Date", "Check-out Date", and "Total days". Buttons for "Search", "Payment", and "Complaint" are also present.
- Top Right:** "Booking Details". It lists bookings for "M23 Double room" and "M19 Double room", showing details like "Type of room", "Start date", "End date", and "Status".
- Bottom Left:** "Room Types". It displays four room types: "Single Room RM6", "Single Room with Balcony RM8", "Double Room RM14", and "Double Room with Balcony RM7".
- Bottom Right:** "Financial Status Summary". It provides a summary of financial status with sections for "Total Paid", "Remaining Balance", and "Last Payment Date".

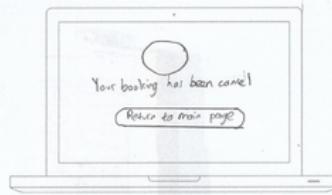
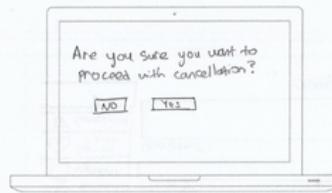
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Student



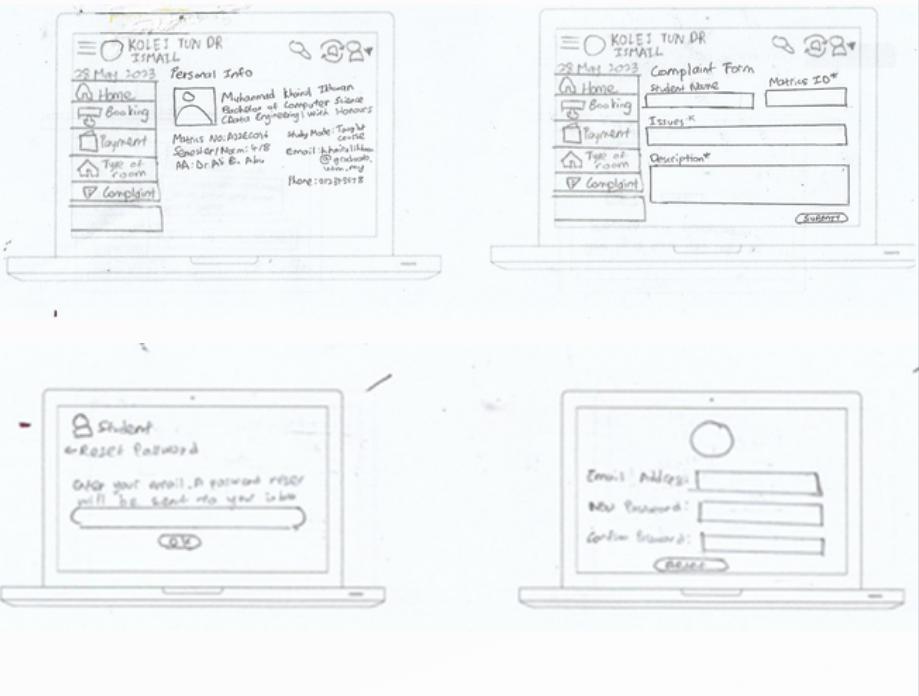
Low Fidelity

Student



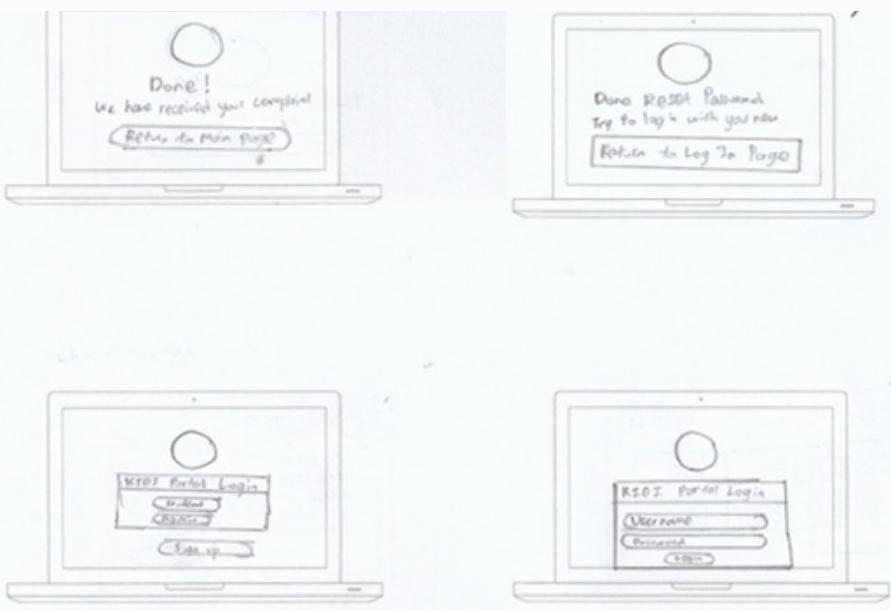
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Student



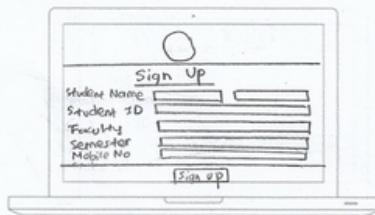
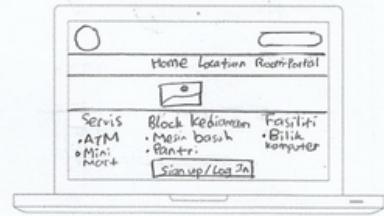
Low Fidelity

Student



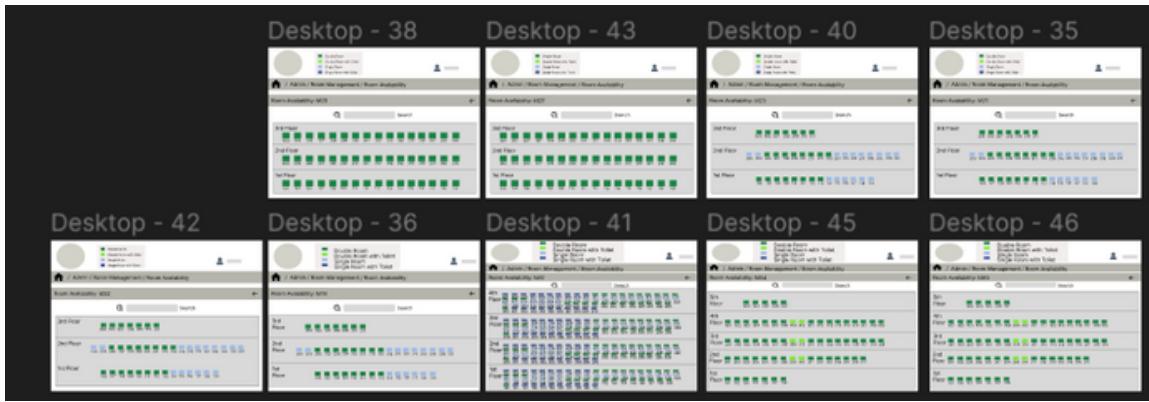
Low Fidelity

Student



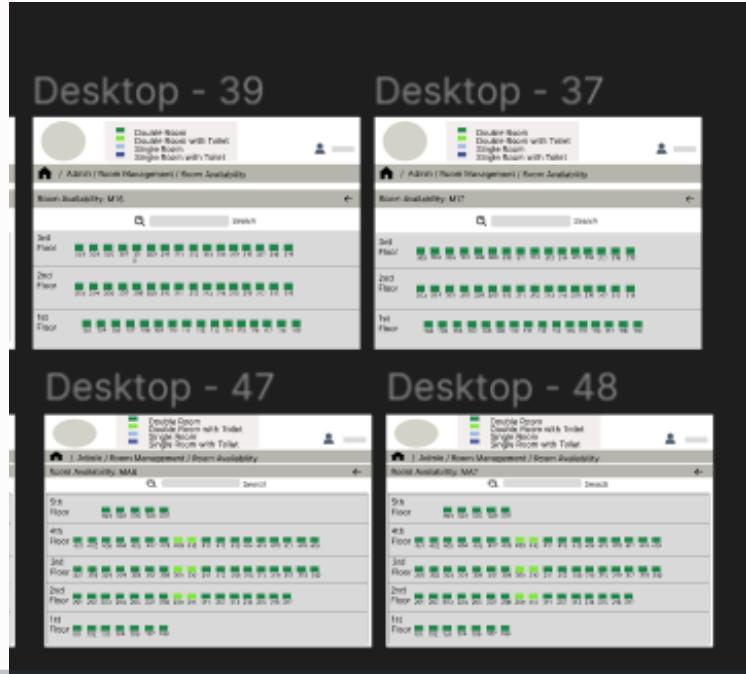
High Fidelity

Admin



High Fidelity

Admin



High Fidelity

Admin

The Admin Portal interface is designed for room management at KOLEJ TUN DR ISMAIL. It includes:

- Room Availability:** Shows a grid of rooms (M16-M21, M22-M27, M41-M45) with status indicators.
- Room Management:** Allows users to search for rooms by Block, Level, and Room number.
- Student Info:** Displays student details (Student ID, Name, Semester, Block, Level, Room, Status) in a table.
- Bookings:** Shows a list of bookings with columns for Name, Email, Semester, Block, Level, Room, and Status.
- Personal Information:** Allows users to update personal details for students.
- Review Complaints:** Shows a list of complaints with columns for Student ID, Semester, Block, Level, Room, and Details.

High Fidelity

Student

StudentPortal-Room Management

StudentPortal-Booking Room

StudentPortal-booking list

StudentPortal- Types of room

StudentPortal- Single

StudentPortal- Single Toilet

StudentPortal-Complaint form

Student-Done complaint

StudentPortal-Complaint form

High Fidelity

Student

StudentPortal-Room Management

Financial Status Summary

Date	Out date	Total block	Type of room	Payment	Pay Now
28/03/2023	23/03/2024	150	Double room	RM4.00	Pay
18/03/2023	28/03/2023	150	Single room	RM8.00	Pay
28/03/2023	10/03/2023	150	Single room	RM2.00	Pay
10/03/2023	21/03/2023	140	Double room	RM6.00	Pay
21/03/2023	26/03/2023	150	Double room	RM5.00	Pay

StudentPortal-Payment Detail Form

Payment Details

Name on Card: [REDACTED]

Credit / Debit card number: [REDACTED]

Expiry Date (MM / YY): [REDACTED]

Visa / Master Card

CVC / CVV: [REDACTED]

Your payment process has done !

Return to Main page

StudentPortal- Double Room

Double Room (RM4.00)

Max 2 student

- Free WiFi
- 2 single bed
- Available block: M11, MAA, MAS, MAB, MAT, M25, M27, M19, M16, MIT, M21, M22, M23
- Lift available in block: M11

BOOK

StudentPortal- Double Toilet

Double Rooms with Toilet (RM7.00)

Max 2 student

- Free WiFi
- 2 single bed
- Toilet
- Available block: MAA, MAS, MAB, MA7

BOOK

Design

1 Typography

Notot Sans Hebrew New

Regular 400

Notot Sans Hebrew New

Medium 500

Notot Sans Hebrew New
inter

Regular 400

inter

Medium 500

inter

2 Colour Scheme

#264D00	100%	#57E95F	100%	#000000	100%
#4CAF50	100%	#28C554	100%	#1A8445	100%
#FFFFFF	50%	#8EFA93	70%	#9EBBE6	100%
#42A108	100%	#EEFFC9	100%	#FFFFFF	100%
#57E95F	80%	#37E541	50%	#395499	100%
#D9D9D9	0%	#FA0808	100%	#FFFEEF	100%
#FF0000	65%	#71BF44	100%	#D9D9D9	100%
#010114	100%	#F44336	100%	#FFCC80	100%
#0B0000	100%	#18C149	100%	#F3EEE	100%
#0C1037	100%	#FFEE0	100%	#78EA32	100%

Prototype: Log In

The image displays a grid of eight screenshots illustrating the user interface for a KTDI Room Rental System. The screenshots are arranged in two rows of four:

- Location:** A map showing the KTDI campus with several location markers and a green banner at the top.
- Home Page 2:** A screenshot of the home page featuring a large image of a building, navigation links for Home, Location, and Room-Rental, and a "VIEW DETAILS" button.
- Choose Portal:** A screenshot of a portal selection screen with "KTDI Portal Login" and buttons for Student and Admin, along with a "Sign Up" link.
- LOGIN-Portal:** A screenshot of the actual KTDI Portal Login page, which looks very similar to the "Choose Portal" screen.
- SignUpForm:** A screenshot of a sign-up form titled "Sign Up" with fields for Student Name, Student ID, Faculty, and Semester.
- SignUpForm2:** A screenshot of a verification step titled "Verify Your Email Address" with a message about email verification and a "Return to main page" button.
- Forgot Password:** A screenshot of a password reset form asking for an email address to send a reset link.
- Reset Password Confirmation:** A screenshot of a confirmation page for a password reset, showing fields for Email Address, New Password, Confirm Password, and a "Reset" button.

Prototype:

Admin

The image displays a grid of ten screenshots from an Admin prototype system, arranged in two rows of five. The top row includes:

- Admin-Reset Password**: Shows a success message "Done Reset Password" and a "Return to Log In Page" button.
- Admin-Reset Password Conf...**: A password reset configuration page with fields for Email Address, New Password, and Confirm Password.
- Admin-Forgot Password**: A page for entering an email to receive a password reset link.
- AdminPortal - Home page**: A dashboard with room availability and student information cards.
- ADMINPORTAL-Login**: An admin login portal with fields for User Name and User Password, and a "LOGIN" button.

The bottom row includes:

- Admin View Room Availability**: A room availability grid for KOLEJ TUN DR ISMAIL, showing rooms M01 through M27.
- ADMINPORTAL- Edit Student**: A student edit form with fields for Student ID, Name, Gender, Block, Level, Room, and Status.
- ADMINPORTAL- Student-Info**: A student information page showing details for Student ID AS000001, including address and block information.
- AdminPortal - Home page**: A second dashboard view with room availability and student information cards.
- ADMINPORTAL- Book Request**: A book request form for KOLEJ TUN DR ISMAIL, listing books by title, author, and quantity.
- AdminPortal-Room Personal I...**: A room personal information update form with fields for Room Number, Room Type, and Room Status.
- AdminPortal - Personal Infor...**: A personal information update form with fields for Name, Gender, and Contact Information.
- ADMINPORTAL- Review Com...**: A review complaint form for KOLEJ TUN DR ISMAIL, listing complaints by student ID and status.

Prototype:

Admin

The image displays a grid of 11 screenshots from a room rental system prototype, arranged in two rows. The top row contains five screenshots labeled M17, M27, M22, M19, and M25. The bottom row contains six screenshots labeled M16, M21, M23, MA1, MA5, MA4, MA7, and MA6. Each screenshot shows a floor plan for a specific building (e.g., M17 shows Kolej Tun DR ISMAIL) with rooms marked as available (green) or booked (blue). The interface includes a header with the building name, a navigation bar, and a legend for room status.

Prototype: Student

The following table summarizes the data shown in the screenshots:

Screen Type	Content Description
Home student	Dashboard with navigation menu and search bar.
confirm cancel	Confirmation dialog asking if you want to proceed with cancellation.
cancel done	Message confirming booking room has been canceled.
payment done	Message confirming payment process has done.
Types of room	List of room types: Single Room, Double Room, Single Room with Toilet, Double Room with Toilet.
Single	Booking form for Single Room (RM80.00) with fields for Room No., Room Type, Room Status, and Room Details.
Single Toilet	Booking form for Single Room with Toilet (RM80.00) with fields for Room No., Room Type, Room Status, and Room Details.
Double	Booking form for Double Room (RM120.00) with fields for Room No., Room Type, Room Status, and Room Details.
Double Toilet	Booking form for Double Room with Toilet (RM120.00) with fields for Room No., Room Type, Room Status, and Room Details.
Complaint form	Form for reporting complaints with fields for Complaint Type, Description, and Attachment.
Done complaint	Confirmation message stating 'Done!' and 'We have received your complaint'.
Personal Info	Personal information page showing details like Name, Address, and Contact Number.



TESTING AND QUALITY ASSURANCE

Testing and quality assurance play a crucial role in ensuring the reliability and robustness of the software. The following are the testing strategies and techniques employed in the project.

Testing Strategies and Techniques

Strategy 01

Black Box Testing

Strategy 02

White Box Testing

Strategy 03

Integration Testing

Strategy 04

User Acceptance Testing (UAT)

Technique 01

Testing the system's functionality

Technique 02

Examining the internal structure and logic

Technique 03

Verifying interaction between system modules

Technique 04

Testing from the end-users perspective



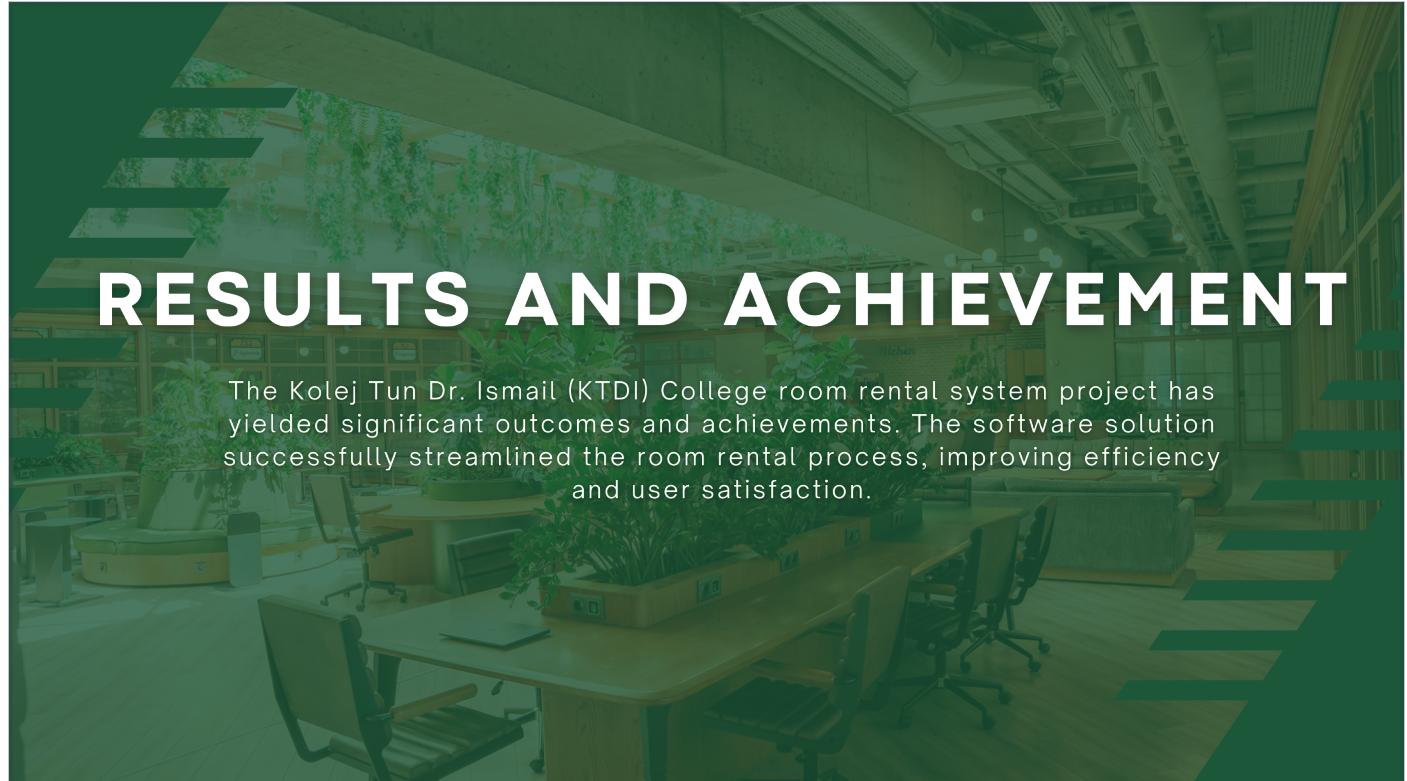
Types of Testing Conducted

Type of Testing	Description
Unit Testing	Testing individual components or units of code
Integration Testing	Verifying the integration and compatibility between system modules
System Testing	Comprehensive testing of the entire system as a whole
Usability Testing	Evaluating the user-friendliness and ease of use of the system
Regression Testing	Ensuring existing functionalities have not been affected by changes



RESULTS AND ACHIEVEMENT

The Kolej Tun Dr. Ismail (KTDI) College room rental system project has yielded significant outcomes and achievements. The software solution successfully streamlined the room rental process, improving efficiency and user satisfaction.



- **Increased Efficiency:** The automated system significantly reduced the time and effort required for room allocation, payment processing, and administrative tasks. This led to improved productivity for college administrators and a smoother experience for students.
- **Improved Transparency:** The system provided students with easy access to information about available rooms, rental rates, and facilities. This transparency empowered students to make informed decisions and select the most suitable accommodation for their needs.
- **Enhanced User Experience:** The user-friendly interface and intuitive design of the system resulted in positive feedback from users. Students and staff found it easy to navigate, search for rooms, make bookings, and manage their rental-related tasks.
- **Streamlined Communication:** The system facilitated effective communication channels between students, roommates, and college administrators. It provided features such as feedback and review submission, enabling users to express their opinions and address concerns promptly.





Quantitative & Qualitative Data Collected

Quantitative Data

- **Reduced Processing Time:** The average time taken to allocate rooms and process rental-related tasks decreased by 40%, resulting in quicker responses to student requests and inquiries.
- **Increased Room Occupancy Rate:** The system improved room occupancy rates by 15%, ensuring optimal utilization of available resources and minimizing room vacancies.

Qualitative Data

- Students expressed satisfaction with the ease of finding and booking rooms based on their preferences and availability.
- College administrators appreciated the streamlined administrative processes, reduced paperwork, and improved coordination among departments.

Feedbacks

During the evaluation process, stakeholders and users provided valuable feedback on the system. Some key feedback points include:



Students praised the system for its user-friendly interface, which made it convenient to browse available rooms, view details, and complete bookings.



Stakeholders noted that the system significantly reduced manual errors and improved the overall efficiency of the room rental process.



Some users suggested incorporating additional features, such as roommate matching algorithms based on preferences and shared interests, to further enhance the user experience.

CONCLUSION

In conclusion, the Kolej Tun Dr. Ismail (KTDI) College room rental system project aimed to simplify the room rental process by developing a web-based system. Throughout the project, we faced challenges in gathering requirements, managing system complexity, integrating data, and designing a user-friendly interface. However, we overcame these challenges by maintaining clear and continuous communication with stakeholders, conducting thorough planning and documentation, adopting an agile development approach, and prioritizing user-centric design.

From this project, we learned the importance of effective communication, comprehensive planning, and user research in ensuring project success. We also recognized the value of flexibility and adaptability in addressing changing requirements. By incorporating user feedback and conducting usability tests, we developed an intuitive and appealing interface that enhanced user satisfaction.



THANK YOU

Made by Group Alpha

