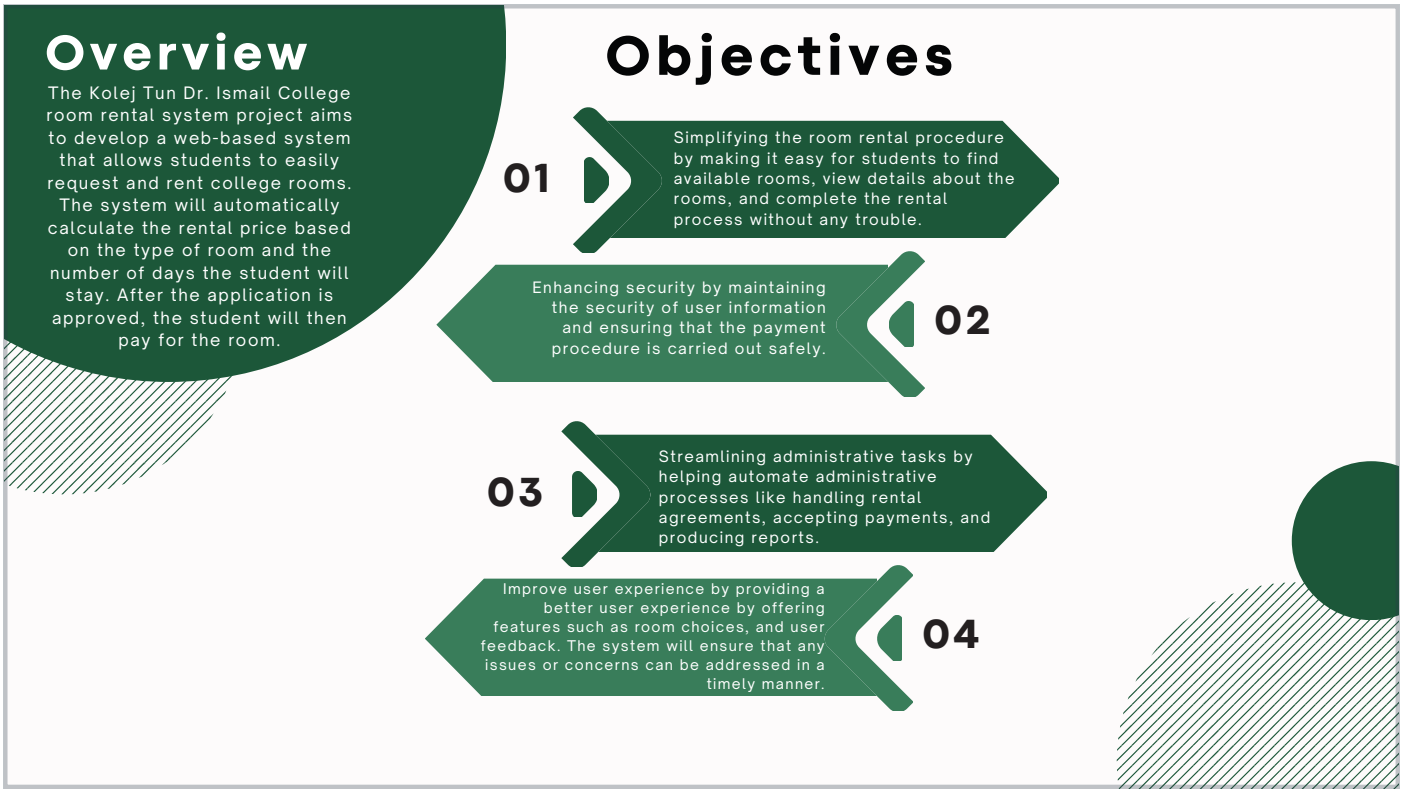
UTM
UNIVERSITI TEKNOLOGI MALAYSIA

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.
Enhancing security by maintaining the security of user information and ensuring that the payment procedure is carried out safely.
02
03
Streamlining administrative tasks by helping automate administrative processes like handling rental agreements, accepting payments, and producing reports.
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.
04

Problem & Solution

Problem 01
Room Allocation

Problem 02
Transparency and Accessibility

Problem 03
Administrative Burden

Problem 04
Communication and Conflict Resolution

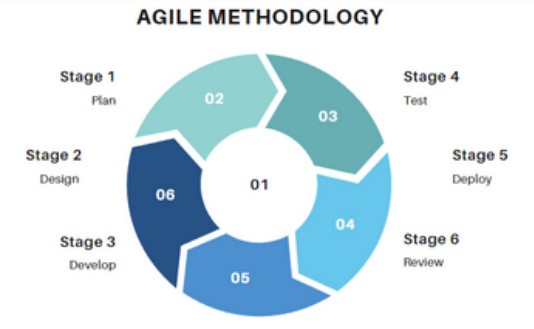
Solution 01
Automate room assignment based on student preferences and availability.

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 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

GitHub

GitMind

INTERVIEW WITH STAKEHOLDER

STAKEHOLDER #1

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

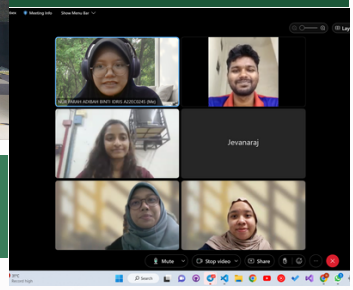
STAKEHOLDER #2

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 Develop:

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

Solution 01
Implemented performance optimizations such as database indexing, caching, and load-balancing techniques.

Challenge 02
Payment Security

Solution 02
Collaborated with reputable payment gateway providers and followed best practices for secure payment handling.

Challenge 03
User Experience

Solution 03
Conducted user testing sessions and gathered feedback to iteratively improve the interface and user experience.

Challenge 04
Data Integrity

Solution 04
Implemented data validation and transaction handling mechanisms to ensure data consistency and integrity.

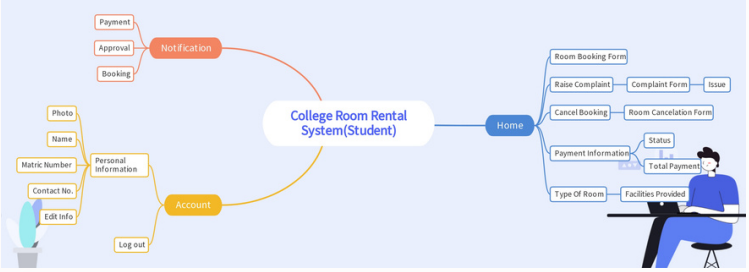
Challenge 05
System Integration

Solution 05
Utilized well-defined APIs, standardized data formats, and thorough integration testing for seamless integration.

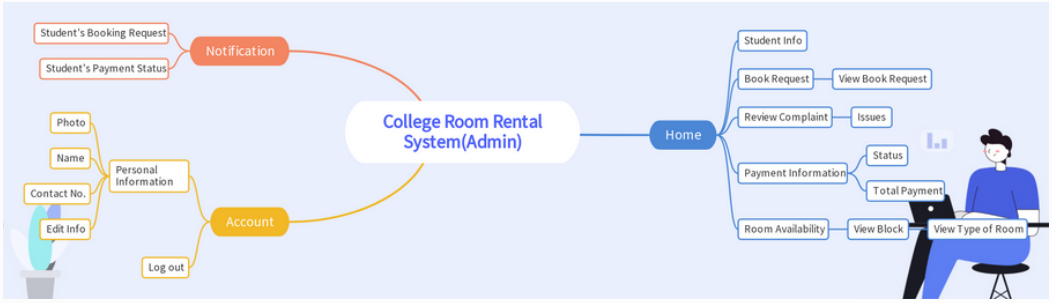

Design Phase
4th
Low and High Fidelity
3rd
Sketching
2nd
User Flow
1st
Information
Architecture

Information Architecture

Student

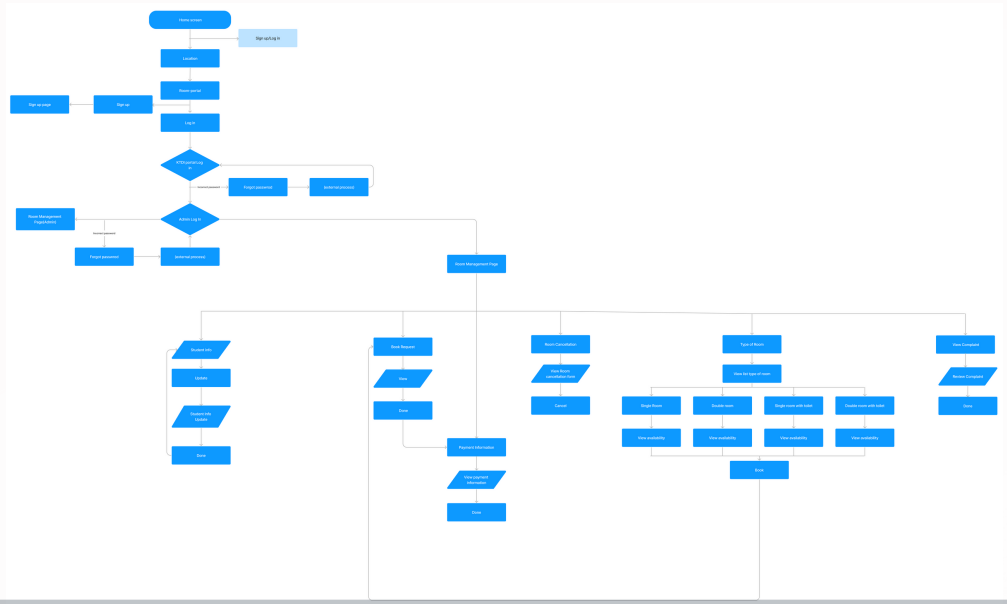


Admin



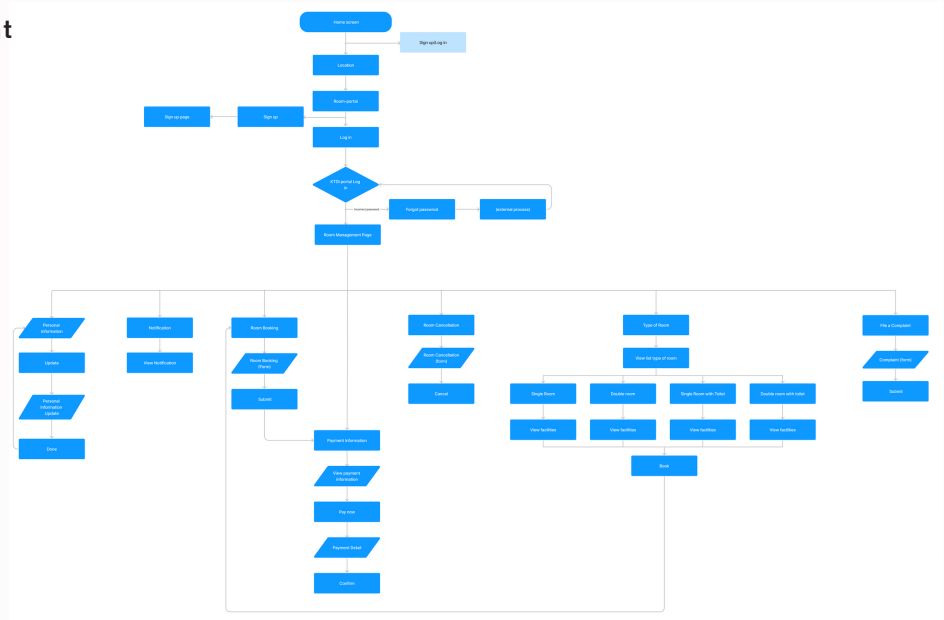
User Flow

Admin



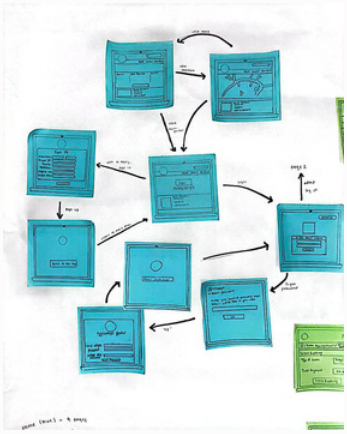
User Flow

Student



Initial Sketching

Home



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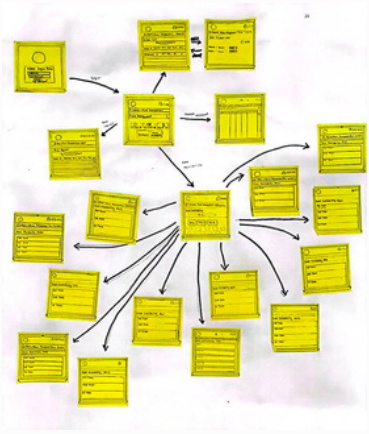

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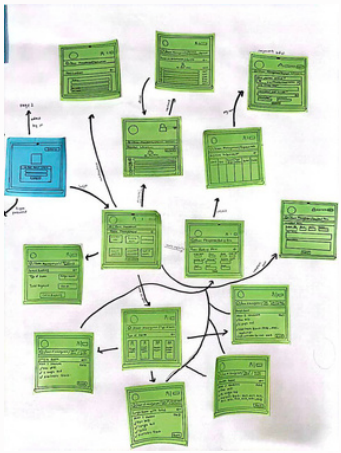

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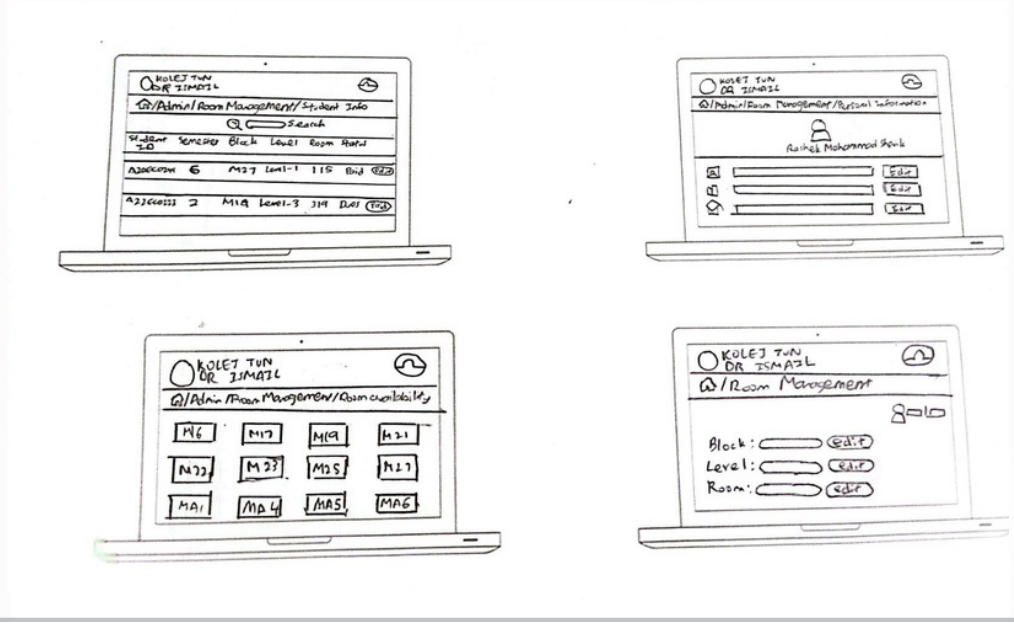

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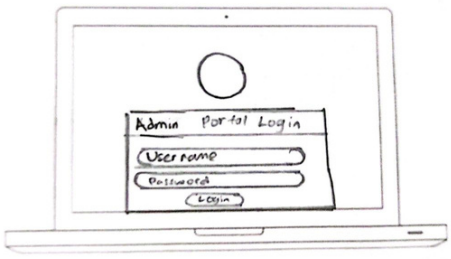

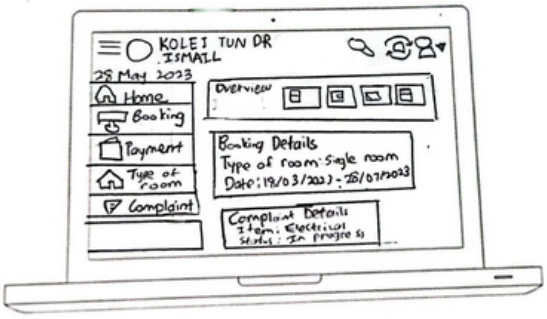

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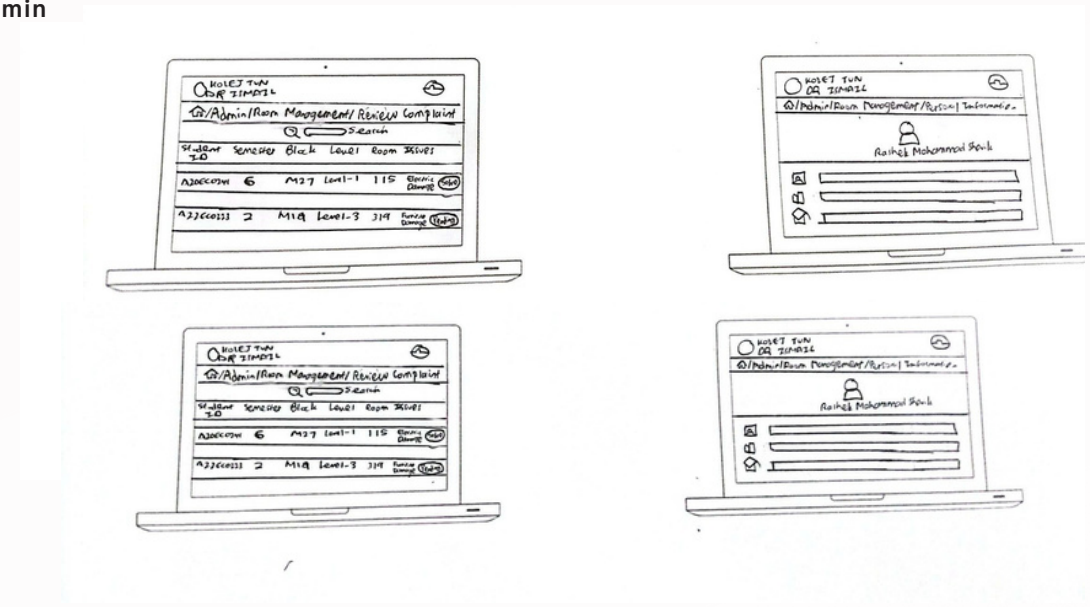

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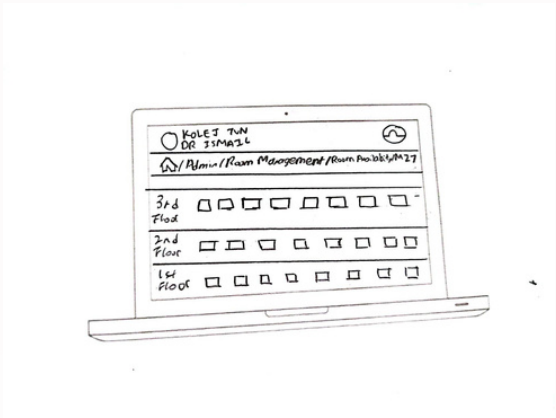

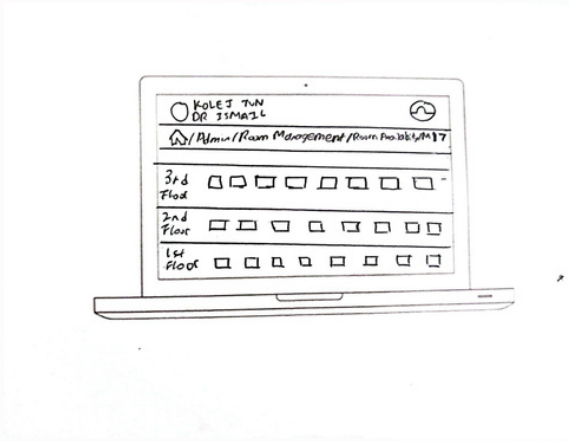

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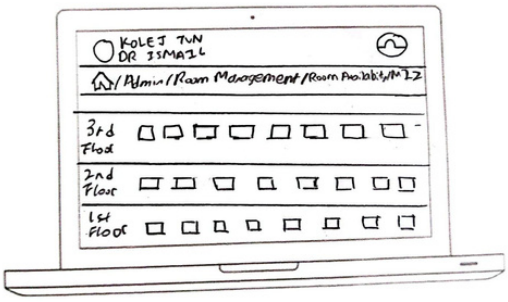

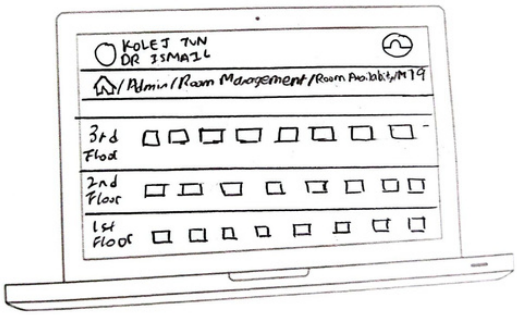

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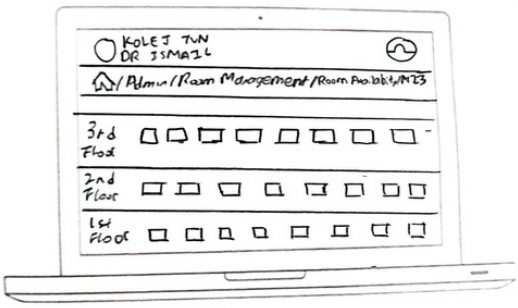

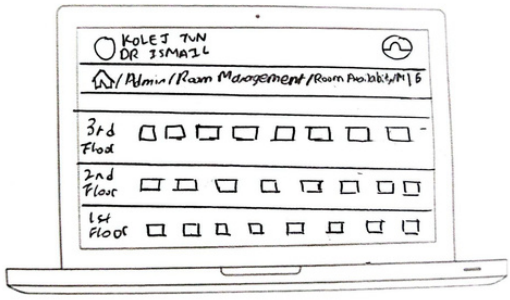

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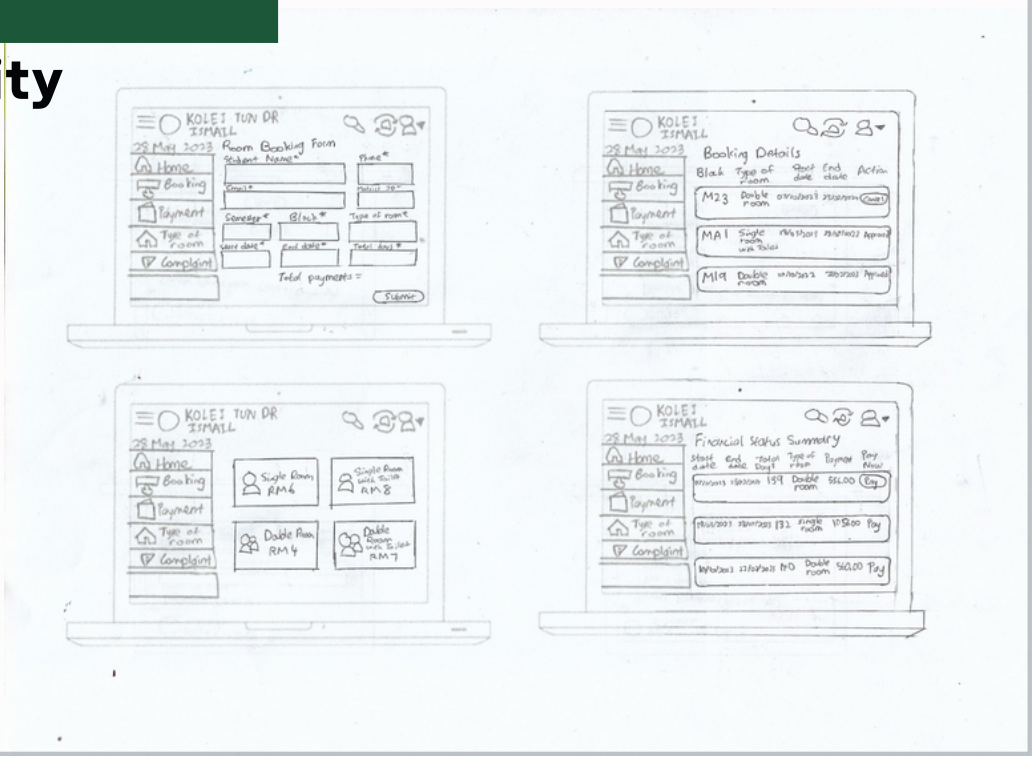
Student



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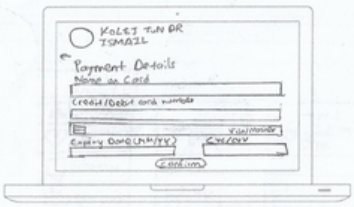

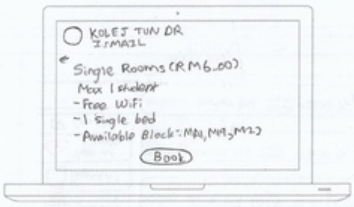

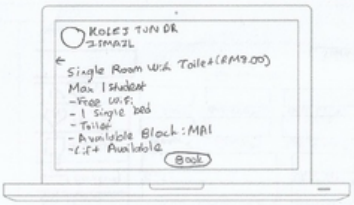

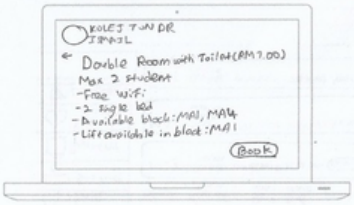

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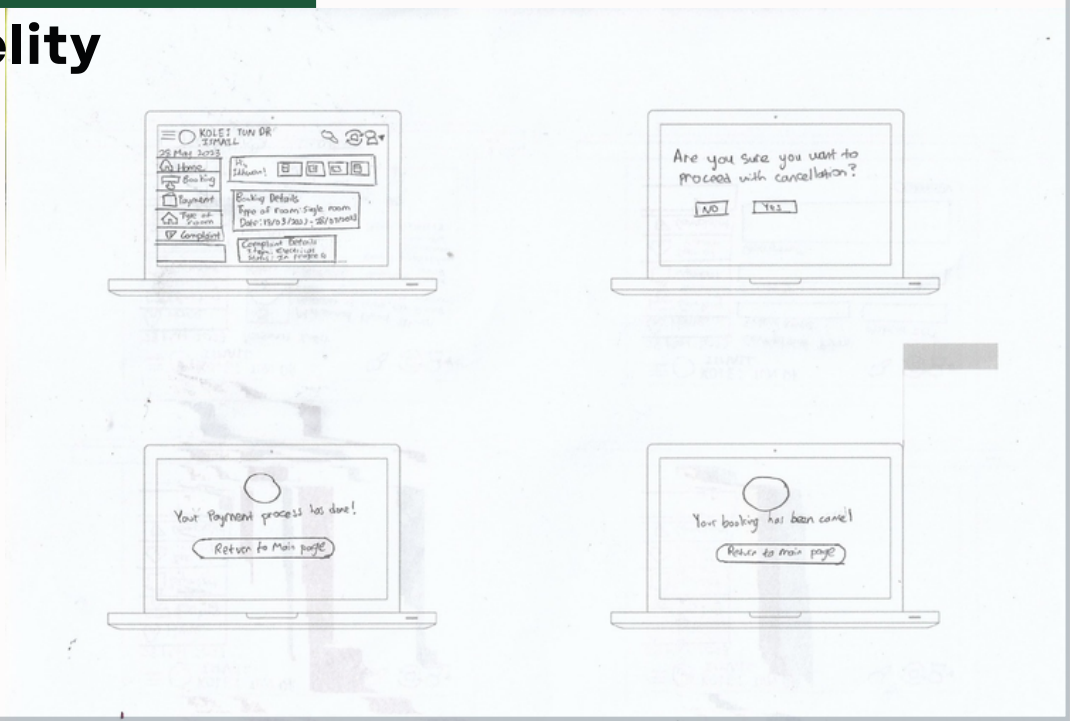

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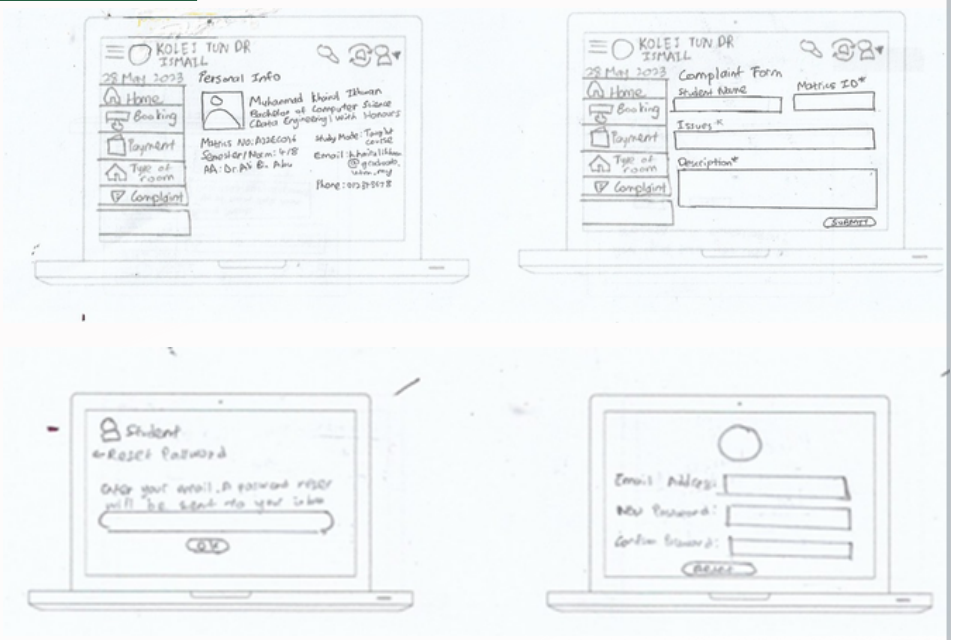

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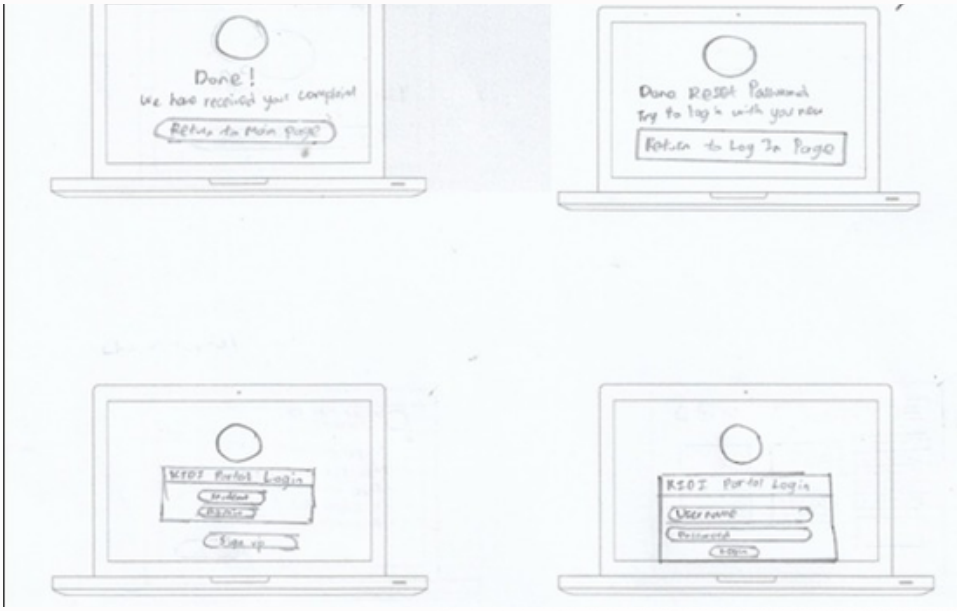

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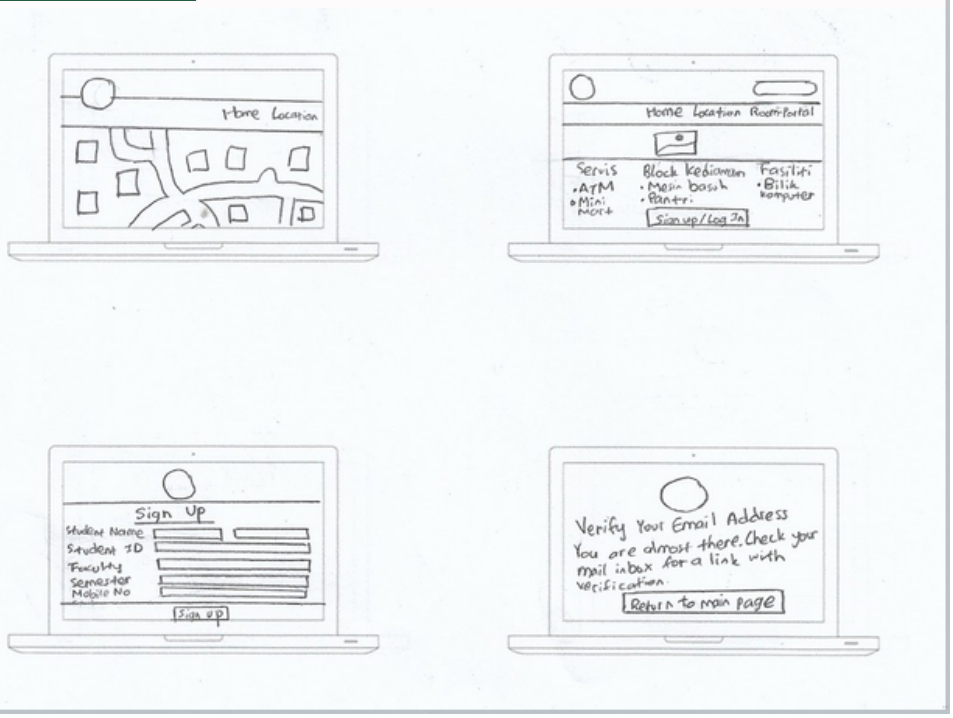

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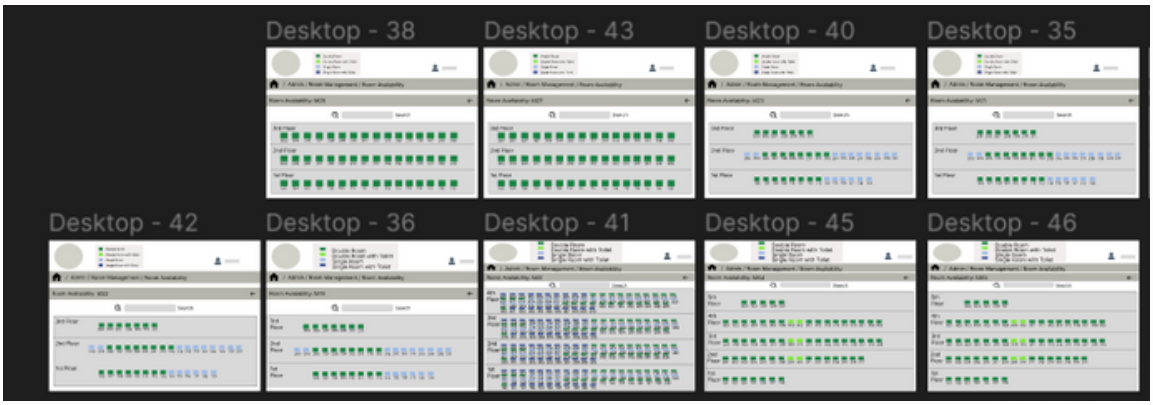

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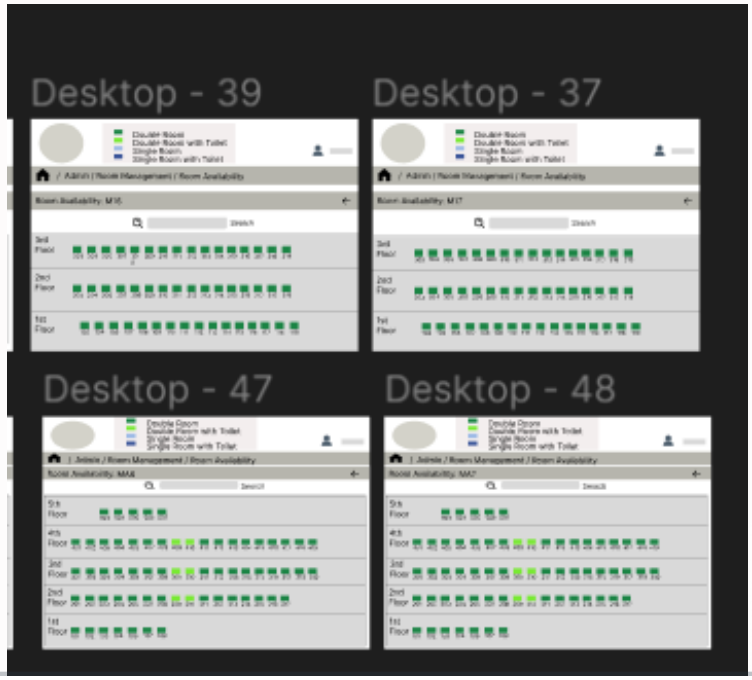

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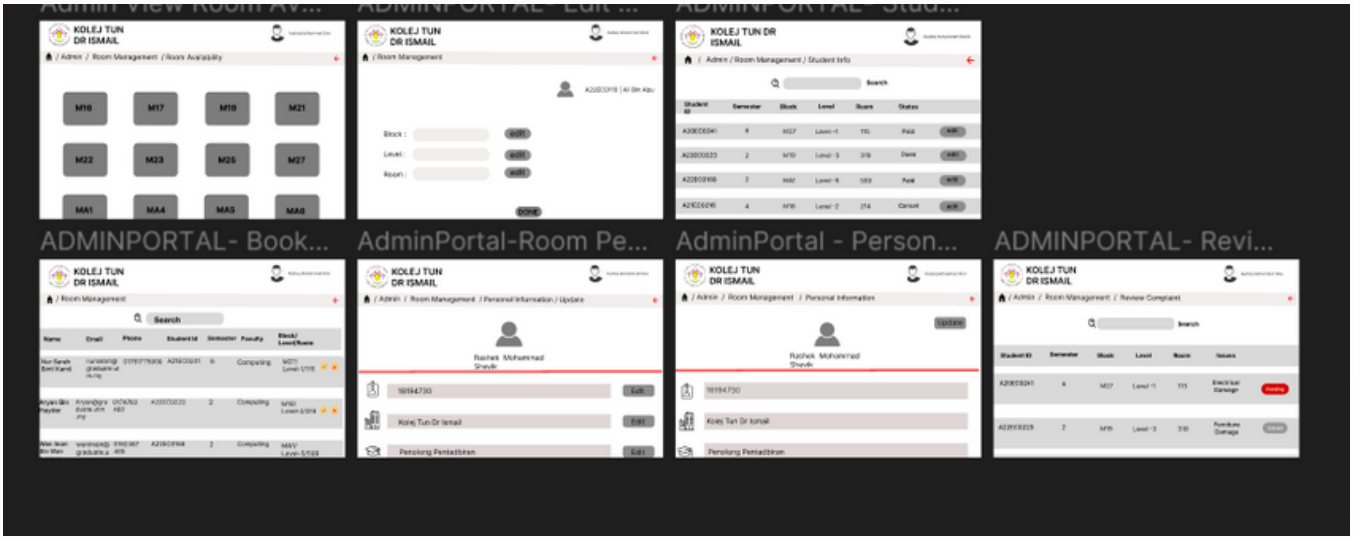

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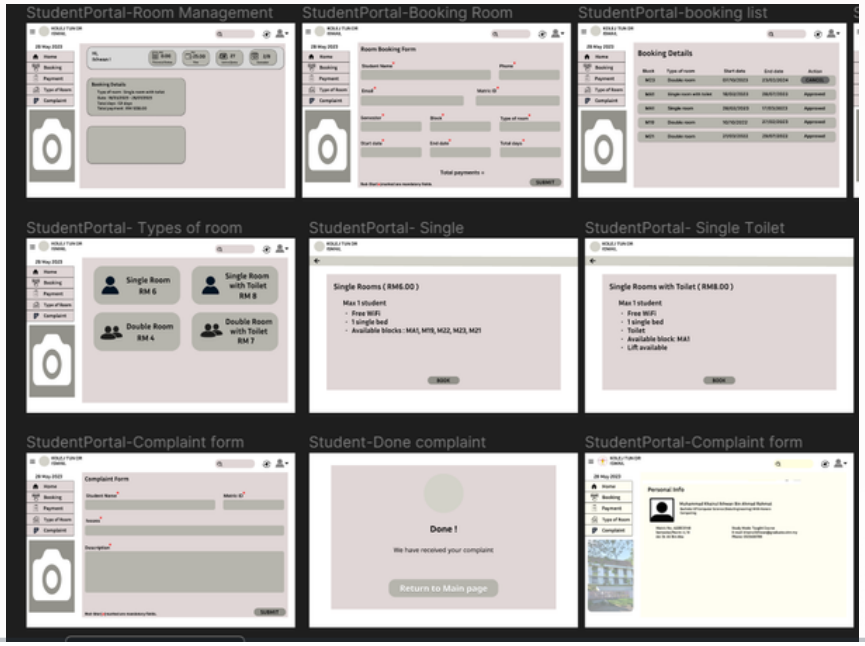

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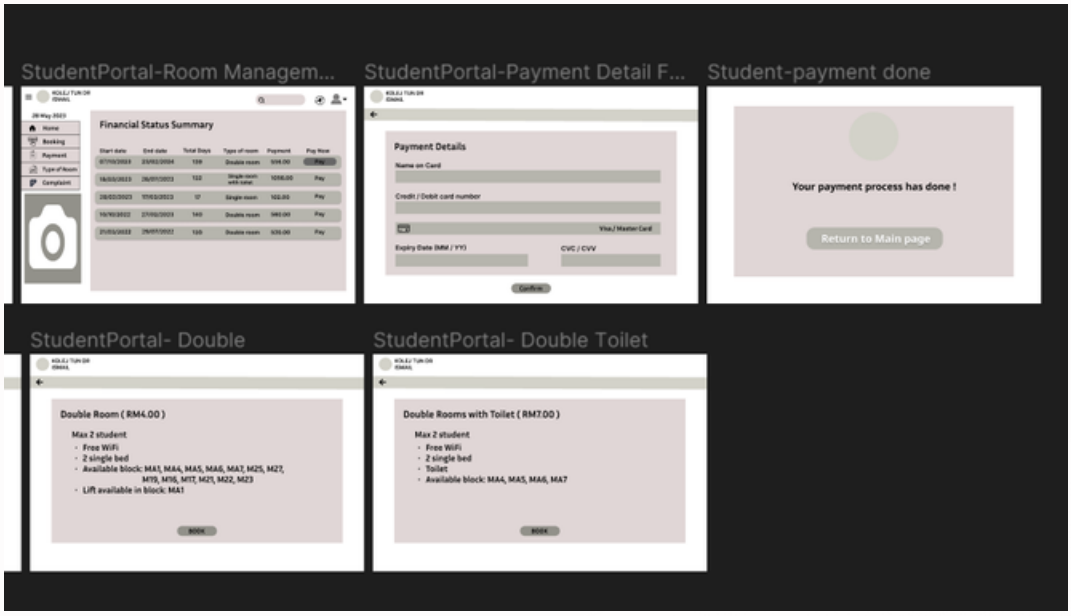

Design

1 Typography

Notot Sans Hebrew New

Regular 400

Notot Sans Hebrew New

Medium 500

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inter

Regular 400

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Medium 500

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2 Colour Scheme

Prototype:

Log In

Location

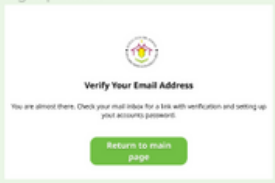
Home Page 2

Choose Portal

LOGIN-Portal

SignUpForm

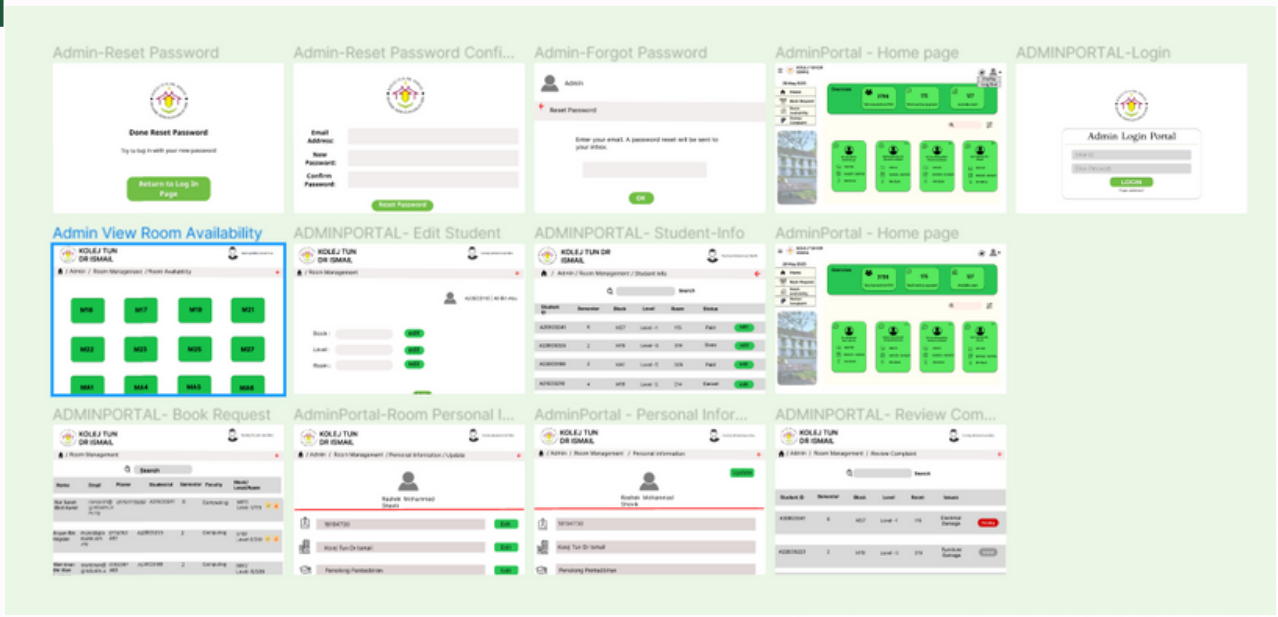
SignUpForm2



Forgot Password

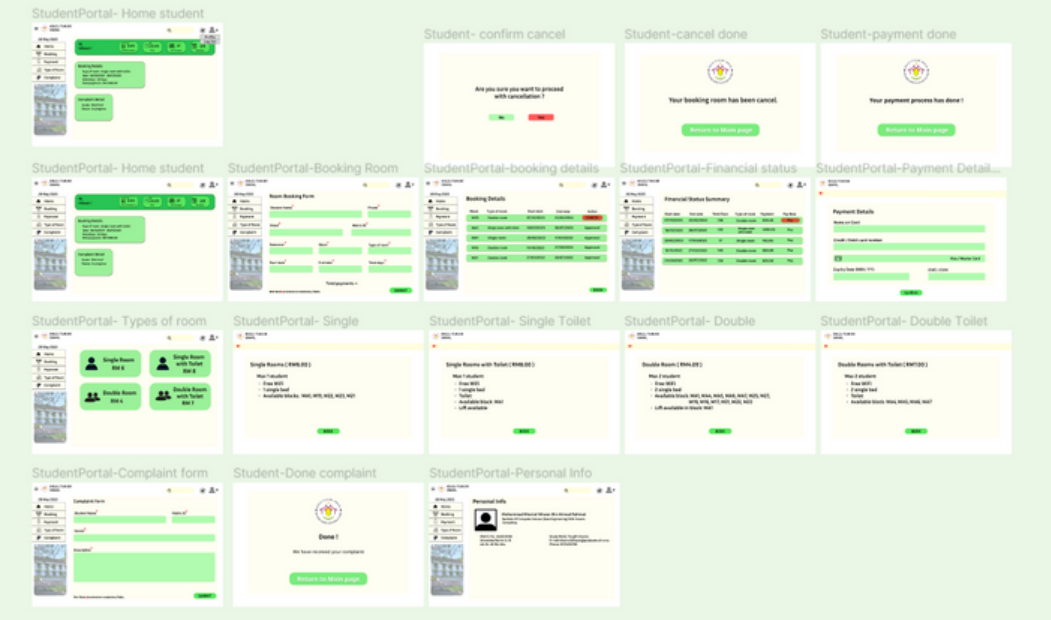
Reset Password Confirmation

Prototype: Admin



Prototype: Admin

Prototype: Student



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