

MALAWI UNIVERSITY OF SCIENCE AND TECHNOLOGY

MALAWI INSTITUTE OF TECHNOLOGY

COMPUTER SYSTEMS AND INFORMATION TECHNOLOGY

TO: MR. ARTHUR MWANG'ONDA

FROM: G7

CHISOMO KAMBALAME CSS/003/22

JACQUELINE ZIMBA CSS/012/22

GARRETH CHIMIMBA BIT/032/21

ADRIAN MASIANO SED/015/21

MOSES CHAZAMA CSS/016/22

JOHN MALIZANI BIT/102/22

HAMID JUMA BIT/018/22

COURSE NAME: SYSTEM ANALYSIS AND DESIGN

COURSE CODE: SYAD-2200

ASSIGNMENT TITLE: FINDMYHOSTEL PROJECT DOCUMENTATION

GITHUB LINK: <https://github.com/HAMID-JUMA/GROUP-7-FindMyHostel-Project.git>

FINDMYHOSTEL PROJECT DOCUMENTATION

PROJECT OVERVIEW

FindMyHostel is an online web-based application designed and developed to make it easier for students to search and book off-campus hostels around the campus (Malawi University of Science and Technology to be specific). The system aims at bringing ease for the students to go through available rooms and book them using an easy-to-use interface. This documentation describes the develop process from ideation to system success.

1. IDEATION

On the first day of the team meeting, the team, first, shared the project overall understanding, which was to demonstrate our System Analysis and Designing understanding by developing a web-based system. The team managed to come up with various ideas including; Secondary School Management System (connecting students, teacher and parents/guardians), Hotel Management System (for managing hotels), a student's voting system and Hostel Booking system for allowing students to find off campus hostels with ease. The criteria used to choose an idea was based on team capability, financial resources, skill requirement, system complexity and timeframe. Considering all these factors, Hostel booking system seemed to be more practical and less complex compared to the rest of the ideas. Three names were suggested for the system, Room Scout, FindMyHostel and Off-Campus hostel. FindMyHostel was picked as it appeared to be more intuitive and best express the idea clearer than the rest of the names.

2. PLANNING

Objective and Scope

The idea behind FindMyHostel was to reduce the tiresome and ineffective process of finding student off-campus accommodation by centralizing the search, view, and book in one place. Our focus was to make the user experience very intuitive for a student while he is looking for hostels that fulfill his criteria in terms of location, room type, and price bracket.

Timeframe and Achievements

Our timeline was based on four major phases: planning, requirements gathering and analysis, design and implementation. For each of them, some certain weekly goals had been set.

Week 1: Planning and Requirement gathering and analysis

Week 2: Design Phase - UI/UX

Week 3-4: Development, Integration, Testing and Refining

Last Day: Documentation and Presentation

Team Responsibilities

It means everybody in the team had their role, so everything fitted and flowed perfectly: teamwork-work flow.

UI/UX Designing: using Figma

Front-end development: layout, navigation, and user interface elements.

Back-end Development: authentication and interaction with the database.

Database Administration: Designed and implemented a relational database for storing information such as users, hostels, rooms, and booking details.

3. REQUIREMENTS GATHERING AND ANALYSIS

Requirements Gathering

First, we did requirement gathering from potential users through observation and short interviews, namely students (more especially those whoever gone through the traditional way of finding the hostels, and hostel owners, through which we outlined the core features and came to know about the user's preference for the system.

User Requirements: Students reported that there had to be an easy search and book option, photo of the room, location details, real-time availability.

Understanding from Hostels Owners: They expressed interest in allowing hostel owners to manage listings through the system to update room availability.

Functional Requirements

According to our findings, we identified and short-listed the following key functionalities:

User Registration & Login: Allowing user to create accounts and log in

Search & Filter Options: Students can comfortably find hostels based on location, room type, amenities and price.

Booking System: Provides a booking interface where students can select dates, view available rooms, and book.

Hostel management: The owner can add a room, change his profile, or manage his booking.

Non-Functional Requirements

Other design specifications included: further functionalities and more user-friendly performance, including:

Performance: Needed to handle several bookings and numerous searches without lag.

Security: Ensured protection of users' sensitive information.

Usability: Intuitive design, with not many steps between the searches and bookings.

System Requirements

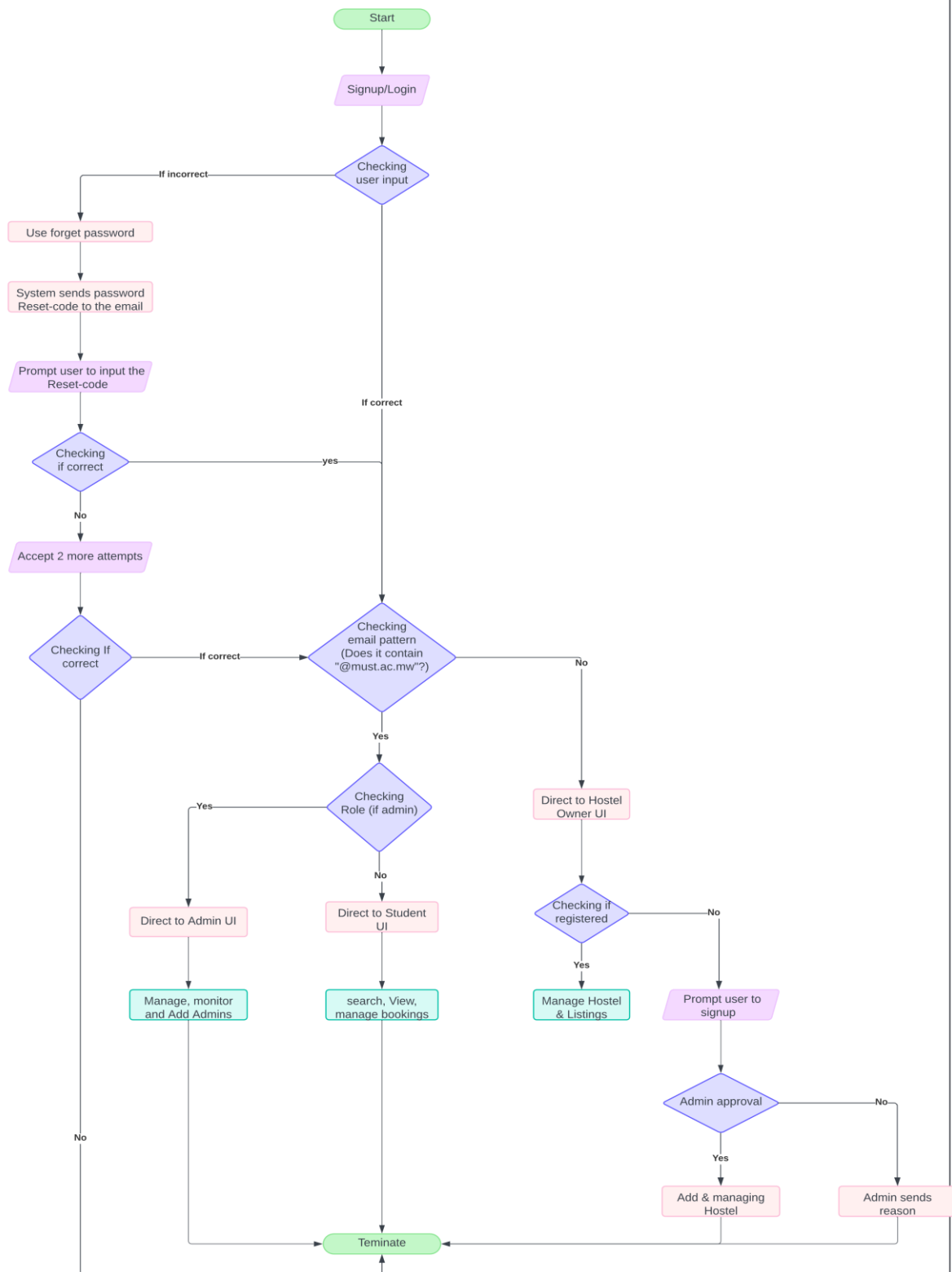
Software: Selected HTML, CSS, JavaScript for front-end; PHP for back-end; MySQL for database.

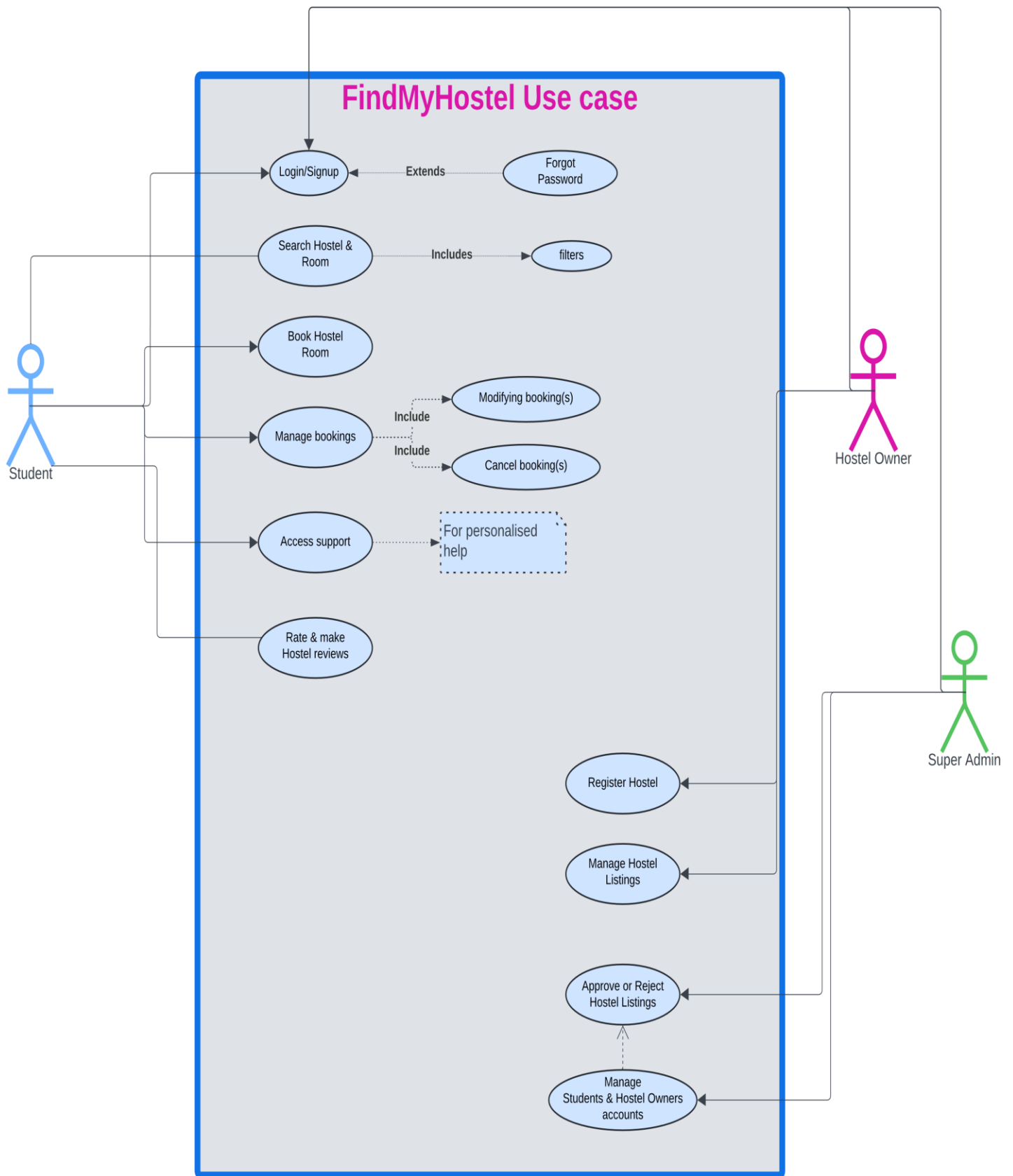
Hardware: typical laptops or Desktops

Link to our LucidChart folder containing Use Case Diagrams, Flow Chart and Gannt chart

https://lucid.app/folder/invitations/accept/inv_aa094990-3d8d-486f-bb7d-feacfbe8281c

FindMyHostel Flow Diagram





4. DESIGN

System Architecture

FindMyHostel follows the three-tier architecture:

Front-End (UI) for user interaction.

Back-end/server for booking processing, authentication, and data handling.

Database-SQL to store vital information that includes users, hostels, rooms, and even booking.

Database Design

The scheme then identified tables for:

User Profiles: Stores user profile (student, hostel owner, Admin).

Hostels: Lists hostels, location and price range.

Rooms: Outlines the room options, types, and rates.

Bookings: showing check-in and check-out dates.

User Interface (UI) Design

Wireframes for the key pages were designed:

Home for easy searching of hostels.

Search Results Page: This allows students to filter hostels according to their criteria.

Booking Page: this will allow students to select rooms and provide booking information.

Dashboard: for hostel owners to update room listings and manage their hostels.

User Flow

Mapped customer journeys to ensure ease of use:

Registration by students, room search, view, and book.

Hostels enroll the rooms, update the information, and manage the reservations.

UI/UX Designs(wireframes) link to Figma

<https://www.figma.com/design/xx55XtcJEX4omqtdBJsIJB/FindMyHostel-User-interfaces?node-id=2-2&t=vL9CwuBus8kDRdjt-1>

5. IMPLEMENTATION

Front-end Development

The front-end part, developed using HTML, CSS, and JavaScript, was based on the functionality and responsiveness of the site. Key functional features included:

Filtering and Searching: Students are allowed to filter the hostels based on locality, room type, and price range.

Booking Form: Captured the bookings made-check-in date and check-out dates.

Back-End Development: written in PHP, handling core logic and interactions:

Authentication: Secure login and registration for all.

Bookings Management: Data processing includes database management in regard to bookings.

Database Implementation

The MySQL database design implemented the necessary tables and relationships required to support the functionalities of the app. Some major processes included:

Perform CRUD operations on user profile, hostel listing, room details, and booking.

Data Relationships: Designed to connect bookings to particular users and hostels.

Testing

Test Stages Our approach in testing was primarily based on: functionality and integration, Unit Test: More focused on specific components such as the booking form, search filter, authentication, etc. Integration Testing: Ensures data moves to and from the front-end and back-end without glitches.

CONCLUSION

The development of FindMyHostel was performed collaboratively, with each member contributing to a functional, user-centered booking solution tailored for students. Each step has been documented-from the gathering of initial requirements to final testing-to illustrate how the developments happened throughout the project. In general, the project helped us enhance our skills in project planning, development, and quality assurance to make FindMyHostel both reliable and user-friendly.