KOLEJ KEDIAMAN MANAGEMENT SYSTEM

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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This report is submitted in partial fulfillment of the requirements for the Bachelor of [Computer Science (Software Development)] with Honours.

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY UNIVERSITI TEKNIKAL MALAYSIA MELAKA

[2021]

DECLARATION

I hereby declare that this project report entitled

[KOLEJ KEDIAMAN MANAGEMENT SYSTEM]

is written by me and is my own effort and that no part has been plagiarized

without citations.

STUDENT : ______________________ Date : 12/9/2021

(NORLIDA FADILLA ABU)

I hereby declare that I have read this project report and found

this project report is sufficient in term of the scope and quality for the award of

Bachelor of [Computer Science (Software Development)] with Honours.

SUPERVISOR : ______________________ Date : 12/9/2021

(ANIZA BINTI OTHMAN)

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ABSTRACT

Kolej Kediaman Management System is an application designed to manage hostel registration. To manage the hostel facilities, a large amount of data must be kept, such as the number of students that the hostel can accommodate, the hostel rules and regulations, the hostel fee, the number of students who check in and out of the hostel, the record, and so on. As a result, the system must be capable of capturing all types of data and information and properly analysing it in order for the hostel to function properly. The data can be easily maintained by the hostel administrator. The purpose of this project is to address problems associated with hostel management and to avoid problems that arise when tasks are performed manually. Identifying the weaknesses of the existing system results in the willingness to design a new system. The system can aid with allocation of students, set-up of hostel information, application for a hostel and complaints. In short, the Kolej Kediaman personnel can operate the hostel this system. The study is centred on making full use of the Object Oriented Diagram and functional-based diagram. Our primary objective is to compare software development use and significance when designing the system for KKMS utilising PHP.

ABSTRAK

Sistem Pengurusan Kolej Kediaman adalah aplikasi yang dibangunkan untuk mengurus proses pendaftaran di asrama. Untuk menguruskan kemudahan asrama, banyak data perlu disimpan seperti bilangan asrama pelajar yang dapat menampung, peraturan dan peraturan asrama, bayaran asrama, asrama masuk dan keluar pelajar, rekod dan sebagainya. Jadi, ini memerlukan sistem yang mempunyai kemampuan untuk menangkap semua jenis data dan maklumat dan menganalisisnya dengan betul untuk kelancaran asrama. Pentadbir asrama dapat menyimpan data dengan mudah. Projek tertentu menangani masalah pengurusann asrama dan mengelak masalah berlaku semasa proses secara manual dijalankan. Pengenalpastian kelemahanan sistem yang ada membawa kepada perancangan sistem komputer yang sesuai dengan sistem yang ada dengan sistem yang lebih mesra dan lebih berorientasikan GUI. Sistem ini dapat digunakan untuk membantu peruntukan pelajar, mengatur maklumat asrama, aplikasi dan aduan asrama. Ringkasnya, sistem ini akan membantu staf menguruskan pengurusan asrama di Kolej Kediaman. Kajian ini difokuskan pada penggunaan Diagram Berorientasikan Objek sepenuhnya dan rajah berdasarkan fungsional. Fokus kami adalah membandingkan penggunaan dan signifikan reka bentuk perisian semasa mengembangkan sistem menggunakan PHP untuk pengembangan KKMS.

TABLE OF CONTENTS

LIST OF TABLE

TABLE OF FIGURE

LIST OF ABBREVIATIONS

DFD	DATA FLOW DIAGRAM
PHP	HYPERTEXT PREPROCESSOR
DDL	DATA DEFINITION LANGUAGE
ERD	ENTITY RELATIONSHIP DIAGRAM
SRS	SOFTWARE REQUIREMENTS SPECIFICATIONS
KKMS	KOLEJ KEDIAMAN MANAGEMENT SYSTEM

CHAPTER I

INTRODUCTION

1.1 Introduction

When students are away from home, a hostel is no less than a home. It is located on the university grounds and has large, well-ventilated dormitories. One of the primary responsibilities of university administration is to provide clean and calm hostel accommodations. The current system allows students to apply manually by filling out a form and submitting it to the hostel staff, who then enters the student's information into the system. The hostel staff manually assigns rooms. It has been observed that the allocation system is biassed in the sense that the hostel administrator assigns rooms to people he knows. This manual system has proven to be time consuming and inconveniencing to the student. Students will not be assigned a number or a room key unless they have previously registered at the office for each specified block. As a result, the proposed Kolej Kediaman Management System is intended for Admin and Staff to manage data while also providing an online platform for Students. This module will be simple, appealing, and simple to use. This system also provides a high level of security, authentication, dependability, efficiency, flexibility, and a mechanism that is free of corruption. As a result, it can make everyone's job easier. This system was created to provide a stress-free, dependable, and quick computerised process. The system database will store information about both the staff and the students.

1.2 Problem statement

The problem statement is the description of a faulty condition of the current system. The system's problem needs to be identified as it will set the goals for the future system to be improved. Below are the problem statements of the current system:

i. **Non-systematic management for hostel allocation.**

The manual system takes longer to assign the student to the appropriate block, room, and bed.

ii. **Registration process cause along queue and wasting time**

Sometimes the hostel office will be crowded when students come in and out of the office to register.

iii. **Manually organising, managing, and finding a student's hostel record and other information will be extremely difficult**

Most of record use a manual way such as using paper that contain all the important things, it will take time to write or print the form and also lead to paper waste.

1.3 Objective

This project's goals are as follows:

i. **Assist the administrator and staff in the creation, management and operation of a better online portal related to hostel operations in daily operations.**

The data will be stored in the database once they key in all the information to the system.

ii. **To improve the convenience, accessibility and quality of interactions with users.**

This system is a user friendly system yet it logic and intuitive to ease users when they use this web-based system for the first time.

iii. **To reduce paper usage and cut down print costs in the workplace.**

By using this system, the work of admin and staff will be easier while saving cost and time to print the form.

iv. **To design an efficient and effective Kolej Kediaman management system**

The system shall enable eligible students to generate the QR code to scan for entries to hostel.

1.4 Scope

The project modules listed below have been identified:

i. **Administrator Module**

- Configure the hostel's information. - Admin shall able to enter the information for the block, room, and session.
- Allocation of hostels - Based on room availability, assign the student room
- Manage students - Responsible to update, delete, view student registration
- View student registration form – Admin able to view student who already Check-in to the room and Check-out from room

ii. **Student Module**

- Hostel Application - Students must register for the hostel online and confirm their application via email in order to gain access to the system.
- Registration form - Student need to fill in the Inventories form in the system then submit it once check-in and check-out.
- Complaint – Student able to make a complaint about facilities in the hostel by snap the pictures and submit to the system.

- Generate QR Code – The QR Code will be provided to the student on the Profile page.

iii. Staff Module

- View student registration form – Staff able to view student who already Check-in to the room and Check-out from room
- Assign student – Able to assign room for student
- Manage student – Staff able to view, reset and delete student registration

iv. Guard

- Scan QR Code – Guards can scan QR code provided by students to ensure that they are eligible for hostel.
- Check status – Guard can determine whether or not the check-in status is valid.

1.5 Project significant

With this proposed system, UTeM student could easily register for hostel. It will be much more convenience for UTeM student by using this system. It will be less hassle. The process at the hostel office will also be easier once this system being used to manage the process of student admission. So that the staff no need to print out the form anymore when this system have been develop. The process of entering Kolej Kediaman is also secure, as only eligible students with a valid QR Code will be allowed to enter.

1.6 Expected output

By implement and design the Kolej Kediaman Management System it is more reliable where students need to authenticate by enter their User ID and password once admin have registered their account. This system is user friendly where identification and authentication needed before login to the system. The modules for each scope are implemented and designed based on the process during registration that related to Kolej Kediaman. With the existence of this system, it give benefits to the users such as cost effectiveness, productivity and security. It also improve data management, file management and data reporting.

1.7 Conclusion

In a nutshell, this chapter discusses Kolej Kediaman's main issues at Universiti Teknikal Malaysia Melaka (UTeM). Students will no longer need to line up and register manually if this proposed system is used. This will save time and energy while wait for their turn. This system can also help administrators and staff create, manage and run a better online portal related to hostel operations on a daily basis. This system can help Guard to control the admission of students to the hostel during registration.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

A literature review is a case study that has been conducted using existing applications as references for the application that will be developed. A literature review on an equivalent application can also provide developers with relevant information that can help them improve their application. Furthermore, project methodology is defined as a guideline for problem solving with a specific component such as phase, task, methods and technique suitable to take away in project implementation. It can also be defined as a systematic method that can be used to solve a problem in a single development. In this chapter it will describe more about project domain, existing system, technique, methodology, requirements, schedule and milestones that need to be analyze before developing the system.

2.2 Facts and finding

There are many different types of fact-finding methods that can be used to gather useful information that will aid in the analysis of the areas related to the system that the developer intends to develop. Fact-finding methods are divided into several categories, which include questionnaires, observations, interviews, surveys, and the review of written sources, among others. These methods are used to collect the data required by the researcher to conduct analysis.

2.1.1 Domain

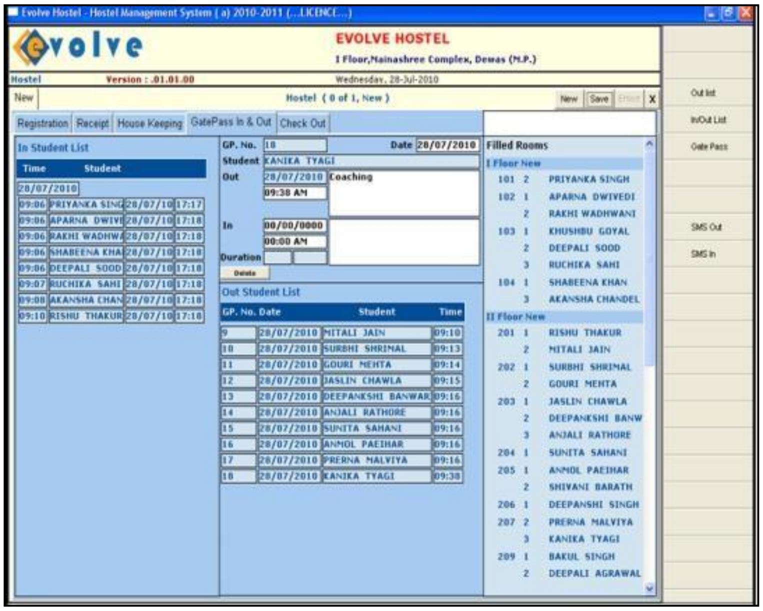
Web application is one of the domains associated with this project. The PHP programming language is being used to develop the system. Also, web development involves building the front-end pages and back-end server-side code that connect the web system to the database and the system's front. The project's domain is more focused on data management for hostel registration. The system can also generate a QR Code for usein the Security Guard before entering the Kolej Kediaman.

2.1.2 Existing system

A few existing system located on web application in the market which have the same functions and offers the same services of hostel management. Those system or mobile application are still having their lacking of functionality which is needed by the user.

2.1.2.1 Hostel Management System

The Hostel Management System is a system that develop to centrally manage the Hostel Association. This system is self-sufficient. This system also criticizable and convenient hostel software. Administrative functions and application system data have been designed to be centrally stored and unique to the organisation [1]. The base file Hostel creation, Block creation, and Room Facility are defined in the hostel module's master file, and other main processes such as room allocation, room change, and mess management facilities are available in the module's transaction file [1]. The diagram below depicts the flow of students into and out of the hostel. Administrator should able to assign new student and student rooms.



EVOLVE HOSTEL
I Floor,Mainashree Complex, Dewas (M.P.)

Hostel Version : .01.01.00 Wednesday, 28-Jul-2010

Hostel (0 of 1, New)

In Student List

Time	Student		
28/07/2010			
09:06	PRIYANKA SING	28/07/10	17:17
09:06	APARNA DWIVE	28/07/10	17:18
09:06	RAKHI WADHWA	28/07/10	17:18
09:06	SHABEENA KHA	28/07/10	17:18
09:06	DEEPALI SOOD	28/07/10	17:18
09:07	RUCHIKA SAHI	28/07/10	17:18
09:08	AKANSHA CHAN	28/07/10	17:18
09:10	RISHU THAKUR	28/07/10	17:18

GP. No. 18 Date 28/07/2010
Student KANIKA TYAGI
Out 28/07/2010 09:38 AM Coaching
In 00/00/0000 00:00 AM
Duration

Out Student List

GP. No.	Date	Student	Time
9	28/07/2010	MITALI JAIN	09:10
10	28/07/2010	SURBHI SHRIMAL	09:13
11	28/07/2010	GOURI MEHTA	09:14
12	28/07/2010	JASLIN CHAWLA	09:15
13	28/07/2010	DEEPANKSHI BANWAR	09:16
14	28/07/2010	ANJALI RATHORE	09:16
15	28/07/2010	SUNITA SAHANI	09:16
16	28/07/2010	ANMOL PAEIHAR	09:16
17	28/07/2010	PRERNA MALVIYA	09:16
18	28/07/2010	KANIKA TYAGI	09:38

Filled Rooms

I Floor New		
101	2	PRIYANKA SINGH
102	1	APARNA DWIVEDI
	2	RAKHI WADHWANI
103	1	KHUSHBU GOYAL
	2	DEEPALI SOOD
	3	RUCHIKA SAHI
104	1	SHABEENA KHAN
	3	AKANSHA CHANDEL
II Floor New		
201	1	RISHU THAKUR
	2	MITALI JAIN
202	1	SURBHI SHRIMAL
	2	GOURI MEHTA
203	1	JASLIN CHAWLA
	2	DEEPANKSHI BANW
	3	ANJALI RATHORE
204	1	SUNITA SAHANI
205	1	ANMOL PAEIHAR
	2	SHIVANI BARATH
206	1	DEEPANSHI SINGH
207	2	PRERNA MALVIYA
	3	KANIKA TYAGI
209	1	BAKUL SINGH
	2	DEEPALI AGRAWAL

Figure 2.1 Interface of Evolve Hostel

2.1.2.2 Hostel Decision Support System

Hostel Decision Support System developed specifically for Yaba College of Technology's Welfare Unit Identification of inputs, files, processing, output, hardware, costs, accuracy, response times, and control are all part of this system. The system includes the following features:

i. It provides dependable security measures that protect the data and the package from accidental or deliberate threats that could result in unauthorised modifications, data disclosures, or data destruction, as well as information system protection through the use of a password.

ii. It allows for the automated registration of legitimate students, storing data on the system rather than in bulky files.

iii. It allows for data input at any time and the ability to update records in the system.

iv. It automatically and manually allocates space for faithful pupils while enabling users to utilise their digression.

v. It provides an effective way to produce tangible copies of information through reports on accommodation, departmental allocations, special room allocation, etc.

2.1.2.3 College Management

The institution is very fortunate to provide its graduate students the number and range of accommodation. All graduate houses are of very good grade and in recent years most of them have been built or renovated. First-year students are given priority and the college activity with which students participate has merit. Lingman College is the First University in Hong Kong that provide student with opportunity to live and work says Lau Chi Wong Man (1998). Any damage to hostel property must be immediately reported to the hostel management. Residents are responsible for all damage, with the exception of normal wear and tear. The management of the hostel reserves the right to match twin-share tenants without an equal room partner. All room damages are equally shared with the roomate. In the interest of proper behaviour, the hostel management reserves the right to enter, inspect, inspect, or spot-check rooms, or to manage rooms properly and efficiently, or to maintain or repair them, but only in the presence of the residents. A Unless time allows, written notice is provided in advance of the management's scheduled entry.

Table 2.1 Comparison of existing system

Description	Hostel Management System	Hostel Decision Support System	College Management
Type of system	Stand alone	Stand alone	Web based
User	Student	Student	Student

Design for	Conceived to run the Hostel Association centrally	Conceived for the Yaba College of Technology welfare unit	College Student Allocation System
Online system	Yes	Yes	Yes

2.1.3 Technique

This project's development involves a number of techniques. The registration will be done online at the provided websites. Furthermore, all data will be saved in the database, making it easier for staff and administrators to manage student admissions when compared to manually filling out the form. Last but not least, students are no longer required to wait in line in front of the office. They only need to obtain the key to the room from the staff.

2.3 Project methodology

In general, system development will go through several technique phases in software development. There are several methodologies available, including agile, waterfall, RAD, and others. For this system, the Agile model was chosen for this project. It is a set of values and principles that can be applied to a project of (agile) software development.

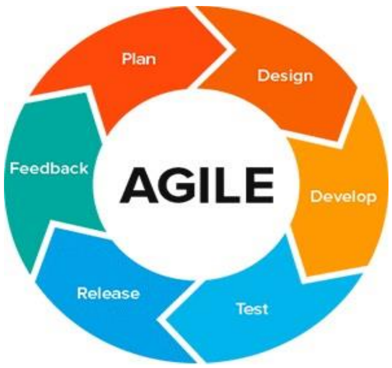


Figure 2.2 Agile methodology

2.3.1 Plan

In plan phase, the problems faced by administrator at Kolej Kediaman are will be clarified. Goals and objectives to overcome the problems are identified to solve the problems arise. Kolej Kediaman Management System is being developed to solve these problems. The software and hardware used is identified.

2.3.2 Design Phase

The interface for the web-based system is designed to be systematic yet simple during the design Kolej Kediaman Management System phase. Systematic in terms of logical and intuitive content to make it easier for users to use this web-based system for the first time. The main content contains user-friendly and interesting elements that will entice users to use this system. All of these elements are created through careful analysis and detailed design specifications. The design phase will include the data dictionary, ERD, database, software, and language.

2.3.3 Develop Phase

Developers build and organise content assets created in the design phase during the development phase. Developers will begin the initial stage in constructing the Centralized School Event Management System during this phase.

2.3.4 Test Phase

During this phase, the developers will put the Kolej Kediaman web-based system to the test. Developers will review and revise it as needed to ensure that it was developed in accordance with the design phase while also meeting the development's objectives.

2.3.5 Release Phase

Release phase is the final stage of the system project. This phase includes two processes that emphasize delivering the Accepted Deliverables to the user and identifying, documenting and internalizing the lessons learned during the project. When the user is satisfied with the developed system, this will be categorized on Feedback Phase.

2.3.6 Feedback Phase

In this phase, the users of Kolej Kediaman Management System will give feedback about the web-based system that have been proposed. From the feedback, the developers will get to know how they can improve the system in the future.

2.4 Project requirement

The development of KKMS necessitates the use of a large amount of hardware and software. The use of physical equipment and software programmes accelerates the system's development to the greatest extent possible. In this section, we will go over the hardware and software specifications.

2.4.1 Software requirement

The operating system and all utilities that allow the computer to function were included in system software. Application software consists of programmes that perform real-world tasks for users. Some of the software used to create the KKMS has been identified. The software requirements for KKMS show below.

Table 2.2 List of Software

No	Software	Specification
1	MySQL	Category: Database Architecture: Open Source
2	XAMPP	Category : Server Architecture : Open Source
3	Draw.io and Star UML	Category: drawing tool Architecture : Open Source

4	Windows 10	Category: Operating system Processor : 1 gigahertz (GHz) RAM : 6 GB for 64-bits OS
5	Sublime	Category: Creativity-web design Architecture : Open Source

2.4.2 Hardware requirement

Hardware is defined as the tools that used in develop the system successfully such as Laptop, Smartphone, camera and etc. Hardware requirement is important for the system to operate smoothly. Table below shows the hardware used to run the KKMS system.

Table 2.2 List of Hardware

No	Hardware	Specification
1	Laptop	Asus Intel Core i3 Windows 10 64-bit Operating System NVIDIA GEFORCE 920M
2	Wireless Mouse	LEXMA Model M251R-SL
3	Printer & Ink Printer	Canon E470 Series Ink-Jet-color

2.4.3 Other Requirement
There are several other requirements are needed for the process KKMS. List of other requirement stated below:

i. Internet Connection
ii. Web Browser (Google Chrome)

2.5 Project schedule and milestone

A project schedule and milestone are task durations required to represent the action and plan that must be followed. Therefore, timeline and planning for FYP 1 is clearly stated in the schedule provided

Table 2.4 Project schedule and milestone

Action	Responsibility	Due date	Results
1. Planning and submit the proposal to the supervisor for approval	Student	Week 1 (15/3/2021-21/3/2021)	Add few more modules inside the proposal.
2. Improvement and submission of proposal to the supervisor	Student	Week 2 (22/3/2021-28/3/2021)	Approved project proposal form.
3. Upload the proposal signed by student, supervisor and committee to the e-Repository	Student	Week 3 (29/3/2021-4/4/2021)	Approved project proposal form.
4. Prepare chapter 1 of the report.	Student	Week 4 (5/4/2021-11/4/2021)	Completed Chapter 1
5. Prepare chapter 2	Student	Week 5	Completed Chapter 2

		(12/4/2021-18/4/2021)	
6. Project Progress 1	Student	Week 6 (19/4/2021-25/4/2021)	Progress Presentation 1
7. Prepare chapter 3	Student	Week 7 (2645/2021-2/5/2021)	Completed Chapter 3
8. Prepare chapter 4	Student	Week 8 (3/5/2021-9/5/2021)	Completed Chapter 4
9. Project Progress 2	Student	Week 10 (17/5/2021-23/5/2021)	Progress Presentation 2
10. Project Demo	Student, Supervisor	Week 11 (24/5/2021-30/5/2021)	Completed project demo with supervisor
11. PSM1 report	Student, Supervisor	Week 12 (31/5/2021-6/6/2021)	Completed PSM1 draft report
12. Project demo	Student, Supervisor,	Week 13 (7/6/2021-13/6/2021)	Final Presentation Evaluation and FYP1 Report.
13. Presentation	Student, Supervisor	Week 14 (14/6/2021-20/6/2021)	Completed PSM1 Report

14. Final presentation	Student, Supervisor, Evaluator	Week 15 (21/6/2021-27/6/2021)	Final Presentation Evaluation and FYP1 Report.
15. PSM1 logbook	Student	Week 16 (28/6/2021-4/7/2021)	Completed PSM1 logbook

2.6 Conclusion

In the development of the system, the literature study is vital, where developers can design a better system. This can lead to increased competitiveness, which can ultimately generate an advanced and systemic system. In addition, the project requirement also provides the KKMS with adequate hardware and software. Agile technique will be employed in KKMS. The aim for the selection of the approach is that this method is highly useful in helping the entire project to progress. Agile methods are ideal for changing contexts due to new practises and concepts that allow a product to be developed in the short term.

CHAPTER III

ANALYSIS

3.1 Introduction

This chapter mainly cover the system analysis and analyze the requirement of the system. There are several system analyses will identify in this chapter such as functional requirements, non-functional requirements, data requirements, requirement analysis, and other requirements. In addition, the problem analysis will also be identified in this chapter.

3.2 Problem Analysis

The problem analysis is to seek a profound knowledge before the system is develop. Below show the flowchart of current system and to-be system.

3.2.1 Flowchart of Current System

The current system of this project is student need to go to the office to register. This results in congestion in the office when students have to queue to register manually. Parents or guardians who send their son during registration are also affected by having to wait for their son to complete registration and get the room key. In addition, the existing manual system is very hard to manually find the records of the hostel and other student information. It is easy to lose because it's been kept on the paper. It also takes time to seek one by one for the student hostel paper. The manual procedure takes longer time for the student to be allocated to the relevant hostel, room and block. The manual application also leads to troubled management of data for faster allocation for students and to data management for faster purposes, such as student information, hostel records and register.

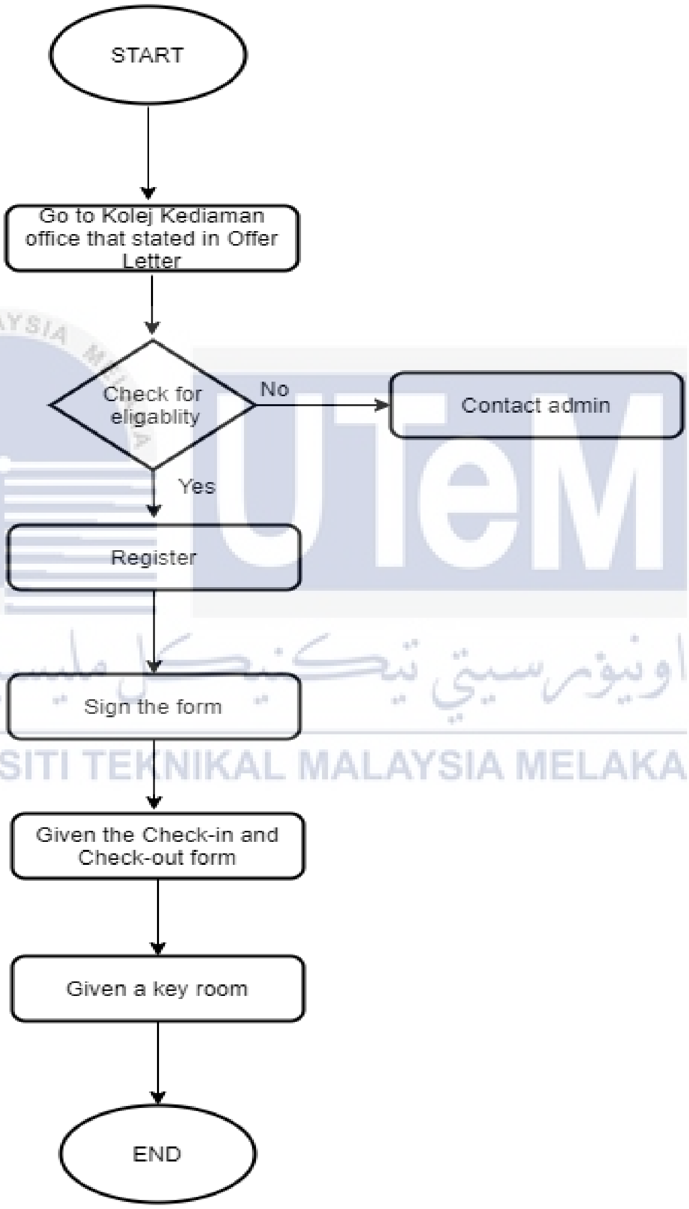

START
Go to Kolej Kediaman office that stated in Offer Letter
Check for eligablity
No
Contact admin
Yes
Register
Sign the form
Given the Check-in and Check-out form
Given a key room
END

Figure 3.1 Flow of current system for Kolej Kediaman

3.2.2 Flowchart of To-Be System

The To-Be System process flowchart in Kolej Kediaman can be found in Figure 3.2 below. You must enter your email and password, but you must register an account in the first place. Students can fill in the check-in form once their status is active. Students also able to attach the pictures of broken inventories. Admin and staff also able to manage hostel allocation, view check-in and check-out form and assign students room.

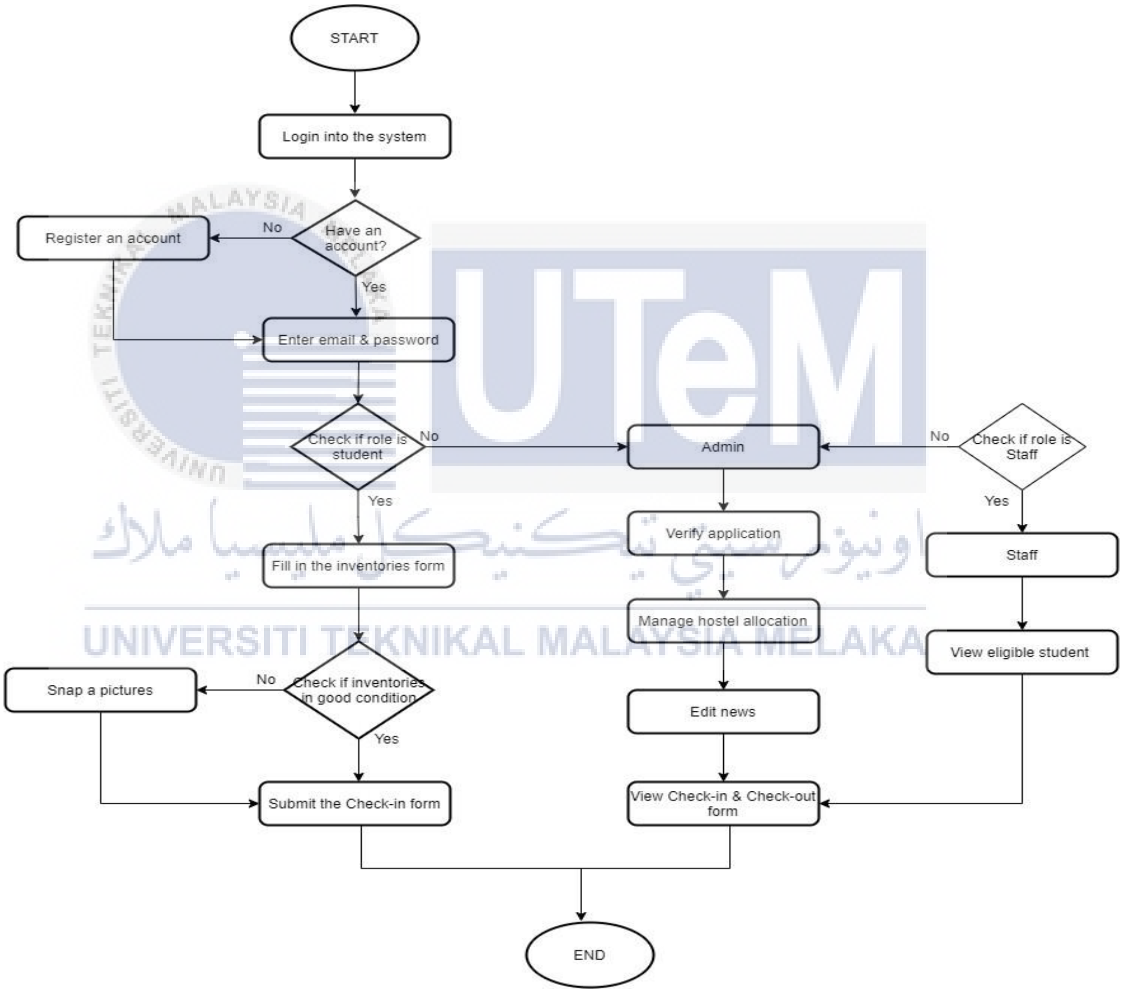


Figure 3.2 Flowchart of To-Be system

3.3 Requirement Analysis

In terms of functional requirements, non-functional requirements and other requirements, the requirement analysis will outline. The focus of the analysis will be on the preliminary study, often known as the first research phase. The most critical phase in system design is because it significantly affects total system performance. The flow system and interface system will also be developed in this system design.

3.3.1 Data Requirement

The data requirement in this project is user information, staff information, rooms, rents, blocks, inventories and session. The table below shows the data dictionary for Kolej Kediaman Management System.

Table 3.1 Data Dictionary

	Attribute name	Data type	Length	Constraint	Description
User Information	id	int	10	Primary key	User ID is auto increment
	email	varchar	255	Foreign key	User email
	password	varchar	255	No default	User password
	matric_number	varchar	255	Unique	The number use to login
	fullname	varchar	255	No default	User name
	phone_number	varchar	255	No default	Contact number
	verify_token	varchar	50	Null	Approval account
	verify_at	datetime		Null	Datetime of active account
Staff information	id	int	10	Primary key	Staff ID is auto increment

	email	varchar	255	Foreign key	Staff email
	password	Varchar	255	No default	Staff password
	fullname	varchar	255	No default	Staff name
	role	varchar	255	Null	Position
Rooms	Id	int	10	Primary key	Room id is auto increment
	block_id	int	10	Foreign key	The room block
	name	varchar	255	No default	Block name
	floor	varchar	50	Null	Level of room
	is_active	tinyint	4		Status of activation
Rents	id	int	10	Primary key	Rents id is auto increment
	room_sub_id	int	10	No default	Sub room id
	user_id	int	10	No default	User id
	session_id	int	10	No default	Session id
	remark	varchar	50	Null	Status
	check_in_on	datetime		Null	Datetime of check-in
	check_out_on	datetime		Null	Datetime of check-out
Blocks	id	int	10	Primary key	Blocks id is auto increment
	name	varchar	255	No default	Blocks name
	floor_list	varchar	255	No default	Total number of floor
	is_active	tinyint	4	0	Status of activation

Inventories	id	Int	10	Primary key	Inventories id is auto increment
	name	varchar	255	No default	Inventories name
	remark	varchar	255	No default	Status of inventories
	is_active	smallint	4	0	Status of activation
Session	id	int	10	Primary key	Auto increment
	name	varchar	50	No default	Session name
	is_current	tinyint	4	0	Current session
	year1	year		No default	Current year
	year2	year		No default	Current year
	semester	int	11	1	Current semester
Scan History	id	int	11	Primary key	Auto increment
	matric_number	varchar	50	Null	Student matric number
	scan_date	varchar	50	Null	Check-in date
	scan_time	varchar	50	Null	Check-in time

3.3.2 Functional Requirement

This section describes the KKMS module's functional requirements. These requirements are the system's high-level capabilities required to provide benefits to users. It helps to capture the intended behavior of the system.

Table 3.2 List of Functional Requirement

FR No	Requirement	Description	Phase
KKMS 1.1	Login	The system must allow users to log in by entering a valid user identification and password	
KKMS 1.2	Logout	The system shall enable user to logout from the system at anytime	
KKMS 2.1	Registration	The system must allow users to register for an account	
KKMS 2.2		The system shall enable user to click button “Register” to insert all detail in the database.	
KKMS 2.3		The system shall enable user to receive message box “ Registration Successfully” after click button “Register”	
KKMS 3.1	Manage hostel allocation	The system shall enable the administrator to manage the room, block and number of students.	
KKMS 3.2		The system shall enable to add new block, inventory and session.	
KKMS 3.3		The system shall enable admin to insert data manually	
KKMS 3.4		The system shall enable to active the inventories status	
KKMS 4.1	View data	The system shall enable to view student profile	
KKMS 4.2		The system shall enable admin to view the condition of room inventories	
KKMS 5.1	Add staff	The system shall add staff to access to the system	
KKMS 5.2		The system can assign staff to be admin	

3.3.3 Use Case Diagram

Use case diagram will have used in this section to discuss how the user interact with the system. The system is developed in browser, so that many users will interact with the system. Assume that the user is accessing all the functionality of the system. Figure 3.3 will demonstrate use case that user interact with the system (front end).

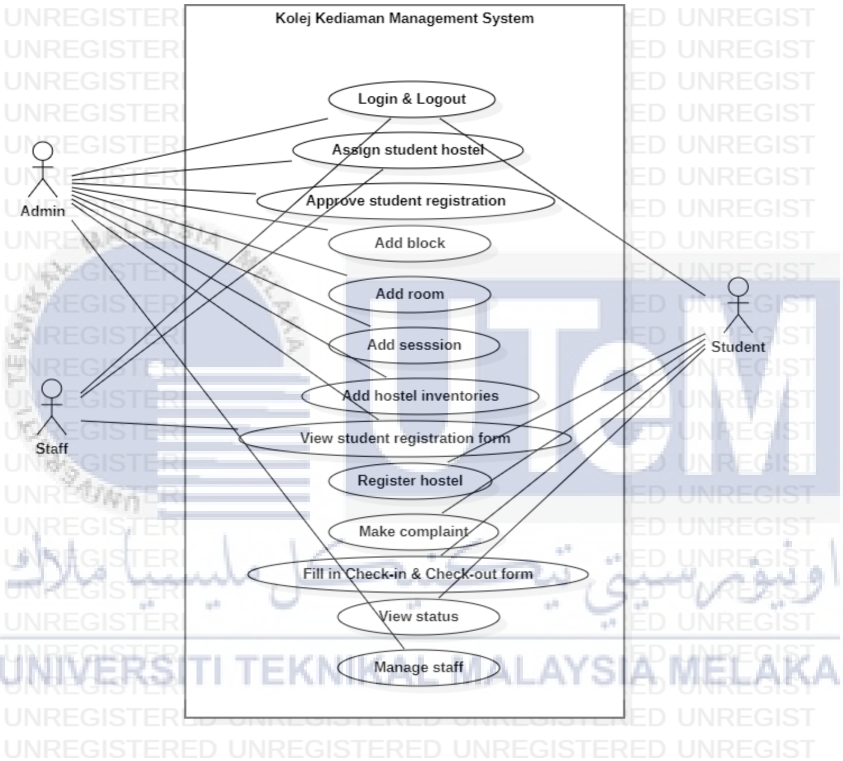


Figure 3.3 Use Case Diagram

3.3.3 Non-Functional Requirement

Non-functional requirements discuss the requirement performance and characteristics that the requirement must involve and the system should provide. This help in measure specific performance have to involve without affecting the whole system and make the system work better.

3.3.3.1 Performance Requirement

Easy record tracking and updating. By using this system, Student will able to generate the QR Code within specific time.

3.3.2.2 User Authentication

Unauthorized users are not permitted to use the system. This is done to ensure the system's integrity and to protect the user's data.

3.3.2.3 Accuracy

The information provided in the system must accurate. Besides that, student’s booking detail must be accurate so that there’s no mistake in their registration.

3.3.4 Others Requirement

In this section, the technical justification software and hardware requirement.

3.3.4.1 Software Requirement

Some software is recognised for developing the KKMS. The software for system development is given below:

Table 3.3 List of Software requirement

Software	Description
draw.io	Drawing tools for modelling
Laragon	Laragon 4.0 32 bit: PHP 7.2, Apache, MariaDB 10.3, Node.js, yarn, ngrok, git, cmder
Gitkraken	GitKraken Git GUI 7.4.1
Sublime	Web based development

3.3.4.2 Hardware Requirement

A list of hardware requirements, especially with operating systems, is typically joined by a Hardware Compatibility List (HCL). The necessary hardware for system application development is given below:

Table 3.4 List of Hardware requirement

Hardware	Description
Laptop: Asus X455L	Data storage and handling hardware tool. Also used for the Kolej Kediaman Management System to install all software requirements.
Optical Mouse	To support Kolej Kediaman Management System development, the control cursor on a GUI can move and pick text, files, icons and folders from the laptop.

3.4 Conclusion

Finally, this chapter gave information on the specification of the requirement. After feasibility studies on the overall technologies available this requirement specifier and analysis section provide a more accurate representation of capability and limitation on the system. The function and non-functional criteria are clearly listed in tables in this chapter. The problem evaluated and the current status of the scheme was clarified in Chapter 3. It is an important phase to ensure that the project will meet the project's actual requirements and to reduce misunderstanding and misinterpretation of the entire system.

CHAPTER IV

DESIGN

4.1 Introduction

This chapter discusses the Kolej Kediaman Management system's design. The system design is vital in helping to get a picture of the system flow in the development process. This will be used to design this new system as one of the fundamental requirements. The system design consists of system architecture, database design, integration and interface of the module. The ERD diagram for Entity Relationship (ERD) represents the database design in this project, whereas the screen design is the model for the module design. The ERD is suitable for validating company regulations. Screen design is useful for this system to visualise the GUI.

4.2 High-Level Design

The overall project system design is known as high-level design (HLD). Sections 4.2.1 and 4.2.3 of HLD cover system architecture and database design, respectively. It explains the connections between the system's many modules and operations, such as data streams, flowcharts, and data structures.

4.2.1 System Architecture

A system architecture is a conceptual model that defines a system's structure, behaviour, and other aspects. An architecture description is a formal description and representation of a system that is organised in such a way that it allows for reasoning about the system's structures and actions. The user need to have device and connect to the internet to send data and receive HTML response from web based. The data will be sent through Transmit Packet Data to the server. The server will communicate with file system and database using read and write permission. The database will store all the data.

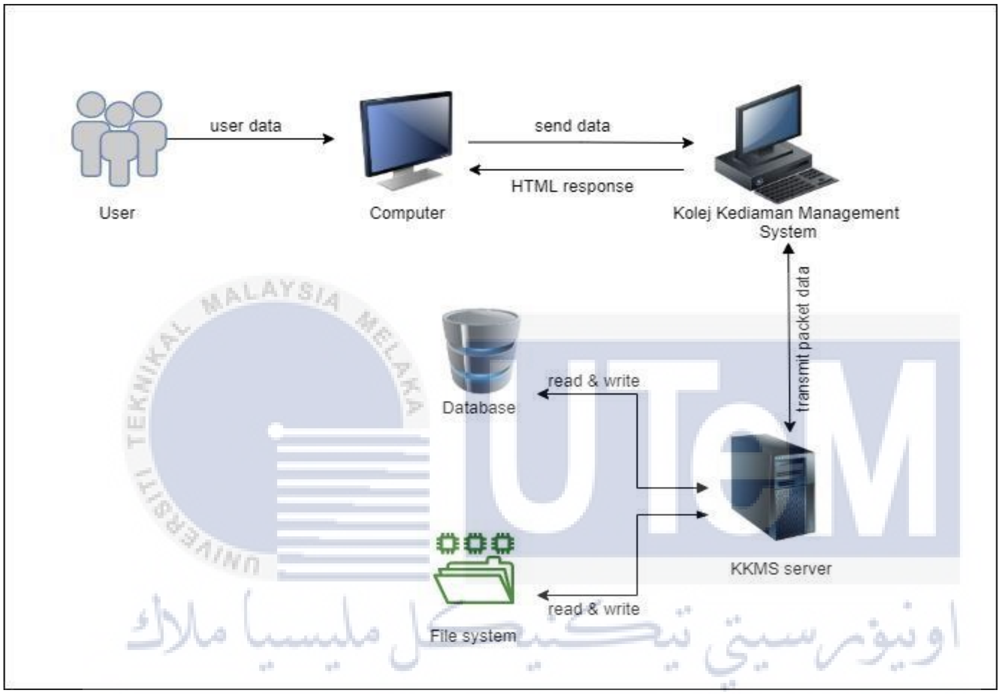


Figure 4.1 System architecture for KKMS

4.2.2 User Interface Design

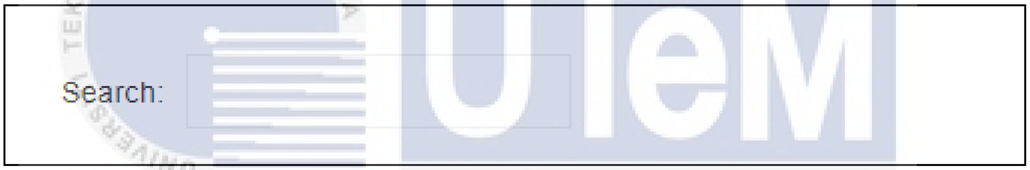
The communication between user and machine is dealt with through user interface design. It can attract users to use the system and also simplify the running of the system. It deals with everything from system start or log into the system to the appropriate input and output presentation. The design of the user interface is a critical factor in the delivery of an efficient and user-friendly system. The functionality of the system in the user interface form is shown in this section. The following is an example of KKMS interface design.

4.2.2.1 Navigation Design

Navigation shows the system generally with its functions based on it users. Navigation from one application page to another within the same application site is perform using hyperlink, sitemaps, button and navigation bars. The layout provides users with an outline of the general KKMS method. The following figure demonstrates the navigation layout stream identified through the implementation.

- Search Field

  Users can input a keyword or phrase (quest) by means of a search box and submit it to search the Index to bring back the results most important. Search fields are usually single-line text boxes that typically have a search button.

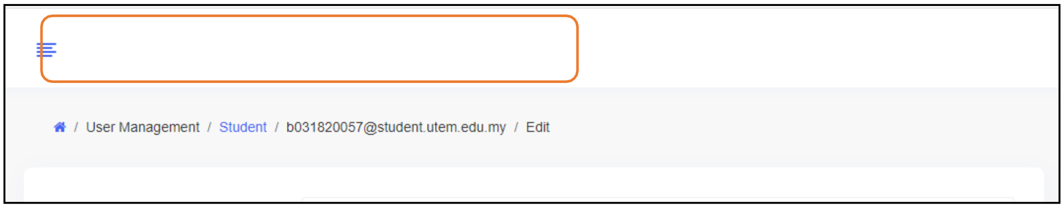


Search:

Figure 4.2 Search Field Navigation

- Breadcrumbs

  Breadcrumbs enable users to identify their present system position by giving a clickable path to move across.



/ User Management / Student / b031820057@student.utem.edu.my / Edit

Figure 4.3 Breadcrumbs Navigation Design

- Vertical Navigation

  When a number of categories is not modest or user-customizable, vertical navigation is appropriate. The mode of navigation is regarded "safe" because it is familiar, versatile, and takes little space.

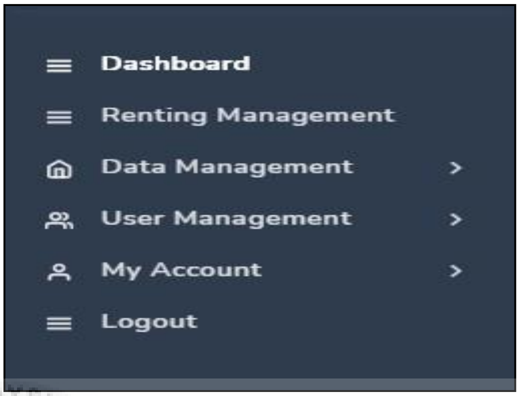
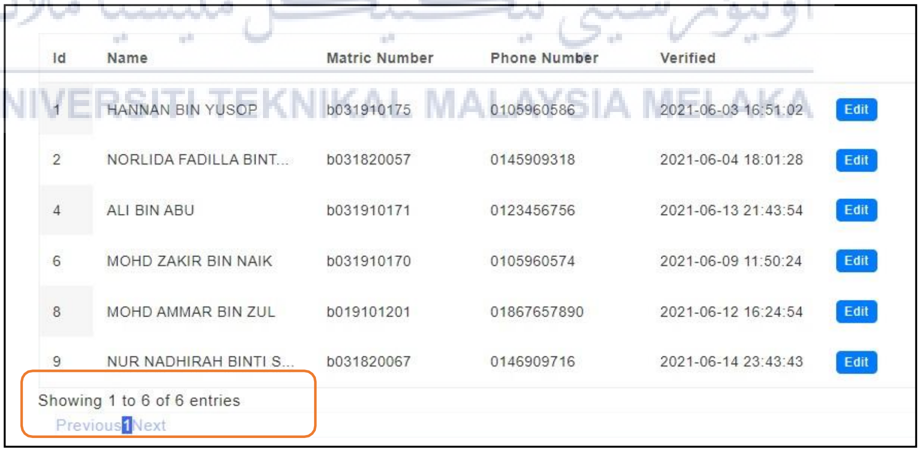


Figure 4.4 Vertical Navigation Design

- Pagination

  Pagination splits text between pages and enables visitors to cross pages safely and easily



Id	Name	Matric Number	Phone Number	Verified	
1	HANNAN BIN YUSOP	b031910175	0105960586	2021-06-03 16:51:02	Edit
2	NORLIDA FADILLA BINT...	b031820057	0145909318	2021-06-04 18:01:28	Edit
4	ALI BIN ABU	b031910171	0123456756	2021-06-13 21:43:54	Edit
6	MOHD ZAKIR BIN NAIK	b031910170	0105960574	2021-06-09 11:50:24	Edit
8	MOHD AMMAR BIN ZUL	b019101201	01867657890	2021-06-12 16:24:54	Edit
9	NUR NADHIRAH BINTI S...	b031820067	0146909716	2021-06-14 23:43:43	Edit

Showing 1 to 6 of 6 entries

Previous 1 Next

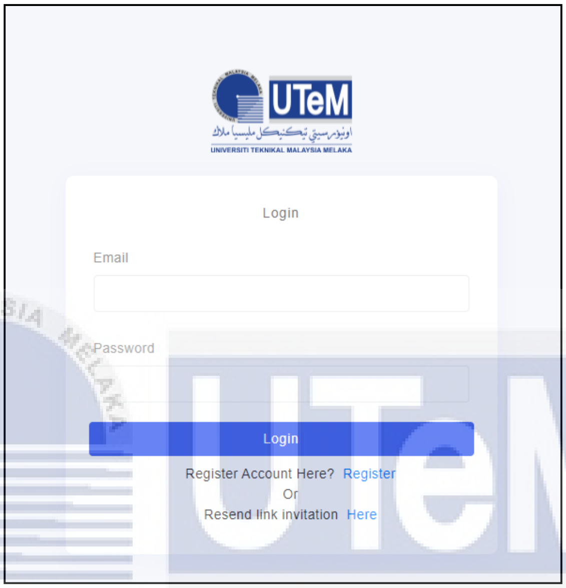
Figure 4.5 Pagination Navigation Design

4.2.2.2 Input Design

The design of input is part of the entire system design which needs careful attention Input data design is designed to make data simple and error free. It is the process of transforming the input from the user to a computer format. The UI of inputs is shown in the following figure for this project.

- Text Field

Fields for text can be entered by users. Either one line or a number of text lines can be allowed.



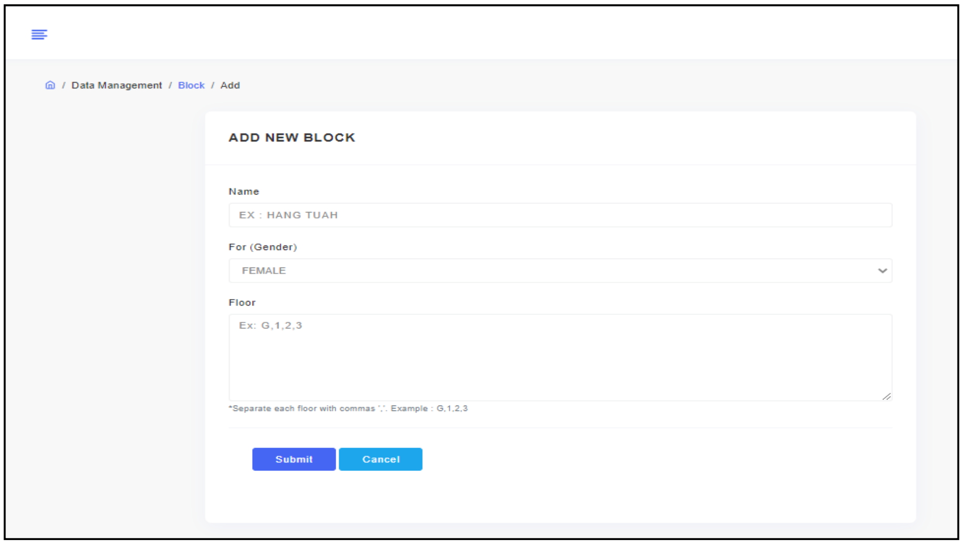
Login

Email

Password

Register Account Here? Register
Or
Resend link invitation Here

Figure 4.6 Login Text Field



ADD NEW BLOCK

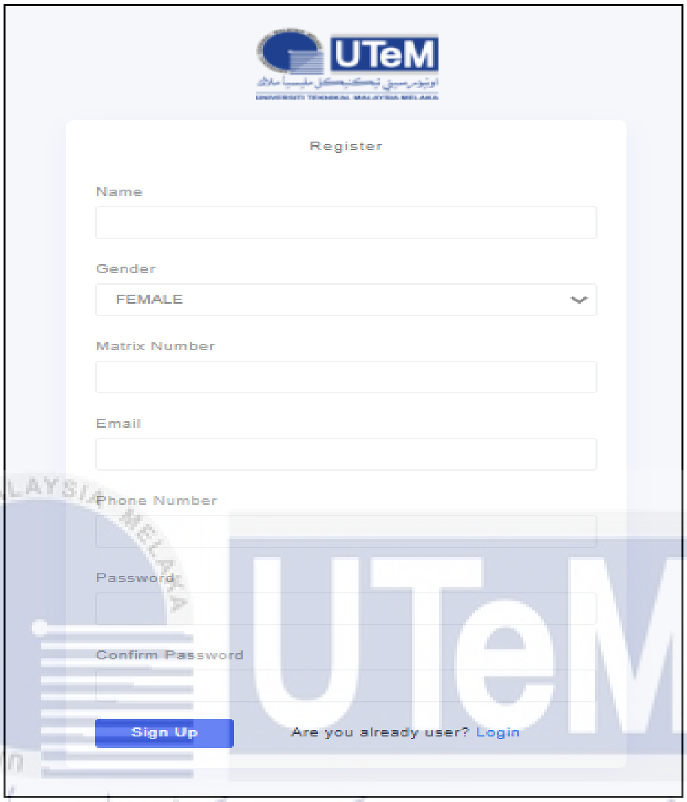
Name
EX : HANG TUAH

For (Gender)
FEMALE

Floor
Ex: G,1,2,3

*Separate each floor with commas ','. Example : G,1,2,3

Figure 4.7 Add New Block Text Field



Register

Name

Gender

FEMALE

Matrix Number

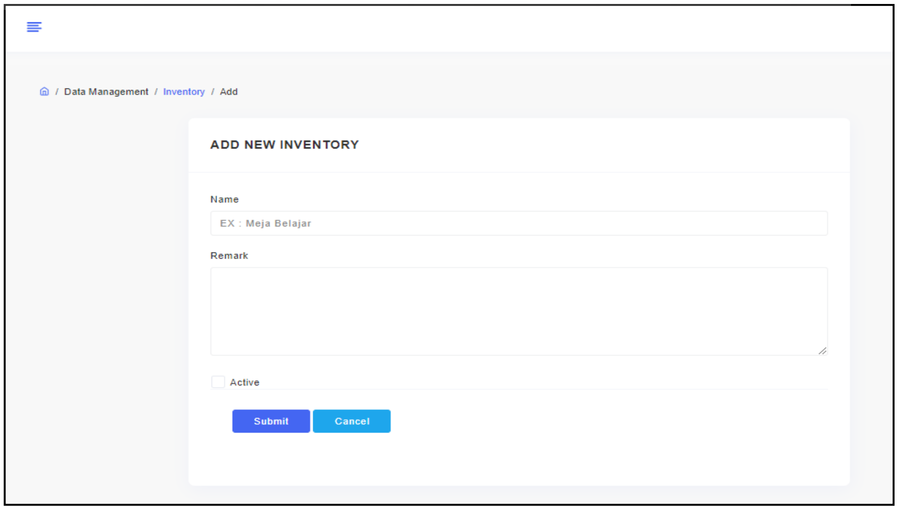
Email

Phone Number

Password

Confirm Password

Figure 4.8 Registration Text Field



ADD NEW INVENTORY

Name

EX : Meja Belajar

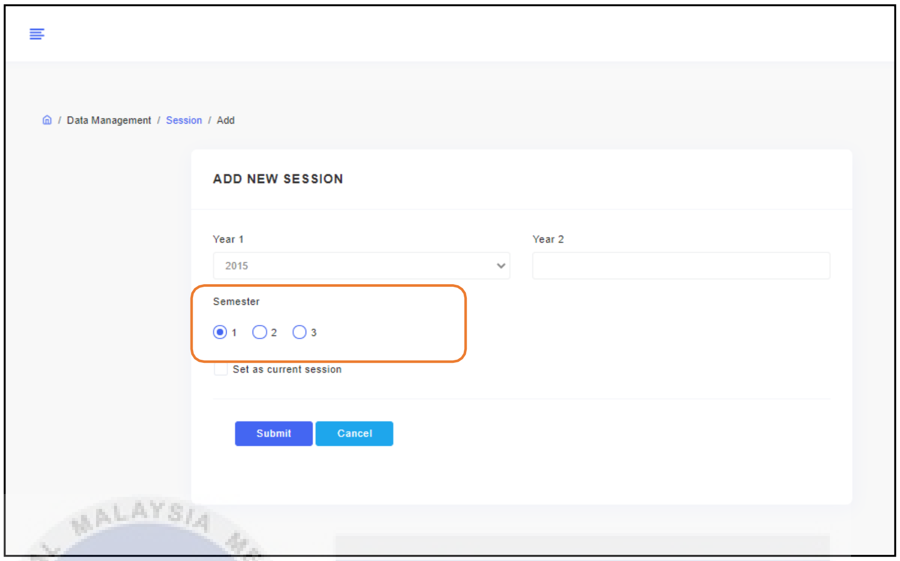
Remark

□ Active

Figure 4.9 Add New Inventory Text Field

- Radio button

The radio button allow users to choose one item at a time.



/ Data Management / Session / Add

ADD NEW SESSION

Year 1: 2015

Year 2:

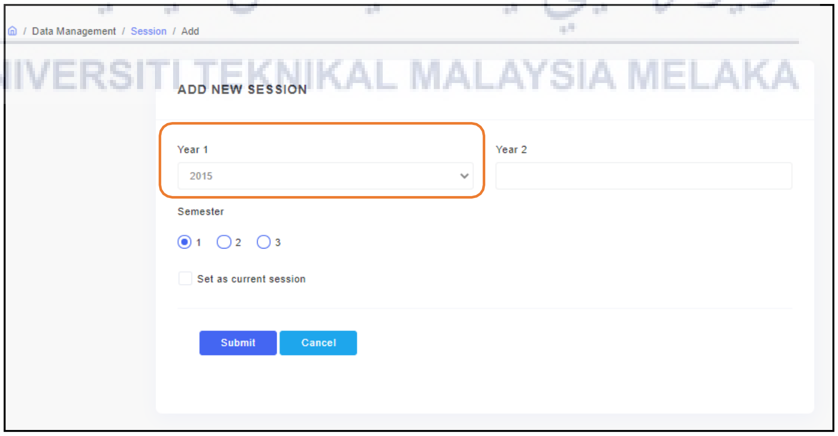
Semester: ● 1 ○ 2 ○ 3

□ Set as current session

Figure 4.10 Radio Button Design

- Dropdown button

The drop-down button is a button that shows a list of mutually excluded objects when clicked.



/ Data Management / Session / Add

ADD NEW SESSION

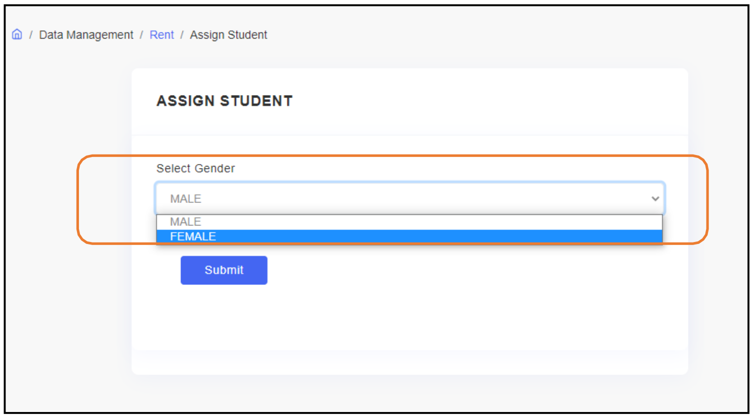
Year 1: 2015

Year 2:

Semester: ● 1 ○ 2 ○ 3

□ Set as current session

Figure 4.11 Dropdown Button Design (Year)



⌂ / Data Management / Rent / Assign Student

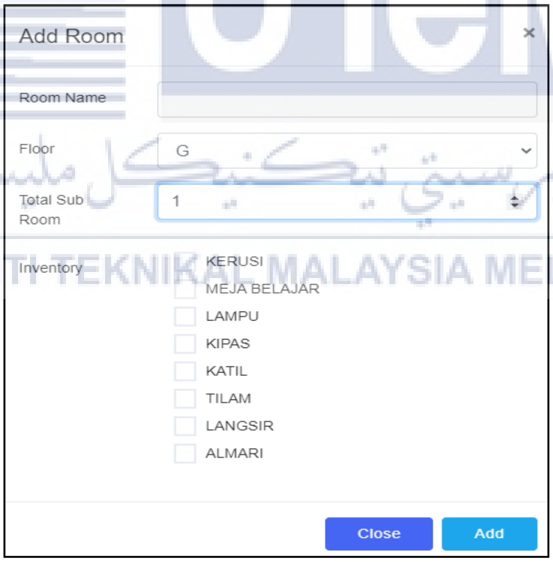
ASSIGN STUDENT

Select Gender: MALE

Figure 4.12 Dropdown Button Design (Gender)

- Toggle

  A toggle button allows the user to change a setting between two states. It are most effective when the on/off states are visually distinct.



Add Room ×

Room Name:

Floor: G

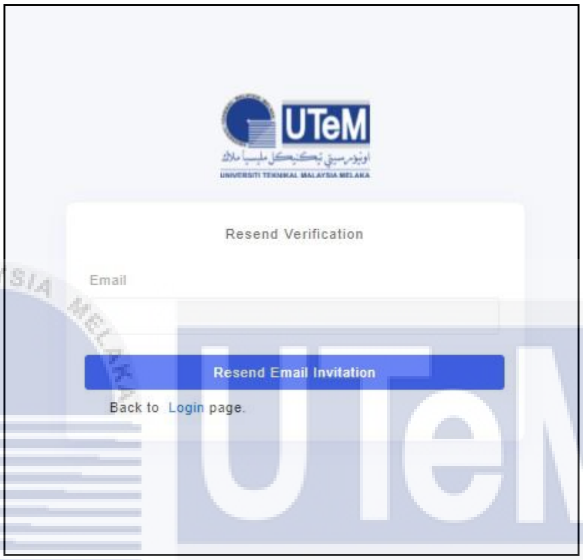
Total Sub Room: 1

Inventory:
□ KERUSI
□ MEJA BELAJAR
□ LAMPU
□ KIPAS
□ KATIL
□ TILAM
□ LANGSIR
□ ALMARI

Figure 4.13 Toggle Design

4.2.2.3 Output Design

The structure was developed to show the performance that can be achieved by the system. Output design for KKMS generally refers to the users' system results and information. With regard to the message box, a warning error, output, etc.



Resend Verification

Email

Resend Email Invitation

Back to Login page.

Figure 4.14 Resend Email Invitation

4.2.3 Database Design

The database design process provides an overview of the database structure. Database design encompasses both the conceptual and logical aspects of a database.

4.2.3.1 Conceptual and Logical Database Design

Conceptual database development is a method of building an enterprise-wide modal of data that is autonomous of all physical factors. The conceptual design of the database engaged in the creation of KM is the modeling and business rules of the Entity Relationship Diagram (ERD). To translate the conceptual design into an internal DBMS model, logical design is used. The logical layout of the database explains the information dictionary and standardization that was used in KKMS.

4.2.3.1.1 Entity Relationship Diagram

Entity Relationship Diagram are utilized to debug or design relational database in the software engineering. In this system, there have three user involve which is staff, admin and student. The ERD of the system is involved seven entities (tables) which are rents, rooms, blocks, session, rent remarks, room sub inventories, room subs and inventories.

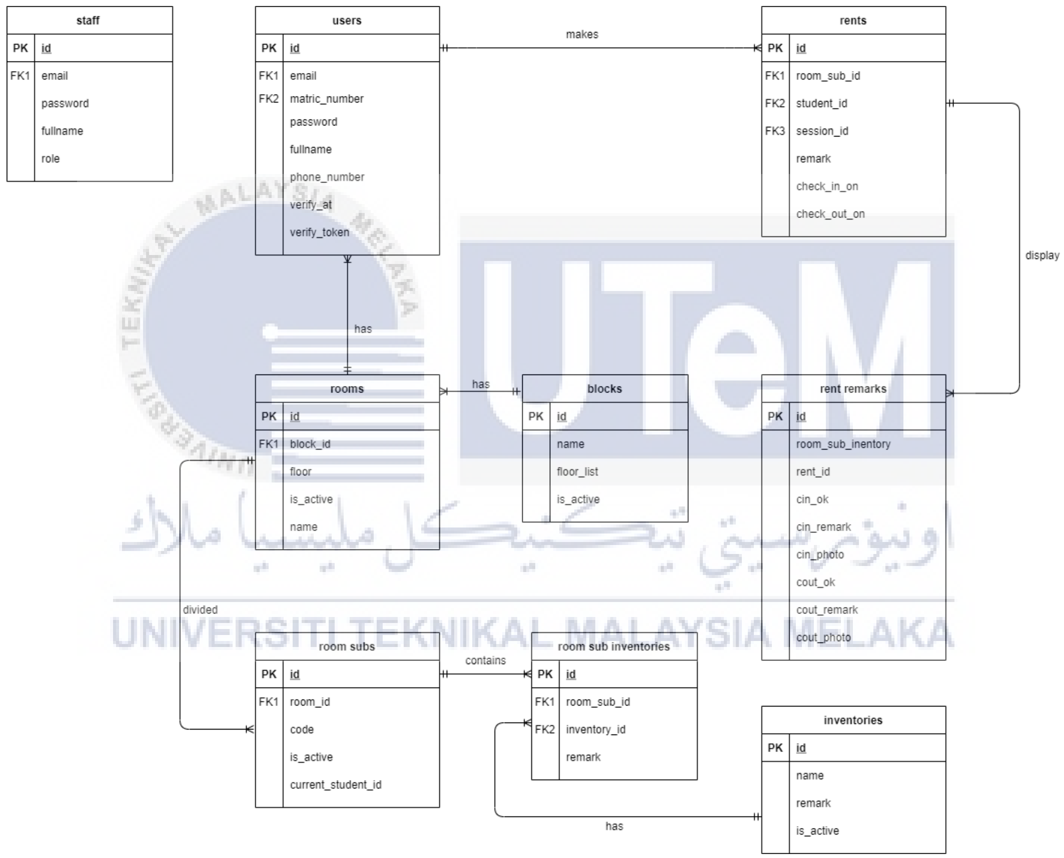


Figure 4.15 ERD for KKMS

4.3 Detailed Design

The detailed design is followed by a process requiring a conceptual design, design implementation and design details and a precise design for the professional execution.

4.3.1 Software Design

The software design describes every method or operation, such as the pre- or postage condition and algorithm of the responsibility, input or output parameter. This section shall outline the Use Case Specification for KKMS.

4.3.1.1 Login & Logout Use Case Specification

This case describe the process for verifying the user log-in and for logging out of the system.

Table 4.1 Login & Logout Use Case Specification

Use Case ID	001
Use Case Name	Login and Logout
Description	This use case describes the login and logout process for the user
Actor(s)	Admin, staff and student
Pre-condition	Page of login shown The user with the email (matric number) and the password is authorised to act.
Post-condition	The main page will be shown. Successful user login

Flow of Events:	Primary Flow: 1. Enter user e-mail (matric number) and password for logging in to the application. 2. Application verifies the data entered by user 3. Main page is displayed. 4. End of use case. Alternative Flow: A1. Incorrect Email or Password 1. Validation of the system will fail due to wrong entry. 2. The user re-enters the password or user emails. 3. Use case end. A2. Actor Logout From System 1. The users click Logout from application 2. The main page redirect to the Login page
“Include” Use Case	Not Applicable
“Extend” Use Case	Not Applicable

4.3.1.2 Registration Use Case Specification

This use case describe the registration process of student before them available to have accessed to the system.

Table 4.2 Registration Use Case Specification

Use Case ID	002
Use Case Name	Student Registration
Description	This case describes the registration process for students
Actor(s)	Student
Pre-condition	The page of registration is shown. User must insert details of registration information.
Post-condition	The student successfully registered
Flow of Events:	Primary Flow: 1. User enter information by entering name, matric number, gender, phone number, email and password 2. User click on register button to save information in database 3. End of use case. Alternative Flow: A1. Invalid Information Entered 1. The system display error message and re-entered information. 2. Use case end.
“Include” Use Case	Not Applicable
“Extend” Use Case	Not Applicable

4.3.1.3 Assign Student Use Case Specification

This use case describe the user (admin & staff) can manage the process of allocate for student hostel by assign room for student.

Table 4.3 Assign Student Use Case Specification

Use Case ID	003
Use Case Name	Assign student hostel
Description	This use case describe the user can manage the process of allocate student hostel
Actor(s)	Admin
Pre-condition	The actor must be an authorized user
Post-condition	Process of assign student hostel successfully added
Flow of Events:	Primary Flow: 1. User click rental management page 2. The system retrieves data from database and assign student page will display by gender 3. User can select and choose which gender by hit submit button and the list of student will be display 4. Admin able to assign student by selecting the available room 5. Admin can submit once confirm 6. Use case end.
“Include” Use Case	Generate Invoice
“Extend” Use Case	Not Applicable

4.3.1.5 Manage hostel specification

This use case describe the user (admin) manage the hostel information detail such as room, block, inventories and session

Table 4.4 Manage hostel specification

Use Case ID	004
Use Case Name	Manage hostel
Description	This use case describe the user manage the hostel information detail
Actor(s)	Admin
Pre-condition	The actor must be an authorized user
Post-condition	The details have been added and store in database
Flow of Events:	Primary Flow: 1. User click on Data Management page 2. User set all the details about block, room, inventories and session 3. The Data Management have been updated 4. The data store in database 5. End of use case
"Include" Use Case	Not Applicable
"Extend" Use Case	Not Applicable

4.3.1.6 View student specification

This use case describe the user (admin & staff) can view list of student who already fill in the Check-in and Check-out form.

Table 4.5 View student specification

Use Case ID	005
Use Case Name	View student registration form
Description	This case describes the registration user view list
Actor(s)	Admin and Staff
Pre-condition	The actor must be an authorized user
Post-condition	Display the list of registration
Flow of Events:	Primary Flow: 1. User click on User Management page 2. User can view the list of student who already make a registration 3. User view list of student who already Check-in and Check-out 4. End of use case
"Include" Use Case	Not Applicable
"Extend" Use Case	Not Applicable

4.3.2 Physical Database Design

In this section, the Data Definition Language (DDL) is the standard that defines the commands for different structures in the database. DDL normally used in table indexes, and user statements to create, modify, and delete database objects. The following subparts of important information for the physical design of a high performance database system are discussed in this section.

i. Table Blocks

```
CREATE TABLE IF NOT EXISTS `blocks` (
  `id` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `name` varchar(255) NOT NULL,
  `for_gender` char(50) NOT NULL DEFAULT 'M',
  `floor_list` varchar(255) NOT NULL,
  `is_active` tinyint(4) NOT NULL DEFAULT '0',
```

ii. Table Users

```
CREATE TABLE IF NOT EXISTS `users` (
  `id` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `email` varchar(255) NOT NULL,
  `matric_number` varchar(255) NOT NULL,
  `password` varchar(255) NOT NULL,
  `fullname` varchar(255) NOT NULL,
  `gender` char(50) NOT NULL DEFAULT 'M',
  `phone_number` varchar(255) NOT NULL,
  `verify_token` varchar(50) DEFAULT NULL,
  `verified_at` datetime DEFAULT NULL,
  PRIMARY KEY (`id`),
  UNIQUE KEY `email` (`email`),
```

iii. Table Rents

```
CREATE TABLE IF NOT EXISTS `rents` (
`id` int(10) unsigned NOT NULL AUTO_INCREMENT,
`room_sub_id` int(10) unsigned NOT NULL,
`user_id` int(10) unsigned NOT NULL,
`session_id` int(10) unsigned NOT NULL,
`remark` varchar(50) DEFAULT NULL,
`check_in_on` datetime DEFAULT NULL,
`check_out_on` datetime DEFAULT NULL,
```

iv. Table Rent Remarks

```
CREATE TABLE IF NOT EXISTS `rent_remark` (
  `id` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `room_sub_inventory_id` int(11) NOT NULL,
  `rent_id` int(11) NOT NULL,
  `cin_ok` smallint(6) DEFAULT NULL,
  `cin_remark` varchar(255) DEFAULT NULL,
  `cin_photo` varchar(255) DEFAULT NULL,
  `cout_ok` smallint(6) DEFAULT NULL,
  `cout_remark` varchar(255) DEFAULT NULL,
  `cout_photo` varchar(255) DEFAULT NULL,
```

v. Table Rooms

```
CREATE TABLE IF NOT EXISTS `rooms` (
  `id` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `block_id` int(10) unsigned NOT NULL,
  `name` varchar(255) NOT NULL,
  `floor` varchar(50) NOT NULL DEFAULT '',
  `is_active` tinyint(4) NOT NULL DEFAULT '0',
  PRIMARY KEY (`id`),
  UNIQUE KEY `name` (`name`)
```

vi. Table Sub room

```
CREATE TABLE IF NOT EXISTS `room_subs` (
  `id` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `room_id` int(10) unsigned NOT NULL DEFAULT '0',
  `code` char(50) NOT NULL DEFAULT '',
  `is_active` int(11) NOT NULL DEFAULT '0',
  `current_student_id` int(11) DEFAULT NULL,
```

vii. Table Room Sub Inventories

```
CREATE TABLE IF NOT EXISTS `room_sub_inventories` (
 `id` int(10) unsigned NOT NULL AUTO_INCREMENT,
 `room_sub_id` int(10) unsigned NOT NULL,
 `inventory_id` int(10) unsigned NOT NULL,
 `remark` varchar(255) DEFAULT NULL,
 PRIMARY KEY (`id`)
```

viii. Table Staff

```
CREATE TABLE IF NOT EXISTS `staff` (
  `id` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `email` varchar(255) NOT NULL,
  `password` varchar(255) NOT NULL,
  `fullname` varchar(255) NOT NULL,
  `role` varchar(255) NOT NULL DEFAULT 'staff',
  PRIMARY KEY (`id`),
```

ix. Table Inventories

```
CREATE TABLE IF NOT EXISTS `inventories` (
  `id` int(11) unsigned NOT NULL AUTO_INCREMENT,
  `name` varchar(255) NOT NULL DEFAULT '',
  `remark` varchar(255) NOT NULL DEFAULT '',
  `is_active` smallint(6) NOT NULL DEFAULT '0',
```

x. Table Session

```
CREATE TABLE IF NOT EXIST `sessions` (
  `id` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `name` varchar(50) NOT NULL,
  `is_current` tinyint(4) NOT NULL DEFAULT '0',
  `year1` year(4) NOT NULL,
  `year2` year(4) NOT NULL,
  `semester` int(11) NOT NULL DEFAULT '1',
  PRIMARY KEY (`id`),
  UNIQUE KEY `name` (`name`)
```

4.4 Conclusion

Introduction or documentation of the Kolej Kediaman Management System is intended for installing different kinds of software after installation of the development environment. The database design model has modelled all information collected during the analysis phase. The KKMS design is designed using a precise procedure, because any error results in a system failure. This chapter describes how the high performance system can be implemented. The design stage is important in order to describe the business flow in the system and show the screen design draught that is to be built into this and other systems. The business flow of database design is describe using the ERD. ERD can be used to validate business rules.

CHAPTER V

IMPLEMENTATION

5.1 Introduction

The execution stage will continue according to the prior layout after the completion of the design stage. This section describes the setup of the software production setting, the execution of databases, the governance of system configuration and the state of execution. The implementation phase is aimed at creating and executing a system that meets business and design specifications. The entry in the system is usually recognised as an important component during this phase. KKMS will be produced at the end of the execution stage. It will be sent to experiment to find, correct and finally prepare the configuration of the KKMS.

5.2 Software Development Environment Setup

The configuration of the development environment must first be intended to introduce a true scheme. Figure 5.1 demonstrates the KKMS production environment configuration based on the previously constructed system architecture. This setup has a client with connection on every personal computer. The software development setup involves the hardware and software. KKMS is an online system. The software that will be used during the 47 implementation are Laragon, Sublime, and MySQL as data storage.

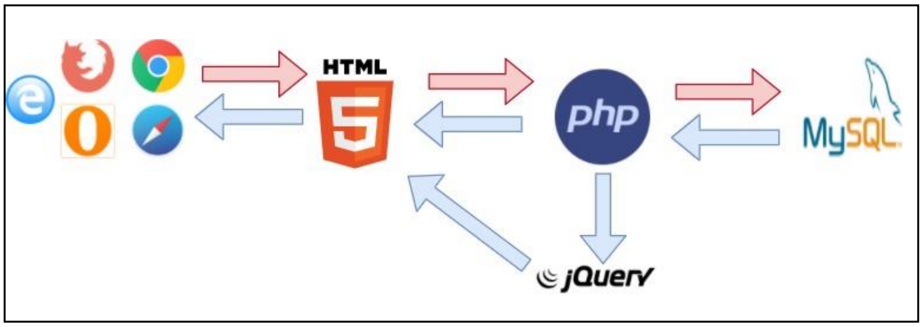


Figure 5.1 Software Development Environment

5.3 Software Configuration Management

Software configuration management consists of two main aspects, namely the preparation of the configuration environment and the control procedure version 5.3.2.

5.3.1 Configuration environment setup

This part will explain what kind of software use to setup the configuration management that use in project.

5.3.1.1 Sublime Text Version 3.2

KKMS uses Sublime Text as a web -based development tool. It includes various features like Syntax Highlights, Auto Inventory, File Type Identification, Sidebar, Macros, plugins and packages to make the code base easy. Sublime Text Editor is used as Visual Studio and NetBeans Integrated Development Editor (IDE).

i. Sublime Text offers its users the following benefits:

- Able to correct the linker errors
- Keep track of files and folder that you are using to work with.
- Version control system connectivity such as Git, Mercurial.

- Functions for problem solving.
- Keeping syntax colour combination.

ii. Sublime Text base settings are necessary for editors such as font size, line number display or editor colour scheme.

ii. JSON size is configured for all basic settings.

5.3.1.2 Database Configuration

Oracle Corporation develops, distributes and supports MySQL, the most popular open source SQL database management system. The MySQL server has a number of parameters that can change with command-line options or configuration files when starting the server (option files). Many parameters can also be changed during operation.

- KKMS needs a database management system like MySQL Server in order to add, access and store it in a computer database
- A relation database for this system saves data in different tables instead of placing all the data in one large storeroom. The structures of the database are organised into speed optimised physical files.

5.3.1.3 Laragon

For PHP, Node.js, Python, Java, Go and Ruby Laragon is a portable, separate, fast and powerful universal development environment. It is easy to use, fast, lightweight and expandable. Laragon is great for building and managing modern KKMS web applications. It is designed for stability, simplicity, flexibility and freedom. Laragon also has its own service management system that manages services asynchronously and without restrictions so that things run quickly and easily with Laragon. Moreover Laragon doesn't use windows.

5.3.2 Version Control Procedure

The KKMS Source Code Management Procedure for Version Control is described. Version control procedure of KKMS involves several steps. The initial development of KKMS is performed without version control involved. After the initial development is completed, KKMS is put under the version control procedure. Developer's and users' feedback regarding the functionality of the system will be acquired and from time to time.

Table 5.1 Version Control Procedure

Version	Description
KKMS v0.1	The original version included without any features. Only the flow and the interface design are displayed in this version. The user acceptance test is intended for this version.
KKMS v0.5	This version includes several modules of the system. These modules are tested via unit testing to ensure the functionality.
KKMS v0.8	This version enhances the previous version as more modules integrated. More units testing are done and integration testing is started to commence. Errors from previous versions are corrected in this version.
KKMS v1.0	Full version of the system. Tests are done to whole system. The system includes validation and error handling.

5.4 Implementation Status

Progress development status for each component or module as below. Table 5.2 includes details for components, modules, names, descriptions, periods for completion, completion dates and module dimensions.

Table 5.2 Progress of development status

Module	Description	Duration	Date completed	Size (%)
Interface design	Develop the system user interface	3 days	February 2021	5%
Database design	Build and connect the database	4 days	February 2021	5%
User Login	System user enter email and password to access to the system.	3 days	March 2021	10%
Registration	Register by entering their full name, password, email, gender, phone number.	7 days	March 2021	10%
Manage user	Admin manage staff and student profile	7 days	March 2021	10%
Manage student	Admin able to add, delete or edit student to the system	7 days	April 2021	10%
Assign student	Admin or staff can assign student that eligible for hostel to the system	7 days	May 2021	10%

Manage hostel details	Admin able to key-in all the details of hostel such as room, block, inventories and session to the system	7 days	May 2021	10%
Complaint	Student can make a complaint by send or snap a pictures	7 days	June 2021	10%
Change password	User able to update their password to the new password	7 days	June 2021	10%
Generate QR Code	Once Students enter Kolej Kediaman, students will produce the QR code which will be used for scanning	7 days	August 2021	10%

5.5 Conclusion

In implementation phase, KKMS is introduced or coded as intended after installing multiple software types in the development setting. The software environment configuration is the tool and process environment to allow KKMS to be developed, validated and released efficiently and reliably. During software development, the software application included Laragon, Sublime (IDE) and MySQL. KKMS is prepared for delivery, subject alteration during integration and testing throughout the completion of the implementation stage. The request will be screened and debugged after the KKMS execution. Finally, this chapter will lead to the next chapter focusing on testing and debugging the system, which is the testing phase.

CHAPTER VI

TESTING

6.1 Introduction

Only after thorough testing will the Kolej Kediaman Management System be completed. The testing will be conducted in this chapter. The method used to evaluate the performance of the software is software testing. Quality is divided into parts such as precision, comprehensiveness and safety, while more technical requirements such as capacity, compatibility and usability are required. The testing phase does not only involve programme or application running methods, but also the intention of finding errors in the system being developed. The testing stage is completed after KKMS implementation. The objective of the test is to ensure that each feature of the system is fulfilled and that every feature of KKMS functions is performed as planned. Test plans, test strategy and test designs include three types of tests. The test plan includes the test organisation, test setting and test timetable. For the design of tests, it has been divided into two kinds of tests, test and test data. Finally, the results of the test and analysis are recorded.

6.2 Test Plan

One of the most critical steps in ensuring that these important tests are not registered and that tests for future reference are documented is to create a test plan. A test plan is typically a piece of paper that will be used to prepare and record crucial data about the experimental effort, such as background data or appropriate assets, during a training experiment. A effective test plan will aid in improving the accuracy and reliability of system testing. The test organisation, sample arrangement, and test timeline are all part of the test plan's functioning.

6.2.1 Test Organization

The persons who will participate in the KKMS testing phase are determined by the testing organisation. Unit test, integration test, system test, and user acceptance test are the four types of tests that will be performed. As shown in Table 6.2.1, each test will be carried out by a different person.

Table 6.2.1: Test Organization involve in KKMS

Type of Test	Tester
Unit Testing	System developer - Norlida Fadilla Abu
Integration Testing	System developer - Norlida Fadilla Abu
System Testing	Umi Amira Binti Azhar
User Acceptance Testing	Abdul Hannan Bin Yusop

6.2.2 Test Environment

The test environment refers to the system testing equipment, software, and network that will be used to test the system. The designer must understand how the system operates in multiple locations and obtain real results from the experiment, therefore choosing a location to test the scheme is critical. The software and hardware specs for the testing environment are listed in Table 6.2.2.

Table 6.2.2: Testing environment specification for Web application

System Configuration	Specification
Operating system	Windows 10
Database	MySQL
RAM	8 GB
Local Storage	223 GB
Processor	Intel Core i3
Web server	Apache Xampp

6.2.3 Test Schedule

The test schedule specifies the type of test to be performed during the test cycle, duration and date.

Table 6.2.3: Test Schedule

Module	Duration	Start Date	End Date
Login	2 weeks	22/07/2021	06/08/2021
Admin	2 weeks	06/08/ 2021	19/08/2021
Staff	2 weeks	19/08/2021	01/09/2021
Student	2 weeks	01/09/2021	14/09/2021
QR Code	2 weeks	29/08/2021	08/09/2021

6.3 Test Strategy

A successful testing approach must be accurate, practical and reasonable. The test strategy is a design which describes the software development cycle's testing approach. The purpose of the testing strategy is to rationally deduct the actual quality assurance target from organisation's high level objectives. The approach to the experiment is the testing of the white box and the black box. White box testing is derived from the knowledge of the code, the program structure and its implementation. Tester usually examine the code in order to test its element. Black box testing is useful as it helps focuses on the testing of the functional requirement in the user acceptance testing. In this phase, validation testing is conducted to evaluate the scheme and parts during the implementation phase to meet the system requirements.

6.3.1 Classes of Test

A scheme for creating the sample case contains a lot of testing techniques. The system is developed by testing approach and tests, integration tests and system testing are carried out by the tester. Tests on units are done by portioning equivalence and tests on integration are carried out on performance and reliability. The test uses correctness, safety testing, stress testing, usability testing and usability testing as well as user acceptance tests within the sample script.

i. Unit Testing

In order to do Unit Testing to test a specific function in software application the section of code have been writen. This is to guarantee proper running of each modules that have been produced. The developer will operate from functional requirements to create particular modules into the system. They can also test the specific features to be performed by the modules.

6.3.1.2 Integration Testing

Integration tests are carried out to verify that the system works between applications correctly. It determined that the correct parameter and data were properly transferred between implementation schemes and that there was appropriate coordination between the application systems for each feature.

6.3.1.3 System Testing

The designed system is tested to ensure that each module or component of the project works properly and that the various systems handle data correctly.

6.3.1.4 User Acceptance

Acception of the user In order to verify the system acceptability, testing is the most common activity that testers or end-users require to monitor or re-start the previous test case over the last three stages. It ensures that the system feature complies in the end-to-end way with company demand and thus supports user confidence in the system.

6.4 Test Design

Take a look at the planned submerged to validate the important tests available. If an issue occurs during testing, the system developer will utilise the test design to recreate the exact sequence of events that produced it. The test design consists of a test description and test data.

6.4.1 Test Description

This part is devised and documented for the identification of test cases, test cases and expected outcomes of each module.

6.4.1.1 Unit Testing

Unit testing will be done on test design below. Each unit is tested for fault insertion, error handling, string testing, statement coverage, and condition coverage. The unit need to work properly to avoid error on system integration.

Unit Testing 1: Pattern for Email Address

Tests are based on valid email patterns for the email address:

Table 6.4.1.1: Unit Testing for User Login

	Test description	Test ID	Input	Expected Result
Positive Testing		KKMS01	Lyda96@gmail.com	Valid format of email.
Negative Testing		KKMS01.1	lyda	Invalid format of email.
		KKMS01.2	lyda.com	Invalid format of email.

Unit Testing 2: Password Length

The password must be at least 8 or more characters and must consists of at least one uppercase, one lowercase and one number.

Table 6.4.1.2: Unit Testing for Password Length

	Test ID	Input	Expected Result
Positive Testing	KKMS02	secr1234eT	Valid format of password.
Negative Testing	KKMS02.1	secre12	Invalid format of password.
	KKMS02.2	12345	Invalid format of password.
	KKMS02.3	secret	Invalid format of password.

Unit Testing 3: Phone Number

The length of phone number must be 10-12 digits.

Table 6.4.1.3: Unit Testing for Password Length

	Test ID	Input	Expected Result
Positive Testing	KKMS03	01459990931	Valid format of phone number
	KKMS03.1	011126001630	Valid format of phone number
Negative Testing	KKMS03.2	018290931	Invalid format of phone number
	KKMS03.3	012340	Invalid format of phone number

Table 6.4.1.4: Test cases for user login

Test ID	Test Cases	Expected Result
KKMS _03	Login by leaving user email blank	Show error message: Email is required.
KKMS _03.1	Login by leaving Password blank	Show error message: Password is required.
KKMS _03.2	Login invalid Email or Password	Show error message: Invalid Email or password. Please try again.
KKMS _03.3	Login using correct Email and Password.	Homepage displayed.

Table 6.4.1.5: Test cases for student's registration

Test ID	Test Cases	Expected Result
KKMS _04	Leave all the input text empty and click register button.	Show error message: Input value is required

KKMS _04.1	Leave name input text empty and click register button.	Show error message: name isRequired.
KKMS _04.2	Enter invalid email and click register button.	Show error message: Email not valid
KKMS _04.3	Enter password less than 8 characters.	Show error message: Password not valid.
KKMS _04.4	Fill in all the fields with correct and valid values.	Show successful message: Registration is successful.

Table 6.4.1.6: Test cases for add new inventory

Test ID	Test Cases	Expected Result
KKMS05	Leave all the input text empty and click "Submit" button.	Show error message: Please fill out this field.
KKMS05.1	Fill in the inventory name and click "Submit" button.	The inventory have been added.
KKMS05.2	Fill in the inventory name and leave Remark text input empty click "Submit" button.	The inventory have been added.

6.4.1 Test Data

Test data is the input given during testing to the software programme. It is data that affects or affects the execution of software during testing. Test data is used to check that both positive testing results for specific inputs produces expected results as well as negative tests for the handling of unusual, exceptional or unexpected inputs by software. This provides actual results for every information to be monitored. This test is carried out as a software tester by Izzat Ali Imran Bin Baderus of the BITS students.

Table 6.4.1: Test data for user login

Project Name:	Kolej Kediaman Management System
Module Name:	User Login
Developed By:	Norlida Fadilla Abu
Date of Review:	22/07/2020
Reviewed By:	Izzat Ali Imran Bin Baderus

Test ID	Test Scenario	Test Cases	Test Data	Expecte dResult	Actual Result	Status
KKMS01	Validate email and password to login	Login by leaving user email blank	Email: Password: 1Sw19de	Unable to login	Show error message: Email is required.	PASS
KKMS01.2		Login by leaving password blank	Email: b031820057@gmail.com Password:	Unable to login	Show error message: Password is required	PASS
KKMS01.3		Login invalid email or password.	Email: lyda96.gmail.com Password: 1Sw19de	Unable to login	Show error message: Email is required.	PASS
KKMS01.4		Login using correct email and password	Email: b031820057@gmail.com Password: 1Sw19de	Able to login.	User's homepage.	PASS
KKMS01.5		Login using correct credential and password	**Admin** Email: S01@gmail.com Password: 1Sw19je	Able to login.	Admin homepage	PASS
KKMS01.6			**Staff** Email: S02@gmail.com Password: 1Sw19he	Able to login.	Staff homepage	PASS

Table 6.4.2.2: Test data for Registration

Project Name:	Kolej Kediaman Management System
Module Name:	Registration
Developed By:	Norlida Fadilla Abu
Date of Review:	4/08/2020
Reviewed By:	Izzat Ali Imran Bin Baderus

Test ID	Test Scenario	Test Cases	Test Data	Expected Result	Actual Result	Status
KKMS02	Validate Name, Gender, Matric Number, Email, Phone Number, Password and Confirm password	Register by leaving all field blank.	Null	Unable to register.	Show error message: Please fill in this field.	PASS
KKMS02.1		Register by leaving password and confirm password filed blank.	**Name:** Norlida **Gender:** Female **Matric Number:** b031820057 **Email:** b031820057@gmail.com **Phone Number:**0145909317 **Password:** **Confirm Password:**	Unable to register.	Show error message: Password is required	PASS
KKMS02.3		Enter Matric Number less than 10	**Matric Number:** b03182005	Unable to sign up	Show error message: Matric Number	PASS

		character			should have 10 character.	
KKMS02.4		Register by leaving Gender default	**Name:** Norlida **Gender:** **Matric Number:** b031820057 **Email:** b031820057@gmail.com **Phone Number:**0145909317 **Password:** 1Sw19de **Confirm Password:** 1Sw19de	Unable to sign up	Show error message: Please choose our gender.	PASS
KKMS02.5		Enter unmatched confirm password	**Name:** Norlida **Gender:** **Matric Number:** b031820057 **Email:** b031820057@gmail.com **Phone Number:**0145909317 **Password:** 1Sw19de **Confirm Password:** 1Sw19ds	Unable to sign up	Show error message: Password not matching	PASS
KKMS02.6		Fill in all the field with valid values	**Name:** Norlida **Gender:** Female **Matric Number:** b031820057 **Email:** b031820057@gmail.com **Phone Number:**0145909317 **Password:** 1Sw19de **Confirm Password:** 1Sw19de	Able to sign up	Show Registration success, send link via email	PASS

Table 6.4.2.3: Test data for add new inventory

Project Name:	Kolej Kediaman Management System
Module Name:	Add New Inventory
Developed By:	Norlida Fadilla Abu
Date of Review:	4/08/2020
Reviewed By:	Izzat Ali Imran Bin Baderus

Test ID	Test Scenario	Test Cases	Test Data	Expected Result	Actual Result	Status
KKMS02	Validate add new inventory	Leave all the input text and click "Submit" button.	Null	Unable to add new inventory	Show error message: Please fill in this field.	PASS
KKMS02.1		Leave name input text and click "Submit" button.	**Name:** **Remark:** Kolej Kediaman Satria	Unable to add new inventory	Show error message : Please fill in this field.	PASS
KKMS02.3		Leave Remark input text and click "Submit" button.	**Name:** Kerusi **Remark:**	New inventory added	Show message: New inventory successfully inserted !	PASS

Table 6.4.2.4: Test data for add new block

Project Name:	Kolej Kediaman Management System
Module Name:	Add New Block
Developed By:	Norlida Fadilla Abu
Date of Review:	4/08/2020
Reviewed By:	Izzat Ali Imran Bin Baderus

Test ID	Test Scenario	Test Cases	Test Data	Expected Result	Actual Result	Status
KKMS02	Validate add new block	Leave all the input text and click “Submit” button.	Null	Unable to add new block	Show error message: Please fill in this field.	PASS
KKMS02.1		Leave name input text and click “Submit” button.	**Name:** **Gender:** Female/Male **Floor:** G,1,2,3	Unable to add new block	Show error message: Please fill in this field.	PASS
KKMS02.3		Leave Floor input text field and click “Submit” button.	**Name:** Lekiu **Gender:** Female/Male **Floor:**	Unable to add new block	Unable to add new block	PASS
		Fill in all the input text field and click “Submit” button	**Name:** Lekiu **Gender:** Female/Male **Floor:** G,1,2,3,4	New block added	Show message: New block successfully inserted!	PASS

Table 6.4.2.5: Test data for change password

Project Name:	Kolej Kediaman Management System
Module Name:	Change password
Developed By:	Norlida Fadilla Abu
Date of Review:	4/08/2020
Reviewed By:	Izzat Ali Imran Bin Baderus

Test ID	Test Scenario	Test Cases	Test Data	Expecte dResult	Actual Result	Stat us
KKMS02	Validate change password	Leave all the input text and click “Submit” button.	Null	Unable to change new password	Show error message: Please fill in this field.	PASS
KKMS02.1		Leave confirm password and click “Update Password” button	**Old Password:** 1Sw19de **New password:** 34Mrkr&@ **Confirm password:**	Unable to update new password	Show error message: Please fill in this field.	PASS
KKMS02.3		Insert new password and unmatched confirm password	**Old Password:** 1Sw19de **New password:** 34Mrkr&@ **Confirm password:** 34MrHR&@	Unable to update new password	Show error message: Password not matching	PASS
		Fill in all the input text field and with valid characters and click “Update password” button.	**Old Password:** 1Sw19de **New password:** 34Mrkr&@ **Confirm password:** 34Mrkr&@	Password updated	Show message: Passwordsu ccessfully updated!	PASS

CHAPTER VII

PROJECT CONCLUSION

7.1 Observation on Strengths and Weaknesses

During the process of developing the KKMS, observation on strengths and weaknesses has been identified. The observation on all aspect of strengths and weaknesses must be assessed, researched and analyzed in order to cater future user requirements changes. The strength of KKMS are provide an online platform to make a booking of the hostel. The system is offer online where students just need to make a registration before they received confirmation link via email. Once they get the link, students need to verify first before able to login to the system. This make the process of booking more easy and systematic compare the manual. Next, Kolej Kediaman management system focuses on the development of a system that automates, integrates, centrally manages and uses a strong database, recovers and manipulates data. This project makes it easier to manage the data than to keep the documents manually. One of the weaknesses of KKMS is there is no chat platform provided. For many organisations, instant messaging or chat is now an important and simple internal channel for communication. The way people and teams interact with each other at work is changing.

7.2 Propositions for Improvement

Many functionalities and features can be integrated into the proposed system, but the scope of the project has only been limited to solve the problems identified in the above-mentioned areas. While KKMS has almost fulfilled all of the user requirements, few proposals still need to be improved. The interface layout should be improved to be more user-friendly and user-friendly. In future, the developer may add rating features to build customer confidence. The chat platform must also be developed to make communication with staff easy for students.

7.3 Contribution

Kolej Kediaman Management System can be contributed to the University, Admin and Staff. The contribution of KKMS is briefly described. *Universiti Teknikal Malaysia Melaka (UTeM*) will include all researchers or graduate projects (UTeM). For example, other students in this university can use the sources of research for KKMS as their project reference with university permission. Next, Kolej Kediaman Management System was developed according to the requirement that relates and needed to colleges. Staff can use the system to manage students manage and assign students room. Lastly. The administrator has system access and can track all college-related updates. Manage students by allocating a student room, adding a new block, setting up a session, enabling check-in and check-out and adding inventory to them.

7.4 Conclusion

In conclusion, Kolej Kediaman Management System meets the objectives. The system works attractively and is ready to use by admin and staff to manage students at the college. The software provides data such as student personal information, student room details, and student session. Creating a QR code for each student to ensure that the students who are eligible for the hostel are valid. As a result, this system concludes that it will undoubtedly benefit administrators and staff by saving time and effort by reducing processing time and error volume. The efficiency of the software created would be improved, and software satisfaction on the part of the system would undoubtedly be high after computerization. Kolej Kediaman Management System enables educational institutions to carry out routine tasks in an accurate, timely, and dependable manner.

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APPENDICES A

PROPOSAL

UTeM/FTMK/PSM/2017/v1

Kod Projek :	BITU 3973

UNIVERSITI TEKNIKAL MALAYSIA MELAKA
FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

PROJEK SARJANA MUDA 1 (BITU3973): PROPOSAL FORM

A **TITLE OF PROPOSED PROJECT: Kolej Kediaman Management System**

B **DETAILS OF STUDENT**

Name of Student: Norlida Fadilla Abu

Matric No: B031820057 **Program Pengajian:** BITC / BITD / BITE / BITI / BITM / **BITS**/ BITZ

Handphone No.: 0145909318 **E-mail Address: lidafadilla96@gmail.com**

Semester/Session: 5/S1

C **PROJECT INFORMATION**

C(i) **Executive Summary of Project Proposal (maximum 300 words)**
(Please include the background of project, problem statements, objectives, and expected outcomes/ proposed solution from the project)

The student admission process is done by manualy where students need to go to the office and taking the key and form. Then students need to sign the book provided as proof that they have taken the room key. Staff will provide the hostel registration form once they already registered and will be completed by the students and returned within the set period. Students also need to re-fill the hostel registration form after leaving hostel to make sure all the facilities in the house are in good condition. Sometimes, there will be a number of students who return to the office to get the form because it has dropped out or missing. Therefore staff need to reprint or photocopy the admission form so this will waste the cost and use of paper. The manual process also wasting of time to queue and waiting for the turn. To overcome the problems, Kolej Kediaman Management System were proposed to ease the administrator in creating, managing and running an online website portal. Next, to manage student registration process as well to Residential College systematically by provide the website platform. To reduce paper usage and cut down print costs in the workplace. The scope of project for this proposed system are Administrator, Staff and Students. This system can help in managing data systematically, reliable and secure. With this system, it makes easier for students and staff to manage matters related to student registration in Residential College.

C(ii)

Detailed proposal of project:

(a) Project background including Introduction / Problem Statements.

1. *Introduction*

The current Residential College at UTeM is a paper-based system. Paper-based system is non-systematic and disorganized where students admission is manually conduct. Students will not be given a number and room key unless they already register at the office for each Residential College block. Thus, the proposed Kolej Kediaman Management System is designed for Admin and Staff to managing data and provide online platform for Students. This module will be simple, attractive and easy to use. This system also provides high level of security, authentication, reliability, efficient and flexible and corruption free mechanism. Hence, it can facilitate the work of all parties involved. The using of website platform, it can reduce or remove unwanted human errors.

2. *Problem Statements*

i. Non-systematic management for Residential College.
ii. Wasting of time to queue and waiting for the turn to register at the college office.
iii. Students need to register at the Residential College office to obtain key and registration form before entering the house.

(b) Objective (s) of the Project

This project embarks on the following objectives:

i. To assist the administrator and staff in creating, managing and running for better online portal related to Residential College in daily operations.
ii. To improve the convenience, accessibility and quality of interactions with users.
iii. To reduce paper usage and cut down print costs in the workplace.

(c) Scope of the Project

USER AND MODULES SCOPE

1. Administrator

i. Login
ii. Register students

iii. *Add students who eligible for college*
iv. *Update the list of students*
v. *Notifications*

2. *Staff*
   i. *Login*
   ii. *View students information*
   iii. *View list of students*
   iv. *Give the room key*
   v. *Notifications*

3. *Students*
   i. *Taking the room key*
   ii. *Login*
   iii. *Fill in the registration form*
   iv. *Upload pictures*
   v. *Submit registration form*
   vi. *Notifications*
   vii. *Return the room key*

(d) Expected Outcome/ Proposed Solution

By implement and design the Kolej Kediaman Management System it is more reliable where students need to authenticate by enter their User ID and password once admin have registered their account. This system is user friendly where identification and authentication needed before login to the system. The modules for each scope are implemented and designed based on the process during registration that related to Residential College. With the existence of this sytem, it give benefits to the users such as cost effectiveness and productivity. It also improve data management, file management and data reporting.

(e) List of Softwares

i. *PHP language*
ii. *XAMPP*
iii. *MySQL*

D **REFERENCES**

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2. *Meet Petal Benefits of Using Student Database Management System, April 2020*
3. *Ksoft Technology Cloud based College Management System, November 2015 from https://www.youtube.com/watch?v=mdLHX5o5Sbc*

E (i)	**Declaration by student** / *Akuan pelajar*
	Date : 3 March 2021 *Tarikh :* **Student's Signature :** *Tandatangan Pelajar :*

E (ii)	**Recommended by the Supervisor** *Perakuan oleh Penyelia*	**Recommendation by the Commitee** *Perakuan oleh Jawatankuasa*
	Please circle: [✓ **Recommended**]/ **Not Recommended**	**Please circle: Accepted/ Not Accepted**
	Comments:	**Comments:**
	Supervisor's Name: Aniza Othman	**Commitee's Name:**
	Signature and Stamp: Aniza ANIZA OTHMAN PENSYARAH FAKULTI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI UNIVERSITI TEKNIKAL MALAYSIA MELAKA HANG TUAH JAYA, 76100 DURIAN TUNGGAL, MELAKA, MALAYSIA	**Signature and Stamp:**
	Date: 6 March 2021 *Tarikh:*	**Date:** *Tarikh:*

APPENDICES B

SEQUENCE DIAGRAM

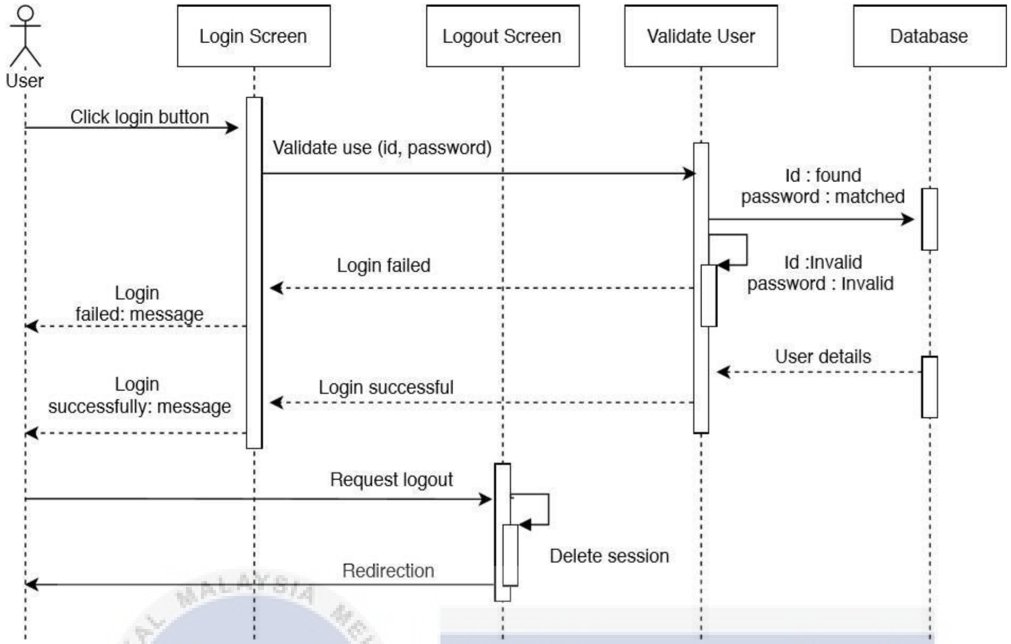

Figure B1: Login and logout Sequence Diagram

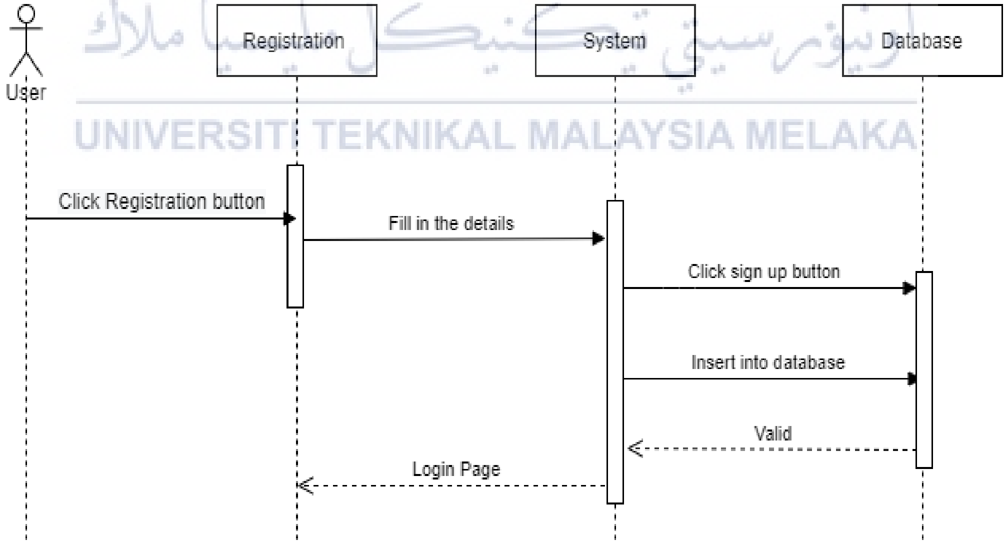

Figure B2: Registration Sequence Diagram

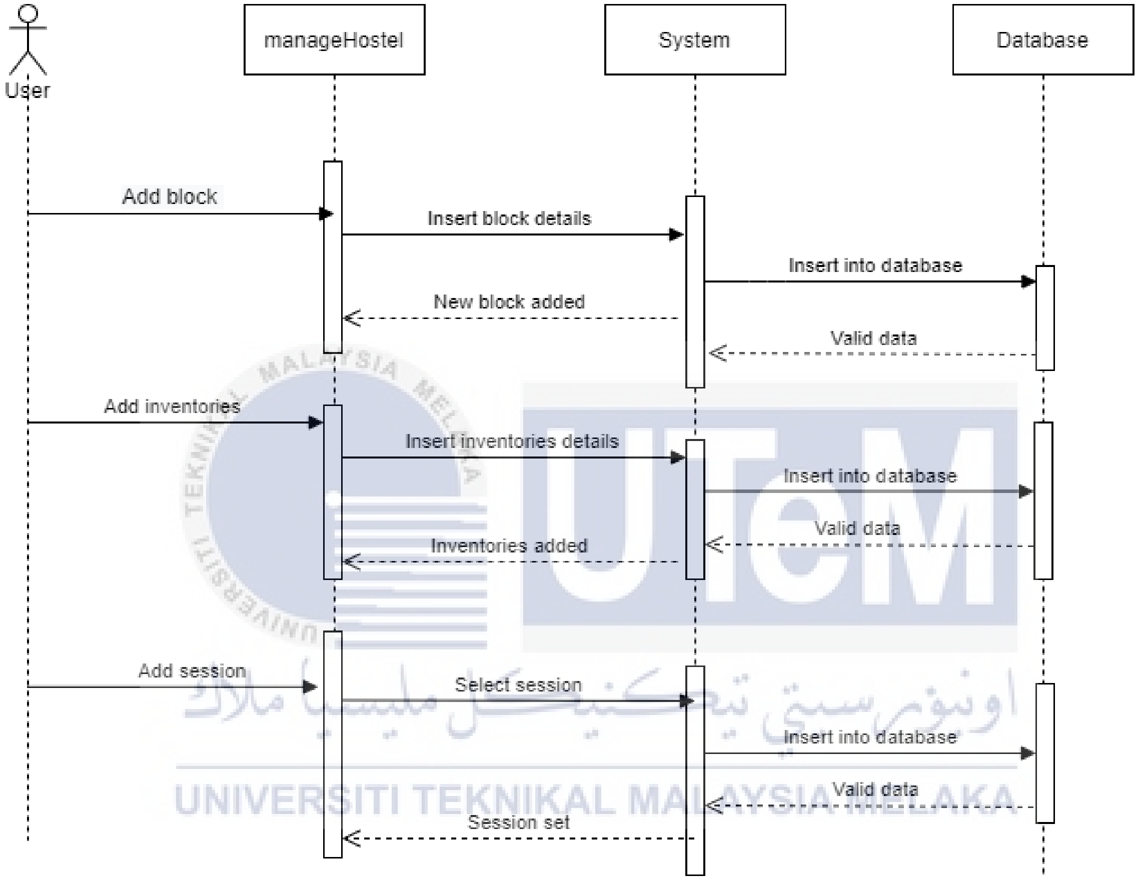

Figure B3: Manage Hostel Sequence Diagram

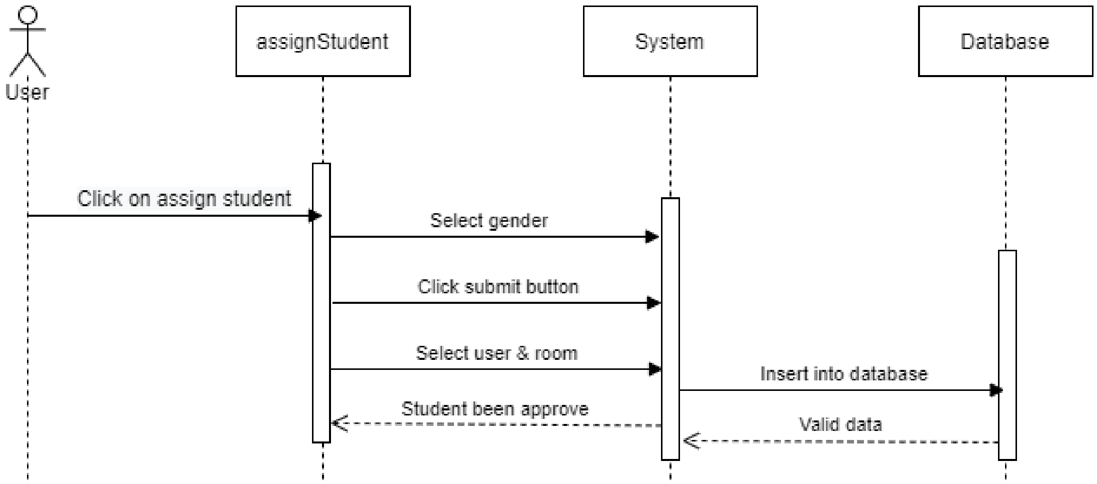

Figure B4: Assign Student Sequence Diagram

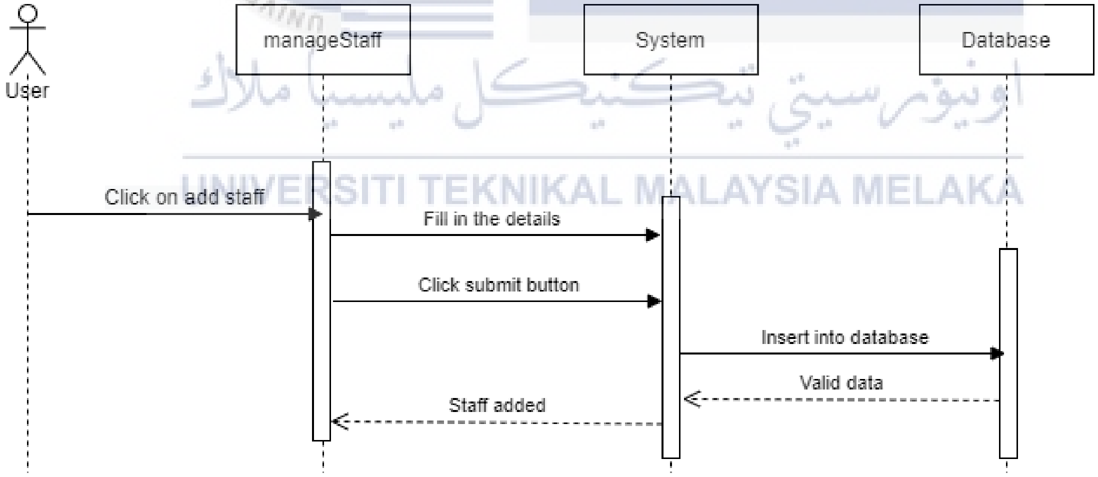

Figure B5: Manage Staff Sequence Diagram

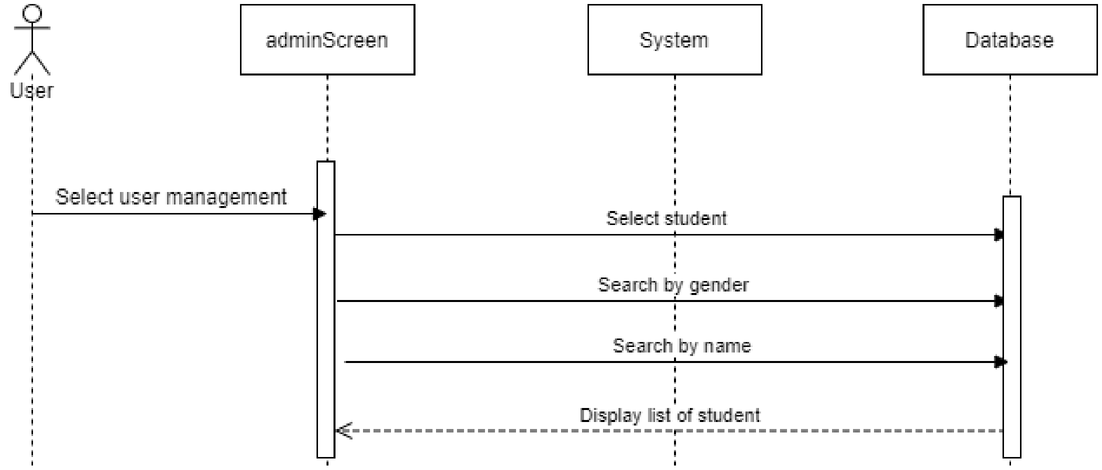

Figure B6: View Student Sequence Diagram

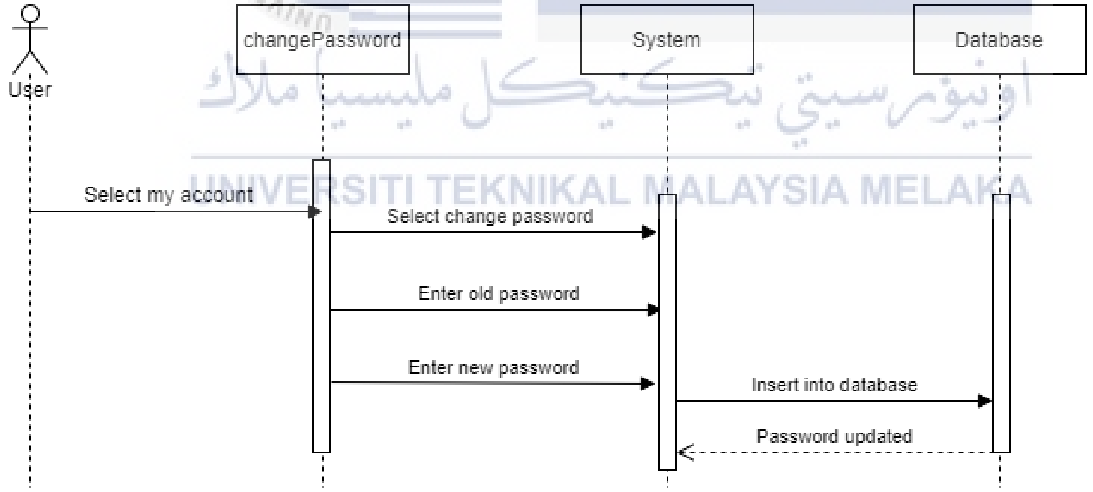

Figure B7: Change Password Sequence Diagram