

**KIMATHI HOSTEL BOOKING SYSTEM**

|  |  |  |
| --- | --- | --- |
| **NAME** | **REG NO** | **SIGN** |
| **JULIUS ELIZABETH MUTHONI** | **C026-01-0924/2022** |  |
| **MUNGAI EVANS MUCHIRI** | **C026-01-0908/2022** |  |
| **KADAGI DANTE ASIKO** | **C026-01-0920/2022** |  |

**DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY**

**PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A DEGREE IN BACHELOR OF SCIENCE COMPUTER SCIENCE IN DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY**

**8TH MARCH 2024**

# DECLARATION

We declare that the ideas described herein are our original work and have not been submitted to any Institution for an award of degree/diploma:

Name: Mungai Evans Muchiri

Date: ……………………………………

Signature………………………………………………………..

Name: Julius Elizabeth Muthoni

Date……………………………………………….

Signature…………………………………………………..

Name: Kadagi Dante Asiko

Date…………………………………….………………………………………………….

Signature…………………………………………..…………………………..

This project is submitted for University examination with my approval as the supervisor.

Name: WILLY MBURU

Date……………………………………………….

Signature…………………………………………………..

# DEDICATION

We wholeheartedly dedicate this project to our parents, who have continually been great pillars of support, and have given as not only the strength and motivation but also the invaluable resources that have enabled us execute this project seamlessly. Their encouragement and selfless contributions have been the driving force behind this journey ensuring that we faced no hurdles to daunting to overcome.

# ACKNOWLEDGMENT

We would first wish to acknowledge the Almighty God for enabling us to come up with an idea and develop this project.

Second, we would like to acknowledge our supervisor for giving us guidance and directing us towards coming up with the relevant project that can be implemented in the real world.

We would also wish to acknowledge our fellow classmates and friends who gave us endless moral support during our entire project development.

# ABSTRACT

Hostel allocation has always been an essential part in the process of hostel management. Over the years, it has been noticed that the drastic intake of students into higher institute of learning has in many ways contributed to the tedious nature of the process. The whole process involving allocation, documentation, managing of reports has made it to be most often than not more cumbersome. In DKUT, the present system being used for hostel booking, allocation and management is the traditional (manual) system which makes it to be complex and can be time insensitive.

This project aims at providing solutions to stated problems by designing an online platform where all students’ application and allocation matters can be done fast and easy with less human errors. The system is built using HTML, CSS, JavaScript and MySQL as tools for its development. HTML and CSS playing a role for interface creation, JavaScript functioning as an object oriented programming language which basically validates forms and makes the system user friendly and MySQL as the database.

The online booking system helps to manage student’s application records, room allocation and display of accommodation details to successful applicants. The system provides a faster and more efficient way of allocating students to hostels, manage and adequately store records for future reference. The system is a very useful, convenient and efficient. It is a safe way of keeping records compared to the manual method currently used.

# TABLE OF CONTENTS

Contents

[DECLARATION ii](#_Toc157004890)

[DEDICATION iii](#_Toc157004891)

[ACKNOWLEDGMENT iv](#_Toc157004892)

[ABSTRACT v](#_Toc157004893)

[TABLE OF CONTENTS 1](#_Toc157004894)

[LIST OF TABLES 4](#_Toc157004895)

[LIST OF FIGURES 3](#_Toc157004896)

[ABBREVIATIONS AND ACRONYMS 4](#_Toc157004897)

[DESCRIPTION OF SIGNIFICANT TERMS 5](#_Toc157004898)

[CHAPTER ONE: INTRODUCTION 6](#_Toc157004899)

[1.1. BACKGROUND OF STUDY 6](#_Toc157004900)

[1.2. STATEMENT OF THE PROBLEM 7](#_Toc157004901)

[1.3. RESEARCH OBJECTIVES 8](#_Toc157004902)

[1.3.1. BROAD OBJECTIVES 8](#_Toc157004903)

[1.3.2. SPECIFIC OBJECTIVES 8](#_Toc157004904)

[1.4. RESEARCH QUESTIONS 9](#_Toc157004905)

[1.5. SIGNIFICANCE OF THE STUDY 10](#_Toc157004906)

[1.6. DELIMITATION 11](#_Toc157004910)

[1.7. ASSUMPTIONS 12](#_Toc157004911)

[1.8. SCOPE OF THE STUDY 13](#_Toc157004912)

[CHAPTER TWO: LITERATURE REVIEW 14](#_Toc157004913)

[2.1. INTRODUCTION 14](#_Toc157004914)

[2.2. SIGNIFICANCE OF LITERATURE REVIEW 14](#_Toc157004915)

[2.3. LOCAL PERSPECTIVE 15](#_Toc157004916)

[2.3.1. KENYATTA UNIVERSITY HOSTEL APPLICATION SYSTEM 15](#_Toc157004917)

[2.3.2. CHUKA UNIVERSITY HOSTEL BOOKING SYSTEM 15](#_Toc157004918)

[2.3.3. MOI UNIVERSITY HOSTEL BOOKING SYSTEM 16](#_Toc157004919)

[2.3.4. KIBABII UNIVERSITY HOSTEL BOOKING SYSTEM 17](#_Toc157004920)

[2.4. REGIONAL PERSPECTIVE 18](#_Toc157004921)

[2.5. GLOBAL PERSPECTIVE 19](#_Toc157004922)

[CLOUDBEDS BOOKING ENGINE 19](#_Toc157004923)

[2.6. SWOT ANALYSIS 20](#_Toc157004924)

[2.6.1. Strengths 20](#_Toc157004925)

[2.6.2. Weakness 20](#_Toc157004926)

[2.6.3. Opportunities 20](#_Toc157004927)

[2.6.4. Threats 20](#_Toc157004928)

[2.7. RESEARCH GAP 21](#_Toc157004929)

[CHAPTER THREE: METHODOLOGY 22](#_Toc157004930)

[3.1. INTRODUCTION 22](#_Toc157004931)

[3.2. SYSTEM METHODOLOGY 22](#_Toc157004932)

[3.2.1. DEFINITION 22](#_Toc157004933)

[3.2.2. PHASES 22](#_Toc157004934)

[3.2.3. ADVANTAGES AND DISADVANTAGES 23](#_Toc157004935)

[3.2.4. DIAGRAMATIC REPRESENTATION 25](#_Toc157004936)

[3.3. RESEARCH DESIGN 26](#_Toc157004937)

[3.4. LOCATION OF STUDY 28](#_Toc157004938)

[TARGET POPULATION 28](#_Toc157004939)

[3.5. SAMPLING AND SAMPLE PROCEDURES 28](#_Toc157004940)

[3.5.1. Definition 28](#_Toc157004941)

[3.5.2. Sampling and sample procedures 28](#_Toc157004942)

[3.5.3. Determination of sample size 29](#_Toc157004943)

[3.6. DATA COLLECTION INSTRUMENT 30](#_Toc157004944)

[3.6.1. QUESTIONAIRES 30](#_Toc157004945)

[3.6.2. OBSERVATION 30](#_Toc157004946)

[3.6.3. INTERVIEW 31](#_Toc157004947)

[3.6.4. INTERNET 32](#_Toc157004948)

[3.7. DATA ANALYSIS 33](#_Toc157004949)

[3.8. TEST OF VALIDITY AND RELIABILITY 36](#_Toc157004950)

[Kimathi hostel booking test of validity 36](#_Toc157004951)

[Kimathi hostel booking system reliability 36](#_Toc157004952)

[3.8. ETHICAL CONSIDERATIONS 38](#_Toc157004953)

[3.9. APPENDIX 39](#_Toc157004954)

[vi. PERMISSION LETTER TO UNDERTAKE RESEARCH 39](#_Toc157004955)

[vii. DATA COLLECTION INSTRUMENT 41](#_Toc157004956)

[viii. LIST OF REFERENCES 42](#_Toc157004957)

[ix. THE PROPOSAL SCHEDULE 42](#_Toc157004958)

[x. PROPOSAL BUDGET 42](#_Toc157004959)

# LIST OF TABLES

No table of figures entries found.

# LIST OF FIGURES

[Figure 1.Waterfall method 24](#_Toc156960052)

[Figure 2.application chart 32](#_Toc156960053)

[Figure 3.satisfaction level chart 33](#_Toc156960054)

[Figure 4.Rating of overall application process 34](#_Toc156960055)

# ABBREVIATIONS AND ACRONYMS

DKUT – Dedan Kimathi University of Technology

DSW – Directorate of Student’s Welfare

KU- Kenyatta University

# DESCRIPTION OF SIGNIFICANT TERMS

University- An institution of higher (or tertiary) education and research which awards academic degrees in several academic disciplines.

Hostel- A hostel is a form of low-cost, short-term shared sociable lodging where guests can rent sleeping arrangements and sometimes offers meals and planned activities

Booking system - a software solution and reservation system that makes it simple for guests to book and pay for your activities online.

Database- A systematically arranged collection of computer data structured so that it can be automatically retrieved or manipulated.

# CHAPTER ONE: INTRODUCTION

## BACKGROUND OF STUDY

In Kenya, it is the government policy that admissions into public universities should not pegged on available accommodation space. Of about 7000 students, DKUT can barely accommodate 152 ladies and 246 men, making the total available spaces to be 398. The Directorate of Students' Welfare is tasked with the allocation process. Allocation is based on students with special conditions such as medical, disability, physical challenges etc. are also considered.

Students seeking on-campus housing are required to individually apply by completing a manual form, followed by a cumbersome journey to the School of Business office to submit the application. The subsequent steps involve a selection process and room allocation overseen by the Matron, and this entire process repeats every semester.

## STATEMENT OF THE PROBLEM

The current process for applying for on-campus accommodation at DKUT presents significant challenges resulting in inefficiencies, increased administrative burdens and a lack of transparency.

The current convoluted system is entirely manual. It relies on manual paperwork requiring students to fill out physical application forms and submit them in person at the office of the Housekeeper located at the School of Business office. The entire application and allocation process repeats every semester leading to redundant efforts of both students and administrative staff. This perpetuates inefficiency and administrative overhead. Furthermore, this system results to a lack of clarity and increased stress for the students. Students face a lack of transparency in the selection and allocation process, causing uncertainty and anxiety. Clear criteria and communication channels are essential to foster a more transparent and student-friendly approach.

As a result, there is an urgent need for a streamlined and user-friendly University Hostel Booking System that transforms the current complex application process into a seamless and efficient experience.

## RESEARCH OBJECTIVES

### BROAD OBJECTIVES

The main objective of this study was to develop a hostel booking system that would enhance the efficiency and user experience of the process of acquiring an on-campus accommodation at our university.

### SPECIFIC OBJECTIVES

The specific objectives of the project include:

1. To introduce a user-friendly platform for students seeking on-campus housing to apply.
2. To provide real-time updates on application status for students who applied for on-campus housing.
3. To introduce a user-friendly platform for the housekeeper to accept and reject applications.
4. To introduce user-friendly platform for the matron to allocate rooms to the applicants.
5. To provide accommodation details for students who were successfully allocated rooms.

## RESEARCH QUESTIONS

1. How to develop a web based hostel application and allocation system?
2. What technological features can be implemented to provide real time updates?
3. How can the housekeeper’s platform be optimized to facilitate efficient processing of application with features that can allow easy acceptance and rejection of application?
4. How to integrate room allocation process to the web based hostel application and allocation system?
5. How to utilize an online platform in disseminating information about House accommodation to successful applicants?

## SIGNIFICANCE OF THE STUDY

## This study aims to address the existing deficiencies in our university's on-campus hostel booking system. The current manual system within our institution is not only tedious and time-consuming but has also emphasized the urgent need for a more efficient and automated accommodation reservation process. The primary objective of this project is to develop a state-of-the-art hostel booking application that will revolutionize the on-campus accommodation application process.

## By undertaking this initiative, our goal is to create a system that not only enhances accessibility but also significantly improves transparency and user-friendliness. Students will benefit from a streamlined application process, eliminating the need to visit various offices for signing and filling out accommodation documentation. Simultaneously, the university administration stands to gain substantial resource savings by reducing the amount of paperwork associated with the current process

## This innovative solution seeks to meet the growing demands of our expanding university community. We aspire to set a new standard for accommodation services by providing a cutting-edge, user-friendly platform that caters to the evolving needs of our student population. Through the implementation of this system, we anticipate not only simplifying the accommodation application process but also contributing to the overall efficiency and effectiveness of our university's administrative procedures.

## DELIMITATION

The system has the following limitations:

1. The system can be accessed by Dedan Kimathi university students and the department in charge of booking hostels only.
2. The system can only be used during the admission period.
3. The system is limited to only booking and allocation of a room in the university hostels.
4. The system only supports English which is commonly used in the university.
5. The system can only be used in Dedan Kimathi University of Technology.

## ASSUMPTIONS

This project assumes that the students seeking on-campus housing are able to access the internet using either a mobile phone or a laptop.

## SCOPE OF THE STUDY

The study was limited to developing a software based system that aims to ease the process of booking an internal hostel at the university. The target market included students and the administration in charge of the booking process. The study was majorly based at Dedan Kimathi University of technology.

# CHAPTER TWO: LITERATURE REVIEW

This chapter is a review of relevant literature related to the proposed system and the components of the system.

## 2.1. INTRODUCTION

Hostel booking and allocation system is essential for the allocation process at any university at any country. According to the Ministry of Education, available student housing in Kenya stands at 300,000 against a university enrollment of 520,900 as at 2018 excluding technical colleges. In the United Kingdom, more than 728,000 students applied at a start of full-time undergraduate course at UK universities in the 2020/21 academic year. The approximate bed capacity stood at approximately 600,000 beds. (Pullan, 2019).

This makes the concept of hostel allocation to students a popular topic due to the widening of the demand-supply gap between students accommodation and University. By conducting this literature review, we hope to gain insight into best practices for developing and implementing an automated hostel booking and allocation system.

## 2.2. SIGNIFICANCE OF LITERATURE REVIEW

A literature review is an essential component of research, particularly in the development of a hostel booking system. It entails a comprehensive analysis and critical evaluation of existing scholarly literature, enabling a better understanding of the current knowledge landscape related to hostel management and booking systems. By summarizing and synthesizing relevant research, the literature review not only illuminates the existing state of knowledge but also identifies gaps and limitations in previous systems, laying the groundwork for the development of a more robust and innovative hostel booking system.

In the context of our project, a thorough literature review is indispensable for several reasons. Firstly, it provides a clear overview of similar systems, highlighting their strengths and weaknesses. This understanding is crucial as it allows us to leverage successful features while addressing or avoiding the pitfalls encountered by others. Furthermore, the literature review serves as a guide in identifying specific research gaps and unexplored areas within hostel booking systems, helping to tailor our approach to fill these voids. Moreover, the literature review fosters the generation of fresh ideas and insights by exposing developers to a diverse range of perspectives and methodologies employed in previous research. It acts as a source of inspiration for innovation and enhancement, encouraging the integration of novel features or approaches that can set our hostel booking system apart.

In essence, the literature review acts as a foundation for informed decision-making, guiding the development of a hostel booking system that is not only well-informed and technically sound but also responsive to the specific needs and challenges encountered in hostel management. Through this process, we position our project within the broader context of scholarly discourse and pave the way for a system that reflects the cutting edge of research and development in the field.

## 2.3. LOCAL PERSPECTIVE

### 2.3.1. KENYATTA UNIVERSITY HOSTEL APPLICATION SYSTEM

The KU Hostel Application system is a hostel booking system that is hosted in the universities’ website. Students seeking on-campus housing are provided with a link to access the system. The students proceed to fill in an application form and are then prompted to select their preferred hostel. After successfully applying, the university proceeds to place the successful applicants and send another link to the students so that they can confirm their application status.

Features:

1. Hostel Application: the system provides an application form for those who what on-campus housing to fill.
2. Hostel selection: the system provides a list of hostels that are available in the University for Students to select their preferred hostels.

Advantages:

The KU hostel application system is easy to use since it provides students with easy to follow instructions for students using the system. Furthermore, the system is hosted in the university website therefore it can be accessed by any student who belong to the university.

Disadvantages:

The KU hostel application system does not allow the students to select their preferred room in their hostel of choice. The system limits the students seeking on-campus housing to only select their preferred hostel.

### 2.3.2. CHUKA UNIVERSITY HOSTEL BOOKING SYSTEM

Chuka University Hostel Booking system is a booking system contained in the university that aids to ease the Hostel booking procedure in the University. It is accessed by student of the university by visiting the Chuka University Student’s portal.

Features:

The Chuka University Hostel Booking system has the following features:

1. Hostels Application: The booking system has a feature where students can select their preferred hostel.
2. Room selection: The booking system offers a feature for a students to select an available room number.

Advantages:

The Chuka University Hostel booking system is a system that can be accessed by students in the university through the student’s portal. This means that the system is readily available to any Chuka University student. Furthermore, it is user friendly as it has elaborate instructions that can be followed by any user of this system.

Disadvantages:

Being hosted in the student’s portal, the Chuka University Hostel booking system is prone to being unavailable when the school’s domain experience challenges.

### 2.3.3. MOI UNIVERSITY HOSTEL BOOKING SYSTEM

Moi University Hostel Booking System is a system that was generated to offer the students a convenient online hostel booking service which is only accessible via the students’ portal of the university. The system allows the students to access the student portal using their registration number. The students selects the hostel of their choice fill in their details then submit their application awaiting a link to download and print their invoice and room inventory form. Clearance of payment allows them to sit for their examinations PROCEDURE FOR ROOM BOOKING & FILLING OF THE NON RESIDENCE FORM.

**Features**

The system has the following features:

1. Login credentials: The students can log in to the student portal using their registration number and a password.
2. Hostel booking: Students are able to see the available hostels, partially available and the fully occupied. This enables them to select the hostel that is vacant.
3. Booking confirmation: Once the student selects the hostel available a confirmation message is sent followed by an inventory and invoice form that is obtained online. This is indicates completion of the booking process as well as allocation.

**Advantages**

The system has benefited the students as well as the university in the following ways:

1. The system is efficient ensuring a swift hassle free accommodation reservation enhancing the university experience as well as comfort.
2. The system is convenient since it can be accessed online and the processes can be easily completed with the use of a guide that is available online.
3. The system is less time consuming. In order to book online, the students spend less time undertaking the process making it easy for use.

**Disadvantages**

The system has a weakness of technical glitches that occurs when the system is being used making it difficult for students to access the system at some point in time. This slows down the booking process causing some delay before the issue is dealt with.

### 2.3.4. KIBABII UNIVERSITY HOSTEL BOOKING SYSTEM

In 2015, the hostel department of Kibabii University developed a software that enables them to make blocks in hostels as per needs and administer boarding functionalities such as hostel applications. The system allows the students to access the dashboard by submitting their login credentials online and book a hostel(Na & Hipertensiva, n.d.).

**Features**

The system displays the following features:

1. Login credentials: The students are able to login to the portal by filling their registration number as well as passwords. This allows them to access the hostel booking platform.
2. Hostel selections: The system allows the students to select the hostel of their choice and book. The system also informs them if the hostel is occupied or vacant.

**Advantages**

The benefits of the system are:

1. Efficient room allocation: The system allocates the students to the hostel of their choice .The allocation process is automated hence faster and accurate.
2. 24/7 accessibility: The Kibabii hostel booking system is available 24/7 for student use. This makes it easy for students to access when they are in need of a hostel.

**Disadvantages**

The hostel booking system has an interface that is difficult to navigate hence making the students spend most of their time searching for the guidelines or trying to navigate.

## 2.4. REGIONAL PERSPECTIVE

**Uganda Christian university hostel booking system**

In June 2021, a pioneering hostel booking system was skillfully developed by students at UCU University. The innovative system was specifically designed to alleviate the burdensome and resource-intensive nature of the manual process involved in allocating hostels and essential items for incoming students at the university. (Kodi, Elia AyoubHostel booking system).

**Components**

1. Web Application Component: Test requests are sent correctly to the Database and output at the client side is displayed correctly. Errors if any must be caught by the application and must be only shown to the administrator and not the end user.
2. Web Server: Test Web server is handling all application requests without any service denial. The web server needs PHP Java.Net, Python, and development skills.
3. Database Server: Make sure queries sent to the database give expected results.

**Advantages of the System**:

1. Enhanced Accessibility for Students: The system allows students to conveniently search and view information about available hostels.
2. Efficient Booking Process: Students can easily book hostels online, eliminating the need for manual procedures. This enhances the efficiency of the hostel allocation process, reducing paperwork and administrative burdens for both students and hostel management.
3. Centralized Student Data Management: Hostel managers can maintain a centralized database of students residing in hostels. This ensures efficient record-keeping and simplifies tasks related to hostel administration, such as managing occupancy and addressing student concerns.

**Disadvantage**

While the system appeared to have automated the processes of item allocation and booking, it exhibited a significant weakness which is:

Dependence on key personnel such as managers and matrons to facilitate crucial processes, including notifications about available hostels to students. This concentration of expertise on specific individuals proved to be a bottleneck in the system, especially in cases where the designated individuals are unavailable.

## 2.5. GLOBAL PERSPECTIVE

### CLOUDBEDS BOOKING ENGINE

Cloudbeds Booking Engine is a module contained in Cloudbeds hospitality management system. The software is used in the hotel industry to manage room inventory, rates and booking. When a traveler books a hotel room on one of these channels, the information is passed back to the central reservation system and the property management system, where it is stored for retrieval when they check in. At the same time, availability is updated on all distribution channels.

**Features**

1. Integrations with other systems such as the central reservation system and the property management system which work together to help hotels manage room availability, distribution, reservations and revenue.
2. Internet booking engine: Software that allows guests to make a reservations directly from the website.

**Advantages**

1. Offers multiple booking options: It allows owners to advertise multiple room types on your website targeting a broader range of customers.
2. Manage rates and availability in real-time: It allows owners to simultaneously update pricing and availability on all booking channels.
3. User-friendly: The booking engine is fairly easy to use.

**Disadvantage**

Expensive: Considering all the integrations that come with up with booking engine, it is a very costly product.

## 2.6. SWOT ANALYSIS

### 2.6.1. Strengths

Availability: The system being a web based system makes it readily available to any user.

Automated Selection and Allocation: The system will incorporate automated processes for the selection and allocation of rooms, reducing the manual workload on administrative staff and providing a fair and transparent process for students.

Easy to use UX/UI- The system has an easy-to-use User Interface making it more accommodating to users than the universal ones for other systems.

Low license fees- Our system does not require high license fee costs to use making it affordable compared to systems in the market.

More features- Our system will be able to incorporate the booking process followed by the students and the allocation process by the matron which is a feature that has not been implemented by our competitors.

### 2.6.2. Weakness

Lack of reputation - We still haven’t made a market brand for ourselves as a software vendor.

Long updates- This system has to be updated manually on the machine being used and updates cannot be done on the cloud

Internet necessity – Our system being a web based system requires internet to access the system.

### 2.6.3. Opportunities

Manual application process- Since the institution uses a manual system during the booking and allocation, we can capitalize on this opportunity by pitching our digital booking system to them.

Little competition- There is currently no competition when it comes to making a booking system for the institution.

### 2.6.4. Threats

Outdated technologies- If the technology used become outdated and it becomes expensive to update, it then our system could become obsolete.

Initial impression- If the institution is not too impressed with the system, it could discourage them from acquiring our software and could outsource to other companies to create another system for them. Security – Our system is a web based system and security threats to web based system have grown in a number and variety over the past decade. This makes

## 2.7. RESEARCH GAP

Inability to test the effectiveness of previously implemented booking systems at a grass root level due to logistical issues.

Ways implemented by previously implemented booking systems to incorporate security measures to counter the threats posed in web based systems.

# CHAPTER THREE: METHODOLOGY

## 3.1. INTRODUCTION

This chapter aims to elucidate the chosen system development method, the waterfall method which will be employed in the development of the Kimathi Hostel Booking System. Additionally, it will expound on the methodology of study and the preliminary processing and analysis of data.

## 3.2. SYSTEM METHODOLOGY

### 3.2.1. DEFINITION

The Kimathi Hostel Booking System adhered to the waterfall method, a systematic approach comprising six distinct phases: Requirement Analysis, System Design, Implementation, Testing, Deployment, and Maintenance. In this methodology, each phase must be completed before progressing to the next, ensuring a sequential and thorough development process for the system.

### 3.2.2. PHASES

**Requirement Analysis**

In this initial phase, the specific needs and requirements of the Kimathi Hostel Booking System were carefully identified and documented. It involved understanding the functionalities and features essential for the system to meet the expectations and demands of users and stakeholders.

**System Design**

The second stage focused on creating a detailed system design based on the gathered requirements. It involved planning the architecture, components, modules, data structures, and interfaces of the Kimathi Hostel Booking System. This phase aimed to provide a comprehensive blueprint for the subsequent development process.

**Implementation**

Once the design was finalized, the actual coding and programming of the Kimathi Hostel Booking System took place. This phase transformed the design into a functional system, with us working to build the specified features and functionalities according to the established guidelines.

**Testing**

The developed system underwent thorough testing to identify and rectify any defects or issues. Testing in the Kimathi Hostel Booking System ensured that it met the specified requirements and functioned correctly. This phase aimed to deliver a reliable and error-free system to the users.

**Deployment**

With successful testing and approval, the Kimathi Hostel Booking System was deployed for actual use. This phase involved transferring the system from the development environment to the live environment, making it accessible to users. Deployment marked the official launch of the system for practical application.

**Maintenance**

The final phase involved ongoing maintenance and support for the Kimathi Hostel Booking System. It included addressing any issues that arose post-deployment, implementing updates, and ensuring the system's continued functionality. Maintenance aimed to enhance and optimize the system based on user feedback and evolving requirements.

### 3.2.3. ADVANTAGES AND DISADVANTAGES

**Advantages**

**Clear Structure**: The waterfall model provides a clear and sequential structure, making it easy to understand and follow. Each phase has specific deliverables, ensuring a systematic approach to development.

**Well-Defined Requirements**: Detailed requirement analysis at the beginning helps in establishing clear expectations and reduces the likelihood of misunderstandings later in the project.

**Stable Development Environment**: Since each phase must be completed before moving to the next, the development environment is relatively stable, minimizing the risk of constant changes that can disrupt the process.

**Documentation**: The emphasis on documentation throughout the process ensures that there is comprehensive documentation for each phase, aiding in understanding, maintenance, and future enhancements.

**Disadvantages**

**Inflexibility to Changes**: The sequential nature of the waterfall model makes it difficult to accommodate changes once the project is underway. Changes in requirements can be costly and time-consuming to implement.

**Late Visibility of the Product**: Stakeholders only see the product in the later stages of development, making it challenging to gather feedback early on. This can lead to misunderstandings or dissatisfaction if the end product does not meet expectations.

**Long Delivery time**: The rigid structure and the necessity to complete each phase before moving to the next can result in longer delivery times, especially for large and complex projects.

**Risk of uncertainty**: The waterfall model assumes that all requirements can be gathered and understood at the beginning, which may not be realistic in dynamic environments. This can lead to unforeseen challenges and risks.

### 3.2.4. DIAGRAMATIC REPRESENTATION

Figure 1.Waterfall method

## 3.3. RESEARCH DESIGN

The method employed for the research on the system is descriptive research, which aims to provide a comprehensive understanding of the current state of the university hostel booking system with a focus on user experiences. The study aims to identify the strengths, weaknesses, and areas for improvement in the system, ultimately providing insights that can inform enhancements to optimize user satisfaction and streamline the booking process.

**Research questions**

1. How can the on-campus housing application platform be designed to ensure user-friendliness for students?
2. What features and mechanisms can be implemented to provide real-time updates on the status of on-campus housing applications for students?
3. In what ways can the on-campus housing application platform be optimized to facilitate easy acceptance and rejection of applications by housekeepers?
4. How can the user-friendly platform be designed to streamline the room allocation process for matrons while ensuring fairness and efficiency?
5. What information and details should be included in the accommodation notifications to effectively communicate room allocations to the students who have been successfully assigned on-campus housing?

**Methodology**

**System Analysis**

Conduct a thorough analysis of the current university hostel booking system, identifying its features, functionalities, and any existing problems faced by the students and administration during the on-campus accommodation booking process. This will serve to give a better understanding of the systems current state.

**User Surveys**

Develop and distribute surveys to university students through online forms and questionnaires and staff to collect quantitative data on their experiences with the current hostel booking system. Focus areas include ease of use, satisfaction levels, and suggestions for improvement.

**Interviews with the target groups**

Conduct interviews with focus groups to gain more insight on their experiences and challenges with the current hostel booking system.

**Observational Studies**

Conduct observational studies to observe users interacting with the hostel booking system in real-time. This will provide valuable insights into user behavior, common challenges, and areas of confusion and where improvements are needed.

**Comparative Analysis**

Compare the university hostel booking system with similar systems in other institutions. This is to gain knowledge on what has been implemented and the enhancements that are required for a better user experience.

**Data Analysis**

Utilize both quantitative and qualitative data analysis techniques to interpret survey responses, interview transcripts, and observational findings. Identify patterns, trends, and key themes that emerge from the data.

**Recommendations**

Based on the findings, propose practical recommendations for improving the university hostel booking system. These recommendations may include interface redesign, feature enhancements, or process optimizations.

**Documentation and Reporting**

Compile the research findings into a comprehensive report that outlines the current state of the university hostel booking system, user experiences, and recommended improvements. The report will serve as a valuable resource for the university administration to enhance the hostel booking system.

## 3.4. LOCATION OF STUDY

We conducted our study in Nyeri, specifically focusing on Dedan Kimathi University of Technology due to its relevance to our research on universities. The university boasts a substantial population, comprising nearly 8000 students and 400 staff members.

## TARGET POPULATION

The target population for this study includes both students and members of the administration, encompassing both academic and non-academic staff. The hostel booking system is designed to allow students to reserve a room of their preference, while the administration is responsible for allocating the rooms to the students.

Given the university's substantial population, which consists of a large number of individuals who will be accessing the system, we have opted to use a sampling method to collect data.

## 3.5. SAMPLING AND SAMPLE PROCEDURES

### 3.5.1. Definition

Sampling is choosing a small part of a whole intended to show what the whole looks like. When conducting the study, we require a sample of the students and staff. We decided to use the probabilistic approach which is simple random sampling.

### 3.5.2. Sampling and sample procedures

In order to conduct simple random sampling, a subset of the total population was selected, where out of 8000 students, we randomly selected 1400 students and from 400 members of staff we randomly selected 70 members of staff members. Each member of the population had an equal chance of being chosen. Individual numbers were assigned to each student from 1 to 1400 and to each staff member from 1 to 70 using a random number generator. This random selection process was implemented to ensure a representative sample for the purpose of data collection.

We interviewed the members of staff in charge of hostel booking in the university to obtain more details on their payment process and record keeping methods. We collected data on the preferred features to apply in the new system and how it could best meet the needs of both the students and the administrative department.

Questionnaires were employed to gather responses from both students and the administration regarding their perspectives on the current system and its effectiveness. The questionnaires provided an opportunity for students and staff members to express their opinions on the suitability of the new system for their needs.

We used observation to gain insights on how the current system works. This involved observing how students submit their application forms and complete payment processes.

### 3.5.3. Determination of sample size

To determine the sample size of the population to be used for the study, a formula is used to calculate the sample size.

In simple random sampling, the formula is:

Sample size=population size\*probability/1-probability

Probability=15% or 0.15

Sample size of students = 8000\*0.15/1-0.15=1400

Sample size of members of staff = 400\*0.15/1-0.15=70

## 3.6. DATA COLLECTION INSTRUMENT

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses and evaluate outcomes.

### 3.6.1. QUESTIONAIRES

#### Definition

A questionnaire is a formulized set of questions designed to obtain information from a target group. The questionnaires are sent to the target group requesting the persons concerned to answer the questions.

#### Advantages

* Efficiency: Collect responses from many people at once, saving time and effort.
* Cost-Effectiveness: They are a cost-effective data collection method compared to interviews or focus groups.
* Anonymity Encourages Honest Responses: Respondents often feel more comfortable expressing their true opinions in questionnaires, especially when their anonymity is guaranteed.
* Longitudinal Studies: Questionnaires facilitate longitudinal studies, allowing researchers to track changes in attitudes, behaviors, and opinions over extended periods.

#### Disadvantages

* Limited Depth of Responses: Questionnaires frequently limit response options, hindering participants from fully expressing nuanced or complex opinions.
* Potential for Biased Responses: Respondents may provide biased data due to social desirability bias or question wording.
* Difficulty in Interpreting Open-Ended Questions: Analyzing open-ended questions can be time-consuming and subjective, requiring manual interpretation and categorization of responses.
* Data Security and Privacy Concerns: Online questionnaires may raise concerns about data security and privacy breaches, especially when collecting sensitive information. This is why you should always opt for safe and secure platforms that ensure data security.

#### Description

The form of questionnaire that will be used is the Google Forms. It allows one to create and analyze surveys right in your mobile or web browser—no special software required, hence is cheap. You get instant results as they come in. And, you can summarize survey results at a glance with charts and graphs.

### 3.6.2. OBSERVATION

#### Definition

Observation is the systematic viewing, coupled with consideration of seen phenomenon.

#### Advantages

* Accuracy - The researcher is there to observe the entire situation in person, data collected through this method is more accurate compared with the other methods.
* Easy to organize - It happens in a natural environment, so there is no need to “organize” anything. You don’t need to find participants or hire an office like in interviews.
* Flexibility - You can skip the scheduled observation and also can change your location and subjects any time you want. Considering there are a lot of people in certain places, you can change your approach and observe different demographics.

#### Disadvantages

* Time-consuming - It may take a while to get the desired result from it, especially if it is a non-participant observation. You are not able to control the situation or ask possible questions. You may need several observations to get any data from it.
* Consent - Before participant observation, researchers provide brief information about what they want to observe and make sure if the subjects are comfortable with it. You can’t do the same with non-participant observation. After it is finished, you need to ask people’s permission to include their activity in your research paper.
* Impossibility of observing everything – It is impossible to collect all the data concerning the field using this method of data collection.

#### Description

Data from the field is collected with the help of observation by the researcher in person. It increases the analyst’s familiarity with the working style of a sample group of people. It will be used to observe the time taken to undertake duties in the booking system.

### 3.6.3. INTERVIEW

#### Definition

Interviews involve oral-verbal communication where interviewer asks questions to the respondent through personal interviews. Data from interviews is recorded and stored for analysis.

#### Advantages

* Allows the researcher to obtain original and unique data directly from a source based on the study’s requirements
* Structured interviews can reach a large section of the target population
* Allows samples to be controlled
* Easy to carry out and obtain reliable results quickly

#### Disadvantages

* Navigating personal biases - Biases can differ from stereotypes because a bias is your opinion that may distract your judgement from the facts.
* Judging individuals too quickly - During an interview, judging individuals too quickly may become a challenge because you may decide to rule out the candidate within the first few minutes of the meeting. It is a challenge because you may unintentionally miss important information the candidate shares later in the interview.
* Creating stereotypes - Creating stereotypes can create several challenges during an interview. A stereotype is a generalized idea about a group of individuals.
* Experiencing uncertain outcomes - Interviews provide helpful insights into how a professional may act in the workplace, but it is not always true

#### Description

The recipients will be interviewed by our teams on the booking and the allocation process. Respondents to be interviewed include: the housekeeper, the matron and a sample of students.

### 3.6.4. INTERNET

#### Definition

The internet has created opportunities for online data collection. From the internet, one is able to examine the problems which have been solved previously through access to research done by other people.

#### Advantages

* Wider reach - The internet is used by a range of individuals with high levels of education and income, and access to the latest and relevant technologies that can help collect rich data
* Saves time – It helps save time when part of the problem has been solved and well documented.
* Free to use – One can access other people studies through the internet free of charge.
* Already compiled information – This means that you do not have to spend time searching for information or compiling it yourself.

#### Disadvantages

* Information is likely not to be what you needed – This is because the data collected from the secondary market may not reflect the current market conditions.
* Information may be outdated – With the advancement of technology, information may be end up being irrelevant to the current market conditions.
* Information can be easily manipulated – When conducting internet research, researchers can be easily misled by inaccurate information.

#### Description

We intend to use the internet to examine the problems related to hostel booking which have been solved previously through access to research done by other people. This is save on the time spent on fact finding since we hope to find solutions to previously solved problems.

## 3.7. DATA ANALYSIS

The findings were:

Have you ever applied for the universities internal hostels?

Figure 2.application chart

From the findings above, the number of students who have interacted with the manual system is more than those who have not interacted with it.

Are you happy with the current application process?

Figure 3.satisfaction level chart

Most students and administrators were not happy about the current application process. About 10.1% were happy about it bringing a contrast.

How do you rate the overall application process offered by the university?

Figure 4.Rating of overall application process

64.04% of the participants rated the application process as a poor process and suggested the development of a system that could ease the process.

**CONCLUSION**

From the above analysis, we have gained insights on the percentage of users who have engaged with the current application process. The suggested improvements would help in enhancing the overall functionality of the hostel booking system ensuring that it incorporates features that address the issues identified by the users.

## 3.8. TEST OF VALIDITY AND RELIABILITY

Conducting test validity and reliability involves testing of the data instruments and principles that can be used in evaluating the effectiveness of our hostel booking system.

## Kimathi hostel booking test of validity

1. Content validity

The Kimathi Hostel Booking System incorporates essential features and functionalities to facilitate an efficient booking process. It ensures that every feature and interaction within the system aligns seamlessly with the user's journey. A thorough examination of the system's components ensures comprehensive coverage of all booking aspects, including payment processing, room selection, and account management. The content validity assessment involves input from experts and users alike to affirm that the system not only meets technical specifications but also caters to the diverse needs and expectations of its user base.

2. Criterion-related validity

The Criterion-Related Validity of the Kimathi Hostel Booking System involves a thorough evaluation of its performance against specific criteria closely related to user satisfaction, booking accuracy, and system efficiency. For instance, measuring how accurately the system predicts user satisfaction and correlates with actual satisfaction levels provides valuable insights. By aligning with user expectations and systematically assessing these criteria, the Kimathi Hostel Booking System ensures that it not only meets the baseline requirements but also enhances the overall user experience.

3. Construct validity

The Construct Validity of the Kimathi Hostel Booking System explores whether the system truly measures what it claims to measure. In this case, we look at the relationship between the time it takes to complete a booking and the overall satisfaction of users. The fact that we consistently see a strong correlation between these two aspects suggests that the system is effectively capturing and representing the abstract concept of user satisfaction. This connection between the time it takes to use the system and the satisfaction of users reinforces the system's credibility and usefulness, showcasing its ability to truly enhance the user experience in a measurable way.

These validations collectively reinforce the Kimathi Hostel Booking System's robustness, ensuring that it not only meets technical specifications but also aligns closely with user expectations and consistently delivers a positive booking experience.

## Kimathi hostel booking system reliability

A test is seen as being reliable when it can be used by a number of different researchers under stable conditions, with consistent results and the results not varying. Reliability reflects consistency and reliability over time. Construct validity is not only of test interpretation but also of test use, in the sense that relevance and utility as well as appropriateness of test use depend, or should depend, on score meaning. The reliability can be done by administering the same booking scenario to a sample of users at different times allowing for the assessment of consistency in their experiences with the system. To ensure consistency, the booking process is divided into two phases: user authentication and hostel selection. This division aims to establish a high correlation in user satisfaction between these phases. Assessing the consistency of room availability information displayed to users ensures that the Kimathi Hostel Booking System provides accurate and consistent information across different users, contributing to its overall reliability.

**CONCLUSION**

In ensuring the validity and reliability of the Kimathi Hostel Booking System, conducting user testing sessions becomes very important. Observing real-time interactions and gathering direct feedback on the booking process allows us to identify specific areas for improvement. Additionally, seeking guidance from experts by presenting the data collection instruments to them adds another layer of assurance. This collaborative approach ensures a thorough assessment and refinement of the system, ultimately contributing to an enhanced and trustworthy user experience. Consequently, a balance has to be reached between reliability and validity.

## 3.8. ETHICAL CONSIDERATIONS

Ethical considerations ensures that there is transparency and the rights of the Kimathi hostel booking system users are protected as well as their credentials. The following ethical considerations are considered in the Kimathi hostel booking system:

1. Privacy and Data Protection:

The system will ensure that the personal details of the users is protected from unauthorized users by the use of passwords for accessing the system.

2. Informed Consent:

The system will ensure that users are informed about how their data will be used, and obtain their explicit consent before collecting any personal information.

3. Transparency:

Kimathi hostel booking system will provide a clear and easily understandable information about the booking process, including pricing, policies, and terms.

4. Accuracy of Information:

The system will provide accurate and up-to-date information about hostel availability, amenities, and pricing.

5. User Feedback Handling:

The system will establish a mechanism for users to provide feedback on their booking experience. It will address user concerns promptly and transparently and Use feedback to continuously improve the system and services.

6. Accessibility:

The booking system will be designed to be accessible to users with disabilities. It will allow all individuals, regardless of abilities, to use the system effectively.

The university approved the research conducted on its premises. We ensured voluntary participation where every member has the freedom to withdraw from the study without feeling obligated. The participants have full information about the nature and purpose of the research before they agreed to be part of the research.

## 3.9. APPENDIX

### vi. PERMISSION LETTER TO UNDERTAKE RESEARCH



Elizabeth Muthoni,

C026-01-0924/2022

B.Sc. Computer Science

0712785456

Dedan Kimathi University of Technology

School of Computer Science and IT

Kiganjo/Mathari, B5, Nyeri

1/24/2024

Dear Sir/Madam,

Re: Permission to conduct research at Dedan Kimathi University of Technology.

My name is Elizabeth Muthoni.

I am pursuing a bachelors’ degree in Computer Science in the Dedan Kimathi University of Technology. I am seeking permission to do research within the university.

I am conducting research on the hostel booking and application process for students seeking on-campus housing within the university. The reason for choosing the above mentioned university is to be able to fully understand the process and provide a sustainable solution that makes the lives of my fellow students easier.

The research will entail collecting data from students within the university who are seeking on-campus housing, students who were successfully allocated rooms within the campus hostels, the housekeeper and the matron. If they agree, they will be asked to answer questionnaires, be interviewed and focus group observation. The recipients will be required to set aside at least 10 minutes for the interview and fill in a questionnaire with will be provided by online means. Data collection will take place on the premises during work hours. The participant’s responses for the interview will be noted down by the interviewer.

Participants will be asked to give their written or verbal consent before the research begins. Their responses will be treated confidentially, and identities will be anonymous unless otherwise expressly indicated. Individual privacy will be maintained in all published and written data resulting from the study.

The research participants will not be advantaged or disadvantaged in any way. They will be reassured that they can withdraw their permission at any time during this project without any penalty. There are no foreseeable risks in participating in this study. The participants will not be paid for this study.

All research data will be preserved anonymously for reuse by other researchers.

I therefore request permission in writing to conduct my research at your organization. The permission letter should be on your organization’s headed paper, signed and dated, and specifically referring to myself by name and the title of my study.

Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Yours sincerely,

Elizabeth Muthoni

Julius Elizabeth Muthoni

0712785456

### vii. DATA COLLECTION INSTRUMENT

#### Questionnaire

We intend to administer the following questionnaire to a sample of students in DeKUT.

KIMATHI HOSTEL BOOKING SYSTEM

Please fill this questionnaire freely to be used for improving the application, booking and allocation processes of this university’s hostels. The answers will be treated with utmost confidentiality.

**Part I: Personal Information**

Gender: Male Female

Age: \_\_\_\_\_\_ years

**Part II: Hostel History**

Have you ever applied for the university’s internal hostels? \_\_\_\_

If yes, were you happy with the application process? \_\_\_

If no, which challenges did you experience when wanting to apply for the university’s accommodation facilities?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How do you rate the overall application process offered by the university?

Excellent Very Good Good Fair Poor

Briefly explain your rating, suggesting ways that can improve service provision.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Thank you for taking time to fill this questionnaire.*

### viii. LIST OF REFERENCES

<https://in.indeed.com/career-advice/interviewing/advantages-and-disadvantages-of-interviews>

<https://voicedocs.com/en/blog/observation-method-of-data-collection>

<https://surveysparrow.com/blog/questionnaires/#:~:text=Advantages%20of%20Questionnaires&text=Cost%2DEffectiveness%3A%20They%20are%20a,when%20their%20anonymity%20is%20guaranteed>

<https://blog.hubspot.com/service/questionnaire#questionnairetemplates>

### ix. THE PROPOSAL SCHEDULE

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ACTIVITY | FIRST WEEK | | | | | | | SECOND WEEK | | | | | | | THIRD WEEK | | | | | | |
| ACTIVITY | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Research |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Problem Definition |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Proposal writing and presentation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Requirement analysis and definition |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| System Design |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Software Coding |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Testing and Implementation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Project Documentation and Presentation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

### x. PROPOSAL BUDGET

|  |  |
| --- | --- |
| ITEM | COST(KSHs) |
| PC computer and printer | 30,000 |
| Network Connectivity; Modem, Router and Ethernet cables | 10,000 |
| ESET NODE32 Antivirus 4. | 1,500 |
| Users training | 3,500 |
| Other Expenses | 5,000 |
| TOTAL | 50,000 |

# CHAPTER 4:SYSTEM ANALYSIS AND DESIGN

## 4.1 Introduction

This chapter elucidates the requirements, gives a visual depiction of the functionalities, and illustrates the anticipated designs of the user interface for the Kimathi Hostel Booking System.

## 4.2 REQUIREMENT ANALYSIS

### 4.2.1 Functional requirements

* User Registration and Application Submission: Students will be able to create accounts on the platform and submit their applications.
* Real-time Application Status Updates: The system will provide real-time updates to applicants on the status of their on-campus housing applications.
* Housekeeper Application Review: The housekeeper will be able to review and manage incoming house applications.
* Accommodation Details for Students: Successfully allocated students will have access to detailed accommodation information.

### 4.2.2 Non-functional requirements

* Usability: The platform will have an intuitive and user-friendly interface to ensure ease of use for both students and staff members.
* Performance: The system will be capable of handling a large number of simultaneous users without significant degradation in performance.
* Security: The system should implement robust security measures to protect user data and maintain the confidentiality of application details.
* Reliability: The platform should have a high level of reliability, ensuring minimal downtime for maintenance or unexpected issues.