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*(Implementing ISO 9001:2015)*

**FACULTY OF COMPUTING & INFORMATION TECHNOLOGY  
FRESH SPICE RONGAI HOTEL RESERVATION SYSTEM**

**BY**

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## **DECLARATION**

I hereby declare that this project proposal is my own work and has, to the best of my knowledge, not been submitted to any other institution of higher.

Student: \_\_\_\_\_ Registration Number: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

This project proposal has been submitted as a partial fulfillment of requirements for the Bachelor of Computer Science of Multimedia University of Kenya with my approval as the University Supervisor.

Supervisor: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **DEDICATION**

I dedicate my project work to my family and many friends. A special feeling of gratitude to my loving guardians, Dominic and Gaudencia Okeyo whose words of encouragement and push for tenacity ring in my ears. My siblings Joyce, Brigit, Mark, Arthur, David, Lizzy, Dan and George have never left my side and are very special. I also dedicate this work to my many friends and church family who have supported me throughout the process. I will always appreciate all they have done, especially Maurice Bosire for helping me develop my technology skills and for the many hours of proofreading. I dedicate this work and give special thanks to my project supervisor Mr. Peter Muturi for being there for me throughout the entire study. You have been my best cheerleader.

## **ACKNOWLEDGEMENT**

I sincerely appreciate my Lecturer MR. PETER MUTURI who sacrificed his time to guide and mentor me to be a critical thinker and solve concrete problems in the society, as a computer science student. He provided a conducive environment for open discussions and this not only improved my communication skills but also made me view problems from various perspectives.

This proposal would not have been successful without the cooperation and support of my aunt Gaudencia Okeyo, friends and other family members who encouraged me never to give up, who funded me in performing my research, and who have promised to always offer support until the end of project execution.

## **LIST OF ABBREVIATIONS**

**ASD** – Agile Software Development

**ERD** – Entity Relational Diagram

**FK** – Foreign Key

**HTI** - Human Technology Interaction

**PK** – Primary Key

**WCAG 2.1 AA** – Web Compatibility Accessibility Guidelines AA

## Table of Contents

<b>DECLARATION.....</b>	<b>II</b>
<b>DEDICATION .....</b>	<b>III</b>
<b>ACKNOWLEDGEMENT .....</b>	<b>IV</b>
<b>ABSTRACT .....</b>	<b>IX</b>
<b>CHAPTER 1 .....</b>	<b>1</b>
<b>1 INTRODUCTION .....</b>	<b>1</b>
1.1 BACKGROUND STUDY .....	1
1.2 PROBLEM STATEMENT .....	1
1.3 PROPOSED SOLUTION .....	2
1.4 AIM OF THE STUDY.....	2
1.5 RESEARCH OBJECTIVES .....	2
1.6 PROJECT LIMITATION .....	2
<b>CHAPTER 2:.....</b>	<b>4</b>
<b>LITERATURE REVIEW.....</b>	<b>4</b>
1.7 COMPARISON BETWEEN EXISTING SYSTEMS.....	5
1.7.1 <i>Reservation System for Hotel Intercontinental.....</i>	<i>5</i>
1.7.2 <i>Reservation System for Sarova Groups Of Hotel .....</i>	<i>5</i>
<b>CHAPTER 3:.....</b>	<b>7</b>
<b>METHODOLOGY .....</b>	<b>7</b>
1.8 AGILE SOFTWARE DEVELOPMENT (ASD).....	7
1.8.1 <i>Justification of Agile Methodology.....</i>	<i>7</i>
1.8.2 <i>Limitations of Agile Methodology.....</i>	<i>7</i>
1.9 DATA COLLECTION.....	7
1.9.1 <i>Observation on the customers and company .....</i>	<i>7</i>
<b>CHAPTER 4:.....</b>	<b>9</b>
<b>SYSTEM ANALYSIS .....</b>	<b>9</b>
1.10 FUNCTIONAL REQUIREMENTS .....	9
1.11 NON-FUNCTIONAL REQUIREMENTS .....	10
<b>CHAPTER 5:.....</b>	<b>11</b>
<b>SYSTEM DESIGN.....</b>	<b>11</b>
1.12 USE CASE DIAGRAM.....	11
1.13 SEQUENCE DIAGRAM .....	13
1.14 WEBPAGE SITEMAP .....	14
1.15 MOCKUP.....	15
1.16 SYSTEM DEPLOYMENT DIAGRAM.....	21
1.17 ENTITY RELATIONAL DIAGRAM .....	22
1.18 5.9 DATABASE DESIGN .....	24
<b>CHAPTER 6:.....</b>	<b>26</b>
<b>IMPLEMENTATION AND TESTING.....</b>	<b>26</b>
1.19 FUNCTIONAL TESTING .....	26
1.20 USABILITY TESTING.....	26
1.21 WEBSITE EVALUATION.....	28
1.22 METHOD OF EVALUATION .....	28
1.22.1 <i>Usability testing/ User testing.....</i>	<i>28</i>
1.22.1 <i>Procedure .....</i>	<i>29</i>

1.22.2	<i>Usability Inspection Methods</i> .....	29
1.22.3	<i>Procedure</i> .....	29
1.23	RESULTS .....	30
1.23.1	<i>Usability Testing Result</i> .....	30
1.23.2	.....	32
1.23.3	.....	32
1.23.4	.....	32
	.....	32
1.23.5	<i>Usability Inspection Result</i> .....	32
1.24	IMPLEMENTATION FOR REDESIGNING.....	33
<b>CONCLUSION</b> .....		<b>34</b>
<b>REFERENCE</b> .....		<b>35</b>
<b>APPENDIX</b> .....		<b>36</b>
1.25	PROJECT SCHEDULE .....	36
1.26	PROJECT SCHEDULE .....	37

## Table of Figures

FIGURE 1: COMPARISON BETWEEN TWO ONLINE RESERVATION SYSTEMS .....	6
FIGURE 2: FRESH SPICE RONGAI CONFERENCE HOTEL USECASE DIAGRAM .....	12
FIGURE 3: MAKE A RESERVATION USECASE DESCRIPTION.....	13
FIGURE 4: LOGIN USECASE DESCRIPTION .....	13
FIGURE 5: FRESH SPICE RONGAI HOTEL SEQUENCE DIAGRAM .....	14
FIGURE 7: FRESH SPICE RONGAI HOTEL WEBSITE SITEMAP.....	15
FIGURE 8: HOMEPAGE PROTOTYPE 1.....	16
FIGURE 9: ACCOMMODATION PAGE PROTOTYPE 2 .....	17
FIGURE 11: SERVICE PAGE PROTOTYPE 4 .....	18
FIGURE 14: MAKE RESERVATION PAGE PROTOTYPE 7.....	19
FIGURE 15: LOGIN PAGE PROTOTYPE 8.....	20
FIGURE 16: SIGN UP PAGE PROTOTYPE 9.....	21
FIGURE 17: DEPLOYMENT DIAGRAM .....	22
FIGURE 18: FRESH SPICE RONGAI HOTEL ENTITY RELATION DIAGRAM .....	23
FIGURE 19: FRESH SPICE RONGAI ENTITY RELATIONAL DIAGRAM.....	23
FIGURE 20: DATABASE DESIGN TABLE 1 .....	24
FIGURE 21: DATABASE DESIGN TABLE 2 .....	24
FIGURE 22: DATABASE DESIGN TABLE .....	24
FIGURE 23: DATABASE DESIGN TABLE 4.....	25
FIGURE 24: SYSTEM EVALUATION PROCESS .....	26
FIGURE 25: QUESTIONNAIRE RESPONSE 1 .....	30
FIGURE 26: QUESTIONNAIRE RESPONSE 2.....	30
FIGURE 27: QUESTION RESPONSE 3 .....	31
FIGURE 28: QUESTIONNAIRE RESPONSE 4.....	31
FIGURE 29: QUESTIONNAIRE RESPONSE 5.....	32
FIGURE 30: INDIVIDUAL QUESTIONNAIRE RESPONSES .....	32



## **Abstract**

This project presents a framework of hotel online reservation system, it discussed about different scholar's perspective of online reservation system, the aim of this project to develop an online booking system for customers to make reservation at their convenient time because currently, Fresh Spice Rongai Hotel uses a manual based system to keep record of customer's reservation and make new bookings. This project discussed the tool and technology used in developing the proposed system (the system has a front end by using html, Css, JavaScript to display the content structure and a back end of database using MySQL and PHP). Two online reservation systems were compared to identify their similarities and differences. A number of development methodologies were discussed and why one of the methodologies was chosen for this project. Methods used to gather the requirement specification was also discussed and how the researcher will use this as a guideline in developing the proposed system. Unified Modelling Language Diagrams were created describing each system. Demonstration of different webpages available on the website was discussed and then an evaluation was conducting using two methods to evaluate the website.

# Chapter 1

## 1 INTRODUCTION

### 1.1 Background Study

Information systems are now part of individual's daily activities. It has increase the efficiency and decreased the time for process. With the help of an online booking, system companies like hotels are now able to connect with both existing and prospective customers online. This is the fastest and efficient way to interact with customers compare to manual hotel reservation. Fresh Spice Rongai conference hotel currently uses a manual booking system to keep record of customer's information, make reservation and store these reservations in a manual file.

According to research by Statista, "E-Commerce has grown up to 300% within the last few years and is expected to make 17.5% of global retail sales by the end of 2021". No doubt, we are living in the era of digitalization, where being online is essential. The importance of online business is extremely high for the success of a business. There has been a high surge in the number of internet users within the past twenty years. The boundless world of the internet has made it possible for businesses to sell their services across the globe and there are numerous benefits of having an online business. The main advantage of having an online business is to increase brand awareness and customer engagement. This system is currently facing limitation such as data repetition, time wastage and data isolation, which can also be prone to errors because once the old file, is full, the hotel management creates a new file and store recently made reservation by customers. To address this issue, a proposed solution will be implemented were an online reservation system will be developed and deployed to customers to make their reservation at a convenient time and place and the reservation will immediately be confirmed by the hotel.

### 1.2 Problem statement

Fresh Spice Rongai Hotel manual system is currently facing limitation such as data repetition, time wastage and data isolation, which can also be prone to errors because once the old file, is full, the hotel management creates a new file and store recently made reservation by customers.

### **1.3 Proposed solution**

My proposed solution is an implementation of an online reservation system, which will be developed and deployed to customers to make their reservation at a convenient time and place, and the reservation will immediately be confirmed by the hotel.

### **1.4 Aim of the study**

The aim of this study is to develop a system for Fresh Spice Rongai Hotel customers make a successful reservation online and immediately get reservation confirmation about their booking. This system will be design in an appropriate and flexible way that will test and validate any input provided by customers earlier. A database will be created to record each customer details and any transaction. It will also bring convenience to the users by saving their time and effort.

In this project, the system develop will be used to capture data and manage all reservation process, it will display room availability, store confirmed booking in the database, customers can leave a feedback which is stored in a table in the database, a contact us form is available for customers to make any enquiry or complains.

### **1.5 Research objectives**

- i. Implement validation to improve quality of leads captured in the forms by 10% in the first month.
- ii. Build the website to meet WCAG 2.1 AA standards, that will be thoroughly tested the criteria and deployed to production by December 2021.
- iii. Reduce the number of clicks it takes for a user to reach the highest traffic page from any page to less than two clicks by end of our design phase September 2021.

### **1.6 Project limitation**

For the project limitations, though the system will accept transactions, the payment methods will not be available in other countries apart from Kenya due delivery issues and other governmental regulations.

In this report, a discussion on past literature studies related to this topic is discussed in Chapter 2 and how different authors have explored on the topic. It also discussed how the internet is used by hotels to reach to their customers easily. Chapter 3 will be discussing on the different type of development methodology and also discuss why the selected methodology for this project was chosen. In chapter 4 of this report, function and non-function requirements gathered earlier will be discussed and how these requirements will be used as a guideline for the system development. Chapter 5 will discuss about the system analysis and design created to show an overview of what the proposed system will look like. In Chapter 6, series of testing used to test the system will be discussed and how it will be tested. Chapter 7 will be discussing and demonstrating about different types of webpages on the proposed system and how users can use these pages. In chapter 8, the type of evaluation conducted will be discussed, how it was carried out with participants.

## **Chapter 2:**

### **Literature Review**

The internet is widely used by many organization, institution and even for personal use today, it has become a major trend because of the way it provides free information exchange daily (Palmer, 1999). Over 400,000 networks in the world today are communicating with each other (Rivers & Judd, 2001). The internet is also used to gather information regarding a place such as hotel and even make reservation with that hotel online.

Online reservations are becoming a very popular method for booking rooms in a hotel that operates online. This is the fastest way to contact and communicate with a hotel (James, 2008). Ivanovo Mathew (2008) defined Online booking “as a tool to store, publish and update the dynamic data availability and prices and additionally provide the users with a regular reservation process”. Hotel reservation systems are an easy prearrangement for guests to reserve a room or rooms directly via the internet once availability is confirmed. This is a brilliant and efficient system yet is easy to use compare to similar system software’s (Rivers, 2001). The online booking systems grants both existing and prospective guest complete authority and power on the hotel booking via the internet. This means that guest can have any special request, make payment and get confirmed about their bookings within a short period of time. (Wagner, 2001). Customers want an easy and simple way to connect to a hotel for either enquiry or make a reservation. To do this, an online booking is is needed (James, 2010).

Many hotels usually use different online distribution channels in order to be more present online and to attract many potential customers to their hotel but the most profitable way to attract clients is for a hotel to have their own website. (Static Brain, 2012). When a hotel develops their own website, it can be used to promote their products and services, attract more customers and also offer them the opportunity to book a room directly on the website without other online channels. This way, hotels do not have to pay online agencies any commission or other third parties because there will be an accuracy in providing what the client online wants compare to these agencies (Matei, 2013). “Finding new ways to encourage clients to reserve rooms directly on the hotel website should become a major strategic objective for hotels” (Matei, 2013). Many customers believe when a company operates online they feel more connected or safe with the company because it is the easy and fastest way of communication

between the customers and the hotel or any company that operates online. Online booking systems supports most of the phases of making a reservation and customers can directly make a secured payment to confirm their reservation (Landvogt, 2004).

## **1.7 Comparison between existing Systems**

A comparison of two hotel that operates the same with the proposed system (Online reservation system) for Fresh Spice Rongai Conference hotel was done to identify the differences and similarities of the hotel's website. The two hotels chosen are **Hotel Intercontinental, Kenya and Sarova Groups of Hotel Nairobi, Kenya.**

### **1.7.1 Reservation System for Hotel Intercontinental**

Hotel Intercontinental official website provides information on the website and online reservation systems. Customers or visitor can get most information on the website such as hotel location, room description, room rates, contact information, photo gallery, promotions and other facilities and activities available at the hotel. There is an online form for guests who want to make a reservation in the hotel and guest may fill in another form for any special request for the reservation.

The structure of the website is well organized and easy for visitors to navigate through. Sufficient information has been provided on the website and are up-to-date. The website is a good example for hotels online booking as it provides correct information on the hotel.

### **1.7.2 Reservation System for Sarova Groups Of Hotel**

Sarova Groups of Hotel Nairobi, Kenya is a well-known hotel for its services and entertainments in Kenya. Its websites aim to provide customers with accurate information regarding the hotel as well as their online reservation system. Visitors can get most information on the website such as hotel location, room description, room rates, promotions and photo gallery. The website also has a **virtual tour**, which consists of the tennis court, lobby, restaurants, bars and recreational areas. The reservation process requires guest to fill an online form in order to make a reservation, and reservation is guaranteed by providing credit cards details. The system layout is user friendly for customers and can browse and get information easily.

<b>Hotel Intercontinental Hotel</b>	<b>Sarova Groups Of Hotel</b>
Has a descriptive image gallery	Has a virtual tour of the hotel

**Figure 1: Comparison between two online reservation systems**

### **Similarities of Both Website**

- Both website provides useful functions such as hotel address, reservation form.
- The website homage has less information but more images of the hotels
- Both websites are easy to navigate through
- Easy to interact with.

## **Chapter 3:**

### **METHODOLOGY**

#### **1.8 Agile Software Development (ASD)**

Agile development is a conceptual framework mostly applied in software engineering projects. This type of methodology minimizes risk by developing software in short time boxes; this is known as **iteration**, which normally last from one to four weeks. There are a number of ASD methodologies: Dynamic System Development Model, Crystal Methods and Scrum.

##### **1.8.1 Justification of Agile Methodology**

- Its saves time and money in the development and deployment.
- Quickly identifies any mismatch and improve quality by finding and fixing defects at early stage.
- Allows for direct communication to maintain transparency
- Changes or new enhancements can be implemented during the development phase.

##### **1.8.2 Limitations of Agile Methodology**

- Difficult to determine effort estimation at the early stage of software development, this is mostly in bigger and complex projects.
- The methodology pays less importance in designing and documentation
- High chances of getting off-track if requirements are unclear
- Only senior programmers are able of making and taking any decision required during the development process.

#### **1.9 Data collection**

##### **1.9.1 Observation on the customers and company**

An observation was carried out at Fresh Spice Rongai Hotel, Rongai to see how guests make reservation and check-in. Firstly, to make a reservation guests will have to come to the hotel in person and then complete the booking form. After this, guests then proceed to finance department for payment and payment invoice is provided. When a guest is checking in, the invoice is used as a reference to retrieve the customer's reservation and then a room is given to the guest. Retrieving customer details is done manually. This usually takes fifteen to twenty



minutes on each customer. Some customers get upset and find it inconvenient to stay at the hotel.

The Hotel manager was interviewed to know how the hotel handles any issue or complains from the any guest and then discussed how the proposed system will convenient for customers to make reservation/booking at any time. From the interview, the hotel manager was able to provide few requirements needed for the website and a survey was carried out in the hotel with few guests who were willing to fill the questionnaires.

## **Chapter 4:**

### **SYSTEM ANALYSIS**

A requirement is a 'statement regarding an intended product that specifies what it should do or how it should perform'. (Rogers. 2011.). the two types of requirements are:

#### **1.10 Functional Requirements**

A functional requirement is a function of a system and its components. It describes a set of input, the behavior and output. The functional requirements for this project are:

##### **For customer reservation /Booking**

- **RQ1**, the system should allow customers to reserve room.
- **RQ2**, the system should record customer personal details (for example, first name, last name, passport no).
- **RQ3**, The system should display room type availability
- **RQ4**, the system should record the room type and numbers of occupants.
- **RQ5**, The system should display the room rate by default
- **RQ6**, the system should allow customers modify any information provided earlier.
- **RQ7**, The system should record expected check-in and check-out dates and time
- **RQ8**, The system should generate a unique customer confirmation number
- **RQ9**, The system should record any form of payment
- **Rq10**, The system should display any amount owned by customers
- **RQ11**, The system should allow space for customer feedback

##### **For Managements**

- **RQ1**, The system allow manager view feedback/review comments
- **RQ2**, the system should display a specific period of guest occupancy.
- **RQ3**, The system should allow manager to login and logout from the system
- **RQ4**, the system should display any overridden prices of food and rooms.
- **RQ5**, The system should allow duty manager generate daily reservation report

##### **System Administrator**

- **RQ1**, The system should allow the system administrator to add or delete room

- **RQ2**, The system should allow the system administrator to login and logout from the system
- **QR3**, the system should allow the system administrator to update hotel information.

### 1.11 Non-Functional Requirements

A non-functional requirement specifies the properties of the information system itself. Some of the non-functional requirements for this project are:

**Security:** Manager and customer representative on duty will be able to log into the system (Hotel management system) and have access to the reservation/booking system but a user login screen that requires a username and password will protect access to the various subsystems.

**Availability:** The system will be available during normal hotel operating hours

**Reliability:** the performance of the system is consistent according to its specifications

**Speed:**

- The system should respond to users request within 2-3 seconds
- The system must retrieve information

**Usability:** The system gives direct input on how real users use the system.

**Portability:** The system supports every operating system

**Efficiency:** The system provides appropriate output based on the list of inputs

## Chapter 5:

### System Design

#### 1.12 Use Case Diagram

A use case diagram is an interaction between an information system and users of the system (Actors) that enables the users achieve a goal. A Use Case Diagram shows what activities every actor conducts in the system. The most important elements in UCD are actors and use cases.

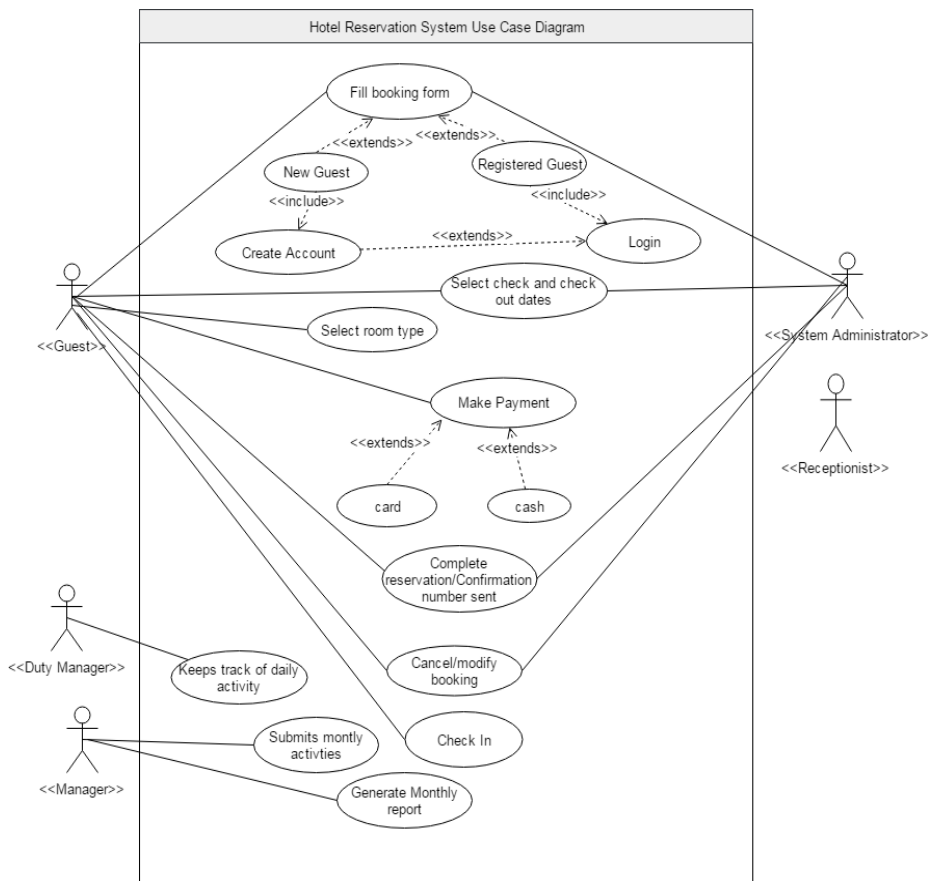
##### Basic Model Element

**Actor:** An actor represents a role (someone) that directly interacts or uses the system.

**Association:** An association describes the relationship between an actor and a business use case in the use case diagram.

**Use Case:** A use case is a functionality of how the system works; it describes the interaction between an actor and the system.

Below is the use case diagram for this project Hotel Reservation System.



**Figure 2: Fresh Spice Rongai Conference Hotel Use case Diagram**

## Use Case Description

A use case was chosen and described in details to identify it functionality and how the actor related to that use case interact within the system.

## Assumptions

The assumption made in the use case above is the two actors (duty manager and manager). These actors were assumed part of the use case diagram because the keep track of every operation and activity in the hotel and are responsible for guest who might have complains or enquiry regarding their reservation.

The use case utilized below is “Make a reservation” use case. This describes how an actor uses a use case to interact with the system.

<b>Use case name</b>	<b>Make a Reservation</b>
<b>Actor</b>	<b>Customer, Receptionist</b>
<b>User Action</b>	<b>System Response</b>
1. Search for rooms availability using the check in and check out option	2. Display room availability and rates per night
3. Select room type and make payment	4. Confirms payment and send confirmation number
5. Modifies and booking with booking number	6. Update booking details and display new booking details

**Figure 3: Make a Reservation use case Description**

<b>Use case name</b>	Login	
<b>Actor</b>	Customer, Receptionist, System Administrator, Manager	
<b>Description</b>	The above users enter an authorized username and password to access the system.	
<b>Basic Action</b>	<b>User Action</b>	<b>System Response</b>
	1. User opens login page	2. Displays login form for users to fill(this accepts username and password)
	3. Users enter login details and clicks login	4. The system searches the login details from the database and matches it with the password
	5. End use case	6. If login details is correct the system display the next page else, displays invalid login details

**Figure 4: Login Use case Description**

### 1.13 Sequence Diagram

A sequence diagram is the interaction between objects in a sequential order that those interactions occur. (Bell. 2004). in sequence diagram, each role is shown as lifeline and

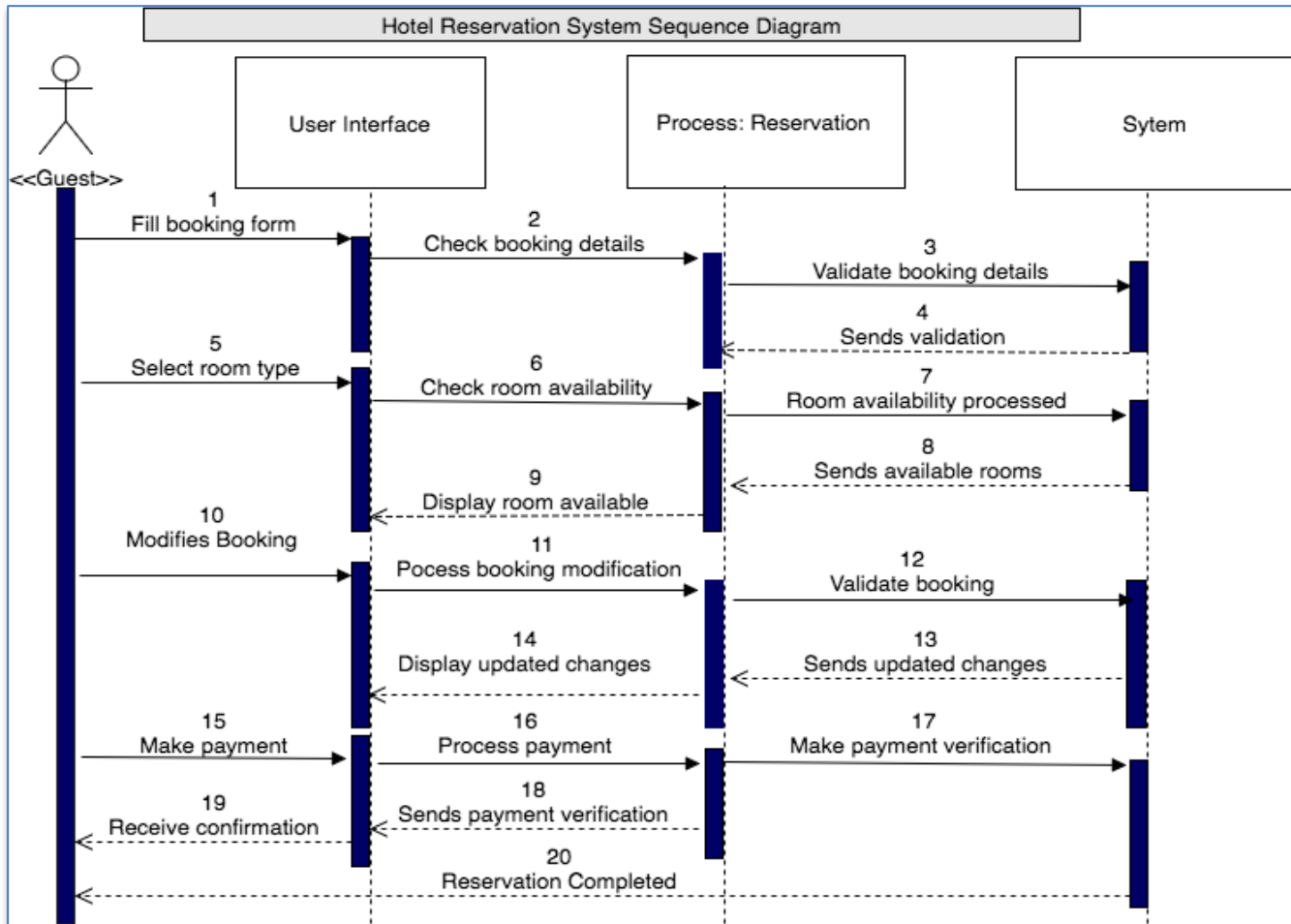
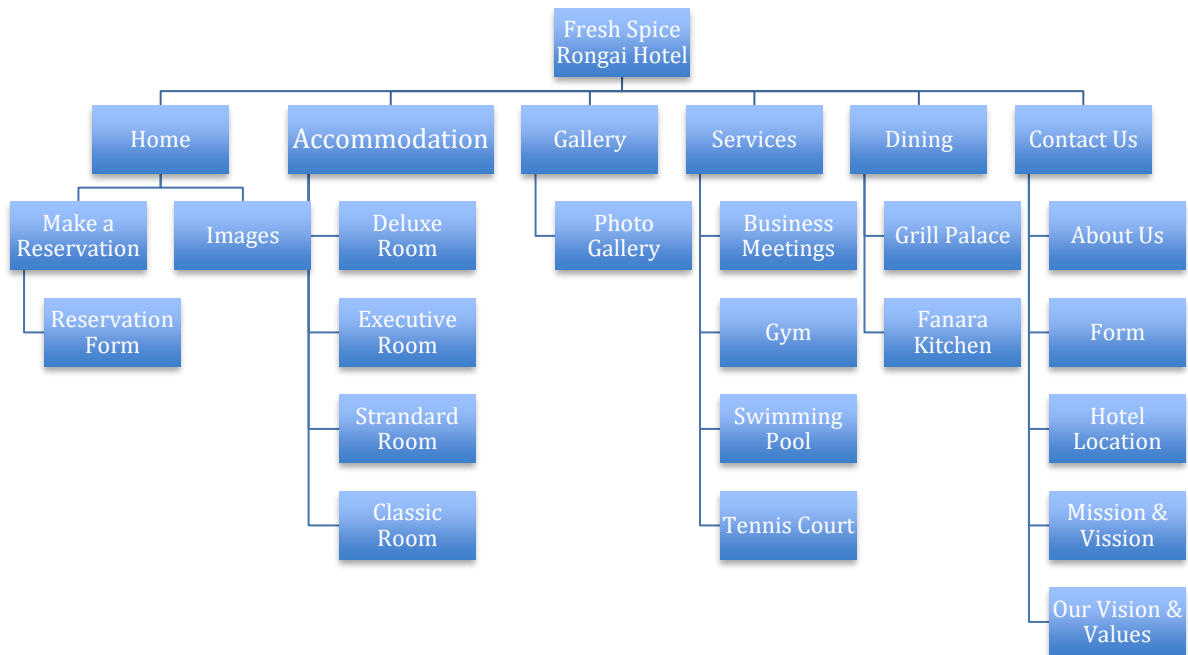


Figure 5: Fresh Spice Rongai Hotel Sequence Diagram

messages are shown as arrows between lifelines. Below is the sequence diagram of this project Hotel reservation system.

#### 1.14 Webpage Sitemap

A site map is a visual or textually organized model of a website content designed to help users and search engine to navigate through a site to find information available in the sites. (Buytaert. 2016). Below is a hierarchical representation of this project site map of Fresh Spice Rongai hotel website with a booking system.



**Figure 6: Fresh Spice Rongai Hotel Website Sitemap**

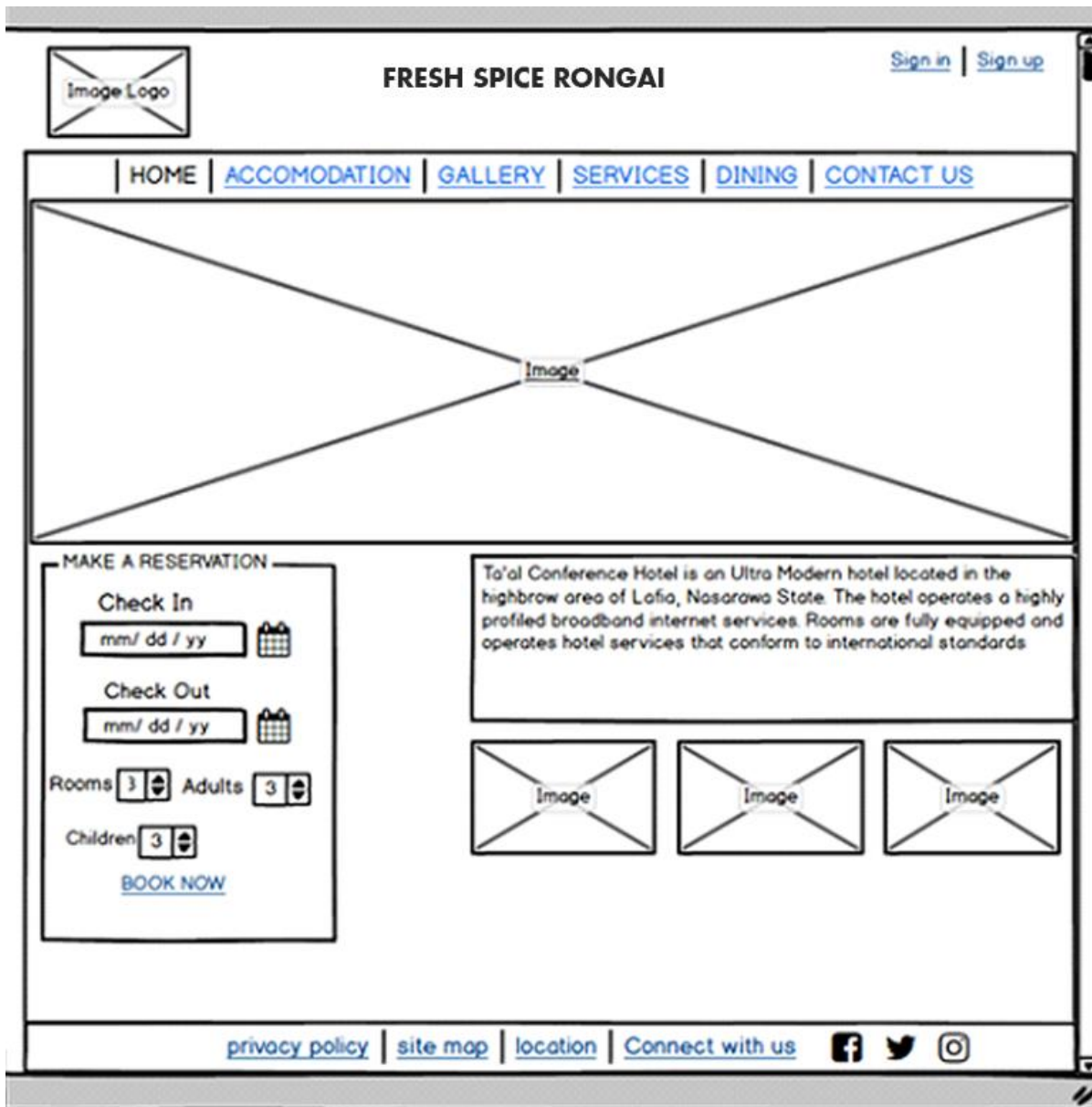
### 1.15 Mockup

Balsamic was used in this project to show the different layers of the proposed system and different page content the main website will have. Balsamic is a wire framing tool use for sketching mockups such as a website or an app. This tool helps in producing faster and smarter sketches

### HOMEPAGE

This page is also the main page on the website. It consists of the navigation bar through all pages on the website, images, sign in and sign up, and the booking section to check for availability and make reservation.

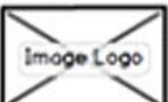




*Figure 7: Homepage prototype 1*

## ACCOMMODATION

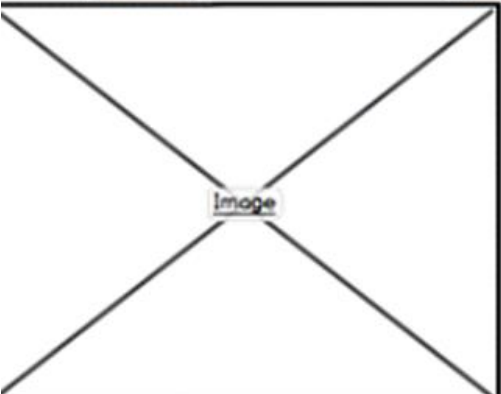
In this page on the website, different types of rooms and suite available in the hotel are displayed here with descriptive explanation of every suite. This page helps customers or guest have an idea of the type of room/suite they want for reservation.

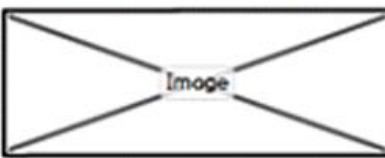


**FRESH SPICE RONGAI**

[Sign in](#) | [Sign up](#)

[HOME](#) | [ACCOMODATION](#) | [GALLERY](#) | [SERVICES](#) | [DINING](#) | [CONTACT US](#)







..... Conference Hotel is an Ultra Modern hotel located in the highbrow area of Lafia, Nasarawa State. The





**MAKE A RESERVATION**



Check In  



Check Out  





Rooms    Adults   


Children   

[BOOK NOW](#)

**Accommodation Types**

**Executive Room**  
Our executive room feature a King size bed and a kitchenette, a safety deposit box, a hairdryer, a mini bar and a working desk.


**Deluxe Room**  
are all tastefully decorated and provided with every modern amenity for your comfort and relaxation.


**Standard Room**  
oring comes easily to those of us who are privileged to cater to you at Standard room




**Classic Room**  
has newly renovated rooms to provide comfort and convenience when you stay with us. Guests can enjoy internet access


Figure 8: Accommodation page prototype 2

## SERVICES


In this page, the website shows all services provided by the hotel, which include laundry, business meetings, events (such as weddings, birthdays and party), the gym and the swimming pool area.



FRESH SPICE RONGAI


[Sign in](#) | [Sign up](#)

[HOME](#) | [ACCOMODATION](#) | [GALLERY](#) | [SERVICES](#) | [DINING](#) | [CONTACT US](#)




MAKE A RESERVATION

Check In

mm/ dd / yy 

Check Out

mm/ dd / yy 

Rooms

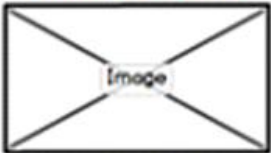
Adults

Children

[BOOK NOW](#)

Our Services


Bussiness Services



Business Centre is located in the lobby of the main hotel building right next to the bookshop. Our facilities include faxing, photocopying and scanning


The Gym

Stay in shape at Ta'al Hotel as you enjoy our ultra-modern gym equipped with the best of cardiovascular fitness facilities.



Swimming Pool

The new pool is designed to cool your mind and provide you with a relaxing time. The pool area is also available for your choice



[privacy policy](#) | [site map](#) | [location](#) | [Connect with us](#)








Figure 9: Service page prototype 4

## MAKING RESERVATION

On this page, customer who will like to stay at the hotel can make their reservation here by providing their name, email, contact, address, check in and check out dates with the number

Page | 18

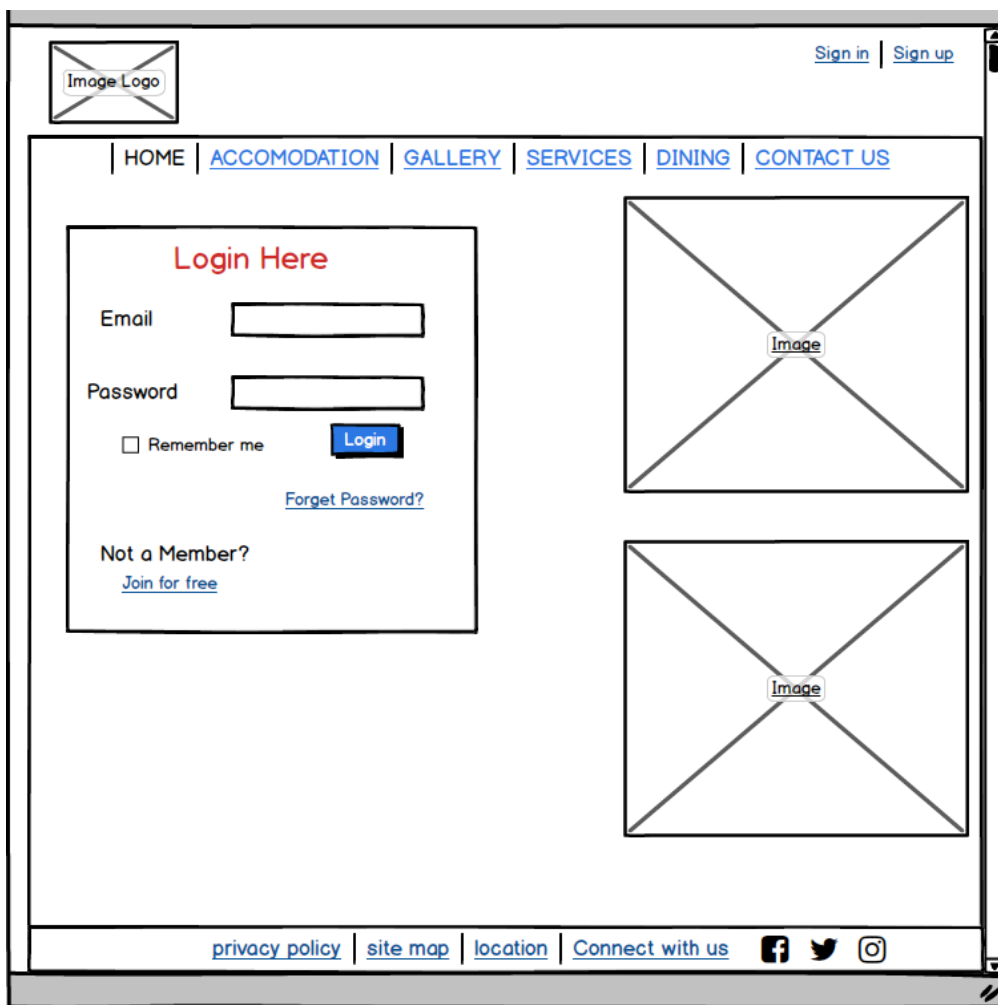
of rooms, adults and children expected. After filling the booking form customers are then asked to process to payment using the credit or debit master card.

The image shows a wireframe for a reservation page. At the top, there's a header with a logo placeholder, the text 'FRESH SPICE RONGAI', and links for 'Sign in' and 'Sign up'. Below the header is a navigation bar with links: 'HOME', 'ACCOMODATION', 'GALLERY', 'SERVICES', 'DINING', and 'CONTACT US'. The main content area is divided into two columns. The left column contains a reservation form with the following fields: 'First Name', 'Last Name', 'Email', 'Phone Number', 'Address', 'Check In' (with a date format 'mm/ dd / yy' and a calendar icon), 'Check Out' (with a date format 'mm/ dd / yy' and a calendar icon), 'Rooms' (with a value of 3 and a dropdown arrow), 'Adults' (with a value of 3 and a dropdown arrow), and 'Children' (with a value of 3 and a dropdown arrow). Below these fields is a blue button labeled 'Proceed to payment'. The right column contains a large placeholder for an image, labeled 'Image'. At the bottom of the page is a footer with links for 'privacy policy', 'site map', 'location', and 'Connect with us', followed by social media icons for Facebook, Twitter, and Instagram.

*Figure 10: Make Reservation page prototype 7*

## LOGIN

This is the login page; guests are required to log into this page before they can comment or give feedback regarding their stay in the hotel. The page also shows images of upcoming events such as concerts in the hotel. This page also keeps track of guest's visits.

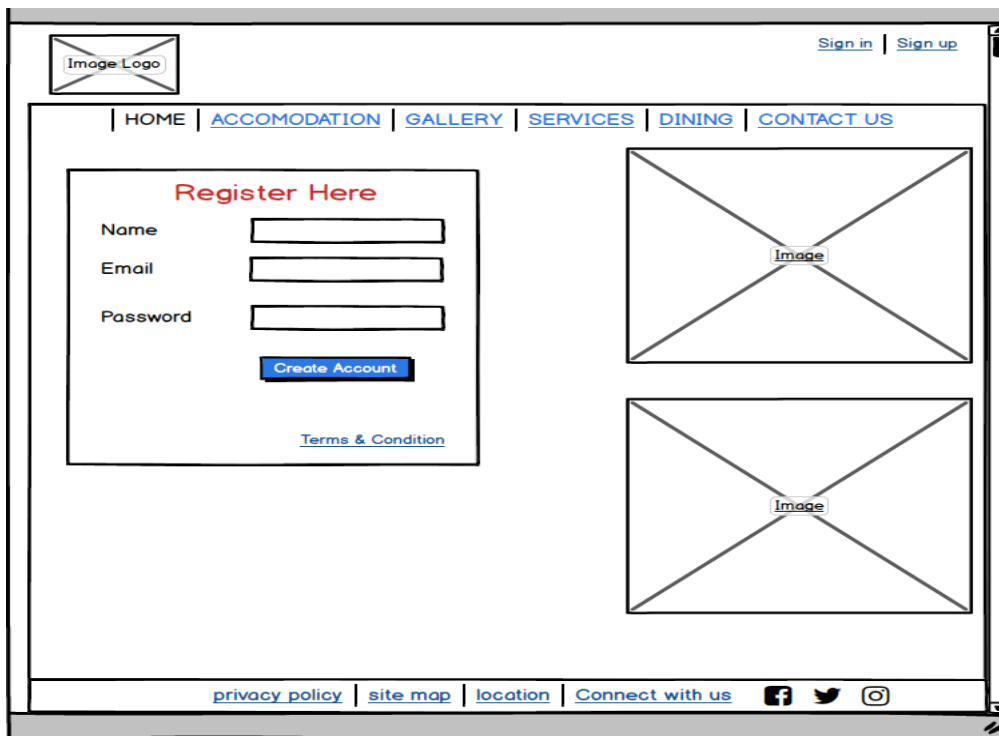


The image shows a wireframe of a login page. At the top left is a placeholder for a logo labeled 'Image Logo'. At the top right are links for 'Sign in' and 'Sign up'. Below this is a horizontal navigation bar with links: 'HOME', 'ACCOMODATION', 'GALLERY', 'SERVICES', 'DINING', and 'CONTACT US'. The main content area is divided into two columns. The left column contains a 'Login Here' section with a red title, an 'Email' input field, a 'Password' input field, a 'Remember me' checkbox, a blue 'Login' button, a 'Forgot Password?' link, and a 'Not a Member?' section with a 'Join for free' link. The right column contains two large square placeholders, each with an 'X' across it and a small 'Image' label in the center. At the bottom is a footer with links for 'privacy policy', 'site map', 'location', and 'Connect with us', followed by social media icons for Facebook, Twitter, and Instagram.

*Figure 11: Login page prototype 8*

## Sign Up

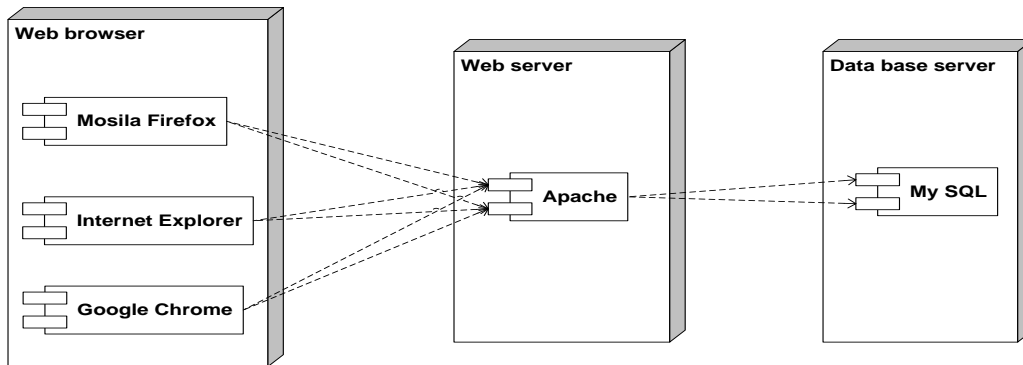
This is the sign up page where unregistered guests are required to create an account in order to give their feedback and enable them to track their stay at the hotel. The page also shows images of upcoming events such as concerts in the hotel.



*Figure 12: Sign up page prototype 9*

### 1.16 System Deployment Diagram

A deployment diagram is used to visualize the physical component of a system, which consists of nodes and their relationship. (James, 2009). Below is the hotel reservation system deployment diagram. This diagram shows how users can access the website by using different web browsers as listed below, Apache will serve as the web server and MYSQL will be used to store customer and hotel information in categorized tables in the database.



**Figure 13: Deployment Diagram**

### 1.17 Entity Relational Diagram

An entity-relational diagram (ERD) is the representation of entity that shows the relationship of entity sets stored in a database or an information system (Martin 1076). The five main component of and ERD are:

- Entity: Entity is an object, which allows information to be stored in.
- Actions: An action shows how two entities share information in the database.
- Attributes: An attribute is the unique character in an entity.
- Connecting lines: These are solid lines connecting to an attribute to show the relationships of entities in the diagram.
- Cardinality: Specifies the number of occurrence of a relationship in the diagram.

Below is the Hotel Reservation system Entity Relational Diagram.

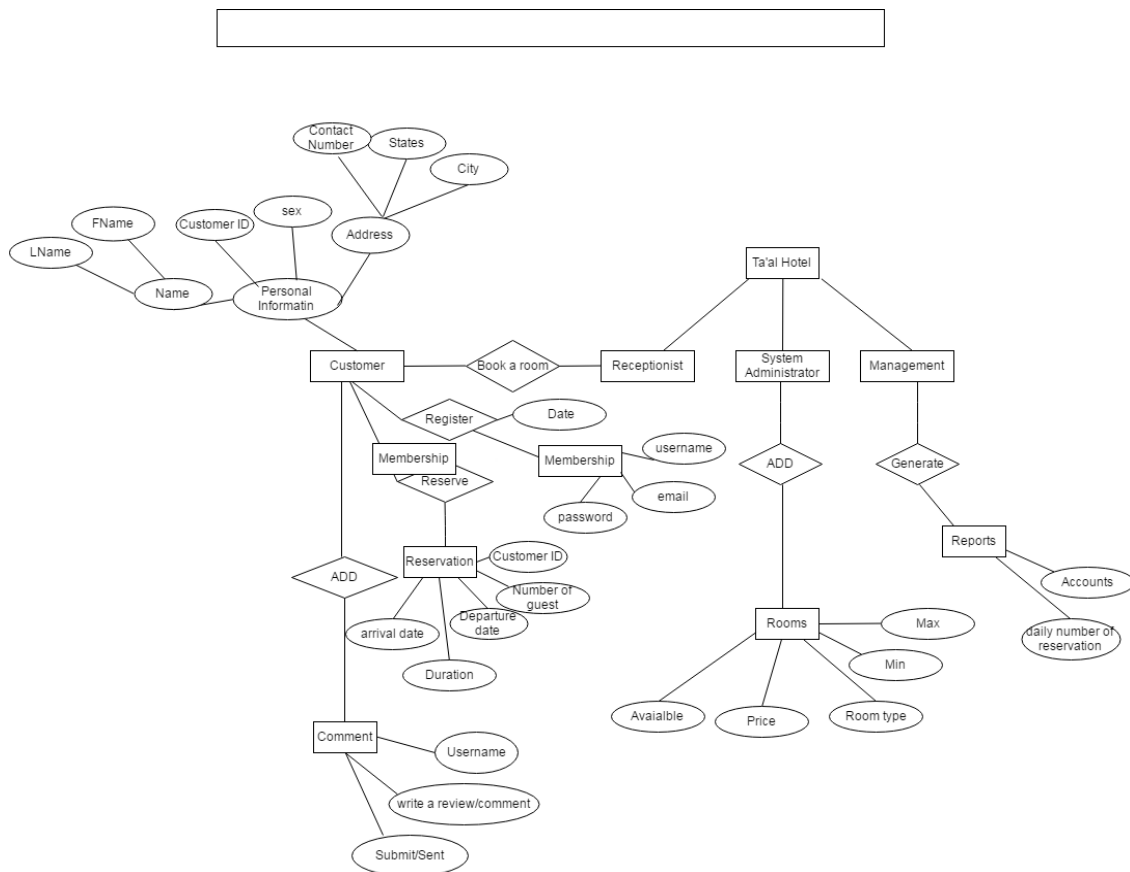


Figure 14: Fresh Spice Rongai Hotel Entity Relation Diagram

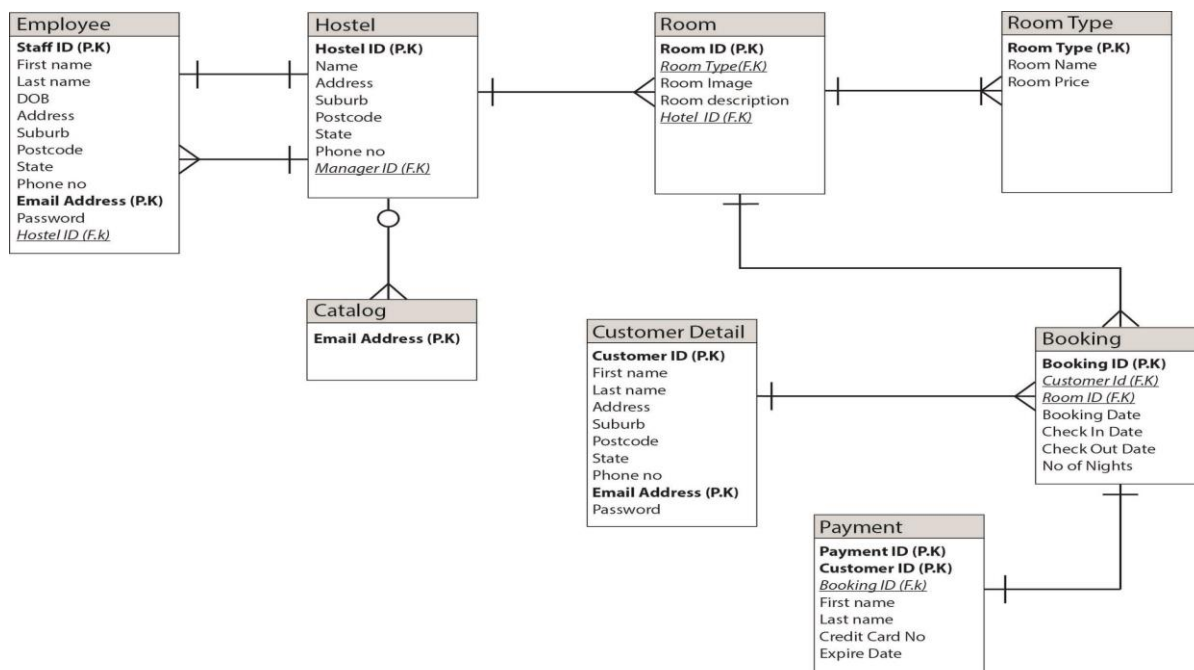


Figure 15: Fresh Spice Rongai Entity Relational Diagram



## 1.18 5.9 Database Design

### Table: user-comment

This table is used to store review messages provided by users on the website

Field Name	Data Type	Length	Description
id	Int (Auto Increment)	11	P.K users id
username	Varchar	(50)	username

*Figure 16: Database design table 1*

### Table: Users

This table is used to store users information when the register their details on the website. It will also be used to retrieve information when users try to login.

Field Name	Data Type	Length	Description
id	Int (Auto Increment)	11	P.K users id
username	Varchar	(50)	username
email	Varchar	(50)	Users email address
password	Varchar	(20)	password
Confirm password	Varchar	(20)	Verification of the first password

*Figure 17: Database design table 2*

### Table: Contact

This table is used to store information about users who make complains or want to make an enquiry about the hotel or their reservation.

Field Name	Data Type	Length	Description
id	int	11	Users id (P.K)
email	Varchar	50	Email address
message	Varchar	50	Enquiry message

*Figure 18: Database design table*

**Table: Reservation**

This table is used to store customer's reservation details.

Field Name	Data Type	Length	Description
id	int	11	Users id (P.K)
title	Varchar	5	Gender title
username	Varchar	20	username
email	Varchar	20	email
contactnumber	int	20	contact number
checkin	Date		check-in
checkout	Date		checkout
Meal selection	Boolean		Meal selection
address	Varchar	30	address
states	Varchar	20	states
city	Varchar	10	city
paymenttype	Varchar	10	payment type

*Figure 19: Database design table 4*

## Chapter 6:

### Implementation and Testing

Series of testings' and evaluation will be use on the developed system in order to avoid system errors and make sure every functional requirement gathered from the requirement stage is been implemented in the system.

#### 1.19 Functional Testing

The developer to verify that each function in the system software operates with the requirements specifications does functional testing. Functional testing involves checking client/server application (This project will use apache webserver), user interface, database and the system functionality which is tested by providing required input and then verify the output and compare the results with the expected result. The functions that will be tested in the section are:

- Mainline functions: This is the testing of the system main functions.
- Basic Usability: basic usability is usability testing of the system to check whether a user can easily navigate through the webpages without any difficulties.
- Error Condition: This is to check or errors and whether error messages are displayed. Since the system will be developed using PHP codes it is easier to identify an error once the developer runs the page.

#### 1.20 Usability Testing

This testing technique will be used to determine whether the developed system is accessible, findable, useful and easy for end users to achieve the tasks for which it was designed. The goal of using this technique is to know the effectiveness of the system, user friendliness, accuracy and efficiency. Usability testing process will be used to develop the system evaluation results, analysis and any findings. The usability testing processes consist of:



**Figure 20: System evaluation process**

After the testing participants, will be giving a user satisfaction survey to find out how users feel about using the developed system, by asking them to rate the system on a scale. Possible tasks that will be asked or performed during the survey may include:

- Search for specific items or information.
- Navigate through different menu on the webpages.
- Selecting images available to view it information.

### **1.21 Website Evaluation**

After the completion of the developed system (Fresh Spice Rongai Hotel website), an evaluation was carried out with users and experts. The aim of this evaluation is determine the accuracy of the website, how users navigate on different webpages on the website and identify the possible problems faced by each user.

### **1.22 Method of Evaluation**

During the evaluation, two types of evaluation methods were chosen to evaluate the website, which is:

#### **8.1.1 Usability testing/ User testing**

Usability testing is an evaluation method done from end-users to evaluate the easiness of a system such as a website or an application. (Churm, 2012). For this evaluation, the goal of using usability testing is to test with users to identify the problems they faced when interacting with the website. A random selection method was chosen to select participant who will evaluate the website. This type of selection was chosen because many individuals make use of the internet for personal purpose and has definitely used an online booking site to make a reservation or an enquiry about a place. Ten participants were given a list of task to perform on the website and were observed during the evaluation. The environment chosen for this evaluation was Middlesex University labs available during the time of the evaluation. This type of environment was chosen because the researcher had a control over the environment (University labs) which was suitable for the evaluation. The equipment's used during this evaluation are:

- A laptop to show the website interface.
- Cannon 1200D use to record using during the observation.
- A Timer to record the duration taken to complete a task.

Task given to users are:

- Register into the website
- Login on the website
- View the type of accommodation offered by the hotel
- Add a review
- View the all service page
- Make a reservation

- Submit an enquiry form

Each participant will carry out this tasks listed about without any help or guide by the researcher.

#### **1.22.1 Procedure**

Consent form were first given to participants that participated in the evaluation to read about what will be collected and how data their data will be stored in a secured location. After this, participants signed the form and then proceed to the lab to start evaluating the website. A list of task as mention above was provided to these participants and then the researcher observed how each task is been carried out. After completing the tasks, participants were given a post usability evaluation questionnaire to fill; this is related to the tasks performed earlier on the website.

Data collected from the evaluation was analyzed using Google forms. This tool gathers information, allows users to create an online survey form, and stores the responses received in a spreadsheet.

#### **1.22.2 Usability Inspection Methods**

Heuristics evaluation: This evaluation method involves expert of the system to find the usability problems in a design interface (Nielson and Mollich, 1990). The goal of heuristics evaluation is to test with experts within the Human Technology Interaction (HTI) domain is to identify the usability problems the website interface has. One lecturer in Middlesex University who is believed to be an HTI expert tested the website to find the problems of the interface. The environment chosen was the lecturer's office. This environment was chosen because it was a controlled environment where only lecturers have access. A laptop was used to show the website interface during this inspection. In addition, the expert filed an evaluation form.

#### **1.22.3 Procedure**

Experts were first email to book an appointment with them. After an appointment was scheduled, on the day of the evaluation, consent forms were given to experts to read and sign. After this, the laptop that contains the website was given to experts to start the inspections. After the inspections, experts were given a form to make any comments about the website.

Data collected from the inspection was used to analyze and make any adjustments provided by the experts earlier.

## 1.23 Results

Results collected from the two-evaluation conducted were analyzed into two results, which the usability are testing result and the heuristic evaluation result as shown below.

### 1.23.1 Usability Testing Result

The data collected during the usability testing were analyzed using questionnaires. In addition, a report analysis was generated. Below are the results and finding of the usability testing conducted during the evaluation.

It was simple to use this system (10 responses)

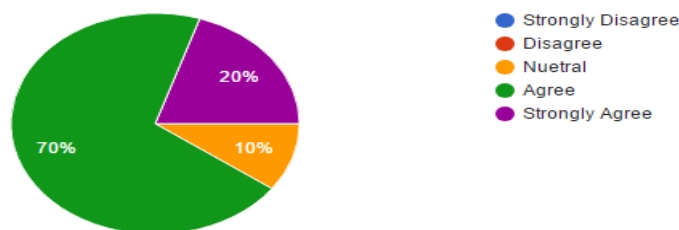


Figure 21: questionnaire response 1

The above chart shows the number of participants who agreed that the system is easy to use.

I was able to complete the tasks given quickly using this system (10 responses)

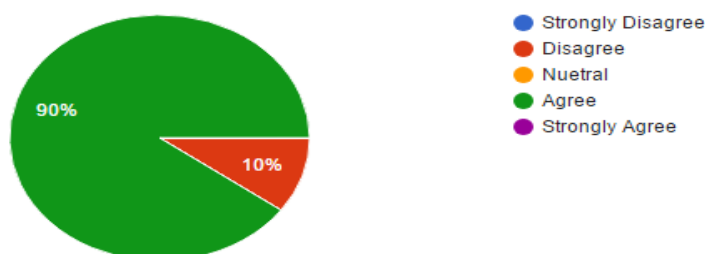


Figure 22: Questionnaire response 2

The above chart shows that 90% of participants were able to complete the tasks given during the evaluation

The system gave me error messages that clearly told me how to fix them  
(10 responses)

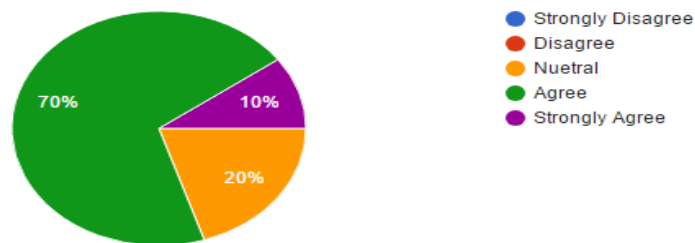


Figure 23: Question response 3

The above chart shows that 70% of participants agreed that the system provided an error message that was helpful to fix the errors.

It was easy to find the information i needed (10 responses)

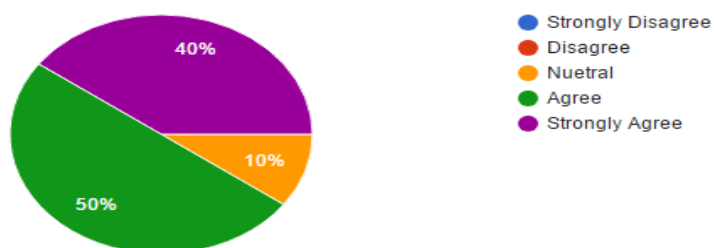


Figure 24: Questionnaire response 4

The above chart shows 50% of users agreed that it was easy to find the information needed on the website



Clicking on icons/links takes me to what i expected (10 responses)

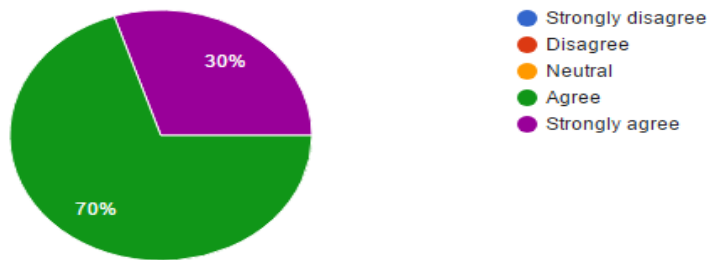


Figure 25: Questionnaire response 5

The above chart shows that 70% of users agreed that the icons on the website link them to the expected page.

Below do the participants fill the individual response to the questionnaires during the evaluation?

Website Evaluation Form (Responses)											
File Edit View Insert Format Data Tools Form Add-ons Help All changes saved in Drive											
$\pi$ \$ % .0_ .00 123 Arial 10 B I A											
	A	B	C	D	E	F	G	H	I	J	K
1	Timestamp	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	19-02-017	Agree	Agree	Nuetral	Agree	Agree	Agree	Agree	Nuetral	Neutral	Agree
3	19-04-2017	Strongly Agree	Nuetral	Agree	Agree	Agree	Agree	Agree	Nuetral	Agree	Agree
4	21-04-2017	Nuetral	Agree	Agree	Agree	Disagree	Nuetral	Agree	Agree	Neutral	Nuetral
5	21-04-2017	Agree	Agree	Agree	Nuetral	Agree	Agree	Agree	Agree	Agree	Agree
6	27-04-2017	Agree	Agree	Nuetral	Agree	Agree	Agree	Agree	Agree	Neutral	Nuetral
7	27-04-2017	Strongly Agree	Agree	Agree	Strongly Agree	Strongly Agree	Agree	Agree	Strongly Agree	Strongly agree	Strongly Agree
8	30-04-2017	Strongly Agree	Agree	Strongly Agri	Strongly Agree	Agree	Nuetral	Strongly Agree	Agree	Agree	Agree
9	30-04-2017	Agree	Agree	Nuetral	Strongly Agree	Strongly Agree	Agree	Agree	Strongly Agree	Strongly agree	Agree
10	30-04-2017	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
11											
12											
13											
14											
15											

Figure 26: Individual questionnaire responses

### 1.23.5 Usability Inspection Result

From the report analysis generated, the experts identified six problems on the website. These problems are:

**Problem 1:** icons consistency. Each webpage does not have the same icons representation and was not properly categorized

**Problem 2:** color representation. Different pages on the website have different background color and some colors were not proper who users with color blindness

**Problem 3:** Problem Font-size. Some of the webpages had bigger and more visible font while others were less visible. This can be a problem for users with eyes sight problems

**Problem 4:** Image visibility: Improper display of images on the website. Many images were not visible enough for users to see what it was on the website.

**Problem 5:** Content structure: The structure of the website not properly arranged login and sign up were meant to be on the same page in each header.

**Problem 6:** Spelling grammar. A lot of spelling errors were on the website making users finding it had to read a sentence

**Problem 7:** Some pages were missing page titles

#### **1.24 Implementation for Redesigning**

From the problems listed above on the usability inspection methods, a number of changes will be considered when redesigning the website. These changes are:

- Icons will be places in a hieratical order to show the visibility of each item on the website.
- Font-size will be increased to a more visible size (14px) across all webpages for users who may have eye defect.
- Categories will be structured according to user's mental model of how it should be displayed logically.
- Spelling errors will be corrected and correct grammar will be implemented.
- Good color representations will be considered for users who are colorblind.
- Page labeling(title) will be given to each webpages

## Conclusion

In conclusion, this report has been able to address the issues customers and hotels face when making a reservation using a manual booking system by developing an online booking system for clients to make reservation at their own comfort. It has also discussed on the past studies of online booking and the integration of the internet by hotels to connect more to their customers. It has discussed on the types of method used to gather the requirements needed, the type of development methodology selected for the research and how UML diagrams were created to show the interface of the system. A detailed description of pages on the website was discussed and the types of evaluation used to evaluate the website. In the course of this research project, a few limitations were face and they are;

- In the website, customers can reservations but are unable to make online payments.
- During the heuristics evaluation, the desired numbers of experts could not be met; this would have enabled more elaborate evaluation to be achieved.
- The environment used in conducting the usability testing was not completely controlled by the researcher because it was a free lab for any university student to access.

## Reference

- Bell, D. (2003) *UML basics part II: The activity diagram*. Available at: [http://www.ibm.com/developerworks/rational/library/content/RationalEdge/sep03/f\\_umlbasics\\_db.pdf](http://www.ibm.com/developerworks/rational/library/content/RationalEdge/sep03/f_umlbasics_db.pdf) (Accessed: 10 August 2021).
- Bell, D. (2004) *The sequence diagrams*. Available at: <http://www.ibm.com/developerworks/rational/library/3101.html> (Accessed: 5 January 2017).
- Bemile1, Richard, Akwasi Achampong, and Emmanuel Danquah. "Online Hotel Reservation System". *ijiset*. N.p., 2014. Web. 15 Apr. 2021
- Buytaert, D. (2016) *Site map*. Available at: [https://www.drupal.org/project/site\\_map](https://www.drupal.org/project/site_map) (Accessed: 11 August 2021).
- Delizo, Glenda A., and Mischelle A. Esguerra. "Online Hotel Reservation And Management System For The College Of International Tourism". *research*. N.p., 2013. Web. 14 Apr. 2017.
- Dennis, A., Wixom, B. and Roth, Roberta (2009) *System Analysis and Design*. Available at: [http://www.uoitc.edu.iq/images/documents/informatics-institute/Competitive\\_exam/Systemanalysisanddesign.pdf](http://www.uoitc.edu.iq/images/documents/informatics-institute/Competitive_exam/Systemanalysisanddesign.pdf) (Accessed: 5 August 2021).
- Guru 99 (2017) *FUNCTIONAL testing Tutorial: What is, process, types, & examples*. Available at: <http://www.guru99.com/functional-testing.html> (Accessed: 5 August 2021).
- Heywood, R. (2012) *UML use case diagrams*: Available at: <https://www.andrew.cmu.edu/course/90-754/umlucdfaq.html> (Accessed: 5 August 2021).
- Preece, J, Rogers, Y & Sharp, H 2011, *Interaction Design: beyond human-computer interaction*. 3<sup>rd</sup> edition London
- Taei, P.T. (2013) *10 advantages of PHP over other languages*. Available at: <http://www.webnethosting.net/10-advantages-of-php-over-other-languages/> (Accessed: 5 August 2021).

## Appendix

### 1.25 Project schedule

Table 1 Project Schedule

Name	Description	Amount required
Personal computer.	System development and testing will be done from this computer.	Ksh. 45,000
Research expenses	This include subscriptions to online libraries and learning websites.	Ksh. 10,000
Professional services	This includes the legal pieces of advice from professional and grants to access various news media resources.	Ksh. 10,000
Contingency reserves	This will allow for flexibility and reduce the risk of budget overruns	Ksh. 10,000
Travelling expenses	This is the capital set aside to accommodate for travelling while doing field research	Ksh. 2,000
Hosting services fund allocation	The website will be hosted in a secure and high-speed server that can accommodate higher traffics with higher latency.	Ksh. 10,000 (starting cost)
<b>TOTAL</b>		<b>Ksh. 87,000</b>

## 1.26 Project schedule

### Project schedule

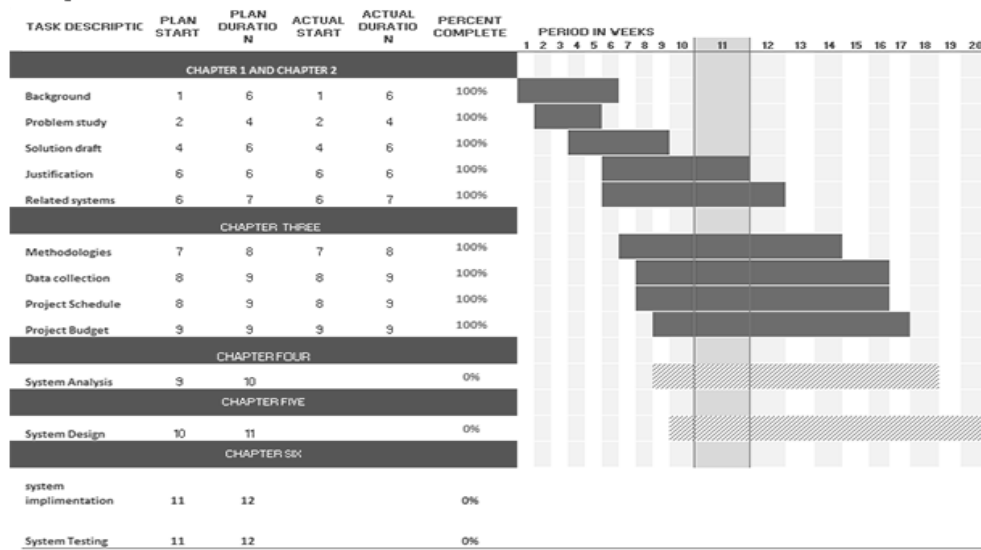


Figure 27 Project Schedule