Project name: BUS RESERVATION SYSTEM

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A PROJECT PROPOSAL SUBMITTED IN

PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF

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UNIVERSITY

# DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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# ABSTRACT

The main objective of the study was to provide better work efficiency, accuracy, reliability in the transport network. This helps them to access buses easily to their preferred destinations. Each user will receive a reference number after successful reservation of a seat on the given fleet of buses. The goal of this study is to cater for the needs of a traveler by providing luxurious buses, with efficient bus booking system. There are plenty of luxurious buses available now, providing best & efficient services to the customers. The result of the system is that will provide easier access to transport modes easily and be assured of a seat compared to where one needs to board a matatu. The system keeps track of total tickets sold for each schedule. To be more precise the system helps to keep track of the bus schedule, their management, and also displays all the available bookings. This is done by the administrator who is the controller of the system. If the buses are available, the user can reserve seats by providing details such as name and ticket quantity. Each user will receive an order reference number after each successful reservation.

# **ACKNOWLEDGEMENT**

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# 1. Chapter I: Introduction:

## 1.1 Background:

Kimathi Bus Station is located adjacent to the Kimathi post office and the former District Office Headquarters, serves as a central hub for various transportation services within the area. It hosts multiple terminals facilitating travel to neighboring towns such as Nyeri, Nakuru, and Meru, as well as to smaller satellite towns. To streamline operations and ensure a steady income flow among investors, many vehicle owners have leased their buses and matatus to different cooperative societies (Saccos).Its aimed to provide efficient and flexible transportation to clients within Kimathi.

## 1.2 Problem Statement:

The existing challenge arises when commuters need to catch a matatu or bus at the station, requiring them to arrive well in advance to secure a seat for their desired destination. This early arrival is essential, particularly for longer journeys, to ensure a seat and to stay informed about fluctuating fare prices. However, the unreliability of bus arrivals creates uncertainty among passengers, leading them to question whether to wait or seek alternative transportation options. Furthermore, the manual ticketing system is prone to errors, resulting in some passengers traveling without valid tickets. Additionally, long queues and the necessity to pay in cash further exacerbate the inconvenience for customers seeking to acquire bus tickets.

## 1.3 Proposed system.

The proposed system is a user-friendly application designed to facilitate online bus ticket reservations for commuters. Through this system, commuters can easily reserve seats for their preferred destinations by providing necessary details such as their name, travel destination, preferred bus class, payment information, and the number of seats required. Upon successful reservation, a unique reference number is generated for each transaction, allowing users to reprint tickets or generate new ones if needed.

The system also grants administrators full control, enabling them to manage reservations by accessing comprehensive details such as commuter names, reference numbers, amounts paid, and destinations. Administrators can also reject reservations if necessary. Moreover, the system efficiently tracks the total number of tickets sold for each schedule and provides warnings when seats are fully occupied. Additionally, it maintains records of available locations and manages transport-related data.

Top of Form

Bottom of Form

## 1.4. Project objectives:

* Streamlining the ticket booking process, formerly burdened by extensive paperwork, and ensuring thorough documentation of essential information.
* Aims to simplify, enhance reliability, and improve user experience of the Kimathi bus reservation system, making it intuitive and error-correcting.
* Offers features such as seat reservation, cancellation, and various inquiries, catering to the need for swift and immediate booking.
* Intends to create tailored software solutions for online ticket booking.
* Admin privileges include updating and canceling payments, as well as managing route reservations.

# **2. Chapter II: Literature review:**

## 2.0 Literature review

This is an application that is accessed by users over a network such as the internet or an intranet.

### 2.1 Regional application of online bus reservation system

**A Case Study in the United States**

In America (2015), the implementation of an online bus reservation system in the United States was explored. The system aimed to streamline the booking process for users, allowing them to reserve seats with ease and convenience. This emphasized the significance of such systems in modernizing the transportation sector, reducing waiting times, and enhancing customer satisfaction. They highlighted the versatility of the technology utilized, suggesting its potential applicability to other industries beyond transportation. Additionally, the study underscored the importance of user-friendly interfaces and accessibility features to ensure inclusivity. Overall, the research supported the adoption of online bus reservation systems as a means to improve efficiency and convenience for both passengers and service providers.

### 2.3 Regional Analysis of Online Bus Reservation Systems in Nigeria

In Nigeria, the bus travel industry is experiencing significant growth, yet the manual reservation process proves cumbersome and time-consuming for commuters, often leading to long queues. Recognizing this challenge, the adoption of online bus ticket reservation systems has emerged as a solution, allowing travelers to conveniently check bus availability, purchase tickets, and make online payments.

According to Melissa (2007), the implementation of an online bus ticketing system offers a comprehensive solution for managing ticketing operations. This includes features such as

* capturing customer information (name, address, phone number, and email)
* providing a price list
* ranking bus operators
* displaying seating charts, managing payment information
* generating reports

The reservation system typically comprises three modules, as outlined by Melissa (2007):

1. Availability Inquiry Module: This module enables customers to check seat availability for a specific bus on a particular date.
2. Reservation Module: Here, customers can reserve tickets for their desired bus and date.
3. Cancellation Module: Finally, customers have the option to cancel their reserved tickets if necessary**.**.

The integration of these modules into an online bus reservation system not only enhances convenience for commuters but also streamlines operations for bus operators, ultimately contributing to the efficiency and growth of the bus travel industry in Nigeria.

1. Top of Form
2. Bottom of Form

*The gap in the application* : adequate internet access is required to fill in the forms for reservations of seats .One needs to be ready for a surge of new customers who fill for the reservation for their destined destinations.

### An assessment of the strengths and weakness of the existing Projects Strengths;

* The reservation system used saves a lot of time used compared to when one wants to board a bus using the old strategies in place.
* II. You can choose a seat of your choice from the sitting arrangement and pay only what you should pay and nothing more.
* III. There is convenience as a user can book online ticket and get their ticket at irrespective of time.

Weakness

1. No protection from misleading pirates who pose as the owners of the organization to give misleading information
2. The user might be offline hence end up not receiving the information
3. System will not allow customers to refund

## 2.3 Establishing the need for a current project.

Based on the gathered information from diverse sources, it becomes evident that there is a compelling necessity for the present project. This stems from the requirement for improved accessibility and swifter provision of bus services, particularly in contrast to the outdated system characterized by lengthy queues.

# Chapter III: Methodology

## INTRODUCTION:

## This chapter outlines the research methodology employed, detailing the techniques utilized and the system requirements.

## Project Locality and Beneficiaries:

The reservation system operates online as a web application, primarily catering to travelers destined for their respective destinations.

## 3.2 Target Group:

The project's target demographic consists of commuters seeking streamlined access to transportation services, eliminating the need for lengthy queues. Additionally, an administrator has website access, enabling them to manage bookings, reject reservations, and view all bookings made.

## 3.3 Sampling Method:

Various data collection techniques were employed:

* **Systematic Sampling Technique**: Interactions with commuters at the Kimathi bus terminus revealed a demand for a more convenient booking process from the comfort of their homes or offices. This method ensured thorough system competency assessment with easily accessible details.
* **Observation**: Regular commuting to the Kimathi bus station facilitated information gathering regarding the necessity of an online bus ticketing system, especially for long-distance journeys.
* **Interviews**: Conversations with commuters emphasized the preference for transitioning from the traditional practice of queuing to the convenience of reserving tickets online. This corroborated the need for the proposed system.
* **Questionnaires** The researcher gave out the questionnaires with specific questions to the people being interviewed. The questions in the questionnaires were:

1. How frequently do you utilize bus transportation services?
2. On average, how much time do you spend waiting in queues to book a bus ticket?
3. Are you aware of online bus reservation systems?
4. Have you ever used an online platform to book bus tickets?
5. What are the main challenges you face when booking bus tickets through traditional methods?
6. Would you prefer an online bus reservation system over traditional booking methods? Why or why not?
7. What features would you expect from an ideal online bus reservation system?
8. How likely are you to use an online bus reservation system if it were available?
9. How important is it for you to have the option to cancel or modify your bus reservation online?
10. Do you have any additional comments or suggestions for improving bus reservation services?

## 3.4 System analysis and design

### 3.4.1 Software Development

This is a framework that is used to structure, plan as well as control the

process of developing an information system. There are few

development models which we usually follow.

 Agile software development

 Extreme programming

 JAD (Joint Application Development) Waterfall

 WSDM (web semantic design method)

Here, I am going to choose **XP (Extreme programming)** methodology to develop this system.

### 3.4.2 Extreme Programming

Extreme Programming (XP) stands out among agile methodologies for its flexibility in accommodating changes to requirements during iterations, in contrast to methodologies like Scrum and Rad.

**Why xp?**

 **Flexibility in Requirements Changes:** XP allows for changes in requirements even during development iterations, providing adaptability in dynamic project environments. This flexibility is particularly beneficial when working on projects with evolving or uncertain requirements, a feature not always present in other agile methodologies like Scrum.

 **Emphasis on Continuous Testing:** XP promotes a rigorous approach to testing, with tests written before code implementation. This ensures that the code is thoroughly tested, reducing the likelihood of bugs and facilitating early bug detection. Other agile methodologies may not prioritize testing to the same extent, leading to potential quality issues.

 **Customer-Centric Approach:** XP places a strong emphasis on customer involvement throughout the development process. Regular feedback and collaboration with the customer help ensure that the final product aligns closely with their expectations and requirements. While other agile methodologies also involve customer collaboration, XP's focus on continuous customer feedback is particularly pronounced.

XP follows five phases:

1. **Planning**: The team engages with clients to comprehend the desired product, gathering user stories to establish the project's goal.

2. **Designing**: Developers use the user stories to architect the code, ensuring alignment with customer expectations. This involves selecting programming languages, environments, libraries, and frameworks for software development.

3. **Coding**: Code is written iteratively in small increments and rigorously tested to maintain high quality and promptly address any bugs.

4. **Testing:** Automated tests are written to verify that the code functions correctly, identifying potential bugs before software release.

5. **Listening:** Customer feedback is actively sought to improve the software further. This ensures that the software meets customer expectations and maintains high quality.

**A) Coding**

**MySQL**

This is a multi-thread, multi-user, SQL relational database server.Programming language that can access a MySQL database include C, C++,Java ,PHP and Perl. MySQL runs on many different operating systems including transactions, SSL support, nested SELECT, ACID compliance and Query Catching.

**PHP**

This acronym stands for Hypertext Preprocessor. It is mainly used as a general purpose scripting language used to develop dynamic web content and can be embedded in HTML.PHP can be used as an alternative to Macromedia ColdFusion , ASP.NET/C#/VB.NET and the JSP/Java system. PHP is a fully defined language and can be used to develop Graphic User Interface Application.

**APACHE HTTP SERVER**

This is a free and open source cross-platform web server package, consisting mainly of the Apache HTTP server, MySQL database and interpreters for scripts written in the PHP and Perl programming language. XAMPP’S name is an acronym for X meaning cross-platform, Apache HTTP server, MySQL, PHP and Perl.

**Web Application Technologies**

The web application was chosen in this project because they are open source which implies that they are cheap to get since one just need to download them from the net. PHP is a rapid application development environment and is known for its ease of use and it enables most developers get involved with dynamic web development. MySQL has very fast database management system and is also easier to use than many other database systems.

**Semantic UI**

Used as the conceptual building block of the website as interactive interfaces have been used to design the structure of websites framework. Uses JQuery and CSS to build greater experience user interfaces.

BUDGET

Proposed Budget

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BUDGET ITEM** | **QUANTITY** | **AVAILABILITY** | **ESTIMATED COST**  **IN (KSHs)** | **ACTUAL COST**  **IN (KSH)** |
| **Laptop** | 1 | Readily available | 50,000 | 50000 |
| Windows 10 |  | Readily available | Free | Free |
| **Antivirus** | 1 | Readily available | 2000 | 2,000 |
| PHP MySQL  Net-beans  IDE |  | Readily available | FREE | FREE |
| **SUBTOTAL** |  |  | 52,000 | 52,000 |
| **SUBTOTAL** |  |  | 56,000 | 56,0000 |

# PROJECT SCHEDULE

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Task number | Task description | Expected start date | Actual start date | Expected end date | Actual end date |
| 1 | Project initiation | 1/05/24 | 5/05/24 | 9/05/24 | 9/05/24 |
| 2 | Requirements gathering and analysis | 15/06/24 | 15/06/24 | 23/06/24 | 23/6/24 |
| 3 | Design and prototyping | 5/7/24 | 6/7/24 | 10/9/24 | 15/9/24 |
| 4 | Development | 18/10/24 | 20/10/24 | 23/10/24 | 1/11/24 |
| 5 | Documentation and training | 5/11/24 | 9/11/24 | 23/11/24 | 25/11/24 |
| 6 | Deployment and launch | 2/12/24 | 2/12/24 | 7/12/24 | 7/12/24 |

This project schedule outlines the various tasks, expected start and end dates for each phase of the Kimathi Bus Reservation System