COURIER MANAGEMENT SYSTEM

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DECLARATION

I hereby declare that this work is my own and has not been submitted to this or any other university for the award of any degree or diploma. To the best of my knowledge and belief, this work contains no material previously published or written by another person except where due acknowledgement and reference have been made.

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Sign **……...**

Date **……**

APPROVAL

The project of Nahum Jepkemboi was conducted under our supervision and is submitted with our approval as university supervisors.

Supervisor's name: **GIDEON KIPLANGAT**

Signature **……**

Date **……**

DEDICATION

This project is dedicated to my parents **Mr** and **Mrs. ABDALLA** and my elder brother for their financial and moral support throughout my education and laying down my academic foundation. I also dedicate this project to my lecturers and friends for their development, motivation ideas and encouragement throughout the research process.

ACKNOWLEDGEMENTS

I highly appreciate my supervisor Mr Kiplangat for guiding me through the process of seeing my project came to fruition. His suggestions have been of great help, and his critiques always broaden my thinking. I also thank my friend ABDILLAHI OSMAN who heard my idea and supported me.

ABSTRACT

It is now-a-days very important for the people to send or receive articles like imported furniture, electronic items, gifts, business goods and the like. People depend vastly on different transport systems which mostly use the manual way of receiving and delivering the articles. There is no way to track the articles till they are received and there is no way to let the customer know what happened in transit, once he booked some articles. In such a situation, we need a system which completely computerizes the cargo activities including time to time tracking of the articles sent. This need is fulfilled by Courier Management System software which is online software for the cargo management people that enables them to receive the goods from a source and send them to a required destination and track their status from time to time.

Courier service system is very easy and allows many users to perform the job simultaneously. The courier service system is all about delivering a product to its destination with the help of their personal details like the address of the receiver and other details.

The COURIER MANAGEMENT SYSTEM is a web-based system that's designed primarily for the use in the couriers' logistics industry. This system will allow courier and logistical services company to increase scope of the business by reducing the paperwork cost and accountability of goods involved. This system also allows quick and easy management of transporting parcels from one point to another as they can be easily tracked compared to the use of manual systems of recording information, since this will reduce the man required at the front desk it will reduce the loss of goods and services and accountability in terms of credit. Courier services employees use the system through an easy to navigate graphical interface for efficient processing

This project is developed using PHP, JavaScript and MYSQL. This system is an online application which can be hosted online and therefore the user needs an internet connection or the company's local area network.

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DEFINITION OF TERMS

Courier: a company or employee of a company that transports commercial packages and documents.

User: a person who uses or operates something.

System: a set of things working together as parts of a mechanism or an interconnecting network; a complex whole.

LIST OF ABBREVIATIONS AND ACRONYMS

PHP – Hypertext Preprocessor

HTML – Hyper Text Markup Language

CSS – Cascading Style Sheet

XAMPP – X-operating system, Apache, Mysql, Php, Perl

MYSQL – My Structured Query Language

ERD – Entity Relationship Diagram

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CHAPTER 1: INTRODUCTION

The Courier Management System is a web-based system that allows customers to track and manage courier services with confidentiality maintained. The super admin is responsible for maintaining and populating data in the database with the help of front-end features like the list of delivery locations and courier personnel. Admin can register employees using their verified email addresses. This is made possible by providing them with tracking details for couriers they have initiated or are the recipients of. The operations manager and the employees have access to delivery performance data.

1.1 BACKGROUND OF THE STUDY

The increase in sending parcels from one point to another has led to the development of sophisticated systems, to ease in accountability and ease of transport and logistics. In recent times we have seen the registration of courier, cargo and logistics companies in the country spanning from ground to air. There are many constituents in sending and receiving parcels which include caring and safely delivering people's belongings as requested at a fee.

Having a background in the old ways of logistics the explosion of sophisticated information and communication technologies (ICTs) creates new opportunities as well as challenges for the whole service delivery systems, particularly to fulfil the ever increasing demand of people who are mostly having high level of information technology (IT) literacy and advanced in knowledge and awareness of ease of transporting parcels from point to point . To remain competitive, companies have adopted different methods with IT advancement i.e. the introduction of platforms like Sendy where people can easily access services to send and receive parcels without compromising the existing sending of parcels using trusted riders and other unorthodox methods. Records that capture various information serve as important institutional memory and central to efficient public service machinery (Halsey & Bettany, 2015).

("Gaps in electronic trial master file (eTMF) implementation: A study in the organization case," 2017) The advancements of the 21st century have led to an emergence of many disciplines with great potential to solve existing problems. One such potential field is Technology, which has over the years been increasingly adopted in many processes to avert the problems of ineffective and inefficient service delivery. One of the key areas of

interest is automation of the courier services. Many challenges have been faced in the process of sending parcels and products from one place to another including delays due to misplacement of small parcels as a result of using written receipts and paperwork at the registry when reference is ought to be made. As courier services have become more technologically advanced, pressure mounts on the courier companies to join the flow of technological progress in order to provide parcel service delivery. In addition, to emphasize transparency, to build customer trust and confidence in courier and service delivery systems and companies.

My major first-hand experience was in my first week as an intern to a courier company in April 2024 where I started working at the courier department at Crown Courier Mombasa. The first thing I noted was the big files that my fellow workmates kept record in them in written form or excel records. This gave me the thought of developing a program which will ease this process. My thought was then enhanced after some research and knowledge of the big unordered file keeping in the offices and the company's library. I thought of developing a program which will record new incoming parcels, this would ease the work of the employee and the collector of the parcel and save on time during search and collection of parcel, moreover, the ease of accountability by the auditors on the performance of the department. Basically this project will be all about new ways and methods where parcel and courier handlers can record new parcels on transit, delivered parcels, collected parcels and unpicked parcels. Any existing courier service management system was researched to get clues and hints on designing a suitable web application.

1.2 PROBLEM STATEMENT

Courier management has in the recent past received increasing support and attention in the public sector across the globe as people embrace information & communication technologies in the management of their corporate records due to accountability and auditing. There has been a lot of complaints raised by the people especially in the country coming from more developed countries in relation to the manual system used in Kenyan courier management systems an example such parcel/envelope misplacement, parcels going missing and this leads to mistrust in the use of this systems and opting for the unorthodox methods. This causes the companies losses due to replacement of the parcels in money form. For efficiency and effectiveness of courier services, a sound courier management system needs to be established. In 2010, in the Kenyan long-distance

matatu and transport industry, the integrated courier management system was installed and rolled out to manage record processes and functions. Nevertheless, in the logistics and cargo sectors, there is still not a clear courier management system. This issue presents an investigation into the implementation in Kenya's logistics and transport industry of the web-based courier management system.

1.3 PROPOSED SOLUTION

To address the challenges faced by company, the implementation of a web-based courier management system is proposed. This system would leverage modern information and communication technologies to enhance the efficiency, accuracy, and transparency of courier operations. By automating tracking processes, customers would be able to monitor their parcels in real-time, reducing the risk of misplacement and loss. The system would also streamline record-keeping, eliminating the reliance on manual documentation, thereby cutting down costs associated with stationery and storage. Additionally, a centralized database would allow for faster and more reliable retrieval of delivery information, improving customer trust and satisfaction. The integration of this web-based solution would align the company's courier industry with global standards, promoting accountability and minimizing the risk of parcel mismanagement while boosting operational efficiency and reducing financial losses.

1.4 OBJECTIVES

1.4.1 General Objective

To develop an online website for Imani Courier to manage package tracking, delivery schedules, and customer information.

1.4.2 Specific Objective

- ✓ To determine and gather requirements needed to develop the Imani Courier management system.
- ✓ To design the proposed Imani Courier management system.
- ✓ To develop the designed Imani Courier management system using various computer languages.
- ✓ To test and validate the platform to attain proper feedback on whether the platform is working as expected.

1.5 JUSTIFICATION

The Courier Management System addresses issues such as employee layoffs, financial losses from unscrupulous customers, and corruption among dishonest employees. The system provides reliable, rapid, and time-definite delivery services, ensuring parcels are delivered within 24 hours and connecting remote areas with developed towns and cities. It highlights the weaknesses of manual systems and benefits courier service owners, staff, and management by streamlining daily activities like sending, receiving, and managing company information, pickup centres, and parcel rates.

The computerized system reduces costs related to lost or mishandled parcels and enhances operational efficiency. It also contributes to academic research by adding to existing literature, offering valuable insights for future scholars and researchers to develop or improve related systems. The project underscores the importance of adopting technology to modernize and optimize courier operations.

1.6 SIGNIFICANCES OF THE STUDY

The significant of this study is to adequately reduce the stress encountered by customers in tracking the progress of the deliveries in real time and to enhance the flexibility, accountability, efficiency and reliability of the online courier service and delivery management system.

1.7 Scope of the Study

The scope of this research project is to design and Implement a Courier Service Delivery Management System that will be an Interactive web-based platform that can be accessed through the Internet. Which will solve the problems associated with the manual system of records management. The target users are the ‘Administrator’ who will be responsible for updating, manipulating and managing records on the system.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

Online courier management systems have become a crucial way of streamlining operations and improving customer experience in the courier industry. It is therefore important to ensure reliability and security in the processes involved. The challenges that exist include issues such as lack of transparency, which can lead to customer mistrust, and inefficiencies in tracking parcels due to outdated systems. Additionally, manual systems are prone to errors, leading to loss or mishandling of parcels.

This literature review aims to evaluate the current online courier management systems, web-based systems, and the technologies used to enhance security, transparency, and efficiency. The review will focus on features such as real-time tracking, and robust database management to ensure accuracy and reliability in courier operations.

2.2 BRIEF HISTORY OF COURIER

Courier is a special messenger, especially one carrying diplomatic correspondence. A courier is a person who makes arrangements for or accompanies a group of travellers on a journey or tour (William, 2009). In ancient history runners and homing pigeons and riders on horseback were used to deliver timely messages. Before there were mechanized courier services foot messengers physically ran miles to their destinations. To this day there are marathons directly related to actual historical messenger routes. In the Middle Ages, royal courts maintained their own messengers who were paid little more than common labourers. In cities, there are often bicycle couriers or motorcycle couriers but for consignments requiring delivery over greater distance networks, this may often include lorries, railways and aircraft. Many companies who operate under a Just-In-Time or "JIT" inventory method often utilize on-board couriers. On-board couriers are individuals who can travel at a moment's notice anywhere in the world, usually via commercial airlines. While this type of service is the second costliest—general aviation charters are far more expensive—companies analyze the cost of service to engage an onboard courier versus the "cost" the company will realize should the product not arrive by a specified time (i.e. an assembly line stopping, untimely court filing, lost sales from product or components missing a delivery deadline, organ

transplants) (Small, 1990).

Package delivery or parcel delivery is the delivery of shipping containers, parcels, or high value mail as single shipments. The service is provided by most postal systems, express mail, private package delivery services, and less than truckload shipping carriers. Continued growth of business-to-consumer (b2c) e-commerce has increased demand for low-cost package shipping services. Demand for inexpensive parcel shipping is especially intense for online and catalog retailers. These merchants, many of whom primarily ship low-cost goods, face consumers resistant to paying exorbitant shipping costs (often driven up by fuel surcharges, residential delivery fees, etc.) for package delivery to their homes. As a result, package shipping consolidators step in to combine low-cost "last-mile delivery" strengths of the US Postal Service with the technological and operational capabilities generally associated with private carriers. Large parcel carriers, such as United Parcel Service (UPS) and FedEx, often include an array of accessorial charges (like fuel and residential delivery surcharges) in addition to their standard fees.
The US Postal Service (USPS) offers low-cost options for small package delivery to the home, such as Parcel Select and Parcel Post. However, many merchants prefer low-cost shipping options without sacrificing visibility of their parcels while in transit ("track and trace"). The US Postal Service does offer a limited "Delivery Confirmation" for even their lowest-cost package delivery services, but more robust tracking is currently only available for Express Mail service and some international services (Smithsonian Institution Libraries, 2004). Delivery system is any means or process for conveying a product or service to a recipient (Dictionary, 2013).

Home Delivery Management is an eService for home delivery businesses. Many of the boring, but mandatory, administrative tasks that are part of the business are automatically performed by the management side of the eService. When your customers come on-line to modify their orders, it feeds automatically to the management functions. Your product requirements will reflect the very latest of each order change (Homedelivery management, 2014).

2.3 IMPORTANCE OF COURIER MANAGEMENT SYSTEM

This new system will overcome losing money and other resources by introducing a centralized database, implementing electronic records creation and preservation of meta-data. The major problem or issue in carrying out CMS (Courier Management System) is security, accessibility and interoperability. Interoperability here means the ability of computer systems or software to exchange and make use of information and data (Rogers et al., 2012). Courier services today not only have to comply with regulations, but also have to maintain a balance between operational record keeping requirements, minimizing liability of storing private information and customer privacy preferences (Lunney, Jr., 2013).

The completeness of courier system delivery sets the standard for delivery service excellence. Effective records management system guarantees the accountability and integrity of an organization that provides services to the public at large and serves as a strategic resource for government administration (Lemley, 2010). A dependable and valid parcelling and courier management system is basic to the effectiveness of day-to-day courier and parcelling operations and fairness of logistical decisions. The maintenance of courier records directly influence the timeliness and integrity of courier and logistic processing.

CHAPTER 3: METHODOLOGY/ ANALYSIS AND DESIGN

3.1 INTRODUCTION

Methodology is “a set of general principles that guide a practitioner or manager to the choice of the particular method suited to a specific task or project” (Bennett, 2002). A system development methodology is a very formal and precise system development process that defines a set of activities, method, best practices, deliverables and automated tools for system developers and project managers used in developing and maintaining most or all information systems and software” (Whitten 2001).

In this chapter various sources of data collection methods, interviews and analysis of the current and the proposed system are discussed. Research methodology talks about the procedure, method or approach adopted. To carry out a project effectively and efficiently there must be a method and a procedure.

3.2 PROJECT ACTIVITIES

Project activities are individual actions one must complete to achieve project success. Each activity counts as a stage consisting of smaller tasks that contribute to the activity’s completion. The project activities vary depending on the nature of the project and the scope. There are different methodologies ranging from waterfall model, hybrid model, V model, iterative model, spiral model and agile model. In this project, I will adopt the agile methodology.

The agile methodology is an approach to software development that prioritizes collaboration and flexibility. It is adaptive to changing environments therefore giving room for improvements to be made in the system. In this methodology, tasks are broken down to smaller iterations. These divisions help in minimizing the project risks and reduce the overall delivery time of the project. Each iteration involves working on the entire software including planning, requirements, analysis and design, coding and testing before the system is shown to

the client. The phases of the agile model are in the figure below;

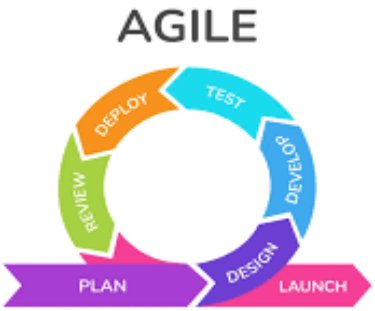


FIGURE 1 AGILE METHODOLOGY

3.3.1 METHOD OF INFORMATION GATHERING

This section explains different means by which information and data were gathered and collected to help analyse the old system so that a clear description of the proposed system can be made. The methods use to collect data in this project work are; Interview, On-site observation, and internet.

- ✓ Oral interview: This involves face-to- face conversation between two or more persons. With this method, I visited the Dreamline offices and interviewed some of the Staffs on their mode of operations.
- ✓ On-site Observation: this method deals with visual examination of the system. Through this method I observed the activities employed at the Dreamline Offices.
- ✓ Internet: I also visited several information repositories in the worldwide web as to get a clear picture of System Development Life Cycle with reference to this project work.

3.3.2 System analysis and design

At the system analysis and design phase, the requirements presented by the client are examined for the purpose of creating a system design document. The system architecture outlines how the components of the software will interact with each other defining the security levels and how data will be transmitted. This stage marks the transition from theory to the practical aspect of software development.

3.3.3 Development

In this stage, the actual coding takes place. This phase consume more time compared to the first and second phase of system development life cycle. This is the phase where I will begin the coding process. I will work on the front-end part of the system where users will interact with as well as the back-end to ensure that the system is functioning well. I will use visual studio code to write down my code for the system as I follow project schedule.

3.3.4 Testing

During the testing phase, the software is tested to check if it meets both the user needs and the client needs. Testing is done to ensure that the system has no bugs. Testing will be done in the unit and integrated level. The tests will check for security, usability and performance of the system. To check for security, there will be a validation rule in the database that allows emails that belong to the specific institution only. With usability, it will be tested by giving a few users to navigate through the system and get their feedback.

3.3.5 Deployment

At this stage, the system is rolled out in the production environment. The system is put out for use after fixing any form of issues that were reported in the testing phase.

3.3.6 Maintenance

This is the last phase of software development where the system is monitored to ensure that it continues functioning properly. Any arising issues are worked on to ensure that the system remains relevant. Repairs, upgrades and addition of new features to the system takes place in this phase. Exoft. (2021, February 2)

3.4 Architectural Design:

Architectural design entails definitions of components and the inter-relationships that exist between them. It also shows the design components involved, major subsystems within the application and the interactions illustrated below:

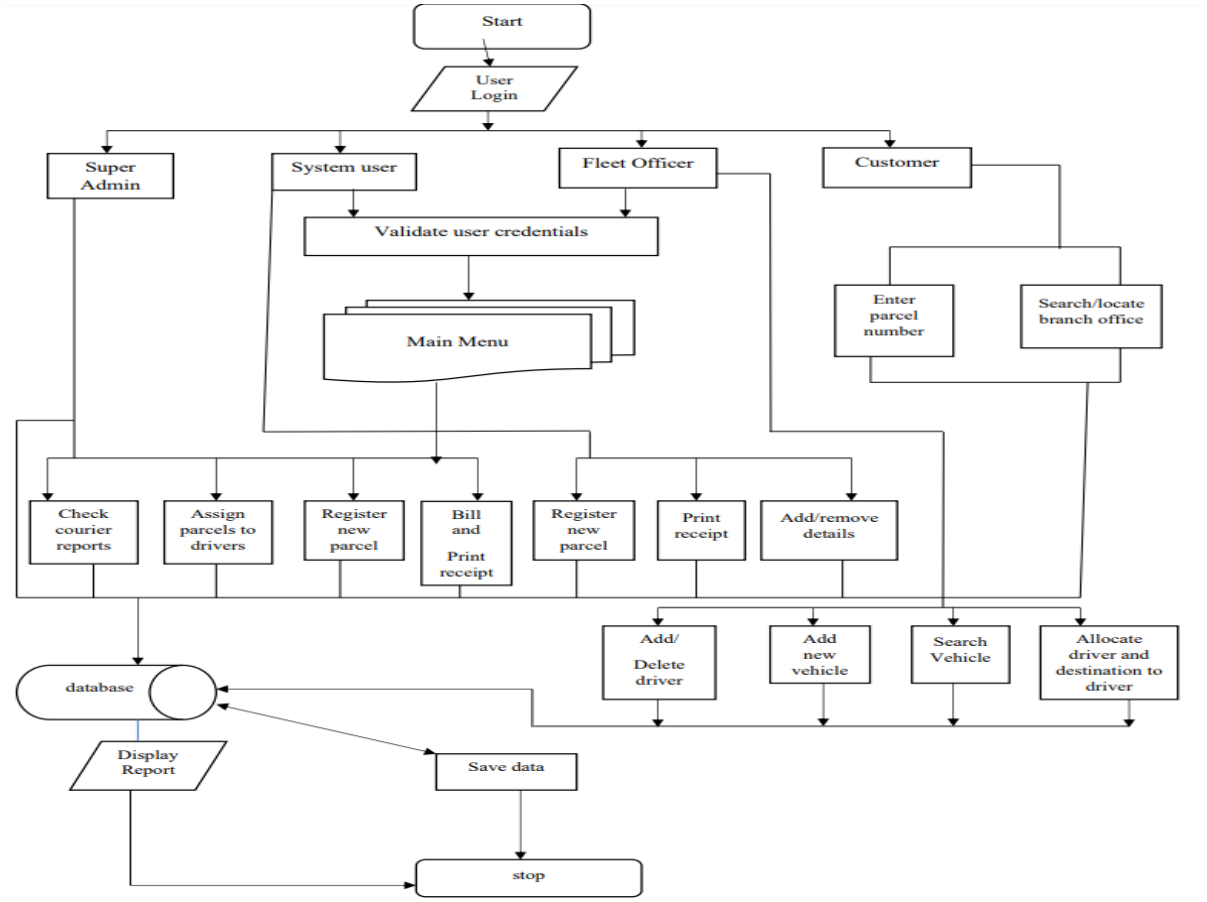


FIGURE 2 ARCHITECTURAL DESIGN

3.5 FLOWCHART DIAGRAM

A flowchart is used to help people understand a system by showing the steps taken by a process.

FIGURE 3 FLOW CHART

3.6 Entity-Relation Diagram(ERD)

This is part of the system development methodology that provides an understanding of logical data requirements of a system independent of the system's organization and process. It presents a static review of relationships between different entities (Raghu, 2000). It is a conceptual data model that views the real world as entities and relationships and was originally proposed by (Peter, 1976) as a way to unify the network and relational database views.

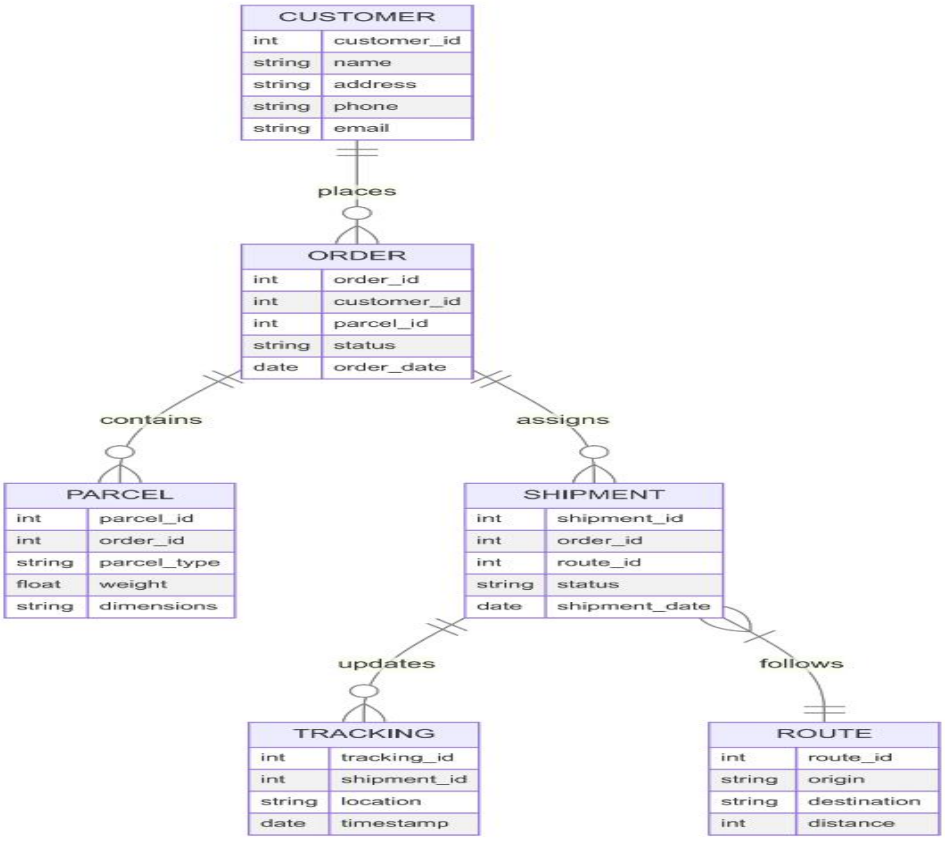
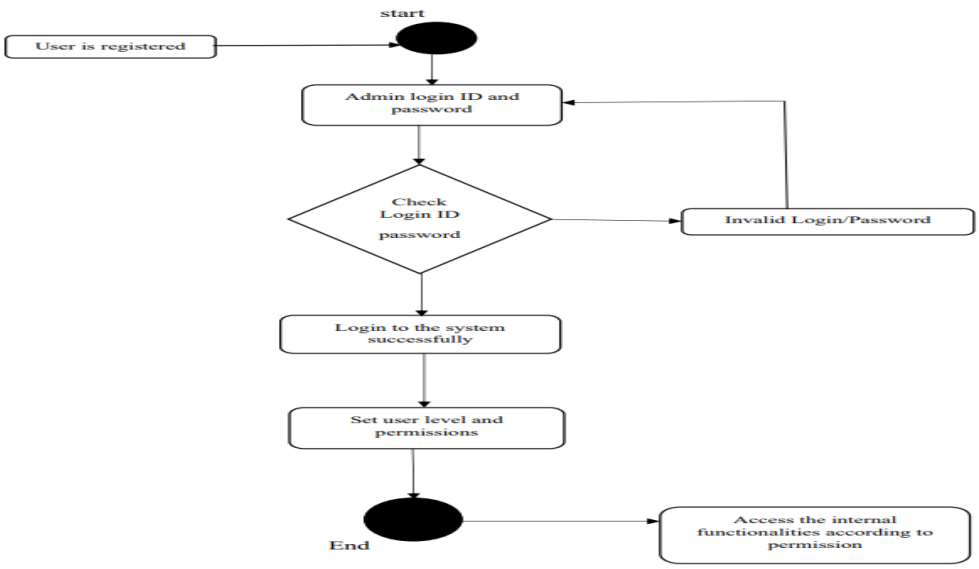


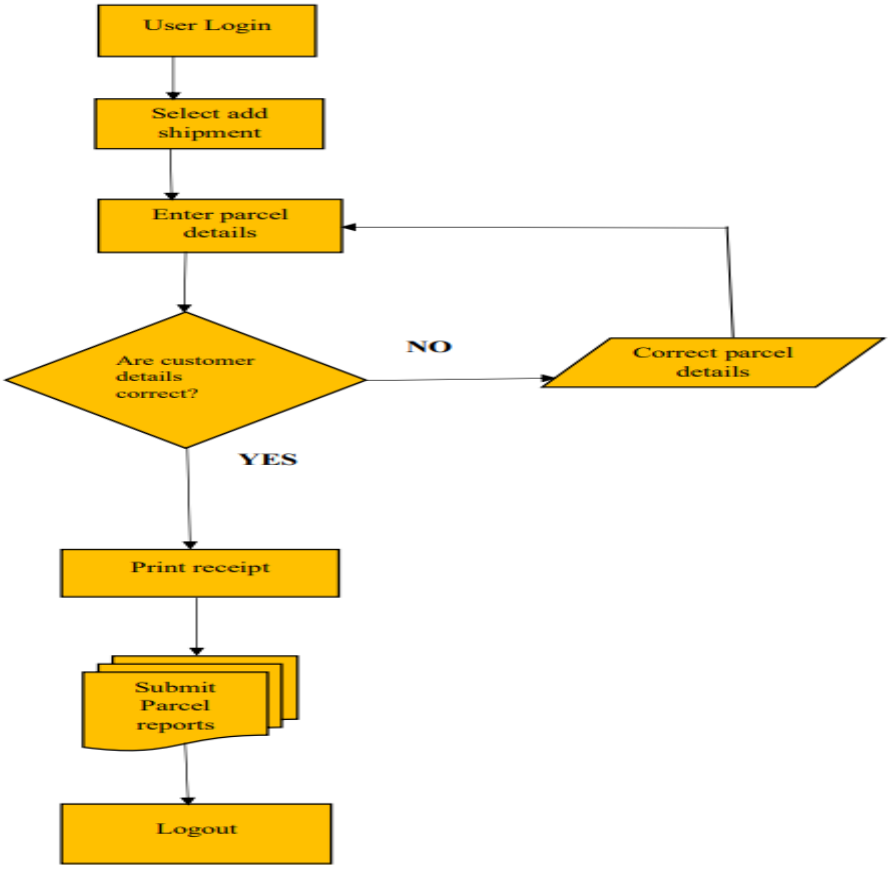
FIGURE 4 ERD

3.7 Login Flowchart

This is a graphical step by step representation of how a user logs into the system.



3.8 Parcel Booking Flow Chart



3.9 TOOLS

The tools needed to develop this system are; MYSQL, visual studio code editor and Xampp server.

3.9.1 MYSQL

MYSQL is an open-source relational database management system (RDBMS) used for web-based applications. MYSQL offers a lot of features for storing, retrieving and managing data, making it well-suited for various software projects. Its scalability allows handling of increasing data volumes and user traffic. Its compatibility with multiple platforms and programming languages ensures flexibility in development.

3.9.2 Visual Studio Code Editor

Visual Studio Code Editor is a well-known source-code editor developed my Microsoft. It is an open-source cross-platform editor that supports a wide range of programming languages. It is an easy to navigate platform that also support debugging. These features make it a suitable choice for my project.

3.9.3 Xampp Server

XAMMP is an open-source cross-platform that provides a local web server environment for purpose of testing and development. It stands for Apache, MariaDB/MYSQL, PHP and Perl. It helps one to test the web application before deployment.

3.9.4 Hardware Requirements

The hardware I will use to develop the courier management system is a HP Pavilion laptop with intel core i5 and 8GB RAM.

3.9.5 Operating system

In this project, I will use windows 11 pro version 22H2 operating system which has the latest feature updates for windows 11 pro–operating system. It comes with security features which

include virtualization-based security that allows windows to host security software in memory region isolated from the rest of the operating system.

3.10 FEASIBILITY STUDY

It is an assessment of the practicality of a proposed project plan. This is done by analysing legal, technical, time and economic feasibility factors. Bridges, J. (2023, April 19). In the feasibility study, the proposed project is evaluated for its practicality and viability to determine its success. This study will be essential for my project since it gives a clear vision of whether the project is feasible or not. This is based on the requirements needed and the resources that are available. There are six types of feasibility studies economic, technical, financial, legal, resource and schedule. Sokolova, V. (2022, July 20) In the context of my project, I will discuss four feasibility studies: technical, resource, schedule and economic feasibility.

3.10.1 Schedule feasibility

Schedule feasibility assesses how likely the project will be completed within the timeframe proposed. This determines the success of a project considering if the time allocated to the project is achievable and realistic.

SN	Activity	Expected start	Expected finish	Actual start	Actual finish	Deliverables
1	Research	10/9/2024				Gather required info
2	Data Collection	20/9/2024				Come up with a cleaned data
3	SRS	24/9/2024				
4	SDS	5/10/2024				System design
5	System implementation	18/10/2024				Coding
6	Test plan	26/10/2024				Test the responsiveness
7	Final system presentation	10/11/2024				Verify the system
8	Final report	20/11/2024				

3.10.2 Economic feasibility

This feasibility study allows one to determine whether the project is financially feasible. It is achieved by analysing the project's costs, including the original investment, continuing operating costs, and possible returns on investment, is usually part of this evaluation process.

ITEM	**UNIT**	**COST**
Computer	1	Ksh.35,500
USB	1	Ksh.1000
Phone	1	Ksh.5000
Internet usage (research)		Ksh.2000
Communication		Ksh.1500
Transport		Ksh.3000
Total		Ksh.48,000

3.10.3 Technical feasibility

Technical feasibility focuses on the technical resources available. It is important in determining whether the technical resources meet the needed capacity. It involves evaluating the capability of the technical team to convert the idea into a system and whether the hardware and software required are available. The courier management system is web-based therefore the employees will have to be registered using their email and get authorization from the admin who in this system is the manager.

3.10.4 Resource feasibility

These are the resources that will be needed for the success of the project. In the faculty evaluation system, the resources needed for the system development are;

- Operating system – Windows 11
- Web browser – google chrome

3.11 Legal Compliance

The Courier Management System must adhere to local courier regulations governing the transportation and delivery of goods. This includes compliance with **licensing requirements** for courier businesses, **weight and size restrictions** on packages, and **restricted or prohibited items policies** that specify what cannot be shipped. Additionally, the system must follow **insurance policies** that ensure compensation for lost or damaged goods during transit. It must also incorporate **consumer protection laws**, ensuring transparent communication regarding delivery timelines, fees, and refund policies for delayed or unsuccessful deliveries. Compliance with these regulations ensures the business operates legally and maintains trust with users by following industry standards.

3.12 SEO Optimization

To improve online visibility and attract more users, the platform needs to be Search Engine Optimized **(SEO)**. This involves optimizing the website's content and structure so that it ranks higher in search engine results. Key SEO practices include using relevant keywords (e.g., "fast delivery," "courier tracking"), creating meta descriptions and titles for web pages, and ensuring that the site is mobile-friendly. Additionally, the platform should load quickly and follow technical SEO best practices, such as having proper URLs, sitemaps, and structured data to enhance search engine indexing. Improved SEO increases the chances of users discovering the platform organically, driving more traffic and business growth.

3.13 System scope

Due to this, there exists an urgent need to shift the mode of manual operations to Automated operations to a more efficient and reliable system which shall overall improve customer experience and the performance of the business by:

- Development of an online Courier Management System that shall handle the courier
- services within the Logistics Department.
- Setting up the system on the main server ready for deployment.
- Training the users on how to use the new system.
- Request for an Administrator who shall configure the new Courier Management System.

Main Inputs:

(a) Booking Officer
(b) Sender Name, telephone number
(c) Destination
(d) Recipient Name
(e) Date send
(f) Date collected
(g) Amount paid

Outputs:

(a) Enter parcel details
(b) Add new user
(c) Courier client login
(d) Track parcel

Design Considerations and Constraints

- ✓ The client will be operating on Windows platform with a network connection to the respective branch offices.
- ✓ The expected number of users is 200 Personnel.
- ✓ The system will require memory of at least 1GB of RAM, Processing speeds of 1.4GHz and 1TB of available hard disk space.

CHAPTER 4: IMPLEMENTATION, TESTING, AND RESULT

4.1 IMPLEMENTATION

The Faculty Evaluation System has been developed using simple and widely adopted programming languages to ensure cross-compatibility, scalability, and ease of maintenance. These include HTML, CSS, JavaScript, PHP and MySQL. The system comprises a user-friendly front-end for students and a back-end for administrators, which provides access to analytical tools and detailed reports.

The front-end adopts a visually appealing theme based on CSS for responsiveness and an enhanced user experience. The back-end securely retrieves and displays data from the database for administrator access and decision-making.

The system was developed using the Agile Methodology, which emphasizes iterative development, collaboration, and adaptability. The project was divided into sprints, lasting two weeks, five weeks or six weeks, allowing for incremental delivery of features and frequent feedback from stakeholders.

4.1.1 Hardware/Software Interface

Hardware Interface

- Processor Pentium Processor or equivalent.
- RAM Minimum of 128 MB.
- Storage 60 MB of free hard-drive space.

Software Interface

- **Operating System** Windows Vista/7 or higher, or equivalent platforms such as Linux or macOS.
- **Web Browsers** IE 10 or above, Mozilla Firefox 31 or above, Google Chrome.
- **Drivers** Java Runtime Environment for browser compatibility.
- **Development Tools** Visual Studio Code for coding, XAMPP for server emulation, and phpMyAdmin for database management.

4.1.2 Implementation Languages

The following languages were employed in developing the Courier Management System

a) HTML (Hypertext Markup Language)

HTML was used to design the static structure of the web pages. Key uses include

- Displaying content such as forms for parcel information, tables summarizing evaluations, and navigational links.
- Embedding multimedia components for enhanced user experience.

b) CSS

- CSS (Cascading Style Sheets) Used to style the web pages, ensuring a professional and consistent design.

c) JavaScript

JavaScript was implemented to add interactivity, such as

• Validating user logins.
• Dynamically updating dropdown menus for the users.

d) PHP (Hypertext Preprocessor)

PHP was chosen for server-side scripting due to its compatibility with web servers and ease of integration with databases. PHP handles:

- Dynamic generation of pages for parcel delivery forms.
- Back-end logic for retrieving and processing evaluation data from the database.

e) MySQL

MySQL was used to manage the database, which stores:

- User credentials (employees and administrators).
- Parcel data, employees data, and tracking data. SQL queries were optimized to enhance performance, ensuring fast retrieval and secure storage of data.

4.2 How the System Works

4.2.1 System Menus and Functionality

The Courier Management System provides distinct pages to facilitate efficient interaction for both employees and administrators. Below is a description of the key pages.

4.2.1.1. Login Page

- **Purpose**

  Allows users to log in and access the system based on their roles (employee or admin).

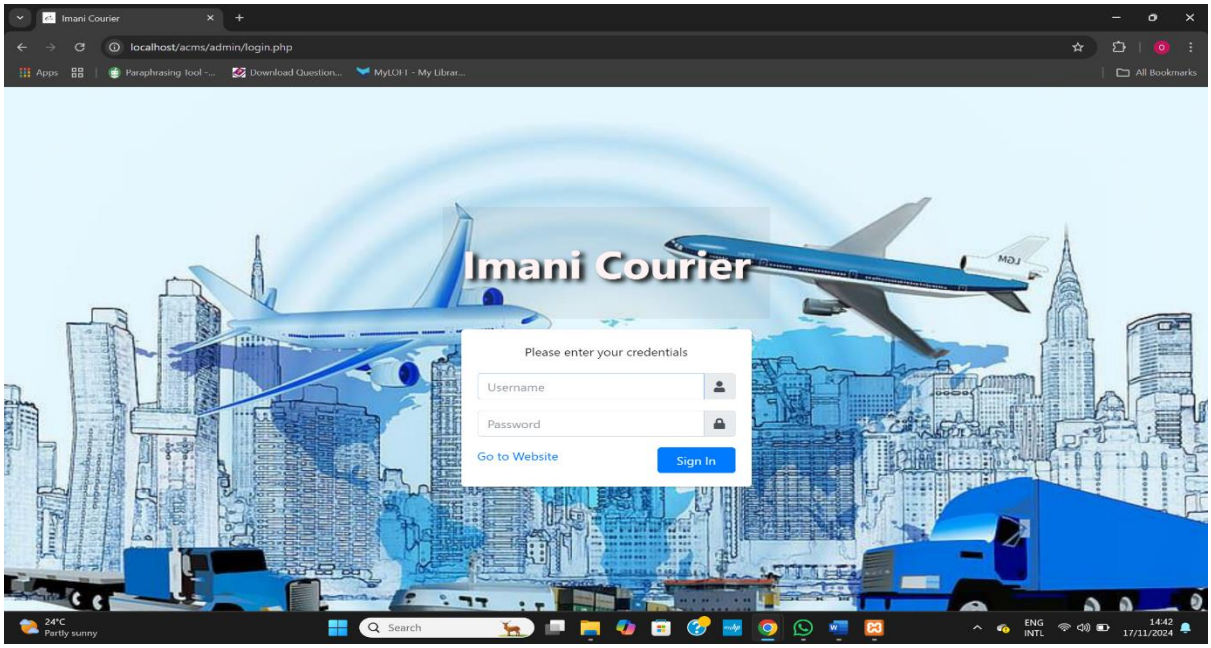
- **Features**
  - Fields for username and password.
  - Role-Based Redirection

    ✓ Employees are directed to their respective dashboard.

    ✓ Administrators are directed to their respective dashboard.
  - Error Messages

    ✓ Displays error messages for incorrect credentials or unregistered users.

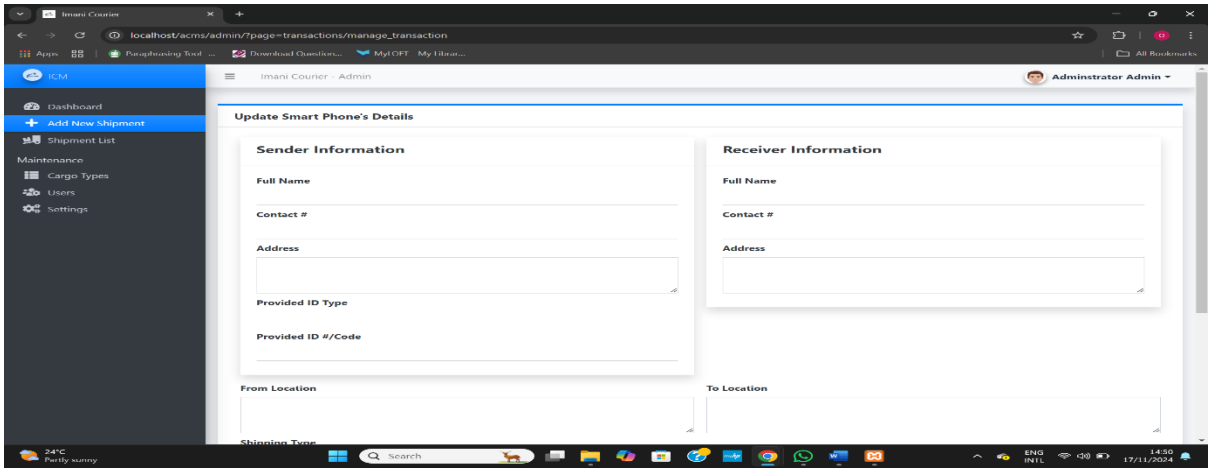
    ✓ Users enter their credentials and log in. Authentication checks ensure secure access.



4.3 TASKS

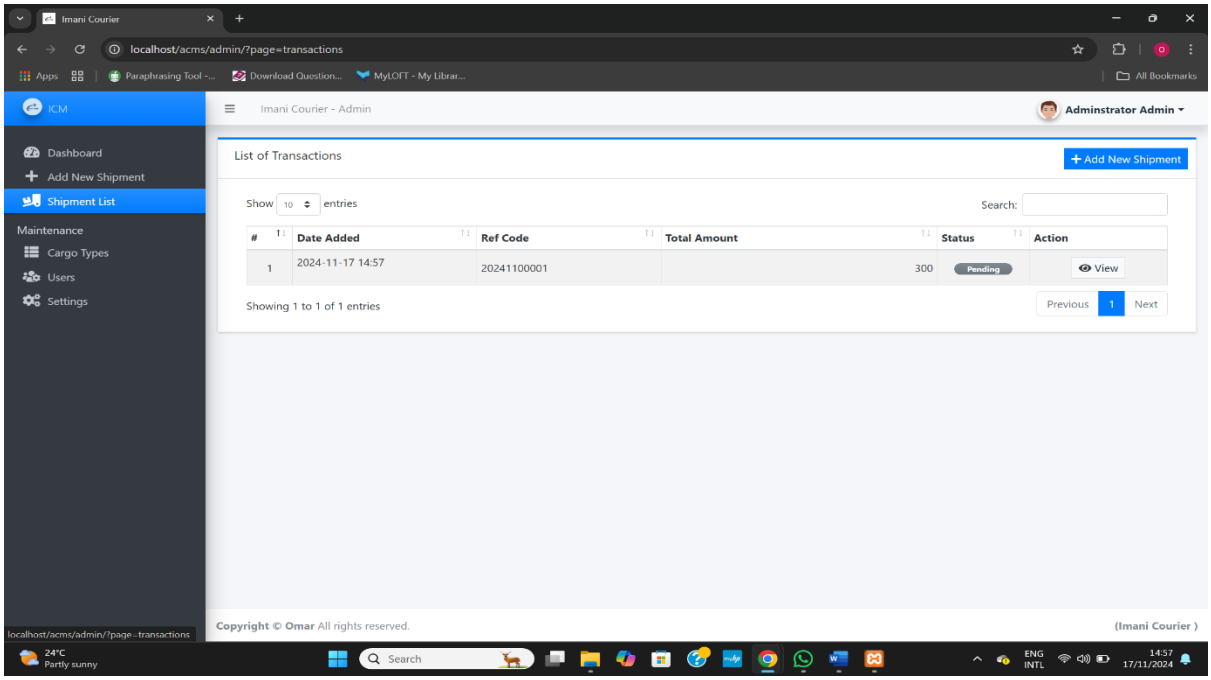
There are numerous tasks that can be carried out once the system is running. These are able by clicking the available linked buttons. For example,

4.3.1 Add New Shipment



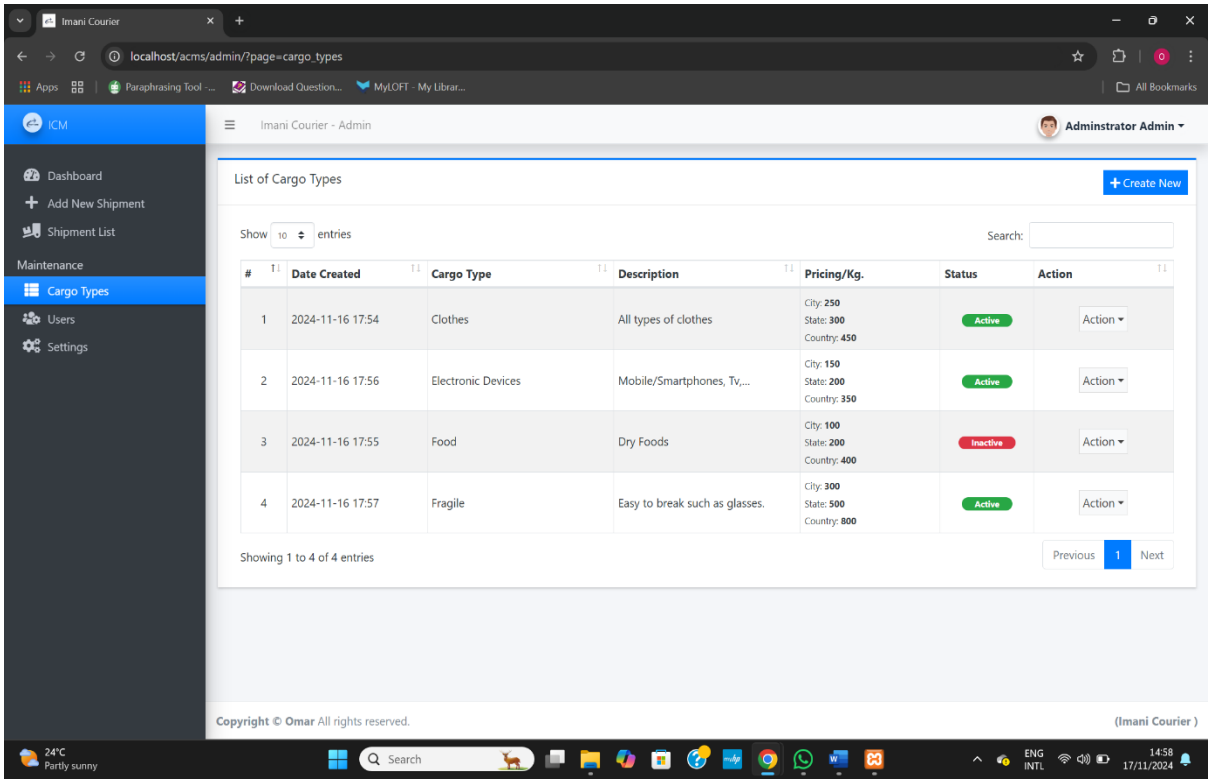
4.3.2 View Shipment List

Shows shipment list and their status, including reference code for the parcels.



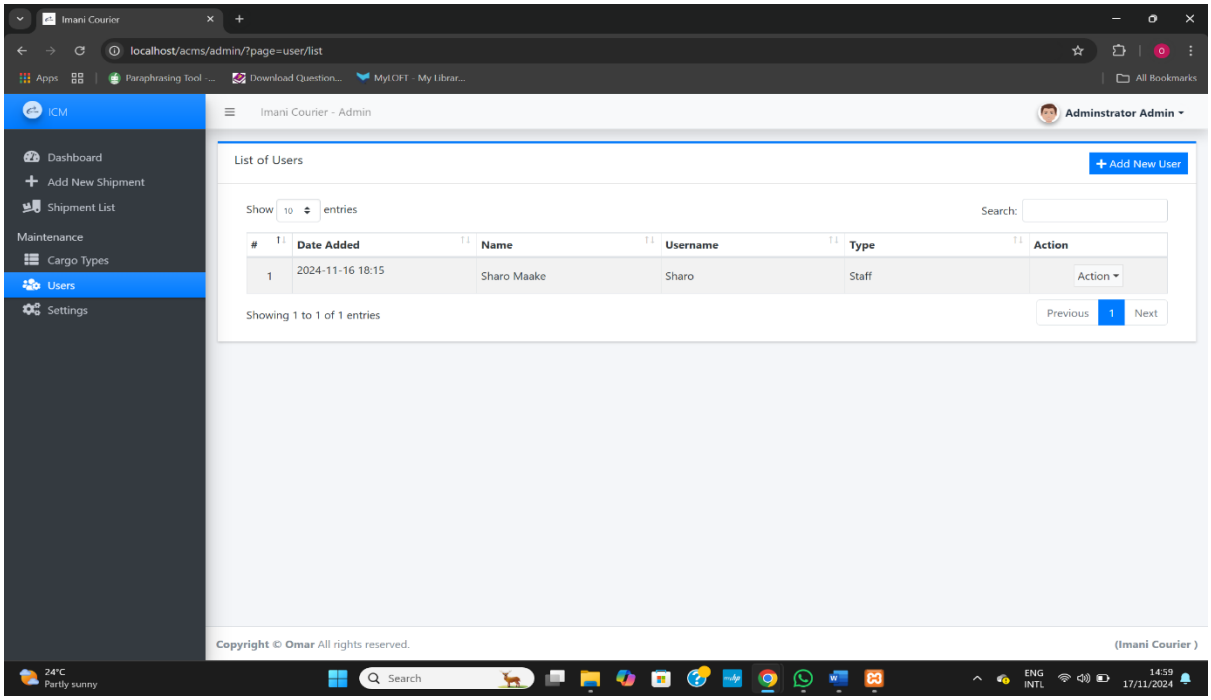
4.3.3 View Cargo Types

Shows the different types of items that are accepted to be carried



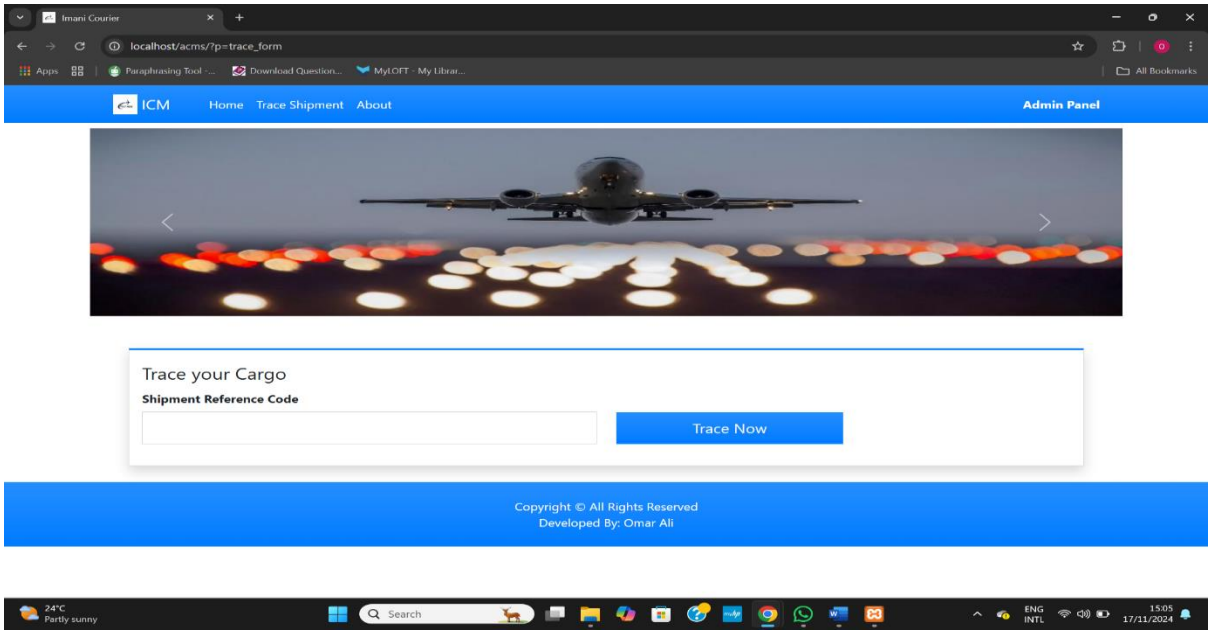
4.3.4 View Users

Admin can view, delete and add new employees to the system.



4.3.5 Trace Shipment

Customers can track and monitor the movement of goods or packages from the point of origin to their destination. This involves using unique tracking numbers or identifiers provided by the courier system to locate a shipment's status in real-time.



4.4 TESTING

The Courier Management System underwent a thorough testing process to ensure it met both functional and non-functional requirements, with various methodologies applied to assess its performance, reliability, and usability.

Back-End Testing focused on validating the integrity and functionality of the database, which was built using MySQL. The system's database comprises multiple interconnected tables for storing information about parcel, track shipment, and user roles. Queries were executed to test the creation, retrieval, update, and deletion (CRUD) operations for each table. For example, when a staff fills the parcel form, the data was immediately reflected in the respective database table without any errors, and administrators could retrieve it accurately for reporting purposes. Additionally, stored procedures and triggers were tested to ensure data consistency and automation of specific tasks, such as adding a new staff. The database was checked for common issues such as data loss, deadlocks, and corruption, with no anomalies detected during the tests.

Browser Compatibility Testing ensured the system operated efficiently across major browsers, including Google Chrome, Microsoft Edge, and Samsung internet. The interface rendered consistently, and functionality remained intact across all tested browsers.

Unit Testing in the context of the Faculty Evaluation System focuses on testing individual components or modules of the system to ensure they work as expected. For example, specific functions like validating student login credentials, submitting feedback forms, or storing evaluation data in the database are tested in isolation. This allows for early detection of bugs in smaller units of the code, ensuring that each part performs correctly before integrating them into the larger system.

Integration Testing confirmed the proper communication and interaction between system modules. For instance, when a new student registered, their information was accurately stored in the MySQL database and reflected in the backend for administrator management. Similarly, feedback data submitted via the front end was correctly stored in the database and displayed in detailed visual reports for administrators.

Functional Testing involved testing by a representative group of students and administrators to confirm that all system features met their intended purposes. Feedback forms, dropdown menus, and administrative tools like report generation and user management worked as expected, fulfilling functional requirements.

Graphical User Interface (GUI) Testing validated the responsiveness and usability of the system's interface across various devices, including desktops, laptops, tablets, and smartphones with differing screen sizes. Buttons, forms, menus, and dropdowns dynamically adjusted to fit each device, maintaining a clean and user-friendly layout.

In conclusion, the Faculty Evaluation System successfully passed all testing phases. The MySQL database demonstrated robust performance, ensuring secure and reliable data handling, while the system’s interface and functionality proved efficiency and user-friendliness. These outcomes indicate that the system is ready for deployment, with all identified issues addressed to deliver a seamless experience for users.

4.5 Non–functional Requirements

There are several attributes of software that can serve as non-requirements. Below are quite good number of them and measures that have been put in place to ensure that they are well mitigated. By handling them and since they have been put into consideration the performance of the system will be greatly improved. They include:

a) Reliability

To ensure that the system is reliable several measurers will be put in place.

- ✓ Use of a language that has minimal failure rate.
- ✓ Perform unit integration testing.
- ✓ Perform entire integration testing.
- ✓ Perform a performance testing.
- ✓ Have peer review the system to find existence of factors that would slow down the system. This will help project the MTBF (mean time before failure) and aim to improve it.

b) Availability

Specific factors required guaranteeing a defined availability level for the entire system such as checkpoint, recovery, and restart will also be set in place by the system development team. This system will run only infrequently on-demand therefor will be set in a way to allow reboot in case failure is detected. The required availability will greatly impact the design.

c)Security

To ensure that the system is protected from those that would mean to harm it by either accidental or malicious access, use, modification, destruction, or disclosure, specific requirements to be set in place in this area will include:

- ❖ Establishment of Identity Upfront
- ❖ Keeping specific log or history data sets
- ❖ Assigning certain functions to different modules
- ❖ Restricting communications between some areas of the program
- ❖ Checking data integrity for critical variables

- ❖ Protecting the Database from SQL Injection.

d)Maintainability

To ensure that the system is easily maintainable, the development team will ensure that the following factors are kept in the development process:

- ➢ Keep unit interfaces small.
- ➢ Separate concerns in modules.
- ➢ Couple architecture components loosely-Top-level components of a system that are more loosely coupled are easier to modify and lead to a more modular system.
- ➢ Development team will focus on Writing a clean code will make the system easily maintainable.

e) Portability

To make this system portable, several measures have been involved. These include:

- All the code used in this software will be inbuilt and well protected thus easily portable.
- Development will be done with PHP and JavaScript.
- This system will be developed using windows OS.

f) Performance Requirements

The Courier Management System must be designed to handle high levels of user activity efficiently. It should be capable of supporting up to 1,000 simultaneous users without any degradation in service quality. This ensures that the system can manage peak loads during busy periods, such as holidays or sales events, when multiple customers, couriers, and administrators are accessing the system at the same time. Additionally, the system's architecture must ensure that the average response time for user requests remains under 2 seconds. This includes critical actions like loading order details, processing payments, and updating delivery statuses. Fast response times are essential for maintaining a smooth user experience, minimizing frustration, and ensuring seamless interactions between customers,

couriers, and administrators. Techniques such as caching, load balancing, and database optimization will be employed to achieve these performance benchmarks.

CHAPTER 5: CONCLUSION, EVALUATION AND FURTHER WORK

5.1 Introduction

This chapter reviews the progress and outcomes of the Courier Management System project in relation to its general and specific objectives. It evaluates the success of the system in achieving its intended goals, outlines challenges encountered during the development process and proposes future improvements for the system.

5.2 Review Objectives

The general objective of the project was to develop a user-friendly web-based platform that allows admin and staffs to handle shipment information while promoting accountability. This objective was achieved through a system that streamlines the evaluation process and ensures actionable feedback is provided to administrators.

The specific objectives were addressed as follows

- **To develop an online user-friendly faculty evaluation system**.
  The system features a clean, responsive interface designed using HTML, CSS, and Bootstrap, ensuring ease of use for staffs and administrators. Dropdown menus and intuitive navigation.
- **To integrate authorization and authentication protocols for secure access to data.**
  Role-based authentication and authorization were implemented to ensure that only authorized users, such as staffs and admins could access the system's features. Secure login mechanisms, such as encrypted passwords, were employed to prevent unauthorized access.
- **To deploy an efficient and reliable database system to store and manage data.**
  MySQL database was developed to manage and store all system data efficiently. Tables for users, track list, cargo items and cargo list were created with proper relationships, ensuring data integrity and ease of retrieval. Queries were optimized to handle real-time operations without significant delays.

5.3 Future Development

Although the system is functional and achieves its core objectives, there is room for further enhancement. Future iterations could integrate advanced accessibility features, such as audio input and multilingual support, to make the system more inclusive. Advanced analytics and machine learning algorithms could provide deeper insights into faculty performance trends.

Additional features, such as automated notifications for incomplete evaluations and more interactive visual reports, could improve the system's efficiency and usability.

5.4 Challenges Faced

Several challenges were encountered during the development process. Safeguarding student identities while ensuring feedback was securely stored required significant design considerations.

Achieving cross-browser compatibility posed initial difficulties, as some browsers like Microsoft Edge had slower load times compared to others.

Implementing an intuitive and accessible user interface took multiple iterations to ensure responsiveness across different devices and screen sizes. Finally, time constraints limited the extent of system testing, particularly under high-stress scenarios.

5.5 Conclusion

The Faculty Evaluation System successfully meets its general and specific objectives, providing a secure, user-friendly platform for students to evaluate faculty members. The system enhances 37 transparency and accountability in higher education while ensuring data confidentiality and reliability. By addressing challenges and incorporating proposed future developments, the system has the potential to become an essential tool for improving the quality of education in institutions.

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