

SCHOOL PROPERTY MANAGEMENT SYSTEM

CASE STUDY: NABUMALI HIGH SCHOOL

BY

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DECLARATION

DECLARATION

I WAKWAALE DANIEL, Reg-No: BU/UP/2020/0655, hereby declare that this final year project report is the outcome of information concerning my own work.

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Date..... 24/01/2024

APPROVAL

APPROVAL

This Project Report has been submitted with the approval of my Supervisor.

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DEDICATION

First and foremost, I dedicate this Research project to the **ALMIGHTY GOD** who enabled me to start it and finish it successfully with good health and sound mind. Sincere appreciation and dedication goes to my lovely parents **MR. WALIMBWA SIMON PETER AND MRS. WATSEMBA JENIPHER WALIMBWA** who have tirelessly continued to finance my education to reach this level and may God bless you abundantly. Special thanks goes to my Supervisor **DR. LUKYAMUZI ANDREW** who tirelessly guided me through the project making and this report. Lastly I thank everyone that has put his/ her effort seeing me reach the apex of this educational level for example my lecturers, my course mates and friends especially **MR. ETONO ISAAC** who also continuously guided me. May the Almighty God bless you all abundantly.

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ABSTRACT

This project report is about School Property Management System which was designed to help schools manage properly their school properties by keeping proper track of available properties, those borrowed and those that are free. This could enable the school procurement committee to plan well.

The system consisted of three sections for example the customer's side where a customer would log in, view available properties, book a property of interest also send a message to the school where need be. The second section was the school which added available properties, viewed the customer's messages and bookings, updated on the available properties. The third section is the administrator who was able to update the system by making changes on accounts and could also view the properties available and those borrowed and also generating reports for some events in the specific periods.

The main aim as to why I underwent this research was to help schools to overcome the numerous shortfalls like poor storage of property records, tiresomeness during recording of property information on papers, time wasting and costly for customers who use the properties. This project was a combination of qualitative and quantitative methods. The researcher employed observation, interviews and review of documents as methods of data collection.

The methodology that was first applied was SSAD (Structured System Analysis and Design) used for analyzing and designing the structure of the system. This was followed by the Rapid Application Development) methodology which was easy to implement to a working system and saved time and finally the prototyping was also applied.

For management of the database, the researcher used MySQL and phpMyAdmin as my IDE to normalize, store and update data as well as other activities on data like MySQL work bench to draw the data structures. With text editors, visual studio was used. Furthermore, the researcher used php to link the MySQL for the database and the HTML, the html for creating web pages and forms, java script for popups, alerts or notifications and CSS for styling pages as the programming languages as well as bootstrap as one of the technologies (libraries) used to make multiple page styling easier. Then the researcher also used Xamp local server to probably host the system on the local device and the system itself was simply accessed through web-browsers

like Google chrome and internet explorer. This system was then confirmed to run on the windows XP Operating system.

LIST OF ABBREVIATIONS AND ACRONYMS

- SPMS: School Property Management System
- HTML: Hypertext Markup Language
- PHP: Hypertext Preprocessor
- CSS: Cascading Style Sheet
- IDE: Integrated Development Environment
- SSAD: Structured System Analysis and Design
- RAD: Rapid Application Development
- DFD: Data Flow Diagram
- ERD: Entity Relationship Diagram
- UPS: Uninterruptible Power Supply

CHAPTER 1 INTRODUCTION

1.1 Background

Property refers to anything over which a person or a business has lawful rights. Property could be a tangible item such as a car, furniture, industrial equipment, etc. or could be intangible items such as stocks, patents, etc. Most of the properties contain present or future monetary value and that's why they are sometimes considered assets.

School property refers to any property owned, leased or rented by the school. These include buildings, playing fields or property used for school purposes to impart instruction to children or used for functions and events sponsored by a school, except a building used primarily for adult education or college extension courses.

In most Schools, school property is taken care of by the board of governors of the school, the parents' teachers association and the school administration which is led by the head teacher.

Effective Property Management is crucial for maintaining the quality and value of school property. Addressing budgeting constraints, investing in human resources, leveraging technology, collaborating with stakeholders, and ensuring regulatory compliance is important to optimize the management of their school property and ensure a safe, functional, and high-quality learning environment for students. (Eddie Chi-Man Hui et al., 2011)

Nabumali High School is a mixed boarding school comprising of both Ordinary and Advanced levels. It is located in Nabumali village after Nabumali trading center in Mbale district along Mbale-Lwakhakha highway. The school is a traditional church founded school and it is currently government aided.

As a school, it possesses different properties that is to say desks, textbooks, buildings among others.

1.2 Problem Statement

School properties are commonly managed and maintained by the head teacher who plays a big role of giving permission to anyone for using any given property and also takes records of the properties that have been hired. Most head teachers use a manual way to store the details of the property as well as information about the people who hired the properties by using notebooks,

papers or word document files. They also use the same methods to generate reports whenever needed which may be stressing and impossible to track some of the properties and the hirers' records afterwards. This makes it hard for them to track the usage and return of the hired property hence leading to lose of school property.

Therefore I have developed a web-based School Property Management System (SPMS) that can store all such details within the reach of the head teachers, the customers and other concerned authorities making their work much simple.

The Property Management System (PMS) application provides a relational database to support the management and accountability of the Administrative Sciences Department property. (Sexton, 1987)

1.3 General Objective

The main Objective of this study was to develop an online school property management system.

1.3.1 Specific Objectives

- i. To review the existing literature, gather and analyze requirements for developing an online school property management system.
- ii. To design an online School Property Management System.
- iii. To develop an online School Property Management System.
- iv. To test and validate an online School Property Management System.

1.4 Significance of the study

Upon the successful completion of developing a web-based School Property Management System, it led to the following significances;

This project enables the school managers of the school where the study was done from to make proper follow up of their hired/ borrowed properties. And also enabling the school administration to know the properties they have, those that are spoilt and those that are in stock / working such that they are able to make proper planning for them in order to enable proper utilization/ usage of the resources or properties available.

In addition to that, this system can be used/ applied in other schools/ institutions with related structures to gain similar benefits.

This study can also be used as a reference to the future researchers for future work in case of any addition to the project.

1.5 Scope of the study

This study was conducted in Nabumali High School. The school is located in Eastern Uganda, Mbale district 13km off Mbale-Tororo road on Lwakhakha high way and the study successfully came up with a web-based School Property Management System and automation of school property management.

The study was carried out from September, 2023 to January, 2024 taking about five months for its completion. The study focused on School Property Management and aimed at simplifying the work of schools in taking records and keeping track of all school properties and ensuring their proper usage by those who use them. Its area scope covers the customers who hire the properties and the school authority who gives them out to the customers.

The school property management system provided a security module with three levels of access including the Administrator, school and the community members. The Administrator was responsible for monitoring and maintaining the website, property requisitions and hence creates forms to be filled by the community members who would like to borrow or hire some of the school properties. The Community members were able to log in, view available properties, send message to the school and also made proper and convenient requisitions to the School through the system. This is after they registered by filling a form with their personal information as well as their log in information which called for validation.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This chapter comprises of a comprehensive analysis of information on theoretical and practical views of other research projects conducted on school property management giving the researcher a clear understanding of the School Property Management System (SPMS) as it provided an insight about the study topic, pointing out what other researchers have come up with hence giving the research gap and the background information which provided a boundary of the research helping in the connection between what had been done and what was being done. It was sub-divided into different sections for example information systems, reviews on existing systems in real-world scenarios. Loopholes of the current system, relevance of the School Property Management System (SPMS).

Majority of the taxpayers and electors in a school district, for other than school purposes, use or permit the use of the schoolhouse built with funds raised by taxation. The fact that all over the state, the school house is, by general consent or at least without active opposition used for a variety of purposes other than the holding of public schools. Sabbath schools of separate religious denominations, church assemblies, sometimes political meetings, social gatherings etc are held there (I.N.Edwards., 1926)

There has been a growing interest in school property management, particularly in the areas of facility planning, maintenance and financing. Majority of the articles published were empirical studies with a focus on the impact of school property on educational outcomes and the role of property management in achieving the outcomes (Wei Zhou et al., 2019).

Currently, the school uses papers and physical books to record and store details concerning their property and those who would like to use any of the school properties has to physically travel to the school premises and make a requisition to the school head or the authority concerned and thereafter the terms and conditions to give out property will be considered to determine whether to grant permission or not in order to use any of the property. Some individuals are able to make phone calls to know whether what they would like to request for is available at the school and the terms and conditions accompanied on them before they make their requisitions. It is found that it is a long process where an individual has to ask about the list of items/ properties available

including the terms and conditions which is sometimes not trustworthy which leads to confusion thus affecting the relationship between the community members and the school.

2.2 Terminologies

The following are some of the terminologies used in this research study.

2.3 Property

A property is something that belongs to somebody in a legitimate way or something that is proper to somebody (Plato (428/427-348/347 BCE)).

Also Alternative investments by (Andrew Bloomenthal, April 06, 2022), states that a property is a term describing anything that a person or a business has legal title over, affording owners certain enforceable rights over said items. Examples of property which may be tangible or intangible include automotive vehicles, industrial equipment furniture and real estate.

Most properties hold current or potential monetary value and are therefore considered to be assets. But properties can simultaneously be liabilities in some situations. In a case where a customer sustains an injury on a company's property, the business owner may be legally responsible for paying the injured party's repairing/ replacement bills.

Property can be tangible items such as houses, cars or appliances, or it can refer to intangible items that carry the promise of future worth such as stock and bond certificates. Other types of intangible property such as a brand's reputation, are more nebulous and cannot be signified by a paper document.

The future of facilities management in schools will be shaped by the changing role of school properties, driven by technological advancements, changing demographics, and a growing emphasis on sustainability. Facilities management professionals must adapt to these changes by adopting a proactive and strategic approach embracing continuous improvement and innovation, and focusing on sustainable practices. By doing so, they can help to create a better learning environment for students and ensure that School properties continue to play a vital role in delivery of education (James H.Davis, 2016).

2.4 School Property

School Property refers to tangible and intangible assets owned or controlled by a school. It encompasses physical assets such as buildings, equipment and furniture as well as less tangible assets such as curriculum materials, teacher expertise and student relationships (Dewey, 1899)

School property refers to resources that facilitate learning and development (Lev Vygotsky 1934). In “Thought and Language”, Vygotsky discussed how the school environment, including its physical and social aspects, can shape a child’s cognitive abilities. He argued that school property comprises not only tangible resources but also the social relationships and interactions that occur within the school setting. In addition, (Jerome Bruner, 1966) argues that school property includes not only physical assets such as books, laboratories and play grounds but also the intellectual capital of teachers, the curriculum, and the school’s culture. He emphasized the importance of a holistic approach to understanding and utilizing school property to enhance learning.

School Property means in or within any building, structure, athletic playing field, playground, parking lot or land contained within the real property boundary line of a public elementary or secondary school, or in or on a school bus as defined in Vehicle and Traffic law 142 (Mohonasen, Aug, 2013)

2.5 School

The basic school by (Boyer, Carnegie Foundation 1995), states that a school is a place where everyone comes together to promote learning.

According to (Dictionary), a school is a place where people can study a particular subject either some of the time or all the time.

In addition, ancient Greek philosopher, Plato defined a school as an institution where individuals gather to learn from an expert or teacher. In his work “Republic”, Plato envisioned an ideal educational system where children would be educated in a communal setting, guided by philosophers and teachers who would impart knowledge on various.

A school comprises of various components that contribute to its functioning and effectiveness. These components include the curriculum, the teachers, students, administrative staff, physical infrastructure and community involvement. Curriculum refers to the planned course of study that

outlines the subjects, learning objectives, and instruction methods for each grade level. It provides a framework for teachers to deliver content and assess student progress. Teachers are the key facilitators in a school who impart knowledge, guide students learning and provide support. They possess subject expertise and employ pedagogical techniques to engage students and promote their intellectual development. Students are the primary beneficiaries of education with in a school. They actively participate in the learning process, acquire knowledge, develop skills and interact with peers to enhance their social abilities. Administrative staff are members who handle various administrative tasks such as admissions, scheduling, record keeping, financial management and overall coordination of the school. Physical Infrastructure are the equipments that a school requires to support effective teaching and learning. Community Involvement is where schools collaborate with parents, local communities, and external organizations to volunteering programs, and partnerships with businesses.

2.6 System

A System is a group of interacting or interrelated elements that act according to a set of rules to form a unified whole (Wikipedia).

A system is a set of things working together as well as a set of principles or procedures to which something is done. A system consists of three major components including the input which implies something that goes into the system, processes which is defined as type of work which must be accomplished in the system and lastly the output which is a desired product that must be produced. Regarding the school property management system, the input includes the property requested by an individual, the process includes the assessing and consideration of the requisition made by the individual. Lastly, the output is the reply made by the authority in charge of giving out property at school and the person who requested for the property is now able to take/ use the property/ item he/she requested for.

2.7 Property Management System (PMS)

Property Management System (PMS) is a software application for the operations of hospitality accommodations and commercial residential rental properties. Property Management System (PMS) is also used in manufacturing industries, local government and manufacturing. (Techtarget.com)

Integration of Property Management Systems with other Business applications leads to improved decision-making streamlined process and enhanced communication with in educational Institutions. It can be achieved through various methods, such as the use of Cloud-based platforms, enterprise resource planning (ERP) systems and customized software solutions. These approaches allow for seamless data sharing, real-time updates, and improved collaboration among different departments within a school(Dr.S.K.Dash & Dr.M.K.Nanda, 2011)

Main menu: The main menu includes a poster for the school, being visually appealing, and offer easy navigation to the other pages of the website. Customers or any community member can also learn more about our school properties. The primary menu is graphically shown below.

Property Administrator: The person administering the property must first register before posting the property on the internet. Following a successful registration, the property administrator can log in and continue.

Search module: In the search module, users can look for various sorts of property that registered users have uploaded. The user will learn all the specifics about the property, including its address, size, renting estimated cost, and other relevant information.

Module for administrators: In the module for administrators, administrators permit the uploading of properties and make them visible to users conducting property searches. In order for users to upload their property according to the category and type, the administrator can add new categories and types of property to the system.

2.8 Loopholes in the current system

Here we talk about the weaknesses of the current system that is intended to be improved and these include;

Time consuming. This occurs in a way that the customers physically appear at the school, wait for the people in charge of the property to attend to them in taking their request. Furthermore the property to be given out is first analyzed and precautions are designed before the property is given out which delays the process of a person being given what he/ she wants in time.

Manual work consumes large volumes of data. The orders placed by the various customers are written down by the secretary on a piece of paper usually a notebook which is tiresome as he/she

has to assess through all the orders made before granting a customer a property of the school which is difficult especially when the turn up of customers is high.

Inconvenience of the customer needing to have a physical copy of the menu. This is inconvenient in such a way that the customer has to travel to the restaurant to get a copy of the menu before ordering thus incurring costs in terms of travel expenses.

Difficulty in tracking customers' past history. This is due to the manual and large volumes of data that is normally recorded on paper which is in most cases thrown away by the waiters after delivering the food to the respective customers. Therefore there are no or very few records kept about the different orders placed by customers. Sometimes the manual records are misplaced thus difficulty in tracking the past history records.

2.9 Relevance of the school property management system

This project is aimed at developing an online school property management system which can be used in all schools and other institutions of learning. Relevance implies the merits as well as the reasons as to why the online school property management is aimed at. The following are some of the merits of the system that have been implemented;

Greatly the system simplifies the ordering process for both the customers and the school. This saves time spent by the customer travelling to the school to take a look at the facilities before ordering. Therefore with the online school property management system, one is able to look at the facilities on the website, make orders as well as make the necessary transactions after which the facility or equipment is delivered at the respective workplace or destination specified or given permission to use the requested equipment or facility.

Ensures data accuracy during order placement process. This is due to the interactive interface that has provision for customers to view the equipment available as well as have a visual confirmation that the order was placed correctly.

Minimized manual data entry. This simplifies the work of the schools as there is no or limited need of recording the different orders of customers on a piece of paper which would have otherwise been misplaced or thrown away. Thus tracking customers' past history becomes easier since devices are used as well as modern ways of storage of data including the database management system which is responsible for manipulating and retrieving data when needed.

Ensures frequent tracking of the customer orders from the time of entry through preparation and delivery.

CHAPTER 3 METHODOLOGY

3.1 Introduction

This chapter talks about the system design, data collection methods, sampling strategies and data analysis that were used in the study. The main method of system development that was used is the iterative approach.

3.2 Area of study

The study was conducted at Nabumali High School in Mbale because it has various equipments and facilities which people within and outside the school can request and use at negotiatiable terms. Henceforth the focus was towards understanding the mode of operation of the current property management system at Nabumali High School.

3.3 Sampling

This study involved 6 respondents from whom data was collected namely; 3 community members who neighbor the school, the estate manager of Nabumali High School and 2 administrators. Non probability sampling was used as it involved nonrandom selection based on convenience allowing one to easily collect data from the respondents.

3.4 Iterative model

This is the main method that was used for system development. It took the waterfall model which emphasized a logical expression of steps including requirement specification, system and software design, implementation and testing, verification as well as maintenance. Henceforth the iterative model cycles the waterfall model through it several times in small increments.

3.5 Data collection

3.5.1 Sampling methods

The study considered non probability sampling i.e. purposive sampling as it involved the researcher using their expertise to select a sample that was most useful to the purposes of research. It was used in qualitative research as one got detailed knowledge about a specific phenomenon rather than making statistical references. Henceforth interviews and observations were used for data collection.

3.6 Participants in sample

Table 1: Respondents about the school property management system

Respondents	Number of respondents
Estate Manager	1
Community members	2
Administrator	2
Total	5

3.7 Data Collection Methods

Data was collected using observation and interviews.

3.7.1 Observation

(Goffman, 1967) argued that the best way to understand social interaction is to participate in it. This is a qualitative research technique used to study and collect data on human behavior, social interactions, and natural phenomena. It involves observing and recording events, actions and patterns in a systematic and unobtrusive manner. It helps the researcher gather firsthand information about the subject which can be difficult to obtain through other research methods. The primary goal of the observation method is to gain a deeper understanding of the subject being studied without influencing the outcomes (Ankit Kumar (M.Phil.Research Scholar))

3.7.2 Interviews

This technique involved asking open-ended questions to converse with respondents and collect elicited data about a subject. This involved the interviewer who in most cases was the subject matter expert to understand respondent opinions in a well planned and executed series of questions and answers. These were used as they helped one explain, better understand and explore research subjects' opinions, behavior, experiences and phenomenon.

3.7.3 System design

The online schools property management system is a website that is completely web based and is developed using PHP. The system consists of an admin panel that provides id and password through which the property administrator starts doing his job of inserting the property and the actual price of hiring. Thereafter the customers can visit the page and place their requisitions as well as set the time for usage.

The system has a home page where multiple options allow the user to choose different items with the actual price. In addition, the system has a system administrator who has the right to add and manage user accounts as well as a manager who manages item and requisitions. Furthermore, the structure of the system is divided into three main components i.e. the property category management system which allows the school to control what can be requested by customers. Secondly, the web requisition/ ordering system which provides the functionality for customers to place their requisitions and supply all necessary details.

The final component which is the order/ requisitions retrieval system that was used by the school to keep track of all requisitions that have been placed. It goes on to take care of retrieving and displaying requisitions information as well as updating requests that have already been processed.

CHAPTER 4 SYSTEM ANALYSIS AND DESIGN

4.1 Introduction

This chapter presents the background information of the current system in the organization, the strength and weakness of the current system, system requirements that involve functional and non-functional requirements and the system design.

4.2 Background of the current system

Nabumali High School is a traditional church founded school which is mixed and entirely operating as a boarding school. It is located in Nabumali town council off Mbale-Lwakhakha highway. It is located 3km from Mbale-Tororo road. Its main work is to provide educational services to learners within and outside the neighbouring communities. The current system is a manual school property management system. All the properties are recorded in the book and on papers and the requirements made by people are also recorded on papers which makes it hard for the property in charge to easily know which property is in and which one is out.

4.3 Weaknesses of the existing system

- 1) The papers occupy a lot of space due to many customers coming to make requisitions of the available properties.
- 2) The existing manual system is insecure because an unauthorized person may locate the documents and carryout modification on the data without permission.
- 3) Searching for specific data from the documents is difficult and constant usage of the papers wears them out hence loss of the important data.
- 4) There is much time and labor wasted in recording every individual's details.
- 5) Generation of overall reports is tedious due to information stored in various files that's to say visiting each individual file writing down the required information in order to come up with the final reports is extremely hard.

4.4 The designed system

The designed system is a computerized system where all the information about a particular property and requisitions made by different individuals is captured electronically in the computer. It eliminates any paperwork, any activity to be done on the stored data like modification, retrieval and generation of reports is automatically done.

The main difference between the old system and the new computerized system is that data capturing and processing is computerized and that computers, smart phones and tablets are used

instead of papers and forms. It needs small space for storage and it's also much more efficient since it can generate reports within minimum time and minimal errors.

4.5 User Requirements

The staff in charge of school properties are the primary users of the system. Each user is required to have a user name and a password that's is verified first before gaining access to the system.

Depending on their levels of privileges, they perform different activities as follows;

Administrator user (adds records, views all the information, makes modification, deletes records and views all the reports).

School (adds the properties that can be hired and also updates the properties available and those which are already booked or hired).

Customer (views all the properties that have been hired and those that have not been hired, and also books a property of his or her choice as long as it is not yet booked by another person).

4.6 System Requirements

These are classified as functional and non-functional requirements.

4.6.1 Functional Requirements

These are specific functions, tasks or behaviors the system must support. They include the following:

- It should enable the management to view and search a particular data within a short time.
- It should authenticate users.
- It should enable the school to update and save information about the properties available and those already hired.
- It should be able to generate necessary reports.

4.6.2 Non-functional Requirements

- The system should be easy for users to learn and use with dynamic access of information by both skilled and unskilled users.
- The system should be able to authenticate users and provide different levels of access to avoid unauthorized access.
- The system should be cost effective with more or less effect on its implementation and maintenance.
- The system should be portable and light in order not to affect the throughput.
- The system should be very fast in data retrieval.

4.6.3 Hardware/ Software Requirements

Hardware and software requirements are the specifications that a device must have in order to use certain hardware or software. System requirements deal with hardware and software needed to run an application. They are usually used as guidelines as opposed to an absolute rule. Software requirements on the other hand, deal with the features and functionality that the application must provide.

4.6.4 Hardware Requirements

The hardware requirements include;

- ✓ A Universal hard disk drive of at least 80 GB.
- ✓ Random Access Memory (RAM) not less than 1 GB.
- ✓ Uninterruptible power supply (UPS).

4.6.5 Software Requirements

The software specifications required on the computer system include;

- ✓ XAMP (Version 3.2.4)
- ✓ Windows 7 or higher version.
- ✓ Internet browsers such as Mozilla Firefox and Google chrome.
- ✓ The system should have 32 or 64 bits Operating System.

4.6.6 System Design

Introduction

System design gives the details of how the system will meet the information requirements determined in the system analysis. (Connolly, et al, 1996) defines system design as the process of

creating a design for a database that will support the enterprises operations and objectives. From the system study, it was found out that its necessary to create a system with a central database that contains information about all processes of managing school properties' records to keep track of the activities involved. Two techniques were used to design the system; logical design and physical design.

4.6.7 Design Objectives

The system design meets the following objectives:

- i. Produces a system that overcomes the inefficiencies identified during the system study and optimally uses computer resources.
- ii. Allows accurate input of correct and valid data in the database.

4.6.8 System Architecture

System architecture is a conceptual model that defines the structure, behavior, and various views of the developed system. Architectural design involves decomposing the system into various sub systems that will work together to implement the overall system. It demonstrates how database systems and graphical user interfaces communicate with each other. This system is a web-based system therefore, the architecture involves content, web browser and database.

4.6.9 Context Diagram

This summarized how information flowed in the system. Context diagram is a diagram that defines the boundary between the system and showing the entities that interact with it. This diagram shows the overview of the system processes and functioning. The context diagram for school property management system.

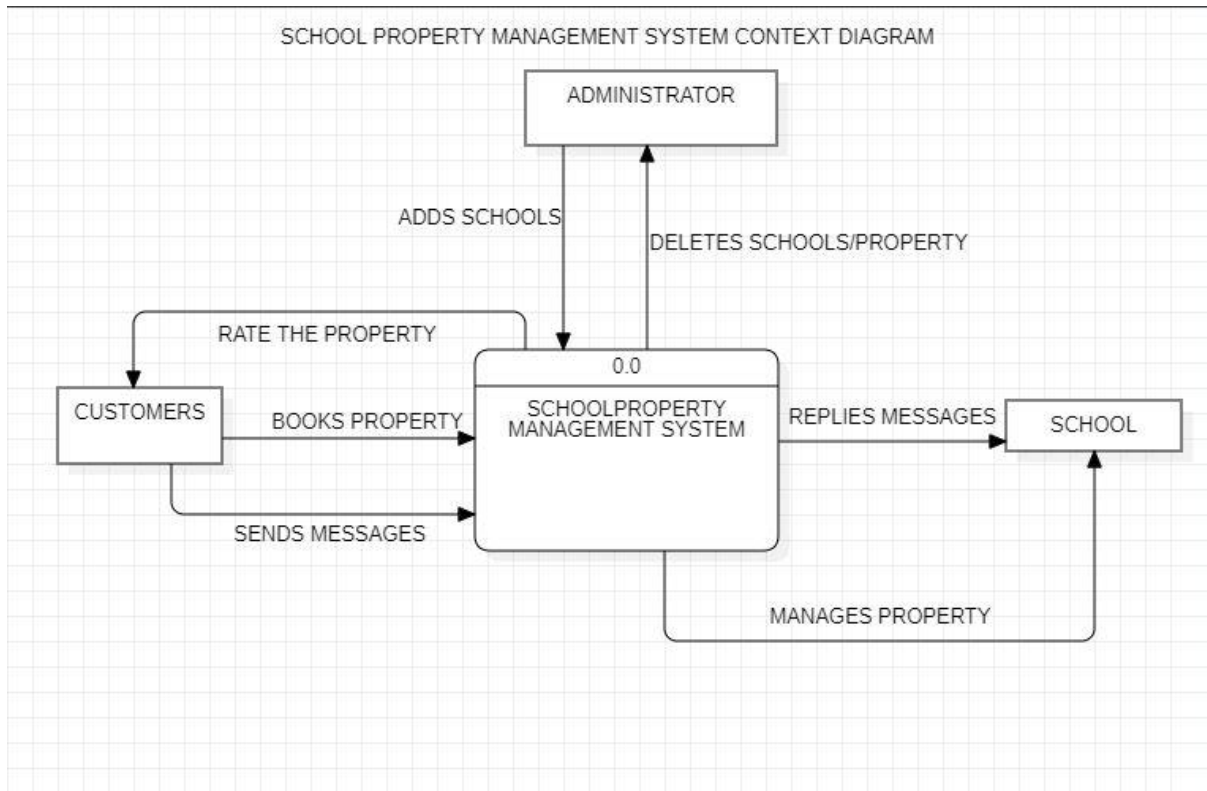


Figure 1: Showing Context Diagram

4.7 Use Case Diagram

Use case diagrams for each entity presented in the proposed system are now shown below.

These include the use case diagram for the School, the Customer and the Administrator. These showed the different activities performed by the three types of users.

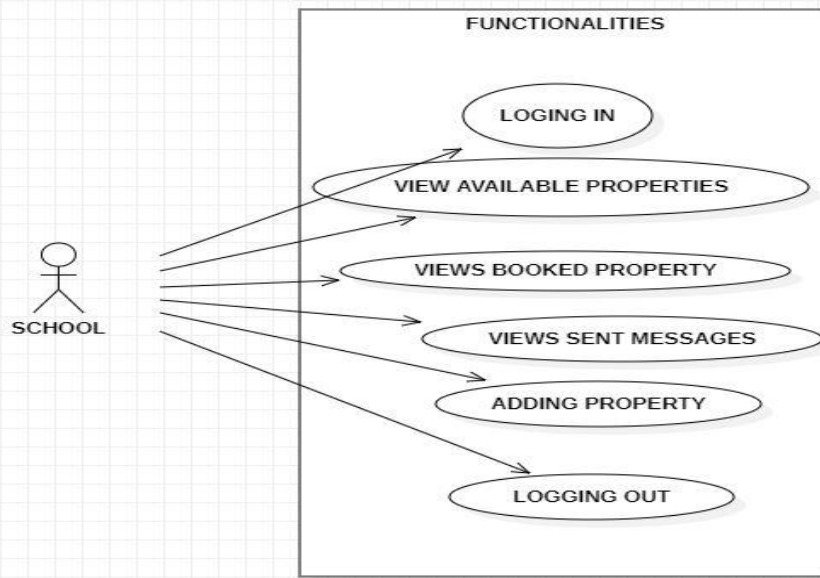


Figure 2: Showing the Use case diagram of a School

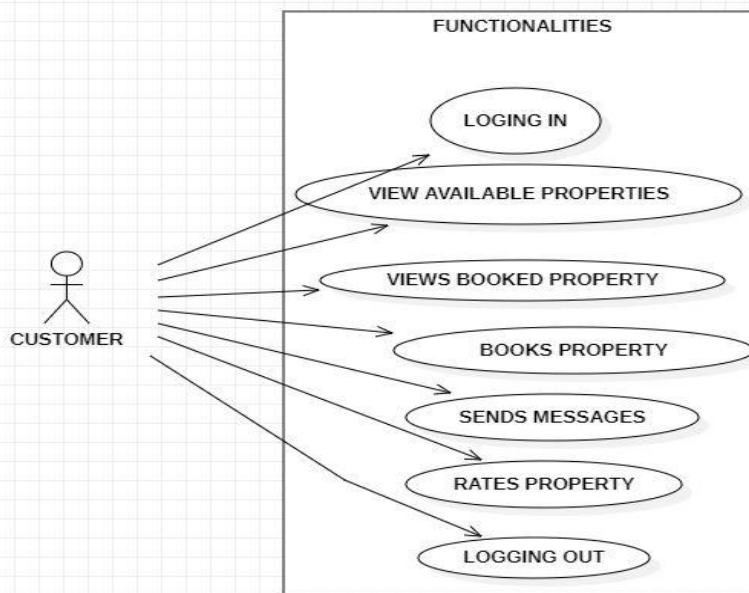


Figure 3: Showing the Use case diagram of a Customer

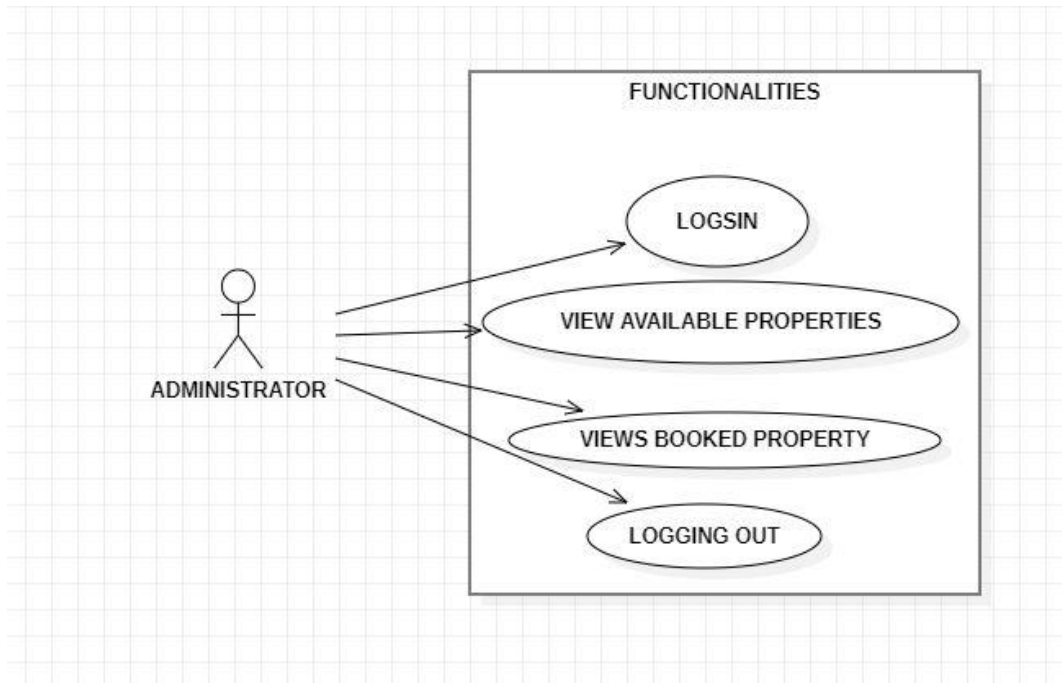


Figure 4 : Showing Use case diagram of an Administrator

4.8 Entity Relationship Diagram.

An Entity Relationship model describes things of interest. This is composed of entity types and specific relationships that exist between entities.

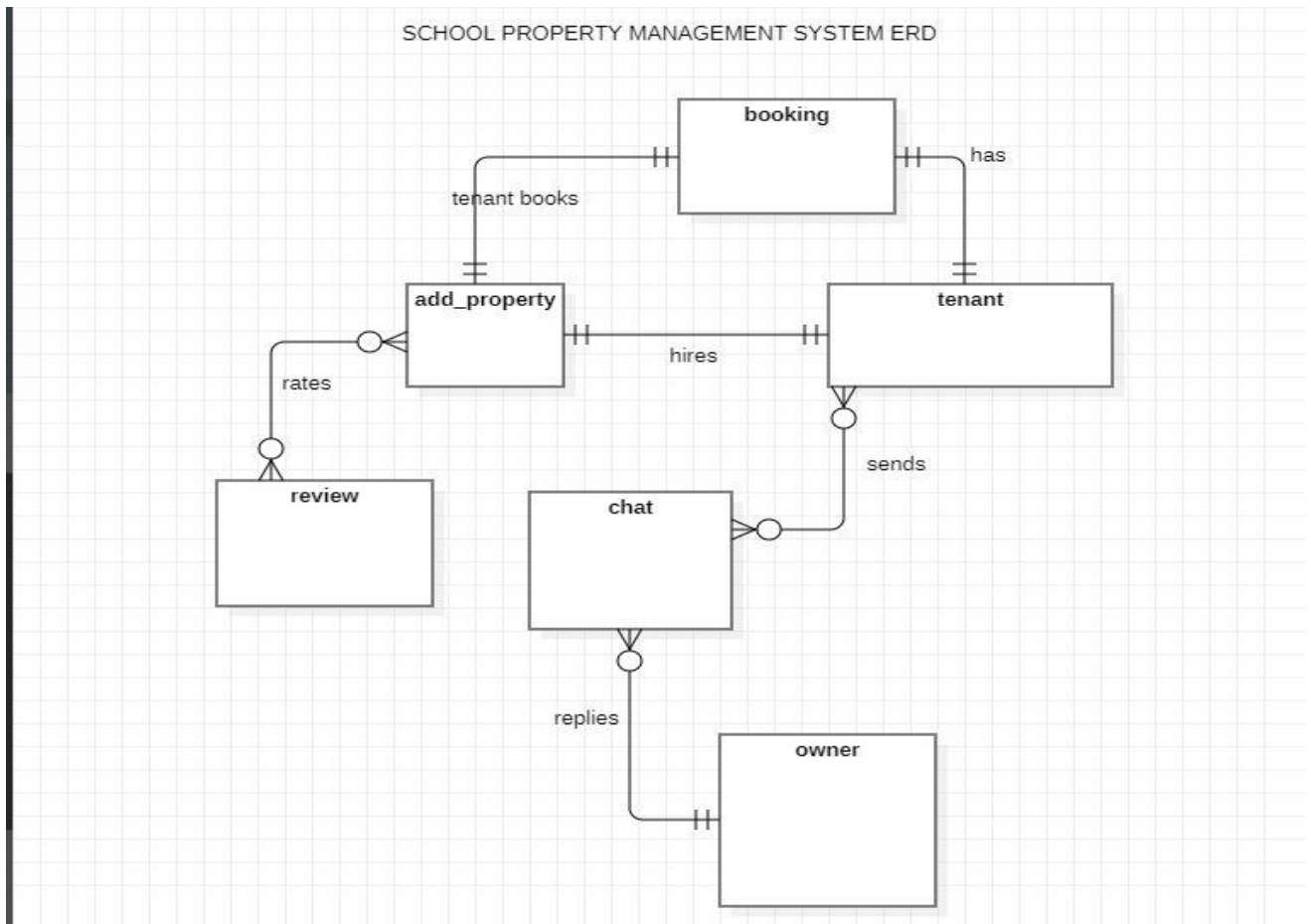


Figure 5: Showing Web-based property management system E-R Diagram

4.9 Physical Design of the System.

This is a very critical step in the overall system design process, as it directly impacts the system's performance, reliability, and scalability. This gives a clear architectural view of the system and some of the connectivity's among different modules that are integrated within the system. Below are some of the interface designs.

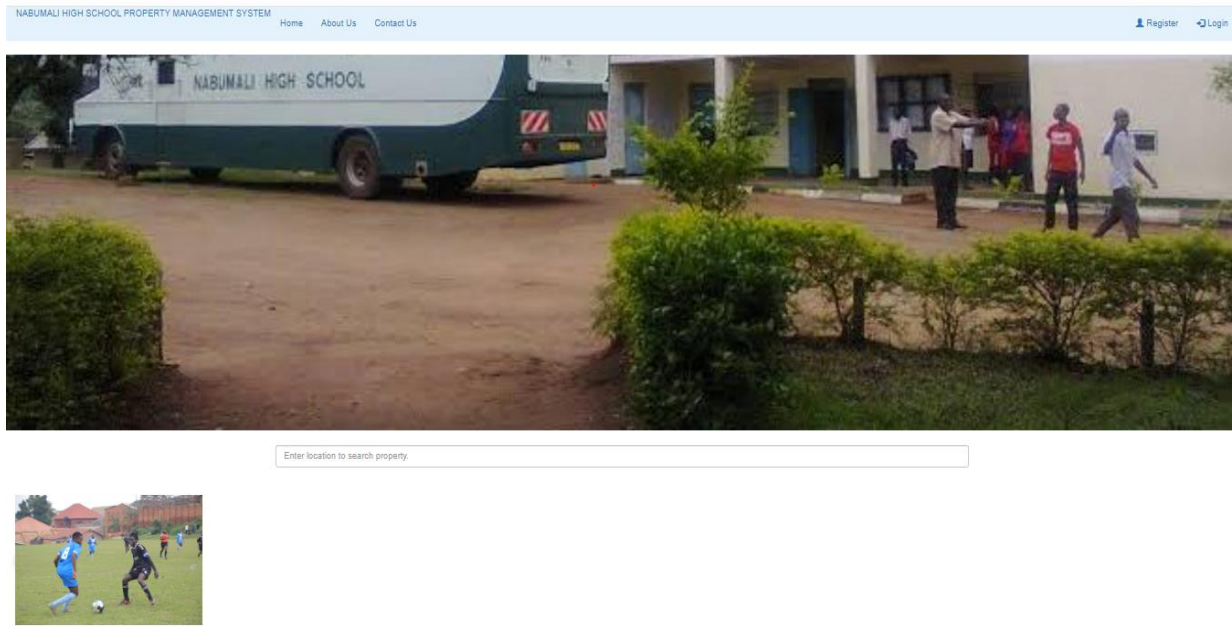


Figure 6: Showing the welcome page

4.10 Login page.

This is the first page to appear once the program is launched. It is mainly meant for security and authentication purposes. Below is the interface;

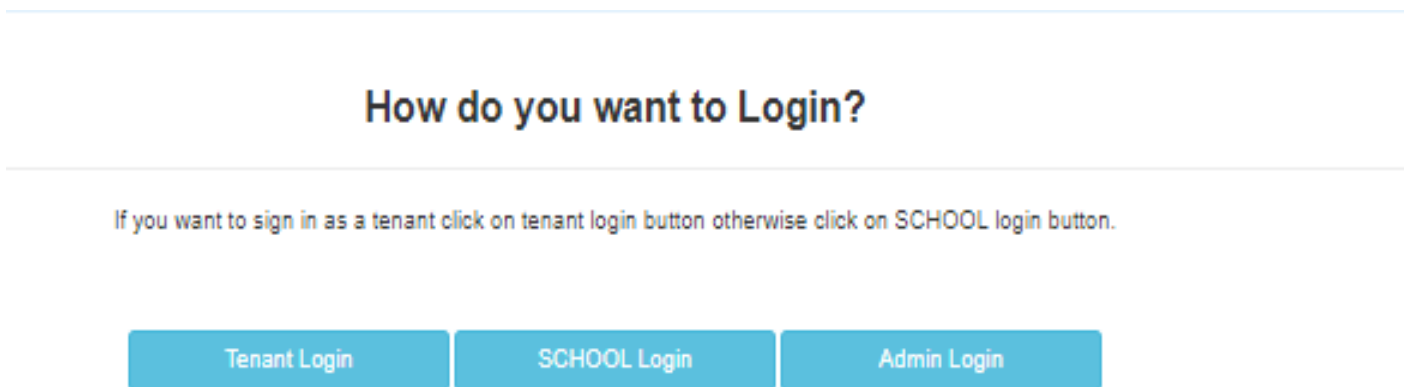


Figure 7 Login interface

4.11 Admin dashboard.

Upon successful login as an admin, the dashboard should display and provide a concise overview of essential information. Displays relevant statistics like all properties both booked and unbooked, customers who have hired and the updates made by the school.

It also includes a clear navigation menu that leads to different sections of the school property management system as shown below.

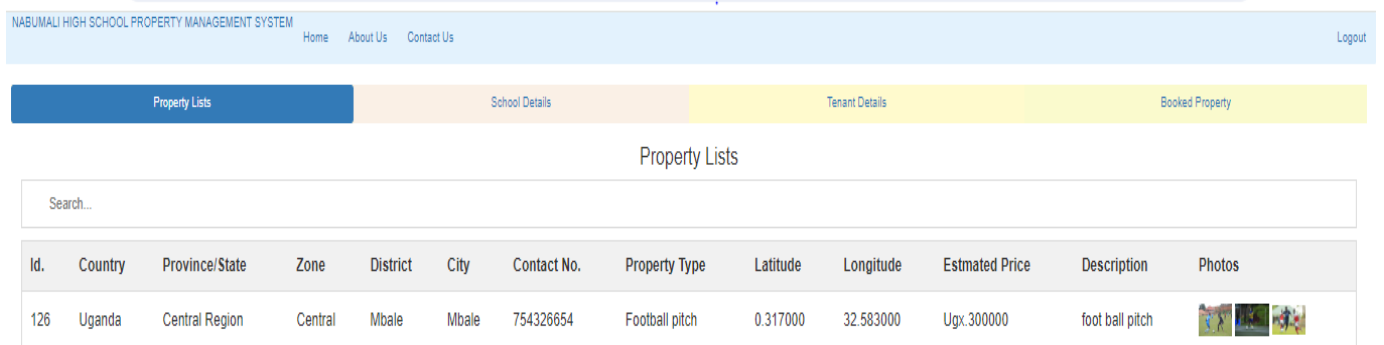


Figure 8 : Showing Admin dashboard interface

4.12 School dashboard.

After a successful login as a school, the dashboard should display and provide a concise overview of essential information like properties available, booked properties, customers who have booked the properties and the messages sent by the customers. It also includes a clear navigation menu that leads to different sections of the school property management system as shown below.

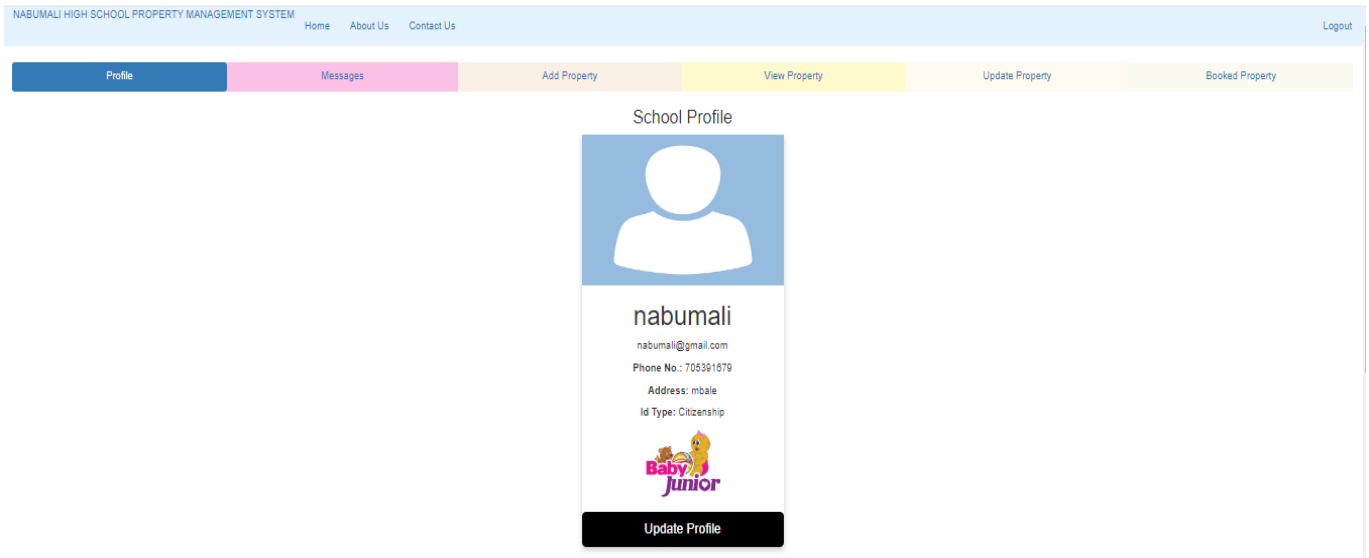


Figure 9 : Showing School dashboard interface

4.13 Customer dashboard.

Upon successful login as a customer, the dashboard should display and provide a concise overview of essential information like the bookable properties available and includes a clear navigation menu that leads to different sections of the school property management system as shown below.

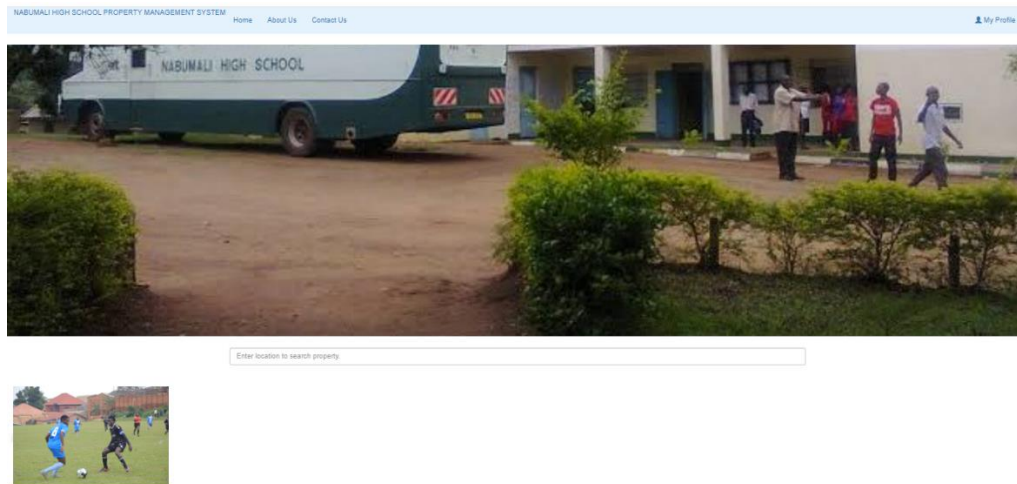


Figure 10: Showing the customer dashboard interface

4.14 Database Design

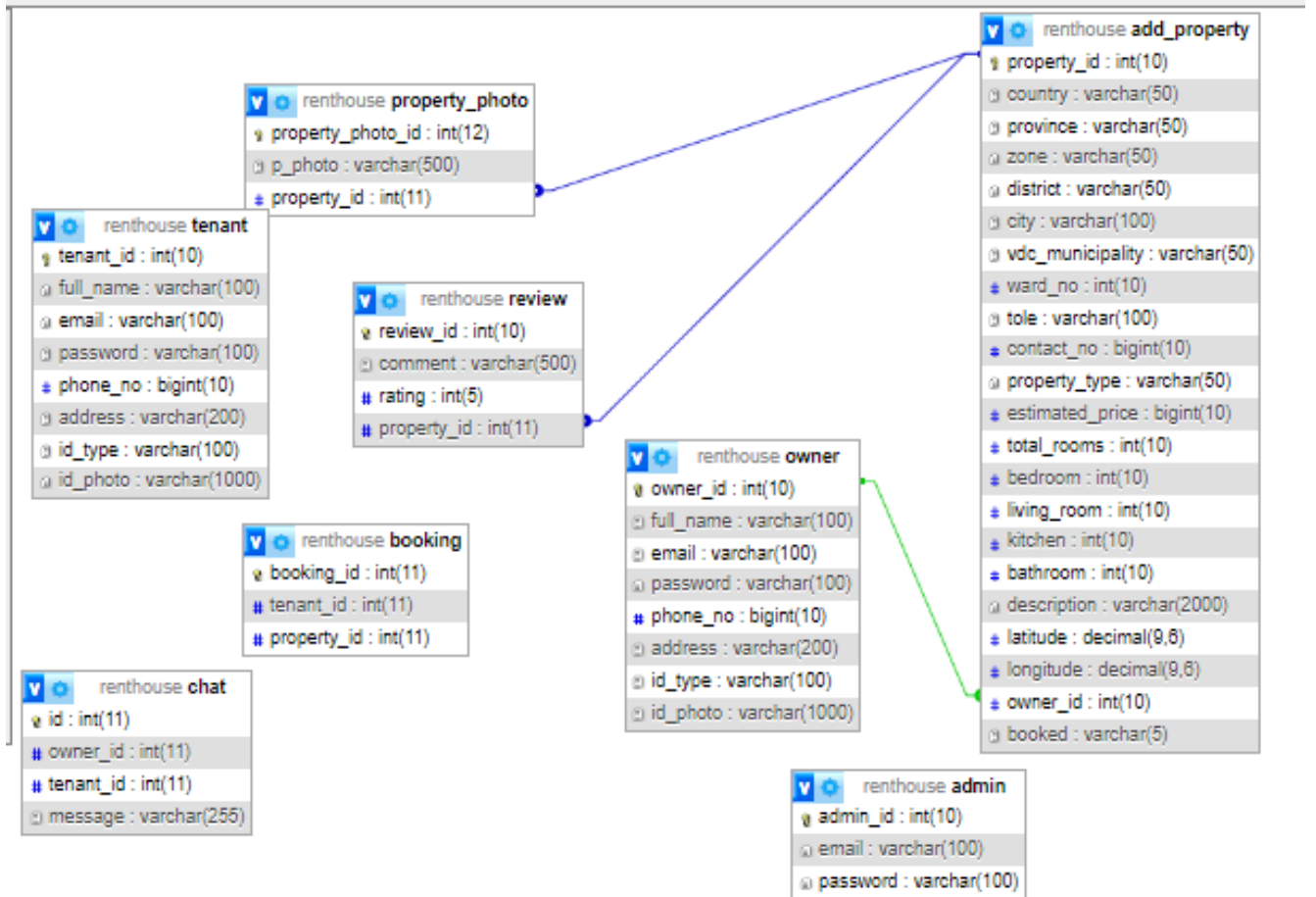


Figure 11 : Showing the Database design

CHAPTER 5 IMPLEMENTATION AND TESTING

5.1 Introduction

This chapter focused on fulfilling the use of the requirements i.e. functional and non-functional requirements into a working/ running system. It further presented implementation of the design presented in chapter four.

5.2 Interface Design

The main aim of user interface design is to make the user's interaction with the system as simple and efficient as possible, in terms of accomplishing user goals. It mainly focused on the looks and style of how a system appeared to the user referring to the customer and administrator in this case. The functional and non-functional requirements that were implemented for the school property management system include:

5.3 System Functionality

Login page

This is the first form that comes first when the program is launched. It's mainly meant for security and authentication purposes. Select nabumalishool from the list of all programs then the login form below will display.



Figure 12: Showing Login page

Enter the user email together with correct password and then click on “login” button to gain access. If the details supplied are correct, the home page is displayed and if the details are wrong

then the user is denied access and a message “wrong password, email or role; check them and try again” is displayed.

5.4 Dashboard (Admin)

This is the page window that is displayed after successful login. On it there are different tabs that help the user to create and update property lists. When logged in as a school, you can read messages from customers, add property which can be hired and also update the existing properties and those already hired. Also when logged in as a customer, you can send a message to the school, view the available school properties and also book the property.

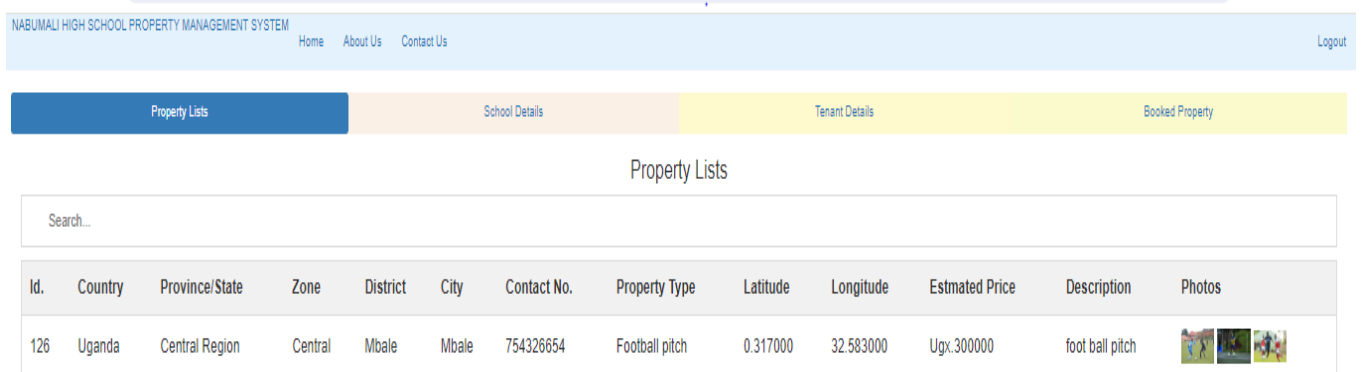


Figure 13: Showing the Admin dashboard

5.5 New Property Registration Page

This interface shows the property list where the school can add new properties and details for login before accessing the system. In addition, the admin can edit and delete the list of properties if they no longer exist.

NABUMALI HIGH SCHOOL PROPERTY MANAGEMENT SYSTEM Home About Us Contact Us Logout

Profile
Messages
Add Property
View Property
Update Property
Booked Property

Add Property

Country:

Province/State:

Zone:

District:

VDC/Municipality:

Tole:

Contact No.:

Property Type:

Estimated Price:

Full Description:

Latitude/Longitude: *Click on Button

Photos:

Figure 14: Showing the New property registration page

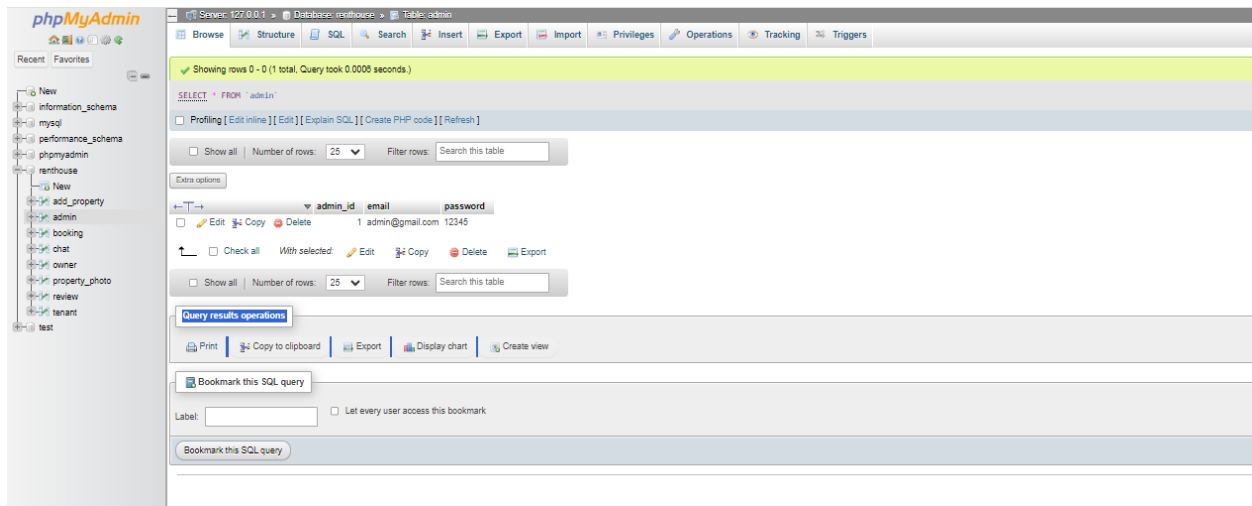
5.6 Data Storage

The system automatically stored the admin login details, customer, school and adding property as well as chats details into the system database “PMS” in tabular form. Some of the database tables include;

5.6.1 Admin Table

This table captured the e-mail and the password of the different users that accessed the dashboard.

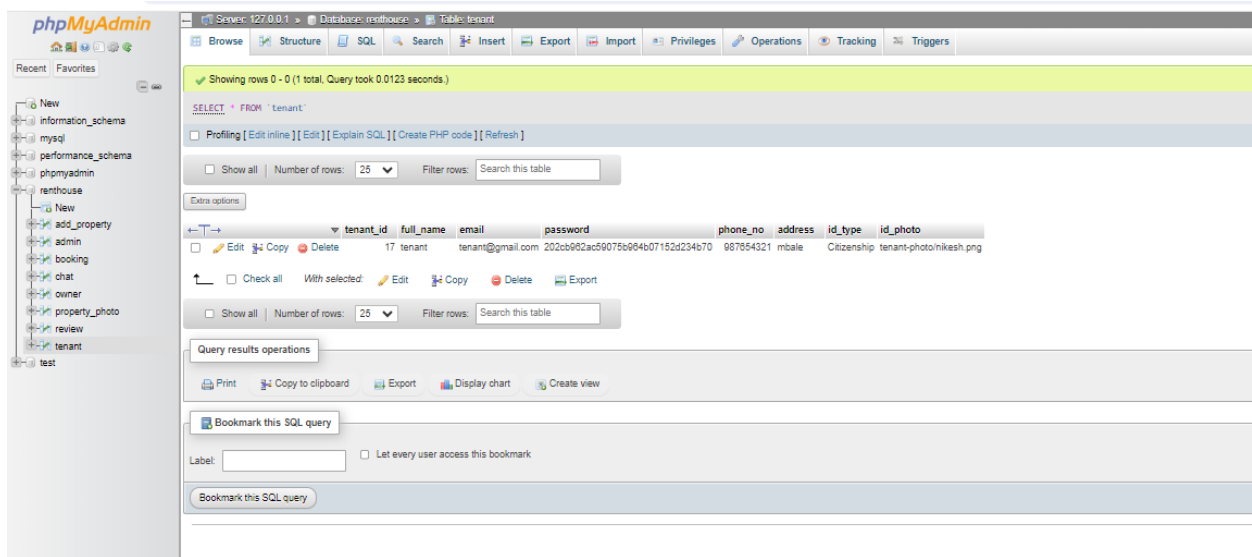
Table 2: Admin information table



5.6.2 Customer Table

This table captured the Customer id, full name, e-mail, password, phone number and the address of the different customer that registered in the system.

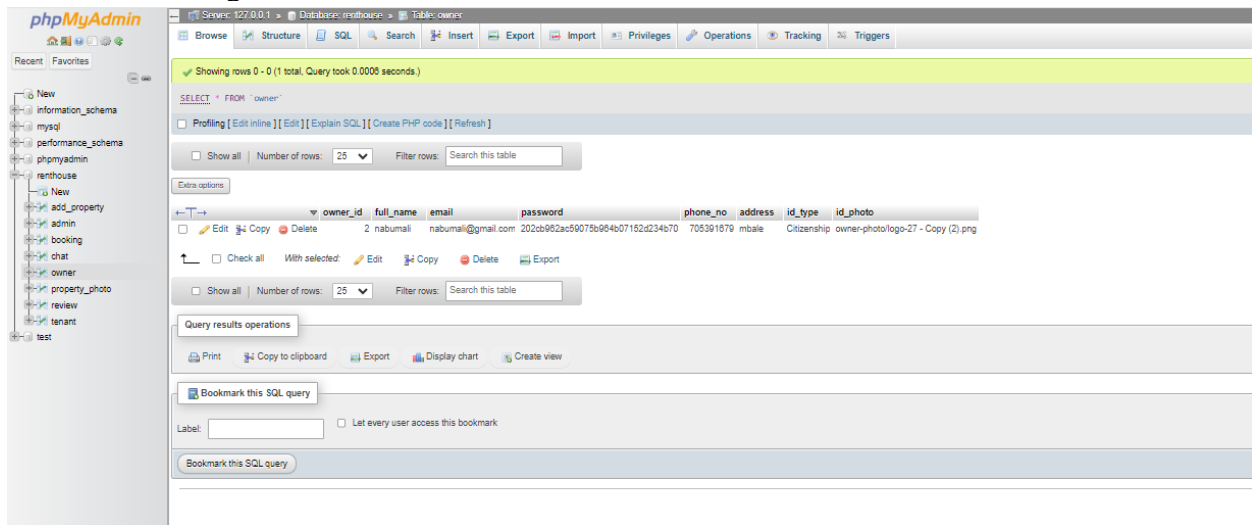
Table 3 : Showing Customer table



5.6.3 School Table

This table captured the school id, full name, e-mail, password, phone number and the address of the school added by the admin.

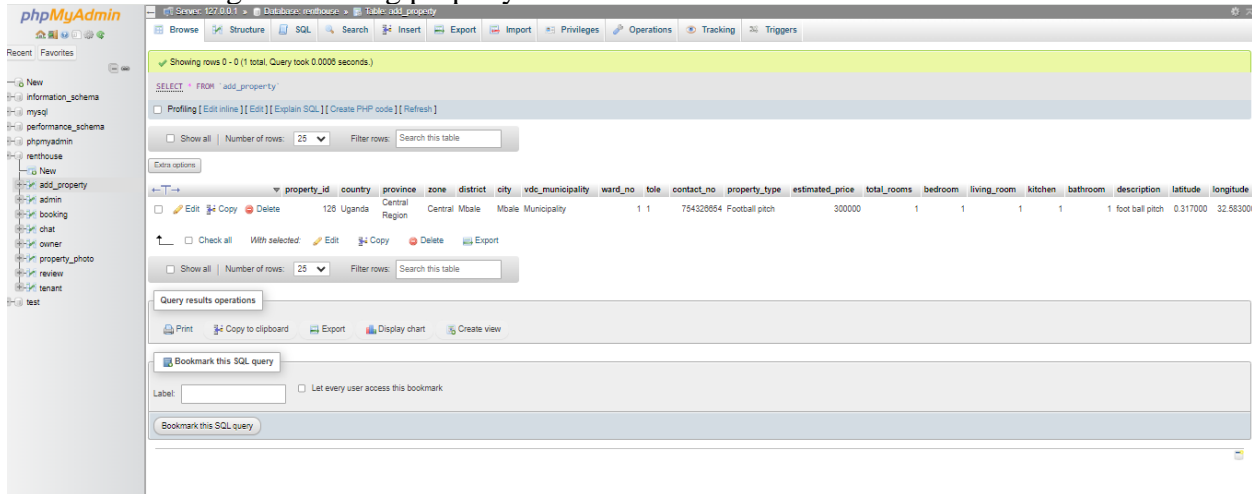
Table 4: Showing the School table



5.7 Adding Property Table

This table captured the country, province, zone, district, city, municipality, ward, toll, contact, property type and estimated price of the property added by the school.

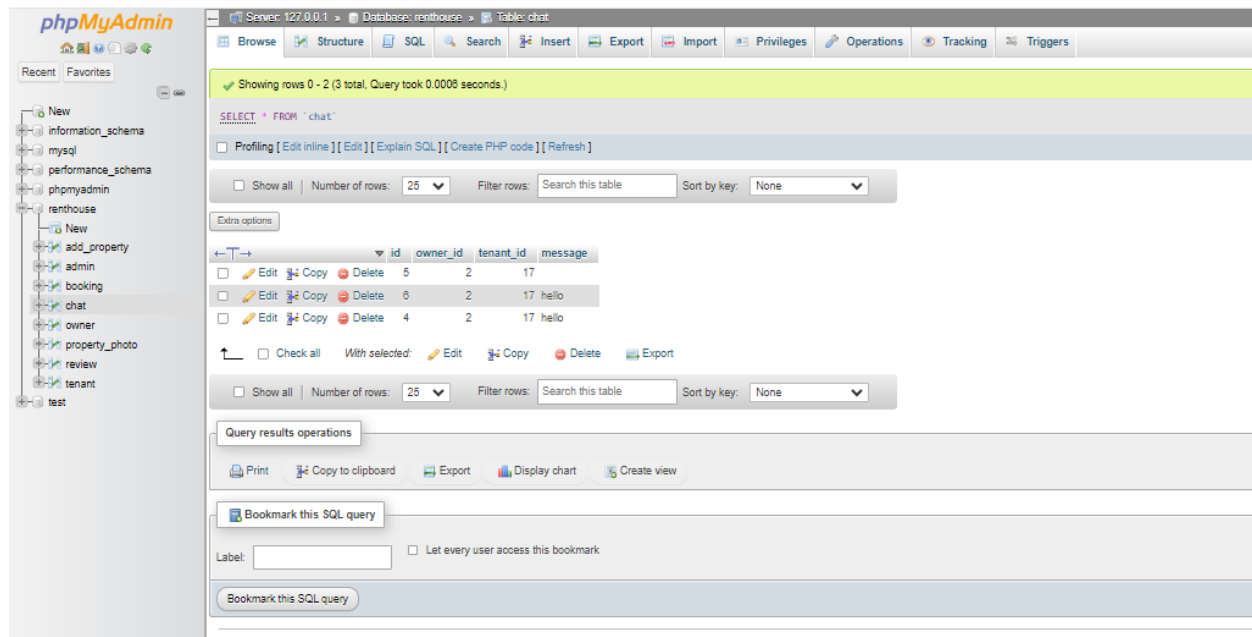
Table 5 : Showing the Adding property table



5.8 Chats Table

This table only captured the chat-id and the messages that were sent by the customer and the school.

Table 6: Showing Messages/ Chats table



5.9 System Testing

The entire system was tested using codes, property addition and property booking. This stage of implementation ensured accuracy and efficiency operation of the system before it was given to the users. It required a series of different tests which varied at different system levels. The system tester assumed that if all parts of the system were correct then the goal would have finally been achieved.

Testing is the process of executing the program in order to identify errors or bugs. Testing shows the software errors. Therefore, testing was done after completion of the system. This was done in two formats including Unit testing and Integration testing.

5.10 Unit Testing

Unit testing was done on individual codes of the system to ensure that they fully yield the functional units. This was done by examining each unit, for example the code for adding new property by the school. This was done to ensure that all the available properties are registered in the property list without errors. Successful achieving encouraged me to go ahead with integration testing after all the identified errors were worked on individually.

5.11 Integration Testing

This was done after all the different modules had been put together to make a complete system. Integration aimed at ensuring that all the modules of the system worked hand in hand and that they could be integrated to form a complete working system.

CHAPTER 6 INTRODUCTION, DISCUSSION, PROJECT CONSTRAINT, FUTURE WORK, RECOMMENDATION AND CONCLUSION.

6.1 Introduction

This chapter a summary of the major findings of the study, conclusion and what the researcher recommends. The recommendations are based on researcher's analysis and interpretations of the findings as well as suggestions of the research.

6.2 Discussion

This School Property Management system (SPMS) has been carried out and followed all the objectives that have been stated in Chapter 1. It is easy for a user to manage the school property. This system has also been implemented as web-based. Therefore, the objectives of this project are successful.

6.3 Project Constraint

This School Property Management System (SPMS) has several constraints.

The constraints include;

- i. The system lacks an activated payment system that enable customers to initiate their booking fee.
- ii. The system also lacks time duration for which a customer has to use the booked property.
- iii. The system can only be used when connected to the internet since it is web-based thus making it impossible for only users to use it.

6.4 Recommendation

This study is based on computerization of the school property management system. The current system is manual and has been seen that it can lead to loss of school property when the paper work documents get spoilt or lost, which may make the school to make losses.

I therefore recommend that the new system based on the study should be put in place immediately since it has been tested and found reliable. Proper user skilling should also be provided so that skilled people will be available to use the computerized system.

6.5 Future Work

Although the School Property Management System (SPMS) is good for schools based on the properties they own, future work can be considered to enhance the system more. Future work can be based on the following;

- i. Initiation of payments using mobile phones and other payment means to be incorporated in the system.
- ii. Time duration of how long the property is to be used should be added in the system with a signal message to the school when the allocated time elapses.

6.6 Conclusion

In conclusion, the School Property Management System (SPMS) is successfully done by using the application. The school will not use it manually anymore. This system also can be used with ease in gathering information about any property more systematically as compared to the manual way. The customers will no longer travel to school to make any communications instead will use the system implemented to communicate whatever he/she would like to. Therefore, this system has no problem for the school and its customers while using technology.

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APPENDIX A

Activity	Duration	Deliverables
Formulation of the title	10th to 15th July,2023	Project title
Formulation of the problem	15 th to 16 th July,2023	Problem statement
Selecting the objectives	16 th to 26 th July,2023	Compile
Literature review	2 nd to 30 th August,2023	Record
Choosing the methodologies	15 th to 24 th August,2023	Record
Data collection	18 th to 27 th September,2023	Recording results
Data analysis	5 th to 30 th October,2023	Analysis
System design and implementation	4 th to 24 th November,2023	System interfaces
Testing and validation	25 th to 31 st November,2023	Getting correct results

Table 2 Project time schedule

APPENDIX B: Open ended interview questions

Introduction

My name is Wakwaale Daniel, a Busitema university student, Faculty of science and education. I humbly request for your cooperation in answering the following questions. Any information provided will be for academic benefits only and will be treated with absolute confidentiality. Thank you.

Questions to the Estate Manager

- 1) What are some of the properties that this school owns and how are they being used?
- 2) Do you hire some of these properties to people?
- 3) How much do you charge per specific property?
- 4) Are there some restrictions or requirements for one to qualify for hiring any property?
- 5) How often do people hire these properties?
- 6) Do you give time limit on the properties hired to people?
- 7) How beneficial has it been to the school?
- 8) How do you store your records?
- 9) What are some of the challenges in conducting these operations?

Questions to the Administrator

- 1) Which activities do you allow your properties to be hired for?
- 2) How beneficial has the hiring of school properties to people been?
- 3) What are the challenges encountered in the hiring of school properties?
- 4) What do you think can be done to avoid those challenges?

Questions to the Customer

- 1) Which activities do you hire school properties for?
- 2) How long have you been hiring school properties?
- 3) How beneficial has it been when you hire a school property?
- 4) What are some of the challenges encountered?
- 5) What do think can be done to avoid these challenges?

Thank you for your cooperation and time, may God bless you abundantly.