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**KENYA METHODIST UNIVERSITY**

**CISY 401: CIS RESEARCH PROJECT.**

**RESEARCH PROPOSAL.**

**CIS-1-0696-2/2019 – MICHAEL WAWERU KIMOTHO.**

**CHAPTER 1**

**INTRODCTION**

Property managing today has become one of the most important factors in the society and so comes the need for proper property management systems. In this chapter, an understanding of the background of study, project objectives, project scope, project justification, research questions and statement of the problem will be highlighted.

**BACKGROUND OF THE STUDY**

The day-to-day livelihood in the modern society has forced a hand in the way people conduct their daily activities. People nowadays are busier than before in ensuring that their tomorrow is guaranteed to be better and hence are passion aggressive be it in their employment places or work places. The current system of sorting residency is quite tiresome and at times may be expensive and frustrating, not forgetting may be a time waster.

Not only is the system in place today unappealing, payment systems in a secure and authenticated manner are also a concern to new tenants as many have ended up being on the wrong side of conmen while trying to figure out their living situations in their busy schedules.

**STATEMENT OF THE PROBLEM**

It is not new anymore hearing of destruction or displacement of user data by property managers due to a string of various factors. At times, the old-fashioned manual way of managing and storing records may be tiresome and difficult due to some factors such as:

1. Increase in data – With every passing day, property managers with no doubt get an increase in a data or two. Having a hold to all this data may be difficult at times.
2. Lack of an effective storage system, data integrity & security not guaranteed – Property managers mainly work on file storage and in a case of loss of these files, it may be difficult to manage a big number of tenants.
3. Lack of new computerized systems.

House hunting in the modern day has also become a hustle. Automation is needed too in finding houses to live in as well as planned and well-structured payment solutions.

**PROJECT OBJECTIVES**

**Main Project Objective:**

The goal of conducting this project will be to come up with an online-based property management system in which tenants can easily locate their homes of desire thus eliminating middle men who may have bad intentions towards potential tenants. With this project, property managers can also easily manage their tenants without much pressure eliminating man-made errors.

**Specific Project Objectives:**

Other objectives include;

1. Coming up with a system that the end user can view the tenants, houses as well as vacant properties.
2. Developing an option for payment strategy; tenants can use for direct bill payments.
3. Validation of the end product before deployment.
4. Get to the grass root of major tenant worries and come up with problem specific solutions for most concerns by tenants (Requirement specifications for the property management system).

**Research Questions**

Upon completion, the questions to be addressed shall be:

1. How will the grass root tenant worries be addressed?
2. What features of the system shall address encrypted communication by the tenants and management?
3. How shall the end product be validated?
4. How will the potential tenants see their desired homes without much hustle?
5. What features of the system shall offer payment solutions?

**Hypothesis**

1. Getting to the base of tenant concerns will easily give a way forward to design processes and also address project requirement specifications.
2. Validating the end product of the system will ensure that the system is optimal enough and can be relied on.
3. Coming up with an optimum and reliable online based system with a well-structured **database** system for storing tenant data, admin data and landlord’s data.
4. Developing a well authenticated payment solution will eliminate conmen, as well as eliminate chances of system users losing their hard-earned money.

**The Scope**

This is an online-based system. By this, it means that it’s availability should be at all times regardless of location and time. Minor technological concerns from the server side may be a concern but should be at a minimal. The application is expected to use frontend development tools i.e., adopt HTML, CSS & JAVASCRIPT architecture with a backend of PHP technology. Development of the system will be based on a Laravel framework[[1]](#footnote-1). The system is expected to serve landlords, tenants and the administrator without any hitches. Correct authentication from the listed shall be able to use the system successfully.

**Project Justification**

This project aims to automate most of the current processes. This is a system that can add, display, edit and delete available property. Can add, display, edit and delete tenant’s info, can edit data entries in the database, can also add roles and permissions to the authorized users, issue invoices, view rental incomes among many more. This system seeks to simplify the entire house hunting process, simplify management of tenants as well as ensuring proper storage of the available data. Manual methods are good, but this will be better, secure and efficient.

**CHAPTER 2**

**LITERATURE REVIEW**

It is a text document that is drafted in consideration of the critical points of knowledge currently known as well as including the findings of the theoretical and methodological contributions to a topic. Its main goal is to situate the study being conducted in the body of the literature so as to provide context for the reader (Cooper, 1998).

**PROPERTY MANAGEMENT SYSTEM**

This is a web-based system whose major aim is to automate the entire rental and property management processes flawlessly. This is a notion that has come to the limelight due to the fact that the modern society especially in the urban areas have developed a huge audience and the population need rentals to rent, property owners also need a way to manage and monitor their tenants without problems.

In the current society, property managers are involved in a number of activities that ensure easy living for their tenants while still ensuring business continuity. They may be involved in invoicing, waste & garbage management, sanitation issues, security concerns, tenant communications, new tenant house allocation and maintenance just to mention a few. These activities may be tedious and involve a chain of processes. Property management system is the way, controller and oversight to property management in the widest of terms.

Not only are the property managers being affected with the increasing number of urban demands for property but too are the tenants. The house hunting work is tedious and time consuming. At times, people end up frustrated and try to seek easier means via middle men who end up conning ‘desperate’ tenants. This is not a good look in the modern society today. However, with property management system, property available can be listed and a direct contact information to the concerned parties provided. Again, property management system at it best in the widest of terms.

**Implementation of the Property Management System**

* **Hosted on an online server –** The system will be hosted on a webserver and run online from any location. It will require connection to the internet at all times. Here, access to the system will be based on authentication hierarchy. Every individual hierarchy entails its permissions & roles to the one accessing.
* **Hosted on a local server –** This means that the system is hosted on a local machine in a local apartment. It cannot be viewed online and is operated by the manager or the admin only. Tenants cannot see any listings.

**CHAPTER 3: METHODOLOGY**

**Introduction:**

It outlines the means that will be used in collection of data, tools to be used in development of the system as well as the proposed system inputs and outputs. It basically describes the practical ‘how’ in any given research (Jansen (MBA) & Warren (PhD), 2020).

**The Research Process**

To begin with, it is prudent to come up with a flow of tasks for the research. This process involves identify, locate, analyze and accessing of information that will then address the research questions. Next steps will include the development stage and expression of notions. So as to achieve the end goal of the research process, I will then follow these steps:

* **Problem identification –** I will analyze the current systems in place and identify the flaws that it has. I will gather facts from tenants and landlords and try to see if the problems can be addressed by the system that I am proposing.
* **Review literature –** Here, I will refer to past research that has been conducted in property management. I intend to learn how they were conducted, what were their conclusions, what are the statistics in relation to property management in the long-term. Information gathered from here will help me understand how big the situation is and also assist in coming up with an effective strategy to outdo the outdated ways of doing things in respect to property management.
* **Get clarity of the problem –** Once I have garnered adequate data from the review of past literature, the data will guide me on assessing and narrowing down issues that are at hand and how I can narrow down the project to address the major concerns.
* **Come up with a study plan –** Here, I will come up with a plan that will act as a roadmap to guide me during the entire project. I will specify the targeted audience for facts gathering and also the means and ways of gathering data. This study plan is aimed at guiding me through all required steps for project completion.

**Facts Gathering Techniques**

Analyzes how data shall be collected from the users to be incorporated to the system. Data collection to be used include:

1. **Questionnaires –** Shall be well structured and issued to a number of landlords so as to have a better insight of their current systems and how they use manage.
2. **Secondary methods –** I will gather as more data from existing resources such as journals, books and the internet on research that has been done by other researchers. Through the collected data, I will have a final decision and draft my conclusion.
3. **Interviews –** I definitely look forward to sitting don with a number of landlords as well as tenants to hear their views on the existing systems and what they envision.

**Design Materials**

For the design phase of this project, the following tools will be required:

* **VS Code –** This is an open-source IDE that is used to write different programming language code that can then be implemented to serve different tasks. It does support HTML, CSS, JavaScript and PHP required in development of this project; and in code completion mechanisms as well as debugging mechanisms.
* **Xampp –** It is an open-source cross platform web server solution developed by apache friends (Apache Friends, n.d.). It consists of important components such as the Apache server and MySQL database. Xampp interprets PHP language programming scripts. It is also a cross platform application meaning that it can run across various platforms including Linux distros, Windows platforms and Mac.
* **Bootstrap 5 –** It is a free front-end web development framework aimed at making developer’s work much easier. It houses templates built in HTML-CSS design with other design components such including forms, navigation, buttons, cards, typography etc.
* **jQuery –** Is a JavaScript library whose main purpose is to simplify scripting in the client-side html. This library hence allows for creation of commanding and dynamic web pages as well as a powerful web application.

**System Requirement Analysis**

It involves defining the functionality of the system in relation to the client’s requirements, environment the system will be used in as well as the system characteristics.

**Client’s Requirements**

Focuses on the client’s involvement while defining the expectations of the system in relation to what the client needs it for. Basically, the system should have the following characteristics:

1. Should be easy to use and learn.
2. Should be fast enough in processing data.
3. Should allow clients maneuver with ease.
4. Should be flexible enough and suitable.
5. Should be efficient enough in data storage and retrieval.

**System Functionalities Requirements**

Mainly focuses on the systems ability to accomplish certain tasks. The system proposed should be able to:

1. Allow admins to add vacant houses and other property.
2. Allow the admins to add, edit and delete entries in the database.
3. Allow admins to delete leased houses and print out invoices.
4. Allow the admins to find anything in the database.

**Hardware Requirements**

To achieve the end goal, the hardware for development shall possess the following characteristics:

* **Operating System (OS) –** 64-bit operating system & x64 processor.
* **Processor –** Intel Core i3 or higher.
* **Memory –** 4GB or higher.
* **Processor Speed –** 1.70 GHz or faster.

**Software Requirements**

Software required for successful project completion shall have the following characteristics:

* **Operating System (OS) –** Linux (Ubuntu 20.04) or Windows 10.
* **IDE –** Visual Studio Code (version 1.53) with Node.js (version 12.18.3) or higher.
* **Frontend Web Technologies –** Bootstrap 4 (HTML - CSS) and jQuery.
* **Backend Web Technologies –** PHP (Version 8.0.0)
* **Database –** MySQL database server.

**Testing and Validation**

The aim is to ensure that the program runs without any flaws. Testing helps in bug[[2]](#footnote-2) identification and eliminate them; through debugging[[3]](#footnote-3). This step is aimed at ensuring the end product works as expected and accomplishes required tasks.

**Project Operation & Maintenance**

Upon completion of the project and successful launch, it would be prudent to offer training to the property managers as well as support. While in this phase, the project shall be monitored over time noting its performance and areas of improvement.

**Project Roadmap**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Action** | **January** | **February** | **March** | **April** | **May** |
| Project Analysis |  |  |  |  |  |
| Project Design |  |  |  |  |  |
| Coding Phase |  |  |  |  |  |
| Testing & Implementation |  |  |  |  |  |

**Proposed Project Budget**

Project completion projected budget.

|  |  |  |  |
| --- | --- | --- | --- |
| Items | Quantity/Duration | Price per Quantity | Total |
|  |  |  |  |
| HP Laptop | 1 | 52,999 | 52,999 |
| Software | 5 | Free | 0 |
| Internet | 4 months | 2,000 | 8,000 |
| Airtime | 4 months | 300 | 1,200 |
| Commuting expenses | 4 months | 1,000 | 4,000 |
| Printing costs | - | 2,500 | 2,500 |
| Total | 8 | 58,799 | 68,699 |

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Apache Friends. Apache Friends. Retrieved 9 February 2021, from <https://www.apachefriends.org/about.html>.

Cooper, H., 1998. *Research synthesis and meta-analysis*. SAGE, p.201 pages.

Jansen (MBA), D., & Warren (PhD), K. (2020). *What Is Research Methodology? Simple Definition (With Examples) - Grad Coach*. Grad Coach. Retrieved 8 February 2021, from <https://gradcoach.com/what-is-research-methodology/>.

Laravel. *Installation - Laravel - The PHP Framework For Web Artisans*. Laravel.com. Retrieved 8 February 2021, from <https://laravel.com/docs/8.x>.

1. Laravel Framework – A web application framework with expressive, elegant syntax. A web framework provides a structure and starting point for creating your application, allowing you to focus on creating something amazing while we sweat the details (Laravel, n.d.). [↑](#footnote-ref-1)
2. It is an error/ fault in a computer program. [↑](#footnote-ref-2)
3. Process of identifying and removing errors from a computer program. [↑](#footnote-ref-3)