

**TITLE: KILEJ REAL ESTATE**

**GROUP MEMBERS DETAILS:**

**SC211/0454/2020-LAWRENCE NDUNG’U**

**SC211/O518/2022-IAN MORGAN MWENDE**

**SC211/0519/2022-KEVIN GATUAI NDERITU**

**SC211/3140/2023-KIMWE ESTHER WANJIKU**

**SC211/3158/2023-MUCHEMBI JOAN WANDIA**

**UNIT NAME: PROGRAMMING AND DATABASE PRACTICUM**

**UNIT CODE: SCS 203**

**Project documentation report submitted in fulfillment of the requirement for the unit SCS 203: Programming and Database Practicum in Bachelor of Science in Information Technology.**

**DECLARATION**

We hereby declare that this is the work of our hands. This project is our original work and has not been presented for any academic credits in any university/institution.

|  |  |  |  |
| --- | --- | --- | --- |
| **REG NO** | **NAME** | **SIGNATURE** | **DATE** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

This project has been submitted for examination with my approval as the unit lecturer.

Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

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

**DEDICATION**

**To Our Team:** To the dedicated team members whose hard work and commitment have made this project a reality. Your collaboration, creativity, and perseverance have been invaluable.

### To the Future: To the future of real estate, where innovation and collaboration pave the way for sustainable growth and community development. May this documentation serve as a resource for those who seek to enhance the industry and create lasting impact

**ACKNOWLEDGEMENT**

We would like to extend our gratitude to Murang’a University for providing the resources and facilities needed for this research and further thank God for the gift of life and health to be able to be able to be here to do this project.

Contents

[To the Future: To the future of real estate, where innovation and collaboration pave the way for sustainable growth and community development. May this documentation serve as a resource for those who seek to enhance the industry and create lasting impact iii](#_Toc194004499)

[CHAPTER 1: INTRODUCTION 1](#_Toc194004500)

[1.1 Background Information 1](#_Toc194004501)

[1.2 Problem Statement 1](#_Toc194004502)

[1.3 Objectives 2](#_Toc194004503)

[1.3.1 Main Objective 2](#_Toc194004504)

[1.3.2 Specific Objectives 2](#_Toc194004505)

[1.4 Justification 2](#_Toc194004506)

[1.5 Scope 3](#_Toc194004507)

[CHAPTER 2: LITERATURE REVIEW 4](#_Toc194004508)

[2.1 Introduction 4](#_Toc194004509)

[2.2 Case Studies 4](#_Toc194004510)

[2.2.1 Fanaka Real Estate Ltd Case Study 4](#_Toc194004511)

[2.2.2 Gakuyo Real Estate Case Study 5](#_Toc194004512)

[2.2.3 Cornerstone Real Estate case study 6](#_Toc194004513)

[2.2.4 Optiven Real Estate Case Study 6](#_Toc194004514)

[2.2.5 Green Field Realty case study 7](#_Toc194004515)

[2.3 Research Gap 7](#_Toc194004516)

[CHAPTER 3: METHODOLOGY 8](#_Toc194004517)

[3.1 Introduction 8](#_Toc194004518)

[3.1 Introduction 8](#_Toc194004519)

[3.2 SDLC Model 9](#_Toc194004520)

[3.2.1 Benefits of Waterfall Model 9](#_Toc194004521)

[3.3 System Analysis 10](#_Toc194004522)

[3.3.1 Functional Requirements 10](#_Toc194004523)

[3.3.2 Non-Functional Requirements 11](#_Toc194004524)

[3.4 System Design 12](#_Toc194004525)

[12](#_Toc194004526)

[12](#_Toc194004527)

[12](#_Toc194004528)

[12](#_Toc194004529)

[12](#_Toc194004530)

[12](#_Toc194004531)

[3.5 Database design 12](#_Toc194004532)

[3.5.1 Client table 12](#_Toc194004533)

[3.5.2 Property Listings 13](#_Toc194004534)

[3.5.3 Transaction table 13](#_Toc194004535)

[3.5.4 Employees table 13](#_Toc194004536)

[3.5.5 House construction table 14](#_Toc194004537)

[3.5.6 Contractors table 14](#_Toc194004538)

[3.5.7 Property images table 14](#_Toc194004539)

[3.5.8 Legal documents table 14](#_Toc194004540)

[3.5.9 Virtual tours table 15](#_Toc194004541)

[3.5.10 Feedback table 15](#_Toc194004542)

[3.5.11 Admins table 15](#_Toc194004543)

[3.5.12 Sellers Table 15](#_Toc194004544)

[3.6 System Construction 16](#_Toc194004545)

[CHAPTER 4: TESTING AND RESULTS 43](#_Toc194004546)

[5.1 Test Case 43](#_Toc194004547)

[5.1.1 Test Case 1: User Registration 43](#_Toc194004548)

[5.1.2 Test Case 2: Property Listing 43](#_Toc194004549)

[Description: Verify that a user can view the list of available properties. 43](#_Toc194004550)

[Preconditions: User is logged in. 43](#_Toc194004551)

[5.1.3 Test Case 3: User Login 43](#_Toc194004552)

[5.1.4 Test Case 4: Property Detail View 44](#_Toc194004553)

[5.2 SAMPLE RESULT 44](#_Toc194004554)

[5.2.1 Sample result 1: Successful log in 44](#_Toc194004555)

[5.2.2 Sample result 2: Unsuccessful log in 45](#_Toc194004556)

[5.2.3 Sample result 3: Successful registration 45](#_Toc194004557)

[5.2.4 Sample result 4: Unsuccessful Registration 46](#_Toc194004558)

[CHAPTER SIX: IMPLEMENTATION AND DEPLOYMENT 47](#_Toc194004559)

[6.1 Data Conversion 47](#_Toc194004560)

[6.2 Implementation Strategy 47](#_Toc194004561)

[6.3 System Specifications 47](#_Toc194004562)

[6.3.1 Hardware Requirements 47](#_Toc194004563)

[6.3.2 Software Requirements 47](#_Toc194004564)

[6.4 Support and Training 48](#_Toc194004565)

[6.4.1 Support Resources 48](#_Toc194004566)

[6.4.2 Training Materials 48](#_Toc194004567)

[6.5 System Deployment 48](#_Toc194004568)

[CHAPTER 7: CONCLUSION AND RECOMMENDATION 49](#_Toc194004569)

[7.1 Discussion 49](#_Toc194004570)

[7.2 Recommendations 49](#_Toc194004571)

[7.3 Limitations 50](#_Toc194004572)

[7.4 Conclusion 50](#_Toc194004573)

# CHAPTER 1: INTRODUCTION

## Background Information

Real estate refers to land and everything made permanently or improvements built on it. Real estate may be acquired, owned and conveyed by any legal entity as determined and defined by law. This entity may take the form of individuals, businesses and nonprofit corporations. Real Estate Development is a fundamental and essential feature in the urban environment.

Kilej Real Estate is a business that deals with the selling of land and building of houses. Kilej Real Estate overviews roles such as identifying suitable land plots and marketing them to the buyers. They facilitate the sale of lands and manage construction processes. Also they ensure smooth handover of completed homes to owners.

## 1.2 Problem Statement

There is a problem that arises due to lack of enough listings where there is difficulty in finding sufficient property for sale therefore hindering the ability to close deals and result to reduced income potential.

The lack of an established sales process where clients may receive varying levels of service. This inconsistency leads to dissatisfaction and a lack of trust in the agency.

Competition in real estates can be very intense. Where with many agencies operating in the same area, it can be difficult to stand out and attract clients. Other agencies may lower their fees to attract clients leading to reduced profit margins. Clients may switch agencies frequently in search of better deals and services making it hard to build long term relationships.

The real estate transaction process involves many paperwork, including contracts, disclosures, and legal documents. Without efficient document management systems in place, there is risks to errors, delays, and potential legal issues.

Finding common ground on pricing can be tough, negotiating prices with buyers and sellers can be challenging, as different parties may have different expectations and perceptions of property value. Without effective negotiation strategies, there are risks of losing deals or settling for less-than-optimal outcomes.

## 1.3 Objectives

## 1.3.1 Main Objective

In Kilej Real Estate Agency the main objective is to enhance customer satisfaction. By building client satisfaction, we build strong client relationships, enhance reputation and drive long term growth.

## 1.3.2 Specific Objectives

1. Enhance client management by tracking interactions and managing communication.

2. Streamline property listings. Ensuring accurate and up to date property information makes it easier for clients to find and inquire about available properties.

3.Optimize document handling. Simplify the management of legal documents, contracts and agreements hence reducing paperwork and ensuring secure storage and easy retrieval.

## 1.4 Justification

Getting creative with marketing strategies such as; hosting open houses, utilizing social media platforms and networking extensively. Establishing strong relationships with property owners thus encouraging them to list their properties with our agency.

Develop a step-by-step sales process and strategies that can boost our revenue and be replicated for every client interaction. This process should outline clear actions at each stage, providing a framework for effective communication and negotiation.

Embracing technology is a key to remaining competitive. Real estate agencies should invest in building a strong online presence through professional websites, social media, and digital marketing campaigns. By utilizing technology, agencies can offer unique value propositions such as personalized service, local market expertise, and human touch that online estate agencies may lack.

Transitioning to digital document management solutions and e-signature tools can streamline paperwork processes. These technologies allow agencies to create, share, and sign documents electronically, reducing reliance on paper and minimizing the risk of errors or lost documents. By digitizing paperwork, it improves efficiency, ensure compliance, and provide a seamless experience for clients.

## 1.5 Scope

The real world wide web have spread across millions of household, so naturally, Internet has become by far the best platform for real estate marketing today. Nowadays when everything is online, how is it possible that real estate left web application behind. There are a lot of real estate companies who advertise their property online so idea behind developing this application is that their property can also sell by using this. These applications are not widely popular but in future, they have large scope of growth.

Our Kilej Real Estate system shall be encompassing activities like;

* Centralize client’s information by keeping client’s data in one organized place
* Tracking client’s interactions and communication history
* Adding detailed property information thus the description, photos, pricing and features
* Updating the property status to either sold, active or pending
* Producing reports on every transaction made by a client on a property
* Updating virtual tours for properties from time to time keeping up with online customer engagement.
* Text messaging capabilities and email integration for client communication

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Introduction

Real Estate is an area that has broadly improved and has supplied a big floor for scope to many customers for locating suitable properties and for businessmen. The customers want suitable properties and the entrepreneurs who incorporate this statistics assist the customers for accurate choice of properties. With the big quantity of profitability this idea holds for each the perimeters of the events involved, the concept has stuck fire. Initially, the common actual property technique changed into manual. But because of growing centers of Internet and because of the recognition of the idea, many net web websites have arose which offer actual-property statistics to the customers. These net websites guide the consumer via numerous properties and assist the consumer to locate the wished and to be had estates as in step with his/her requirements.

## 2.2 Case Studies

### 2.2.1 Fanaka Real Estate Ltd Case Study

Fanaka Real Estate Ltd has emerged as a prominent real estate company in Kenya, focusing on affordable land sales within Nairobi and its surrounding areas since its inception in 2016. Under the leadership of CEO Moses Muriithi, who bootstrapped the company with savings from online writing gigs, Fanaka has grown significantly. The company prides itself on customer-centric services, offering a diverse portfolio of properties in strategic locations like Kamulu, Joska, and Malaa along Kangundo Road. They have completed over 20 projects and issued more than 1,432 title deeds, showcasing their commitment to transparency and customer satisfaction. Fanaka's approach includes leveraging technology for better service delivery, which has been recognized through various industry awards, including accolades for being the most affordable and transparent land-selling company in Kenya.

* Online Customer Engagement: Although Fanaka has an online presence, enhancing digital tools for customer engagement such as virtual property tours could significantly improve user engagement and satisfaction.

### 2.2.2 Gakuyo Real Estate Case Study

Gakuyo Real Estate, a Kenyan real estate firm under the leadership of Bishop David Kariuki Ngare (commonly known as Gakuyo), was established to provide affordable housing and land investment opportunities. The company gained significant traction, attracting thousands of investors seeking to own property. It operated under the umbrella of Ekeza Sacco, a savings and credit cooperative society that promised lucrative returns to its members. Gakuyo Real Estate Limited is a firm that deals in real estate. We develop properties for our clients across all social classes. With a wide variety of property to choose from, customers are able to find whichever property they have a liking to. Our experts in real estate also guide the buyers or investors on what best suits them, be it commercial or residential property. We live in a society where there’s constant change in the property dealings. Therefore we conduct research and provide you with the findings depending on your needs. Some of the properties we are offering for sale include: Village Yatta Estate, City of David, Lulu Estate, Chosen City, Kilimambogo Plains, Lanet Homes. Gakuyo Real Estate has been accused of fraud and mismanagement. Investors claimed that the company failed to deliver on its promises, and that their money had been misappropriated. The Kenyan government also launched investigations into the company's activities. The Gakuyo Real Estate scandal remains one of Kenya’s most significant financial fraud cases, underscoring the importance of accountability and investor protection in the real estate and financial sectors. Despite ongoing efforts to compensate victims, many remain financially devastated, highlighting the need for stricter enforcement of financial regulations to prevent future occurrences.

* The real estate sales process consists of many stages, from listing a house to closing the sale. Real estate firms face numerous challenges and complexities, making it essential for every realtor to establish a solid sales process to keep it organized. Build a solid real estate sales process that covers every aspect of your business and helps grow your customer base. With a streamlined process, you can capture quality leads and nurture them to guide them through the top funnel.

### 2.2.3 Cornerstone Real Estate case study

Cornerstone Real Estate agency was founded on March 3, 2000.Cornerstone Real Estate is a Kenyan-owned company that offers property management and agency services. The Managing Director, Mr. Cyrus Kariuki Kanyi, is a highly experienced valuer and estate agent. The company prioritizes customer satisfaction and sustainability, and aims to provide honest and dependable services. It has successfully established a strong presence in the Kenyan real estate market, particularly in Thika and Nairobi, making it a trusted name in property management and agency services. The agency engages with the local community, participating in events and initiatives that promote real estate awareness and development. This involvement helps them build strong relationships and contribute to the community's growth.

* Client feedback: Cornerstone real estate lacks a systematic way to gather feedback from clients to find out whether they are satisfied with the agency’s services. By developing a feedback management system, the agency can be able to identify it's areas of excellence and where improvements are needed.

### 2.2.4 Optiven Real Estate Case Study

Optiven Kenya was founded in 2008 which was founded by DR George Wachiuri. Its headquarters are found in Nairobi Kenya .it has emerged as the leading real estate company in Kenya, known for its innovation approach, customer-centric focus and commitment to the transforming the real estate landscape. Optiven is well positioned for continued growth and success in the Kenya real estate market. As they continue to expand their portfolio and explore new opportunities, Optiven has the potential to further transform the real estate landscape in Kenya and empower more individuals and communities to achieve their dreams of property ownership. This generation wants everything online; everything is just a click away, from shopping to acquiring services. Therefore, an increase in online real estate agents has boosted the competition. And if you want to keep growing your business, you must stay on level with others.

* Build an online presence and share resources as well as information. It would help if you had top-of-the-funnel traffic when you want to drive more visitors to your website. Therefore, stay active on various social media platforms and leverage them to build a community that trusts your business.

### 2.2.5 Green Field Realty case study

Green Fields Real Estate is an established team of dedicated individuals whose mission is to provide the highest quality and most personalized service in the industry. Our broker and agents have years of experience in property management, sales and leasing of properties throughout Greater New Orleans. As a locally owned and operated company we are available and committed to your needs as well as the needs of our community. As a Green Fields Client, you will find that we are big enough to get the job done, but small enough to care. Managing the paperwork of every property and client can take a toll on you and consume most of your time. This can also hamper your overall productivity at work.

* Get a CRM that eliminates the dependency on manual paperwork and digitizes your documents. Have access to all your documents within your CRM and exchange e-signed documents to speed up the documentation process. Moreover, you can also implement real estate market automation into your business process for lead generation, outreach, etc. This way, you can access all the essential information even when you’re on the way to meet your client.

## 2.3 Research Gap

In real estate, companies must be progressive-minded – capable of simultaneously glancing at the future and seeing the present. Issues affecting real estate span multiple categories, including technology and customer satisfaction. The real estate industry has unique challenges, including handling quality services and complex client needs. However, as noted, every real estate problem has a practical remedy. The real estate challenges can be combated by accepting technology, improving the sales process, and being organized. Thus, Kilej provides you with a robust tool that may enhance your processes, organize the leads, and provide you with automation to work successfully and aim at deals to become closer to successful business development.

# CHAPTER 3: METHODOLOGY

## 3.1 Introduction

## 3.1 Introduction

KILEJ Real Estate Agency specializes in both the sales of land and the construction of bespoke homes tailored to your vision and lifestyle. Our mission is to transform your dreams into reality by providing comprehensive real estate services that are efficient, transparent, and client-focused. At KILEJ, our project methodology is designed to ensure the highest standards of quality and customer satisfaction. We begin by understanding your specific requirements, preferences, and budget. This initial consultation allows us to tailor our services to meet your unique needs. Our team assists you in selecting the ideal location for your project. We conduct thorough due diligence on potential sites to ensure they meet legal, environmental, and infrastructural requirements. Collaborating with architects and designers, we create detailed plans and designs that reflect your vision. We ensure all designs comply with local building codes and regulations. We provide transparent cost estimates and assist with financial planning to ensure your project stays within budget. We also explore financing options if needed. Our team handles all necessary permits and approvals, liaising with relevant authorities to ensure a smooth and compliant process.

KILEJ oversees all aspects of construction, from groundbreaking to final inspections. We work with trusted contractors and suppliers to ensure timely and quality execution. Throughout the construction process, we conduct regular quality checks and inspections to ensure that all work meets our high standards. Upon project completion, we conduct a final walkthrough with you to ensure everything meets your expectations. We also offer after-sales support to address any concerns or additional needs you may have. At KILEJ Real Estate Agency, our commitment to excellence and client satisfaction drives every aspect of our work. We look forward to partnering with you on your journey to owning a beautiful home or piece of land.

## 3.2 SDLC Model

Waterfall methodology is a well-established project management workflow. Like a waterfall, each process phase cascades downward sequentially through five stages (requirements, design, implementation, verification, and maintenance).In a Waterfall process, you must complete each project phase before moving to the next. It's pretty rigid and linear. The method relies heavily on all the requirements and thinking done before you begin.

### 3.2.1 Benefits of Waterfall Model

The benefits of Waterfall methodology have made it a lasting workflow for projects that rely on a fixed outcome. A few benefits of Waterfall planning include:

* Clear project structure: Waterfall leaves little room for confusion because of rigorous planning. There is a clear end goal in sight that you're working toward.
* Set costs: The rigorous planning ensures that the time and cost of the project are known upfront.
* Easier tracking: Assessing progress is faster because there is less cross-functional work. You can even manage the entirety of the project in a Gantt chart.
* A replicable process: If a project succeeds, you can use the process again for another project with similar requirements.
* Comprehensive project documentation: The Waterfall methodology provides you with a blueprint and a historical project record so you can have a comprehensive overview of a project.
* Improved risk management: The abundance of upfront planning reduces risk. It allows developers to catch design problems before writing any code.
* Enhanced responsibility and accountability: Teams take responsibility within each process phase. Each phase has a clear set of goals, milestones, and timelines.
* More precise execution for a non-expert workforce: Waterfall allows less-experienced team members to plug into the process.
* Fewer delays because of additional requirements: Since your team knows the needs upfront, there isn't a chance for additional asks from stakeholders or customers.

## 3.3 System Analysis

When analyzing your system, these requirements help define the scope and quality expectations. Functional requirements will dictate the features you develop, while non-functional requirements ensure the system's quality, usability, and longevity. Remember to validate these with stakeholders to ensure they align with business goals and user expectations.

### 3.3.1 Functional Requirements

These specify what the system should do:

**Property Listing Management:** Allow agents to list properties (land or houses) with details like location, size, price, features, images, etc. Update or remove listings.

**Property Search:** Enable users to search for properties based on various criteria (location, price range, type of property, etc.). Implement filters and sorting options for search results.

**Client Management:** Register and manage client profiles. Track client inquiries, preferences, and history of interactions.

**Transaction Management:** Facilitate the process of offers, negotiations, and finalizing sales.

**Construction Management (for Building Houses):** Project tracking from design to completion. Budget management, timeline tracking and resource allocation.

**User Authentication:** Secure login for employees and clients. Role-based access control to manage what each user can see or do.

**Notification System:** Alerts for new listings, status updates on transactions, and construction milestones.

**Reporting:** Generate reports on sales, listings, construction progress, client engagement, etc.

### 3.3.2 Non-Functional Requirements

These describe how the system should perform:

**Performance:** The system should handle a high volume of searches and listings with quick response times. Support concurrent users without degradation in performance.

**Scalability:** The system should be scalable to handle growth in the number of users, properties, and transactions.

**Security:** Implement robust security measures to protect user data, especially financial and personal information.

**Usability:** User-friendly interface for both agents and clients, with intuitive navigation.

**Reliability and Availability:** Data backup and recovery solutions to prevent data loss.

**Maintainability:** Code should be well-documented and structured for easy updates and maintenance.

**Portability:** Ensure the system can operate on multiple platforms (desktop, mobile) or be adaptable to different operating systems if necessary.

**Data Integrity:** Mechanisms to ensure data accuracy and consistency, especially with transactions and property details.

**Interoperability:** Ability to integrate with other systems like CRM for client management.

## 3.4 System Design

Bank

Client

dd

Property Listings database

Transaction record database

Client Database

System

## 

Constructing Company

Agent

## 

Construction Database

## 3.5 Database design

### 3.5.1 Client table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Constraints** |
| Client\_id | INT | Primary key auto\_increment |
| Name | VARCHAR(100) | Foreign key |
| Phone | VARCHAR(20) | Not null |
| Email | VARCHAR(100) | UNIQUE |

### 3.5.2 Property Listings

|  |  |  |
| --- | --- | --- |
| **Column** | **Data type** | **Constraints** |
| Property\_id | INT | Primary key Auto\_increment |
| Property\_title | VARCHAR(255) | Not null |
| Location | VARCHAR(255) | Not null |
| Price | Decimal | Not null |
| Status | Enum | Not null |
| Image\_path | VARCHAR(255) |  |
| Date\_added | DATE |  |

### 3.5.3 Transaction table

|  |  |  |
| --- | --- | --- |
| **Column** | **Data type** | **Constraints** |
| Transaction\_id | INT | Primary key Auto\_increment |
| Client\_id | INT | Foreign key |
| Property\_id | INT |  |
| Construction project\_id | INT |  |
| Transaction\_date | DATE |  |
| Total\_amount | DECIMAL | Not Null |
| Payment\_status | Enum |  |

### 3.5.4 Employees table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **constraints** |
| Employee\_id | INT | Primary key Auto\_increment |
| Employee\_name | VARCHAR(255) |  |
| Phone\_number | VARCHAR(15) |  |
| Email | VARCHAR(100) | UNIQUE |
| Address | VARCHAR(255) |  |
| Roles | VARCHAR(255) |  |

### 3.5.5 House construction table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **constraints** |
| Project\_id | INT | Primary key Auto\_increment |
| Client\_id | INT | Foreign key |
| House\_type | VARCHAR(255) |  |
| Size | DECIMAL |  |
| Total\_cost | DECIMAL |  |
| House\_status | VARCHAR(255) |  |
| Start\_date | DATE |  |
| Completion\_date | DATE |  |
| Contractor\_id | INT |  |

### 3.5.6 Contractors table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **constraints** |
| Contractor\_id | INT | Primary key Auto\_increment |
| Contractor\_name | VARCHAR(255) |  |
| Phone\_number | VARCHAR(15) |  |
| Email | VARCHAR(100) | UNIQUE |
| Specialization | VARCHAR(255) |  |

### 3.5.7 Property images table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **constraints** |
| Image\_id | INT | Primary key |
| Property\_id | INT | Foreign key |
| Image\_url | VARCHAR(255) |  |
| Image\_type | VARCHAR(255) |  |

### 3.5.8 Legal documents table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Constraints** |
| Document\_id | INT | Primary key Auto\_increment |
| Transaction\_id | INT | Foreign key |
| Document\_type | VARCHAR(255) |  |
| Document\_url | VARCHAR(255) |  |

### 3.5.9 Virtual tours table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Constraints** |
| Tour\_id | INT | Primary key Auto\_increment |
| Project\_id | INT | Foreign key |
| Media\_type | ENUM |  |
| Media\_url | VARCHAR(255) |  |
| Description | TEXT |  |
| Upload\_date | DATE |  |

### 3.5.10 Feedback table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Constraints** |
| Feedback\_id | INT | Primary key Auto increment |
| Client\_id | INT | Foreign key |
| Message | VARCHAR(255) |  |

### 3.5.11 Admins table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Constraints** |
| Admin\_id | INT | Primary key |
| Username | VARCHAR(100) | Not null |
| Email | VARCHAR(100) | Unique not null |
| Password | VARCHAR | Not null |

### 3.5.12 Sellers Table

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Constraints** |
| Seller\_id | INT | Primary Key |
| Seller\_name | VARCHAR(255) | Not null |
| Email | VARCHAR(255) | Unique Not null |
| Phone\_number | VARCHAR(20) | Not null |
| Address | TEXT |  |
| Date\_registered | DATE |  |

## 3.6 System Construction

This is the code that we used for creating a friendly user dashboard.

<?php

include 'db\_connect.php'; // Connects to the database

// Fetch summary statistics

$totalProperties = $conn->query("SELECT COUNT(\*) AS count FROM property\_listings")->fetch\_assoc()['count'] ?? 0;

$totalTransactions = $conn->query("SELECT COUNT(\*) AS count FROM transactions")->fetch\_assoc()['count'] ?? 0;

$totalFeedback = $conn->query("SELECT COUNT(\*) AS count FROM feedback")->fetch\_assoc()['count'] ?? 0;

?>

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Client Dashboard</title>

    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css">

    <style>

        body {

            background-color: #f8f9fa;

        }

        .navbar {

            background-color: #212529;

        }

        .navbar-brand, .nav-link {

            color: white !important;

        }

        .nav-link.active {

            font-weight: bold;

            background-color: #ffc107; /\* Yellow background for active tab \*/

            color: black !important;

            border-radius: 5px;

        }

        .logout-btn {

            background-color: red;

            border: none;

        }

        .card {

            margin: 10px 0;

        }

    </style>

</head>

<body>

    <!-- Navigation Bar -->

    <nav class="navbar navbar-expand-lg navbar-dark">

        <div class="container-fluid">

            <div class="collapse navbar-collapse" id="navbarNav">

                <ul class="navbar-nav">

                    <li class="nav-item"><a class="nav-link active" href="client\_dashboard.php">Dashboard</a></li>

                    <li class="nav-item"><a class="nav-link" href="properties.php">Properties</a></li>

                    <li class="nav-item"><a class="nav-link" href="transaction.php">Transactions</a></li>

                    <li class="nav-item"><a class="nav-link" href="feedback.php">Feedback</a></li>

                </ul>

            </div>

            <button class="btn btn-danger logout-btn">Logout</button>

        </div>

    </nav>

    <!-- Dashboard Content -->

    <div class="container mt-4">

        <h2>Welcome, Client!</h2>

        <p>Here’s an overview of your account.</p>

        <div class="row">

            <div class="col-md-4">

                <div class="card border-success">

                    <div class="card-header bg-success text-white">Available Properties</div>

                    <div class="card-body"><strong><?php echo $totalProperties; ?></strong></div>

                </div>

            </div>

            <div class="col-md-4">

                <div class="card border-primary">

                    <div class="card-header bg-primary text-white">Your Transactions</div>

                    <div class="card-body"><strong><?php echo $totalTransactions; ?></strong></div>

                </div>

            </div>

            <div class="col-md-4">

                <div class="card border-info">

                    <div class="card-header bg-info text-white">Your Feedback</div>

                    <div class="card-body"><strong><?php echo $totalFeedback; ?></strong></div>

                </div>

            </div>

        </div>

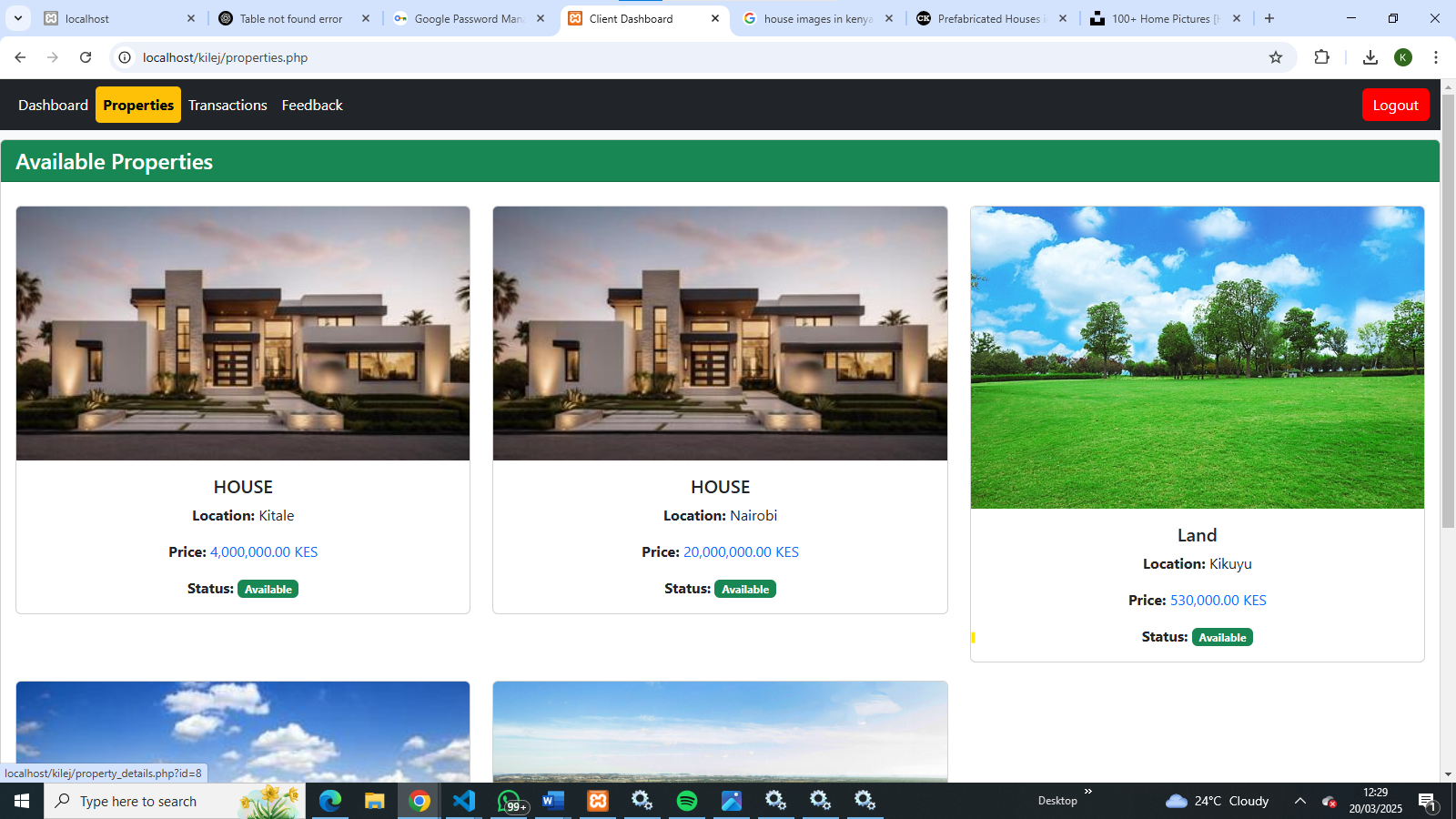
    </div>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

This is the outcome.



So as the client can access the dashboard he/she must register and login to our website first, the registration code is as follows;

<?php

session\_start();

include 'db\_connect.php';

if ($\_SERVER["REQUEST\_METHOD"] == "POST") {

    $client\_name = $\_POST['client\_name'];

    $email = $\_POST['email'];

    $phone = $\_POST['phone'];

    $password = password\_hash($\_POST['password'], PASSWORD\_DEFAULT);

    $stmt = $conn->prepare("INSERT INTO clients (client\_name, email, phone, password) VALUES (?, ?, ?, ?)");

    $stmt->bind\_param("ssss", $client\_name, $email, $phone, $password);

    if ($stmt->execute()) {

        echo "Registration successful. <a href='login.php'>Login here</a>";

    } else {

        echo "Error: " . $stmt->error;

    }

    $stmt->close();

}

?>

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Register</title>

    <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@300;400;600&display=swap" rel="stylesheet">

    <style>

        \* {

            box-sizing: border-box;

            margin: 0;

            padding: 0;

            font-family: 'Poppins', sans-serif;

        }

        body {

            background: linear-gradient(135deg, #00c6ff, #0072ff);

            height: 100vh;

            display: flex;

            justify-content: center;

            align-items: center;

        }

        .register-container {

            background: white;

            padding: 30px;

            width: 100%;

            max-width: 400px;

            border-radius: 10px;

            box-shadow: 0 4px 10px rgba(0, 0, 0, 0.2);

            text-align: center;

            animation: fadeIn 0.6s ease-in-out;

        }

        @keyframes fadeIn {

            from {

                opacity: 0;

                transform: translateY(-20px);

            }

            to {

                opacity: 1;

                transform: translateY(0);

            }

        }

        .register-container h2 {

            margin-bottom: 20px;

            color: #333;

            font-weight: 600;

        }

        .input-group {

            margin-bottom: 15px;

            text-align: left;

        }

        .input-group label {

            font-weight: 500;

            display: block;

            margin-bottom: 5px;

            color: #555;

        }

        .input-group input {

            width: 100%;

            padding: 10px;

            border: 1px solid #ccc;

            border-radius: 5px;

            font-size: 16px;

            transition: 0.3s;

        }

        .input-group input:focus {

            border-color: #0072ff;

            outline: none;

            box-shadow: 0 0 5px rgba(0, 114, 255, 0.5);

        }

        .btn-register {

            width: 100%;

            padding: 10px;

            background: #0072ff;

            color: white;

            font-size: 16px;

            font-weight: 600;

            border: none;

            border-radius: 5px;

            cursor: pointer;

            transition: 0.3s;

        }

        .btn-register:hover {

            background: #0057b3;

        }

        .login-link {

            display: block;

            margin-top: 10px;

            font-size: 14px;

            color: #0072ff;

            text-decoration: none;

            transition: 0.3s;

        }

        .login-link:hover {

            color: #0057b3;

        }

        @media (max-width: 500px) {

            .register-container {

                width: 90%;

            }

        }

    </style>

</head>

<body>

    <div class="register-container">

        <h2>Client Registration</h2>

        <form method="POST">

            <div class="input-group">

                <label>Name:</label>

                <input type="text" name="client\_name" required>

            </div>

            <div class="input-group">

                <label>Email:</label>

                <input type="email" name="email" required>

            </div>

            <div class="input-group">

                <label>Phone:</label>

                <input type="text" name="phone" required>

            </div>

            <div class="input-group">

                <label>Password:</label>

                <input type="password" name="password" required>

            </div>

            <button type="submit" class="btn-register">Register</button>

            <a href="login.php" class="login-link">Already have an account? Login here</a>

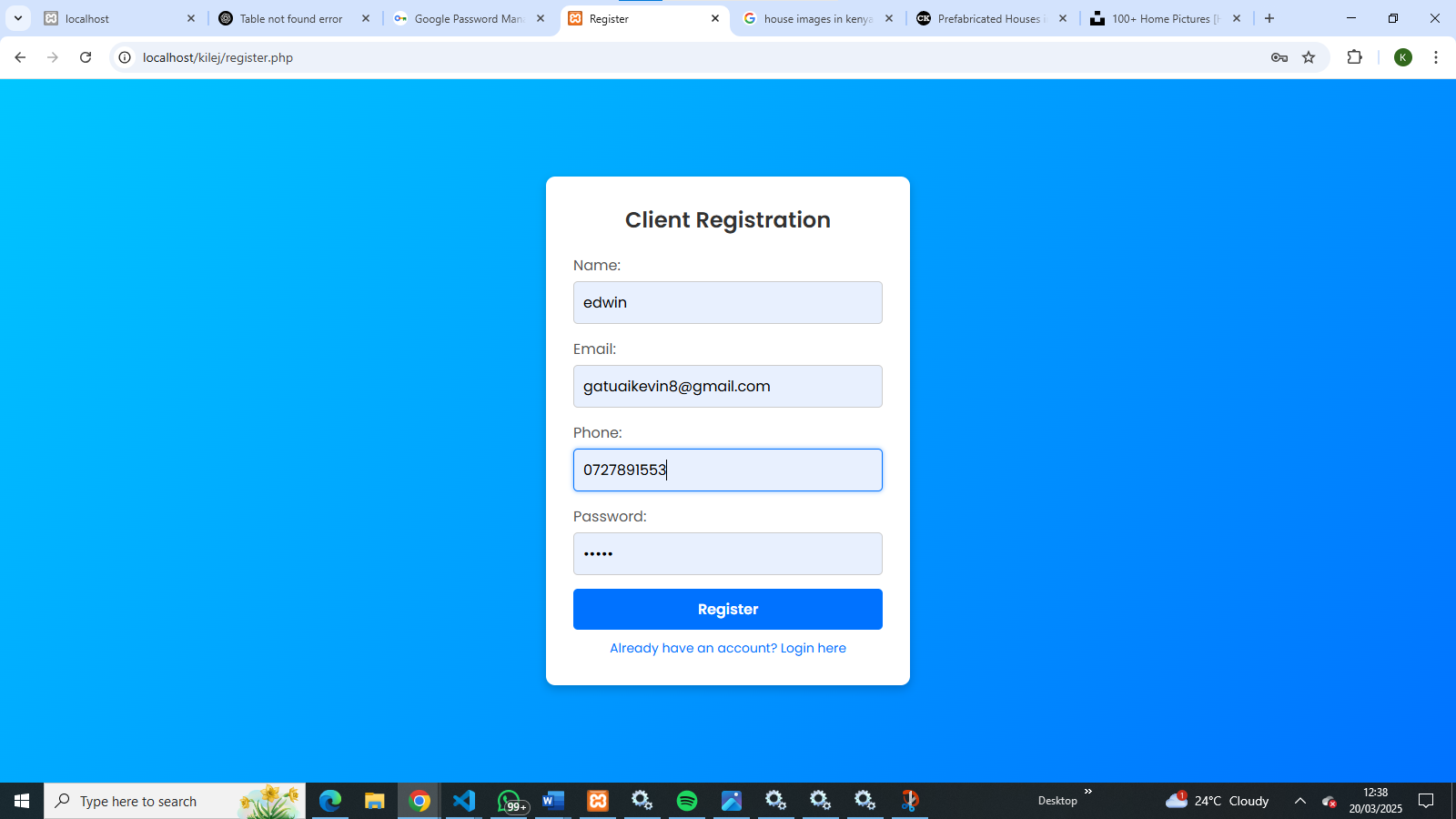
        </form>

    </div>

</body>

</html>

The outcome is as follows;



After registering he/she can successfully login now;

<?php

session\_start();

include 'db\_connect.php';

if ($\_SERVER["REQUEST\_METHOD"] == "POST") {

    $email = $\_POST['email'];

    $password = $\_POST['password'];

    $stmt = $conn->prepare("SELECT client\_id, password FROM clients WHERE email = ?");

    $stmt->bind\_param("s", $email);

    $stmt->execute();

    $stmt->store\_result();

    $stmt->bind\_result($client\_id, $hashed\_password);

    $stmt->fetch();

    if ($stmt->num\_rows > 0 && password\_verify($password, $hashed\_password)) {

        $\_SESSION['client\_id'] = $client\_id;

        header("Location: client\_dashboard.php");

        exit();

    } else {

        echo "Invalid email or password.";

    }

    $stmt->close();

}

?>

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Login</title>

    <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@300;400;600&display=swap" rel="stylesheet">

    <style>

        \* {

            box-sizing: border-box;

            margin: 0;

            padding: 0;

            font-family: 'Poppins', sans-serif;

        }

        body {

            background: linear-gradient(135deg, #00c6ff, #0072ff);

            height: 100vh;

            display: flex;

            justify-content: center;

            align-items: center;

        }

        .login-container {

            background: white;

            padding: 30px;

            width: 100%;

            max-width: 400px;

            border-radius: 10px;

            box-shadow: 0 4px 10px rgba(0, 0, 0, 0.2);

            text-align: center;

            animation: fadeIn 0.6s ease-in-out;

        }

        @keyframes fadeIn {

            from {

                opacity: 0;

                transform: translateY(-20px);

            }

            to {

                opacity: 1;

                transform: translateY(0);

            }

        }

        .login-container h2 {

            margin-bottom: 20px;

            color: #333;

            font-weight: 600;

        }

        .input-group {

            margin-bottom: 15px;

            text-align: left;

        }

        .input-group label {

            font-weight: 500;

            display: block;

            margin-bottom: 5px;

            color: #555;

        }

        .input-group input {

            width: 100%;

            padding: 10px;

            border: 1px solid #ccc;

            border-radius: 5px;

            font-size: 16px;

            transition: 0.3s;

        }

        .input-group input:focus {

            border-color: #0072ff;

            outline: none;

            box-shadow: 0 0 5px rgba(0, 114, 255, 0.5);

        }

        .btn-login {

            width: 100%;

            padding: 10px;

            background: #0072ff;

            color: white;

            font-size: 16px;

            font-weight: 600;

            border: none;

            border-radius: 5px;

            cursor: pointer;

            transition: 0.3s;

        }

        .btn-login:hover {

            background: #0057b3;

        }

        .forgot-password {

            display: block;

            margin-top: 10px;

            font-size: 14px;

            color: #0072ff;

            text-decoration: none;

            transition: 0.3s;

        }

        .forgot-password:hover {

            color: #0057b3;

        }

        @media (max-width: 500px) {

            .login-container {

                width: 90%;

            }

        }

    </style>

</head>

<body>

    <div class="login-container">

        <h2>Client Login</h2>

        <form method="POST">

            <div class="input-group">

                <label>Email:</label>

                <input type="email" name="email" required>

            </div>

            <div class="input-group">

                <label>Password:</label>

                <input type="password" name="password" required>

            </div>

            <button type="submit" class="btn-login">Login</button>

            <a href="#" class="forgot-password">Forgot Password?</a>

            <a href="register.php" class="login-link">Don't have an account? Register here</a>

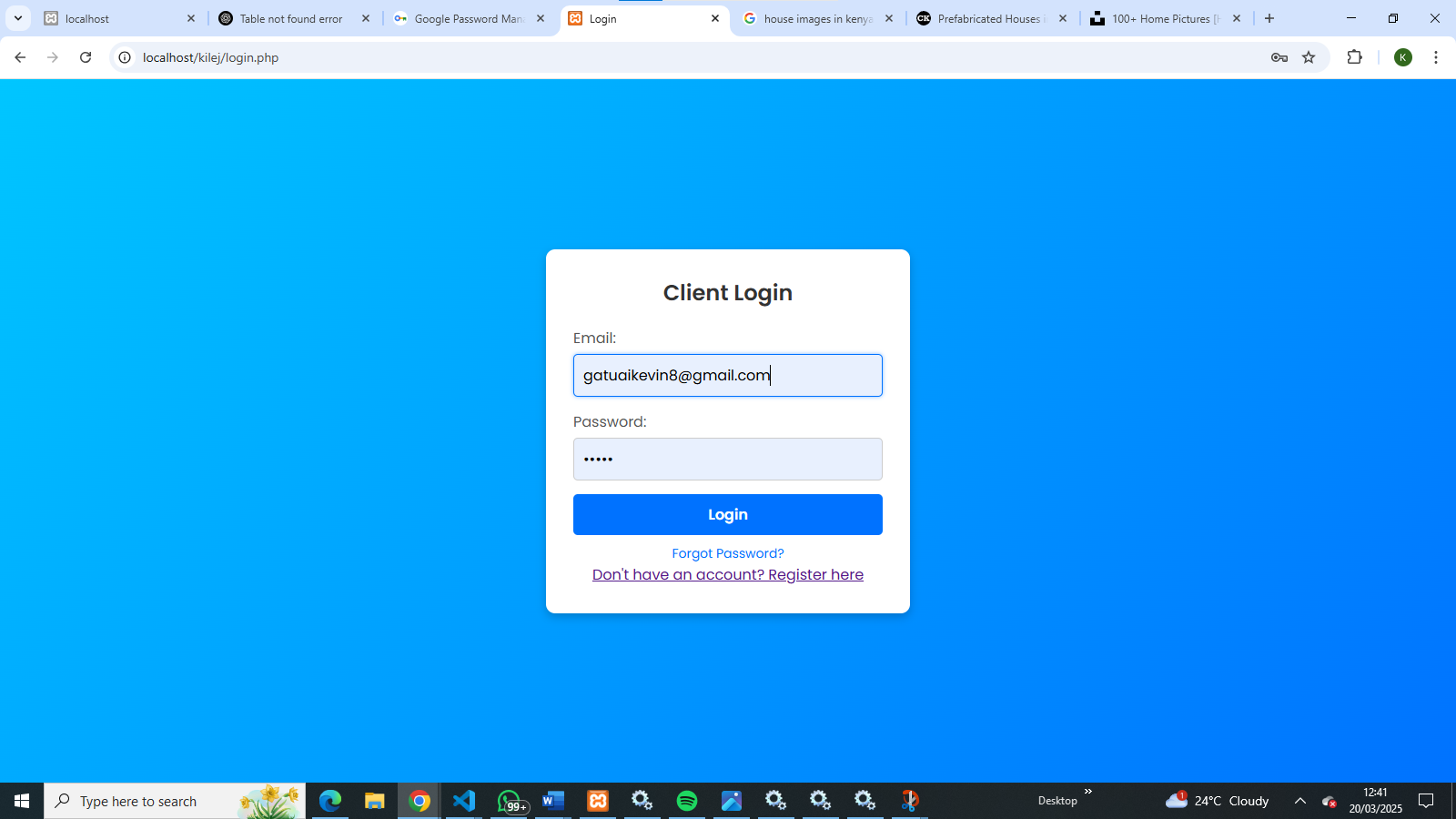
        </form>

    </div>

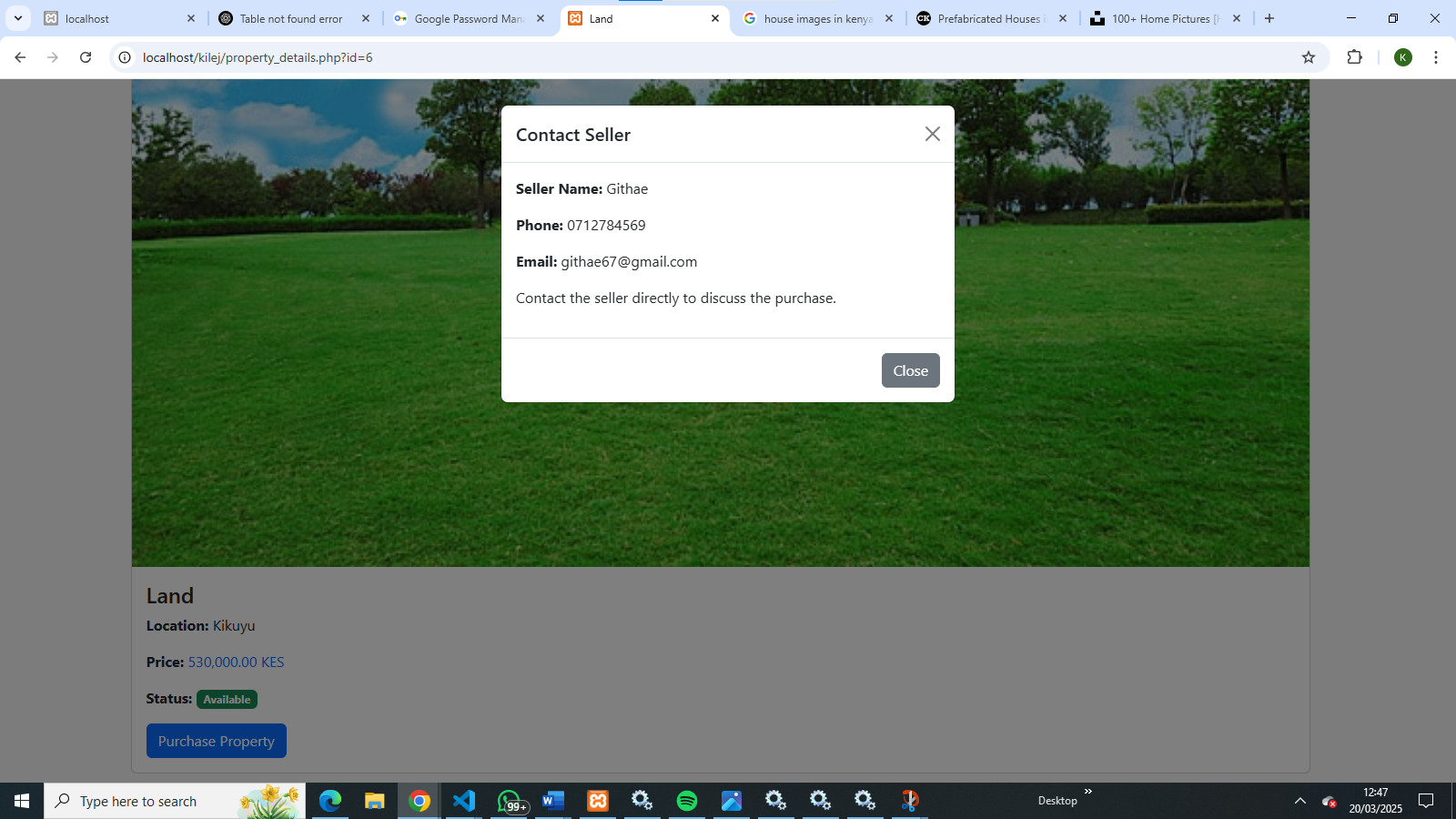
</body>

</html>

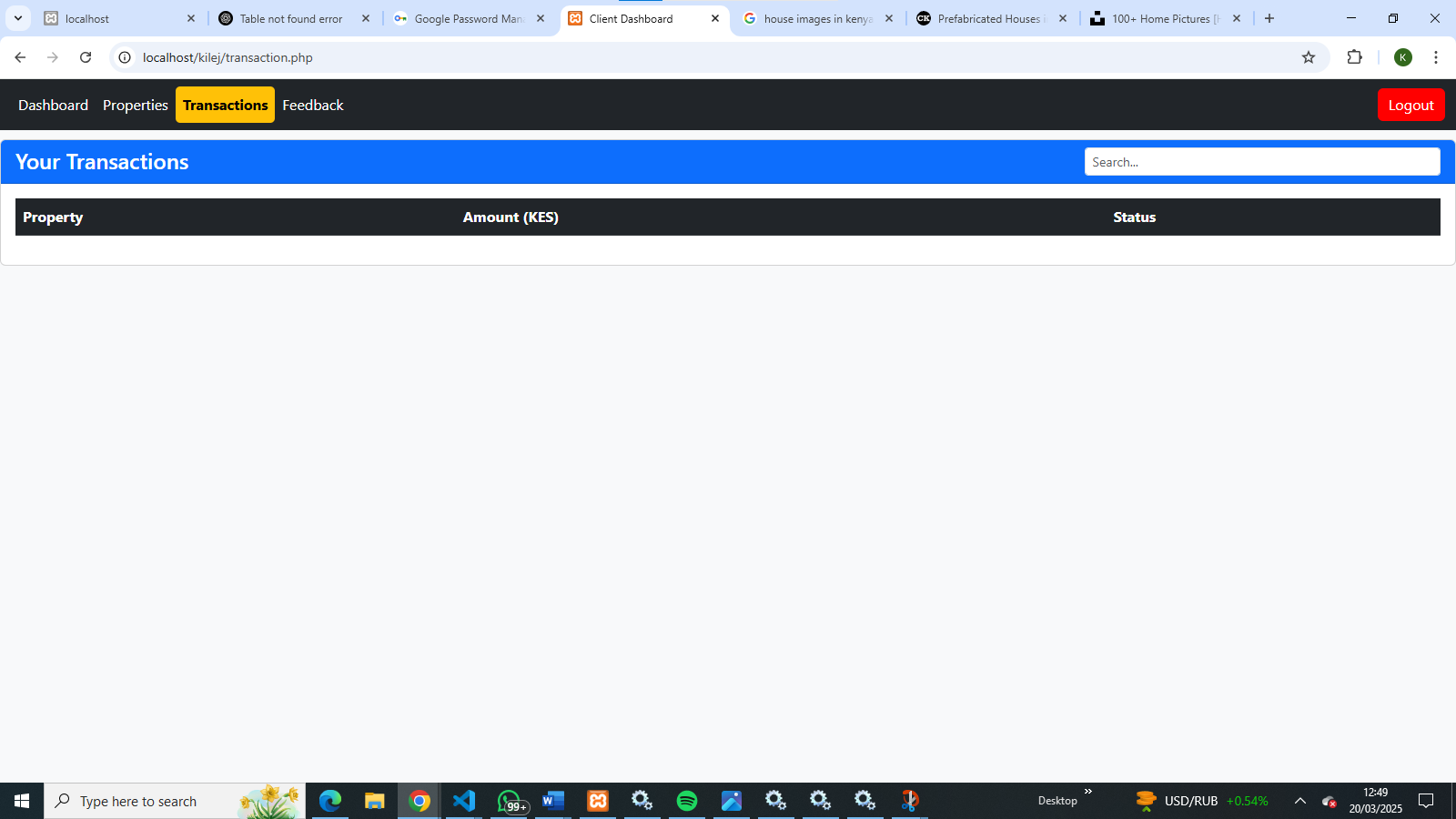
The login frame;



After the client has logged in and accessed the dashboard, he/she can see the available properties which they can purchase. It also shows the sold and available properties. .If interested they can purchase the property whereby they will have to contact the seller directly.



When there is a successful transaction, the clients can be able to view their transactions as follows;



Here is a code that we used so as the user can be able to express their thoughts on us;

<?php

session\_start();

include 'db\_connect.php';

if (!isset($\_SESSION['client\_id'])) {

    die("Error: Client is not logged in. <a href='login.php'>Login here</a>");

}

$client\_id = intval($\_SESSION['client\_id']); // Ensure client\_id is an integer

// Fetch available properties using prepared statement

$query = "SELECT id, property\_title, location, price, status, image\_path FROM property\_listings ORDER BY date\_added DESC";

$availableProperties = $conn->query($query);

// Fetch client transactions securely

$stmt = $conn->prepare("

    SELECT p.property\_title, t.total\_amount, t.payment\_status

    FROM transactions t

    JOIN property\_listings p ON t.id = p.id

    WHERE t.client\_id = ?

    ORDER BY t.transaction\_date DESC

");

$stmt->bind\_param("i", $client\_id);

$stmt->execute();

$clientTransactions = $stmt->get\_result();

// Fetch client feedback securely

$stmt = $conn->prepare("

    SELECT message, response, date\_submitted

    FROM feedback

    WHERE client\_id = ?

    ORDER BY date\_submitted DESC

");

$stmt->bind\_param("i", $client\_id);

$stmt->execute();

$clientFeedback = $stmt->get\_result();

?>

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1">

    <title>Client Dashboard</title>

    <!-- Bootstrap CSS -->

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">

    <script src="https://code.jquery.com/jquery-3.6.0.min.js"></script>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></script>

    <style>

        body { background-color: #f8f9fa; }

        .container { max-width: 900px; margin-top: 20px; }

        .card { margin-bottom: 20px; }

        .navbar {

            background-color: #212529;

        }

        .navbar-brand, .nav-link {

            color: white !important;

        }

        .nav-link.active {

            font-weight: bold;

            background-color: #ffc107; /\* Yellow background for active tab \*/

            color: black !important;

            border-radius: 5px;

        }

        .logout-btn {

            background-color: red;

            border: none;

        }

        .card {

            margin: 10px 0;

        }

    </style>

</head>

<body>

    <!-- Navigation Bar -->

    <nav class="navbar navbar-expand-lg navbar-dark">

        <div class="container-fluid">

            <div class="collapse navbar-collapse" id="navbarNav">

                <ul class="navbar-nav">

                    <li class="nav-item"><a class="nav-link" href="client\_dashboard.php">Dashboard</a></li>

                    <li class="nav-item"><a class="nav-link" href="properties.php">Properties</a></li>

                    <li class="nav-item"><a class="nav-link" href="transaction.php">Transactions</a></li>

                    <li class="nav-item"><a class="nav-link active" href="feedback.php">Feedback</a></li>

                </ul>

            </div>

            <button class="btn btn-danger logout-btn">Logout</button>

        </div>

    </nav>

    <!-- Client Feedback -->

    <div class="card">

        <div class="card-header bg-info text-white">

            <h4 class="mb-0">Your Feedback</h4>

        </div>

        <div class="card-body">

            <ul class="list-group">

                <?php while ($row = $clientFeedback->fetch\_assoc()) { ?>

                    <li class="list-group-item">

                        <strong>Your Message:</strong> <?php echo htmlspecialchars($row['message']); ?><br>

                        <em>Submitted on: <?php echo htmlspecialchars($row['date\_submitted']); ?></em>

                    </li>

                <?php } ?>

            </ul>

            <!-- Feedback Submission -->

            <h5 class="mt-3">Submit New Feedback</h5>

            <form id="feedbackForm">

                <div class="mb-3">

                    <textarea id="feedbackMessage" class="form-control" rows="3" placeholder="Enter your feedback..."></textarea>

                </div>

                <button type="submit" class="btn btn-primary">Submit</button>

            </form>

            <div id="feedbackAlert" class="alert mt-3 d-none"></div>

        </div>

    </div>

</div>

<script>

$(document).ready(function () {

    // Search Transactions

    $("#searchTransaction").on("keyup", function () {

        var value = $(this).val().toLowerCase();

        $("#transactionsTable tbody tr").filter(function () {

            $(this).toggle($(this).text().toLowerCase().indexOf(value) > -1);

        });

    });

    // Feedback Submission

    $("#feedbackForm").on("submit", function (e) {

        e.preventDefault();

        var feedbackMessage = $("#feedbackMessage").val().trim();

        if (feedbackMessage === "") {

            $("#feedbackAlert").removeClass("d-none alert-success").addClass("alert-danger").text("Feedback cannot be empty.");

            return;

        }

        $.post("submit\_feedback.php", { message: feedbackMessage }, function (response) {

            $("#feedbackAlert").toggleClass("alert-success alert-danger", response === "success").removeClass("d-none").text(

                response === "success" ? "Feedback submitted successfully!" : "Failed to submit feedback."

            );

        });

    });

});

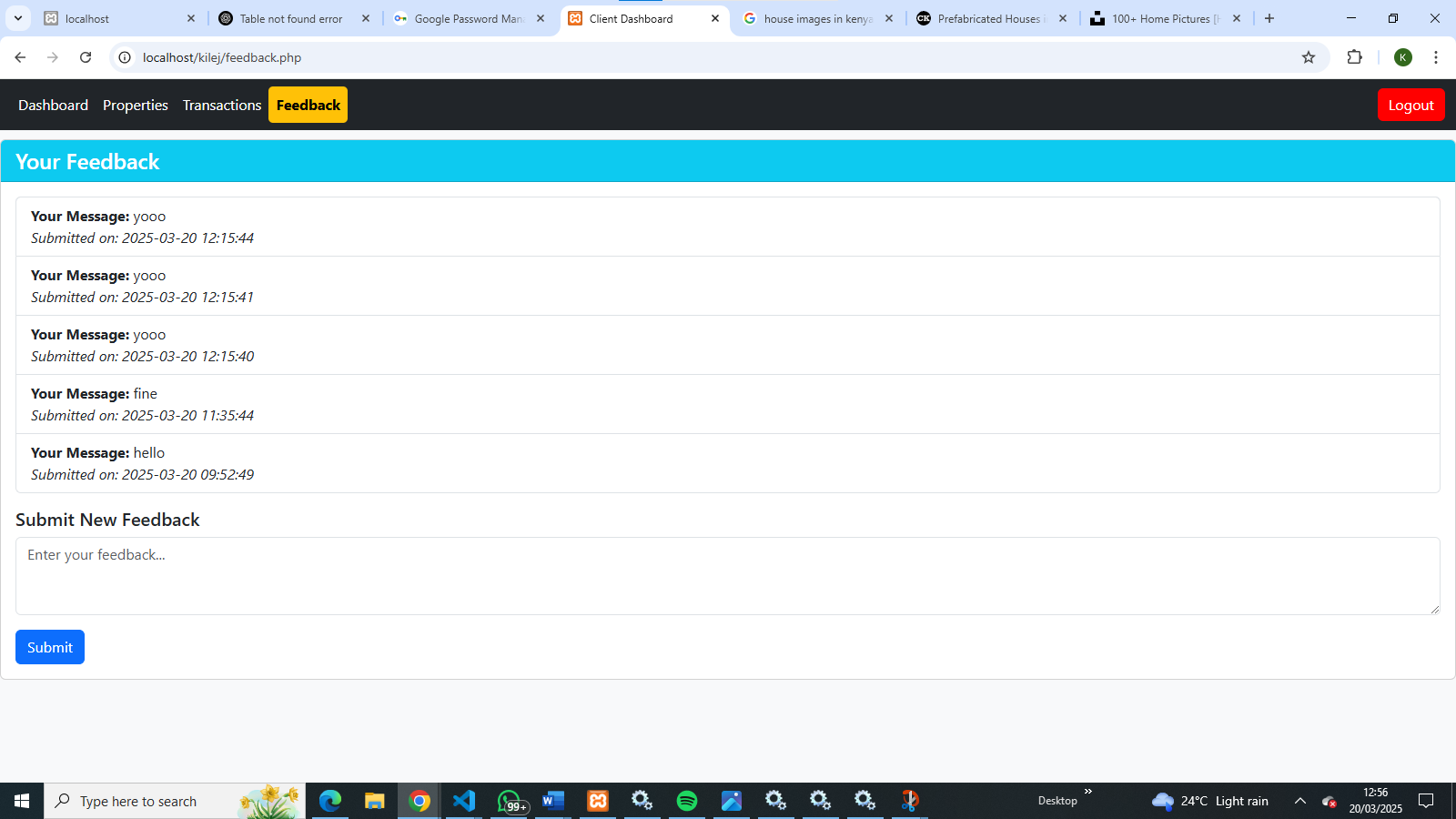
</script>

</body>

</html>

The clients can also give us their feedbacks of how they have experience using the website and share their thoughts on things we should improve.

Here is a display of the feedback page;



ADMIN

In our website we have included the admin who can view users who have logged in and update the available or sold properties in the website.

The admin should first login to the website then access the admin dashboard. Here is the code that we came up with;

<?php

session\_start();

include 'db\_connect.php';

if ($\_SERVER["REQUEST\_METHOD"] == "POST") {

    $username = $\_POST['username'];

    $password = $\_POST['password'];

    $stmt = $conn->prepare("SELECT admin\_id, password FROM admins WHERE username = ?");

    $stmt->bind\_param("s", $username);

    $stmt->execute();

    $stmt->store\_result();

    $stmt->bind\_result($admin\_id, $hashed\_password);

    $stmt->fetch();

    if ($stmt->num\_rows > 0 && password\_verify($password, $hashed\_password)) {

        $\_SESSION['admin\_username'] = $username;

        $\_SESSION['admin\_id'] = $admin\_id;

        header("Location: dashboard.php");

        exit();

    } else {

        $error\_message = "Invalid username or password!";

    }

    $stmt->close();

}

?>

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Admin Login</title>

    <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@300;400;600&display=swap" rel="stylesheet">

    <style>

        \* {

            box-sizing: border-box;

            margin: 0;

            padding: 0;

            font-family: 'Poppins', sans-serif;

        }

        body {

            background: linear-gradient(135deg, #1e3c72, #2a5298);

            height: 100vh;

            display: flex;

            justify-content: center;

            align-items: center;

        }

        .login-container {

            background: white;

            padding: 30px;

            width: 100%;

            max-width: 400px;

            border-radius: 10px;

            box-shadow: 0 4px 10px rgba(0, 0, 0, 0.2);

            text-align: center;

            animation: fadeIn 0.6s ease-in-out;

        }

        @keyframes fadeIn {

            from { opacity: 0; transform: translateY(-20px); }

            to { opacity: 1; transform: translateY(0); }

        }

        .login-container h2 {

            margin-bottom: 20px;

            color: #333;

            font-weight: 600;

        }

        .input-group {

            margin-bottom: 15px;

            text-align: left;

        }

        .input-group label {

            font-weight: 500;

            display: block;

            margin-bottom: 5px;

            color: #555;

        }

        .input-group input {

            width: 100%;

            padding: 10px;

            border: 1px solid #ccc;

            border-radius: 5px;

            font-size: 16px;

            transition: 0.3s;

        }

        .input-group input:focus {

            border-color: #2a5298;

            outline: none;

            box-shadow: 0 0 5px rgba(42, 82, 152, 0.5);

        }

        .btn-login {

            width: 100%;

            padding: 10px;

            background: #2a5298;

            color: white;

            font-size: 16px;

            font-weight: 600;

            border: none;

            border-radius: 5px;

            cursor: pointer;

            transition: 0.3s;

        }

        .btn-login:hover {

            background: #1e3c72;

        }

        .error-message {

            color: red;

            margin-bottom: 10px;

            font-size: 14px;

        }

        @media (max-width: 500px) {

            .login-container {

                width: 90%;

            }

        }

    </style>

</head>

<body>

    <div class="login-container">

        <h2>Admin Login</h2>

        <?php if (!empty($error\_message)) echo "<p class='error-message'>$error\_message</p>"; ?>

        <form method="POST">

            <div class="input-group">

                <label>Username:</label>

                <input type="text" name="username" required>

            </div>

            <div class="input-group">

                <label>Password:</label>

                <input type="password" name="password" required>

            </div>

            <button type="submit" class="btn-login">Login</button>

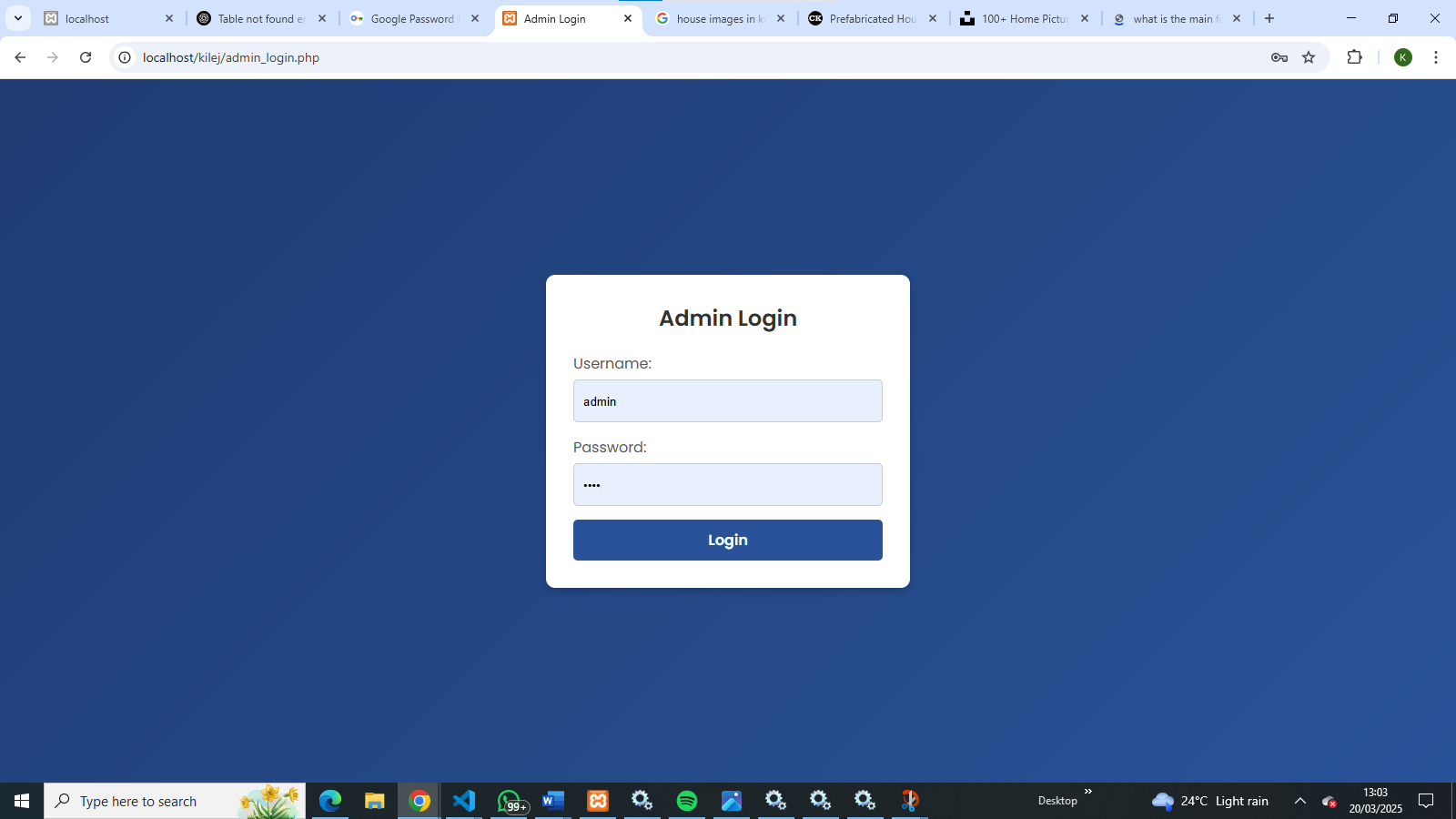
        </form>

    </div>

</body>

</html>

The display when the admin has logged in;



Here is a code used for the admin’s dashboard display;

<?php

include 'db\_connect.php'; // Connects to the database

// Fetch summary statistics

$totalProperties = $conn->query("SELECT COUNT(\*) AS count FROM property\_listings")->fetch\_assoc()['count'] ?? 0;

$totalClients = $conn->query("SELECT COUNT(\*) AS count FROM clients")->fetch\_assoc()['count'] ?? 0;

$totalContractors = $conn->query("SELECT COUNT(\*) AS count FROM contractors")->fetch\_assoc()['count'] ?? 0;

$totalTransactions = $conn->query("SELECT COUNT(\*) AS count FROM transactions")->fetch\_assoc()['count'] ?? 0;

$totalFeedback = $conn->query("SELECT COUNT(\*) AS count FROM feedback")->fetch\_assoc()['count'] ?? 0;

$totalLegalDocs = $conn->query("SELECT COUNT(\*) AS count FROM legal\_documents")->fetch\_assoc()['count'] ?? 0;

?>

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Real Estate Dashboard</title>

    <link rel="stylesheet" href="styles.css">

    <style>

        /\* General Styles \*/

        body {

            font-family: Arial, sans-serif;

            margin: 0;

            padding: 0;

            background-color: #f4f4f4;

            color: #333;

        }

        h1, h2, h3 {

            color: #f4f4f4;

        }

        /\* Header \*/

        header {

            background-color: #005580;

            color: white;

            padding: 15px 0;

            text-align: center;

        }

        header h1 {

            margin: 0;

        }

        nav ul {

            list-style: none;

            padding: 0;

            margin: 10px 0;

            display: flex;

            justify-content: center;

            gap: 15px;

        }

        nav ul li {

            display: inline;

            background: #3498db;

        }

        nav ul li a {

            text-decoration: none;

            color: white;

            font-weight: bold;

            padding: 10px 15px;

            transition: 0.3s;

        }

        nav ul li a:hover {

            background-color: #003d66;

            border-radius: 5px;

        }

        /\* Main Container \*/

        .container {

            width: 90%;

            max-width: 1200px;

            margin: 20px auto;

        }

        /\* Sections \*/

        section {

            background: white;

            padding: 20px;

            margin-bottom: 20px;

            border-radius: 8px;

            box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);

        }

        /\* Forms \*/

        form {

            display: flex;

            flex-direction: column;

            gap: 10px;

        }

        form label {

            font-weight: bold;

        }

        form input, form select, form button {

            padding: 8px;

            border: 1px solid #ccc;

            border-radius: 5px;

        }

        form button {

            background-color: #005580;

            color: white;

            font-weight: bold;

            cursor: pointer;

            transition: 0.3s;

        }

        form button:hover {

            background-color: #003d66;

        }

        /\* Summary & Insights \*/

        .summary, .property-insights, .transactions {

            display: grid;

            grid-template-columns: repeat(auto-fit, minmax(200px, 1fr));

            gap: 15px;

            text-align: center;

        }

        .card {

            background: #005580; /\* Darker background for better contrast \*/

            color: white; /\* White text for visibility \*/

            padding: 20px;

            border-radius: 10px;

            box-shadow: 0 4px 8px rgba(0, 0, 0, 0.2); /\* Stronger shadow for depth \*/

            font-size: 18px; /\* Larger text for readability \*/

            font-weight: bold;

            text-align: center;

            transition: transform 0.3s ease-in-out, background-color 0.3s;

        }

        .card:hover {

            transform: scale(1.05); /\* Slight enlargement on hover \*/

            background: #003d66; /\* Slightly darker background \*/

        }

        /\* Recent Properties \*/

        #recent-properties ul {

            list-style: none;

            padding: 0;

        }

        #recent-properties li {

            display: flex;

            align-items: center;

            gap: 15px;

            margin-bottom: 10px;

            padding: 10px;

            background: #3498db;

            border-radius: 5px;

            box-shadow: 0 2px 5px rgba(0, 0, 0, 0.1);

        }

        #recent-properties img {

            border-radius: 5px;

            width: 100px;

            height: auto;

        }

        /\* Responsive Design \*/

        @media (max-width: 768px) {

            nav ul {

                flex-direction: column;

                text-align: center;

            }

            .summary, .property-insights, .transactions {

                grid-template-columns: 1fr;

            }

            #recent-properties li {

                flex-direction: column;

                text-align: center;

            }

        }

    </style>

</head>

<body>

<header>

        <h1>Real Estate Dashboard</h1>

        <nav>

            <ul>

                <li><a href="dashboard.php">Dashboard</a></li>

                <li><a href="add\_property.php">Add Property</a></li>

                <li><a href="insights.php">Insights</a></li>

                <li><a href="transactions.php">Transactions</a></li>

                <li><a href="logout.php">Logout</a></li>

            </ul>

        </nav>

</header>

<!-- Summary Section -->

<div class="summary">

            <div class="card">Total Properties: <strong><?php echo $totalProperties; ?></strong></div>

            <div class="card">Total Clients: <strong><?php echo $totalClients; ?></strong></div>

            <div class="card">Total Contractors: <strong><?php echo $totalContractors; ?></strong></div>

            <div class="card">Total Transactions: <strong><?php echo $totalTransactions; ?></strong></div>

            <div class="card">Total Feedback: <strong><?php echo $totalFeedback; ?></strong></div>

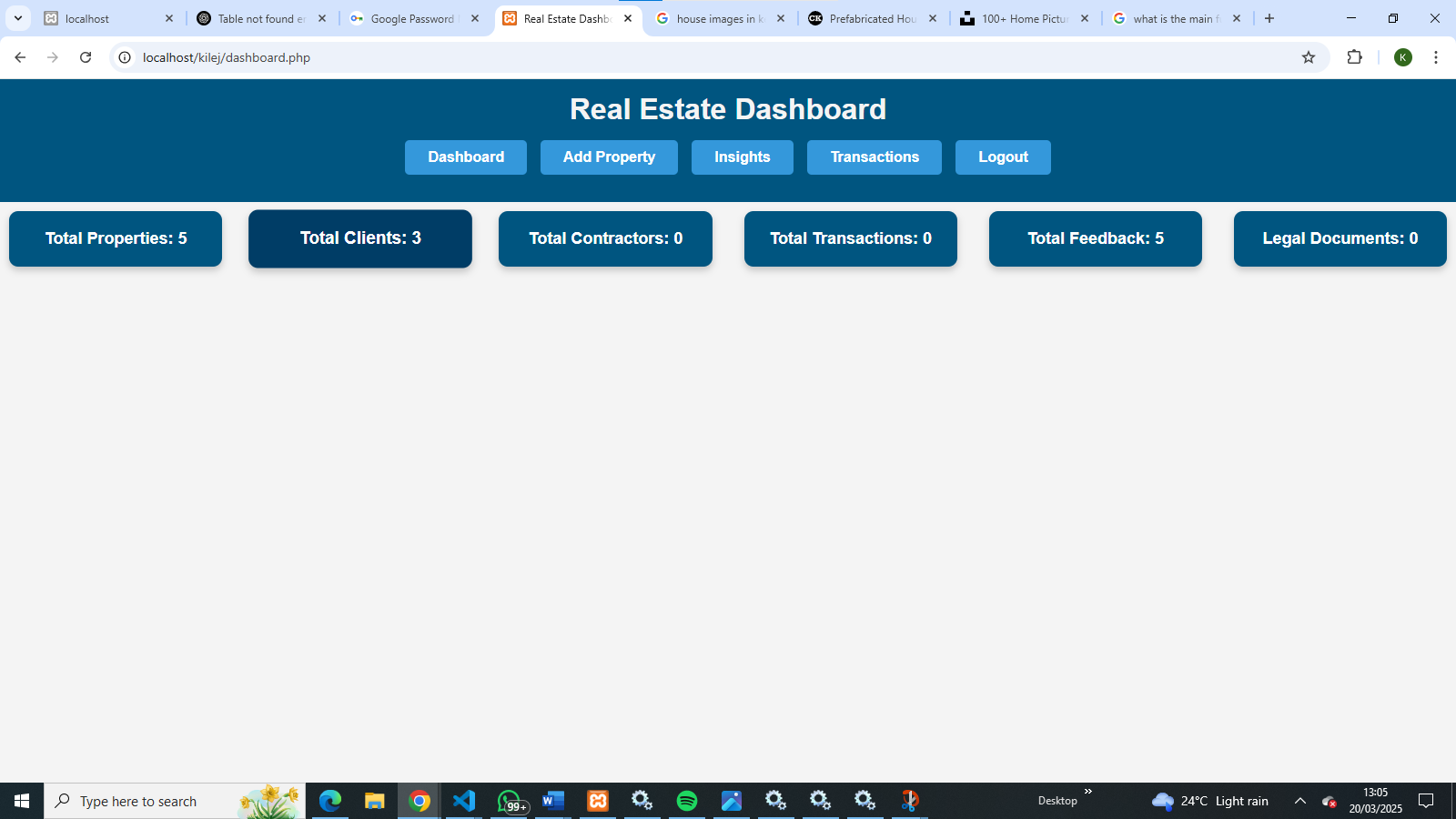
            <div class="card">Legal Documents: <strong><?php echo $totalLegalDocs; ?></strong></div>

        </div>

</body>

</html>

The display of the admin’s dashboard is as follows;



# CHAPTER 4: TESTING AND RESULTS

**Introduction**

Software testing is done to demonstrate to the developer and customer that the software meets its requirements as well as to discover faults or defects in the software where the behavior of the software is incorrect, undesirable or does not conform to its specification.

Different types of testing are done using various test cases to test the various aspects of the system.

* Unit Testing
* Integration Testing
* System Testing
* Acceptance Testing

## 5.1 Test Case

The test cases of the system are as below:

### 5.1.1 Test Case 1: User Registration

**Description:** Verify that a user can register successfully with valid details.

**Preconditions:** User is on the registration page.

**Steps:**

1. Enter a valid username.
2. Enter a valid email address.
3. Enter a valid password.
4. Click on the "Register" button.

**Expected Result:** User is registered successfully and redirected to the welcome page

### Test Case 2: Property Listing

### Description: Verify that a user can view the list of available properties.

### Preconditions: User is logged in.

**Steps:** Navigate to the property listings page.

**Expected Result:** A list of properties is displayed with details like price, location, and images

### Test Case 3: User Login

**Description:** Verify that a user can log in with valid credentials.

**Preconditions:** User is on the login page.

**Steps:**

1. Enter a valid email address.
2. Enter a valid password.
3. Click on the "Login" button.

**Expected Result:** User is logged in successfully and redirected to the dashboard

### Test Case 4: Property Detail View

**Description:** Verify that clicking on a property displays its details.

**Preconditions:** User is on the property listings page.

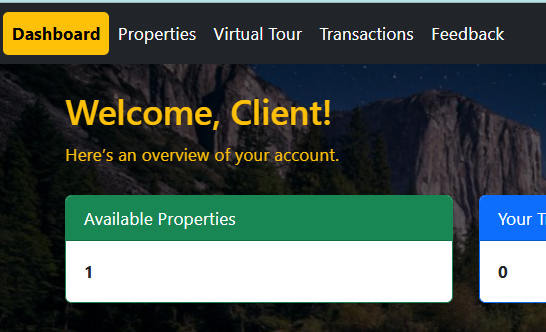
**Steps:**

Click on a property from the list.

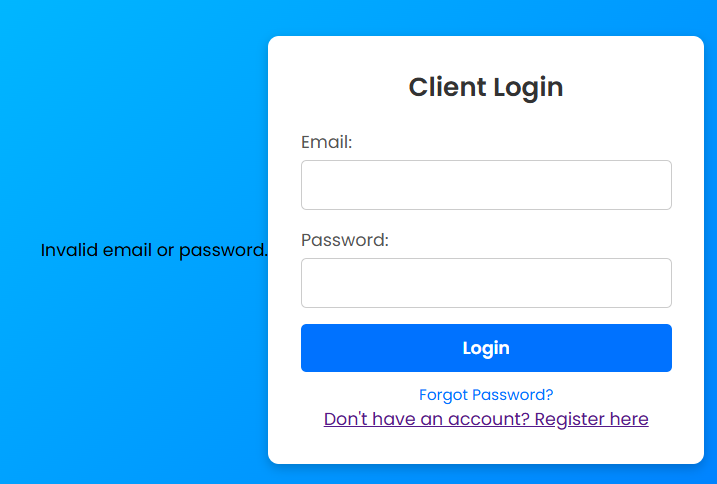
**Expected Result:** The property detail page is displayed with all relevant information (images, description, price).

## 5.2 SAMPLE RESULT

### 5.2.1 Sample result 1: Successful log in

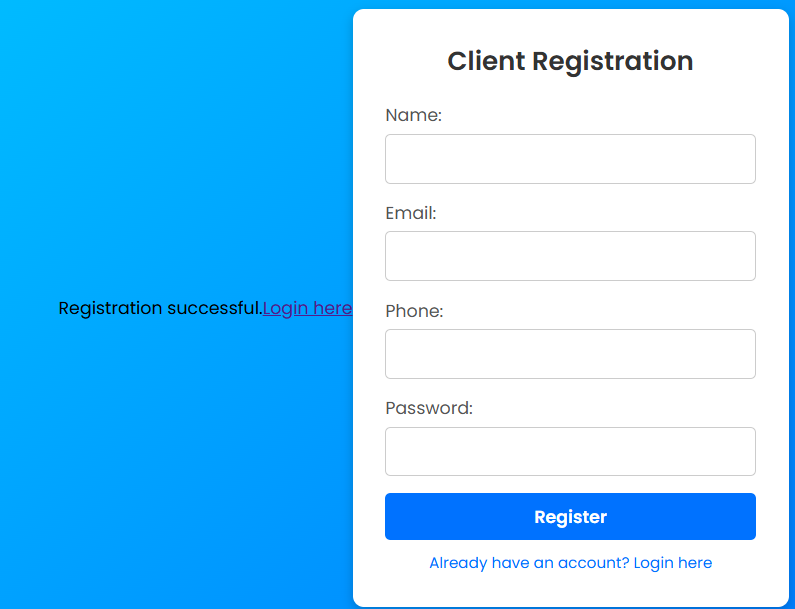
On entry of valid username and password, one will be allowed to access into the system. After the user logs in, he/she will transit to the homepage of his/ her category. The figure below shows a successful login; 

### 5.2.2 Sample result 2: Unsuccessful log in

Entry of wrong username or password would mean no access to the system. Will give an error notification as shown below; 

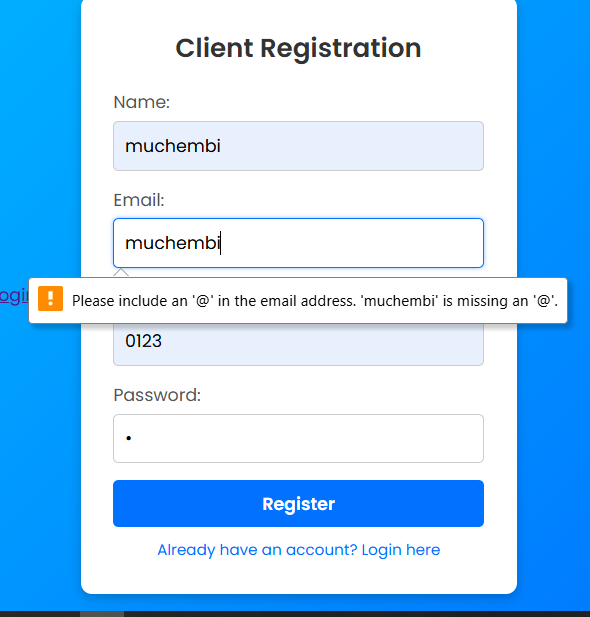
### 5.2.3 Sample result 3: Successful registration

User was registered successfully and redirected to the welcome page.



### 5.2.4 Sample result 4: Unsuccessful Registration

Verify that a user can register successfully with valid details.



# CHAPTER SIX: IMPLEMENTATION AND DEPLOYMENT

## 6.1 Data Conversion

Data conversion is the process of transforming data from one format or structure to another. This is often necessary when migrating data between systems or upgrading software.

## 6.2 Implementation Strategy

There are various implementation strategies that can be used.

1. Parallel changeover- both the old and the new systems are run simultaneously for an agreed period of time.
2. Phased changeover- the new system is used in particular branches of the organization and tested to ensure it is working properly before being used in all other branches.
3. Direct changeover- the old system is completely withdrawn and the new system is used by a given date.

## 6.3 System Specifications

### 6.3.1 Hardware Requirements

* Processor -Dual Core or more.
* RAM : 1GB
* Hard Disk : 40 GB
* Display Type :  SVGA Color Monitor
* Keyboard : Enhanced 104 Standard
* Mouse : PS/2 2Button, USB

### Software Requirements

* Operating System : windows 7, windows 8 and Upper version
* Web Browser : Opera mini, Google Chrome, Microsoft Edge
* Web Server : Apache
* IDE Tools : Microsoft Visual Studio
* Front End : Asp.Net
* Database/Back End : Xamp, MySQL
* Language Structure : HTML, PhP, CSS

## 6.4 Support and Training

### 6.4.1 Support Resources

**Knowledge Base**: A centralized repository of FAQs, guides, and troubleshooting tips.

**User Manuals**: Comprehensive guides detailing system features and functionalities.

**Video Tutorials**: Short instructional videos covering key tasks and features.

### Training Materials

**User Manuals**: Detailed documentation covering all system functionalities.

**Presentation slides**: Slide decks used during training sessions, available for download.

**Quick reference guides**: One-page documents summarizing key tasks and tips for quick access.

By implementing these practices, we aim to enhance user experience, improve system adoption, and foster a supportive environment for all stakeholders.

## System Deployment

It outlines the deployment process for the real estate project, detailing the steps required to successfully launch the system in a production environment.

# CHAPTER 7: CONCLUSION AND RECOMMENDATION

## 7.1 Discussion

The real estate project has successfully implemented a robust system designed to streamline operations, enhance user experience, and provide valuable insights into market trends. Throughout the development and deployment phases, various challenges were encountered, including integration issues, user training needs, and data management complexities. However, through collaborative efforts and adherence to best practices, these challenges were effectively addressed.

Key features of the system, such as property management, client interactions, and transaction tracking, have been positively received by users. Feedback indicates that the system significantly improves efficiency and reduces manual tasks, allowing staff to focus on more strategic activities.

Additionally, the support and training initiatives have played a crucial role in ensuring user adoption and satisfaction. The establishment of a comprehensive support structure has facilitated prompt resolution of issues, further enhancing user confidence in the system.

## Recommendations

Based on the experiences and feedback gathered during the project, the following recommendations are proposed:

1. **Continous Training**

* **Ongoing Education**: Implement regular training sessions to keep users updated on new features and best practices.
* **Advanced Training**: Offer specialized training for power users and administrative staff to maximize system utilization.

1. **System Enhancements**

* **User Feedback Loop**: Establish a formal process for collecting and analyzing user feedback to inform future system enhancements.
* **Feature Expansion**: Consider adding features such as mobile accessibility and advanced analytics to further improve user engagement and functionality.

1. **Perfomance Monitoring**

* **Regular Audits**: Conduct periodic performance audits to identify bottlenecks and areas for improvement.
* **Scalability Planning**: Plan for future growth by evaluating infrastructure needs and ensuring the system can scale effectively.

1. **Security Measures**

* **Enhanced Security Protocols**: Regularly update security measures to protect sensitive data and maintain user trust.
* **User Access Reviews**: Implement routine reviews of user access levels to ensure compliance with security policies.

## 7.3 Limitations

Despite the project's successes, several limitations were identified:

**1. Resource Constraints**

* Limited budget and personnel resources constrained the extent of system features and training programs.

**2. User Adaptability**

* Some users exhibited resistance to change, which impacted the overall adoption rate. Additional efforts in change management may be necessary.

**3. Technical Challenges**

* Integration with existing legacy systems posed challenges that required additional time and resources to resolve.

## 7.4 Conclusion

In conclusion, the real estate project has laid a solid foundation for efficient operations and enhanced user experience. The successful implementation of the system demonstrates the potential for technology to transform traditional processes in the real estate industry. By addressing the recommendations outlined above, the organization can further optimize the system, ensuring it continues to meet the evolving needs of users and stakeholders.

The commitment to ongoing training, system enhancement, and robust support will be critical in maintaining user satisfaction and achieving long-term success. With careful planning and execution, the real estate project is poised for continued growth and innovation in the future.

**REFERENCES**

* Google
* W3schools
* Bootsrap.com
* Software Engineering: A practitioner’s Approach, seventh edition by Roger Pressman 6th edition

**APPENDICES**

1. **Budget**

|  |  |
| --- | --- |
| **ITEM** | **COST(KSHs)** |
| Property management software | 50,000 |
| Marketing materials | 20,000 |
| Office supplies | 15,000 |
| Website Development | 100,000 |
| Training sessions | 100,000 |
| Legal fees | 50,000 |
| IT Support services | 50,000 |
| **TOTAL** | **385,000** |

1. **Schedule**

| **Task Description** | **Start Date** | **End Date** | **Duration (Weeks)** | **Responsible Party** |
| --- | --- | --- | --- | --- |
| Project Initiation | Jan 15, 2025 | Jan 22, 2025 | 1 | Project Manager |
| Requirements Gathering | Jan 23, 2025 | Jan 30, 2025 | 1 | Business Analyst |
| System Design | Jan 31, 2025 | Feb 15, 2025 | 3 | Development Team |
| Development Phase | Feb 16, 2025 | Mar 13, 2025 | 5 | Development Team |
| Testing Phase | Mar 14, 2025 | Mar 17, 2025 | 1 | Quality Assurance Team |
| User Acceptance Testing (UAT) | Mar 18, 2025 | Mar 22, 2025 | 1 | End Users |
| Deployment | Mar 23, 2025 | Mar 27, 2025 | 1 | IT Support Team |
| Training Sessions | Mar 28, 2025 | Apr 3, 2025 | 1 | Training Coordinator |
| Post-Deployment Support | Apr 4, 2025 | Apr 16, 2025 | 2 | IT Support Team |