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A

Mini Project Report

On

“PROPERTY MANAGEMENT SYSTEM”

Submitted By

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CERTIFICATE

Certified that the mini project work prescribed in **18ISL67** entitled "**PROPERTY MANAGEMENT SYSTEM**" carried out by **Hemanth Kumar. N (1KT20IS006)** and **SPOORTHI L(1KT20IS017)**, bonafide students of Sri Krishna Institute of Technology, Bengaluru in partial fulfillment for the award of **Bachelor of Engineering in Information Science and Engineering** of the **Visvesvaraya Technological University**, Belagavi during the year 2022-23. It is certified that all corrections / suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The mini project report has been approved as it satisfies the academic requirements with respect to mini project work prescribed for the said Degree.

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ABSTRACT

The **Property Management System (PMS)** is a software solution designed to facilitate efficient management of properties, including residential, commercial, and industrial units. This abstract presents an overview of a PMS and this abstract utilizes a file structure for efficient organization and management of property -related data. The system offers a scalable, cost effective, and customizable solution, empowering property managers to streamline their operations, improve efficiency, and optimize property performance. The file structure also simplifies data backup and recovery processes, ensuring data integrity.

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CHAPTER 1

INTRODUCTION

A property management system (PMS) is a software application for the operations of hospitality accommodations and commercial residential rental properties. PMS is also used in manufacturing industries, local government and manufacturing. PMS provides a centralized computer system to organize, schedule and perform the day-to-day functions and transactions involved in accommodations businesses. Computer record keeping PMS have increased the efficiency to hospitality industries significantly simply by making it possible to update and consult centralized records from multiple computers and devices.

1.1 PURPOSE

Property management involves maintaining a vast amount of information, documents, and records. A PMS allows for the systematic organization and storage of data related to properties, tenants, contracts and more. It ensures that information is easily accessible, well-organized and securely stored. A PMS help property managers and owners effectively handle day-to-day operations related to their properties. It provides a centralized platform to manage tasks such as tenant on boarding, lease agreements, rent collection, maintenance requests and more.

1.2 SCOPE

Property Management covers everything to do with the person living in the property, i.e. , the tenant, from finding a suitable tenant, completing the compliance paperwork, placing them in the property with a set guidelines for their tenancy of the property, collecting the rent, invoicing for any utilities and ensuring that they comply to the lease agreement and lease conditions all the times.

CHAPTER 2

SYSTEM REQUIREMENTS

System requirement is the configuration required to run the hardware or the software application in an efficient way with the high performance. System requirements should be specified to Client because the client should have the minimum hardware and software specification in order to run the requested software in their machine.

2.1 Hardware Requirements

A good hardware configuration should be present while running a software which need a high performance. At least the client should have a minimum hardware to run the software efficiently.

- CPU : Intel Core i3 8th GEN.
- RAM : 4GB.
- Storage: 32GB.

2.2 Software Requirements

There should be a good software that can run the application and it should be even flexible for the client to operate it.

- Chrome Browser
- Visual Studio Code
- Python 3.8

CHAPTER 3

FEASIBILITY STUDY

Feasibility study is conducted once the problem is clearly understood. Feasibility study is a high-level capsule version of the entire system analysis and design process. The objective is to determine quickly at a minimum expense how to solve a problem. The purpose of feasibility is not to solve the problem but to determine if the problem is worth solving.

Depending on the results of the initial investigation, the survey is expanded to a more detailed feasibility study. A feasibility study is a test of a system proposal. According to its workability, impact on the organization, ability to meet user's needs and effective use of the resources its main task done during the feasibility study are: -

1. Evaluation of existing system and procedures. Our group went to various Property Management System to gather information about the software system. They are using and evaluating those system and the procedures invoked in it during the period of feasibility study.
2. Analysis of alternative candidate systems after studying the various systems we derived various alternatives through which we develop our project and evaluated the alternative. The most appropriate is selected.

The system has been tested for feasibility in the following points.

1. Technical Feasibility
2. Economic Feasibility
3. Operational Feasibility.

3.1 Technical Feasibility

The project entitles "Property Management System" is technically feasible because of the below mentioned feature. The project was developed in Python. It provides the high level of reliability, availability and compatibility. All these make python an appropriate language for this project.

3.2 Economic Feasibility

The computerized system will help in automate the selection leading the profits and details of the organization. With this software, the machine and manpower utilization are expected to go up by 80-90% approximately. The costs incurred of not creating the system are set to be great, because precious time can be wanted by manually.

3.3 Operational Feasibility

In this project, the management will know the details of each product that have been sold and can help them to keep track of data and store it decentralized. If there are any enquiries that particular contract can be known as per their requirements and necessities. Automation makes our life easy. The proposed system is highly user friendly and is much easily able to interact with the system. Therefore, the users will readily accept the system as data entry and making queries can be easily done.

CHAPTER 5

IMPLEMENTATION

Implementation is the next process done after understanding the system design. Here we will use the technology to build this project.

5.1 Technology Used

In this section we discuss the appropriate technology to be used to develop the project and keeping a good performance of the application

5.1.1 Python

Python is an interpreted high-level general-purpose programming language. Python's design philosophy emphasizes code readability with its notable use of significant indentation. Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects. In this project we are using the python 3.9.5 version we will be writing all the logic of the project with this language

5.1.2 Library Used

- **EEL**

Eel is a little Python library for making simple Electron-like offline HTML/JS GUI apps, with Python capabilities and libraries. Eel is designed to take the hassle out of writing short and simple GUI applications. If you are familiar with Python and web development, probably just jump in this project which picks file names out of the given folder (something that is impossible from a browser). This Library creates a standalone window using chrome/chromium browser. In this project we have already developed our frontend using the HTML, CSS and JS so now we will declare our python function globally so that we can access the same function in the JS code using this library. We can even get and pass the value to the python function via JS. Below there are few eel commands used in python and JS.

- `@eel.expose` this command is added to the python function to expose it to the JS file `eel.function_name()` this command is used to access the python function and even pass the values

TKNITER

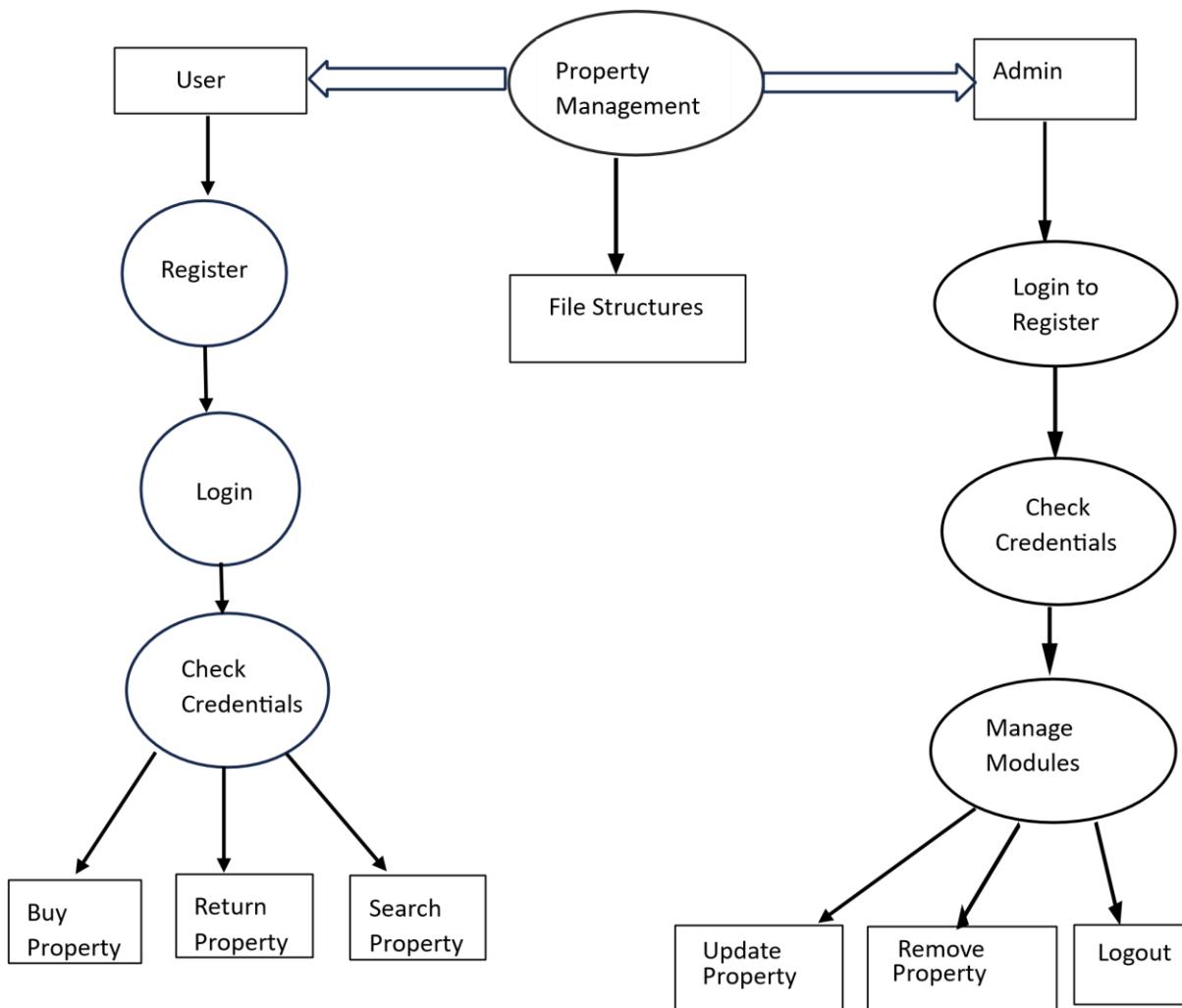
- Tkinter is the most commonly used method. It is a standard Python interface to the Tk GUI toolkit shipped with Python. Python with tkinter is the fastest and easiest way to create the GUI applications. Creating a GUI using tkinter is an easy task.
- Tkinter is used to create Graphical User interfaces (GUIs) and is included in all standard Python Distributions. In fact, it's the only framework built into the Python standard library.

CHAPTER 4

SYSTEM DESIGN

System design is the process of defining the architecture, product design, modules, interfaces, and data for a system to satisfy specified requirements. System design could be seen as the application of system theory to product development

4.1 Data Flow Diagram of Property Management System



4.1 Data Flow Diagram of Property Management System

Fig 4.1 illustrates the flow of data within a system in which the user and admin can login into the system and all the data of PMS is stored in the File structure. DFD shows all the managing modules included in the property management system

4.2 Use Case Diagram of Property Management System

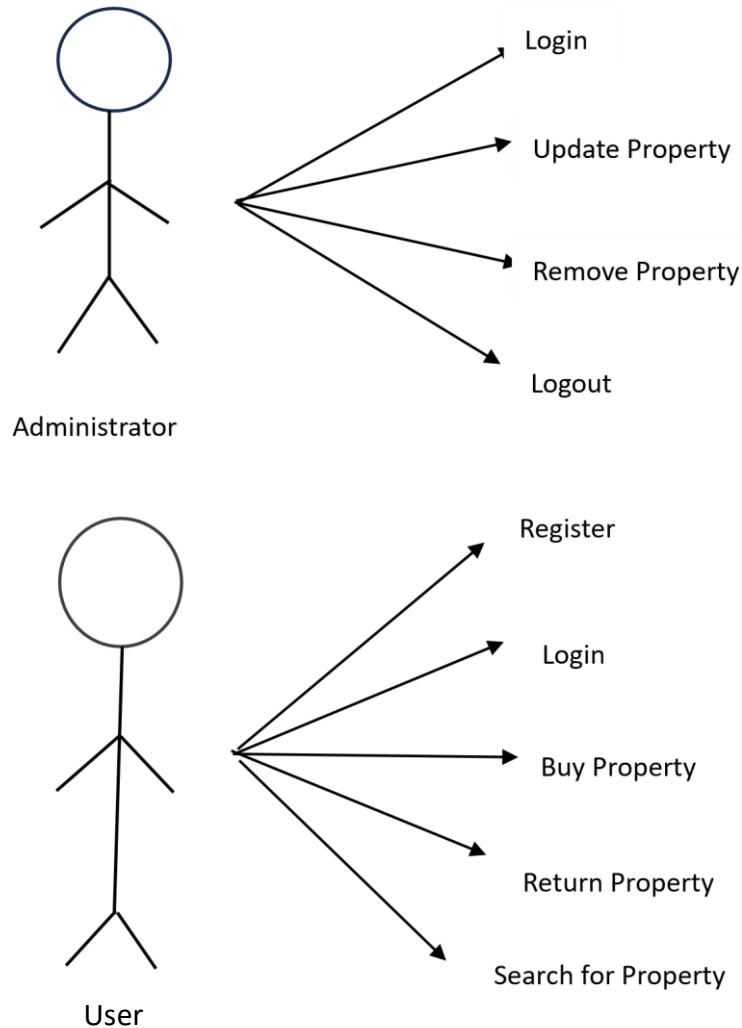


Fig 4.2: Use Case Diagram for Property Management System

Fig 4.2 shows the Use Case Diagram that provides an overview of the interactions and functionalities of the Property Management System. The diagram highlights the major use cases or functionalities provided by the system, such as managing properties, user registration, admin and user login, tenants, maintenance, and generating reports.

CHAPTER 6

SYSTEM TESTING

Testing is a process of executing a program to find errors. A good test has the high probability of finding an undiscovered error. A test is vital to the success of the system. System test makes a logical assumption that if all parts of the system are correct, the goal will be successfully achieved.

6.1 Test Cases

Table 6.1: Unit testing for Admin Authentication

SL No.	Input	Expected Output	Actual Output	Remarks
1	Enter the valid credentials	Redirect to the dashboard	Redirect to the dashboard	Pass
2	Enter the invalid credentials	Wrong user ID and password	Wrong user ID and password	Pass

Table 6.1 is the test case for user authentication. Firstly, valid credentials are passed and noted the possible outcome in the data in the table. Secondly gave the wrong credentials to check the working of the system in the table, system has identified that invalid credentials and give the error message stating "Wrong user ID and password".

Table 6.2: Unit testing to Buy Property

SL No.	Input	Expected Output	Actual Output	Remarks
1	Enter the property ID	Property has both successfully borrowed	Property has both successfully borrowed	Pass
2	Enter invalid property ID	Property is not in our database	Property is not in our database	Pass

Table 6.2 is the test case for testing to buy property. Firstly, valid credentials are passed and noted the possible outcome in the data in the table. Secondly gave the wrong credentials to check the working of the system in the table, system has identified that invalid credentials and give the error message stating "property is not in our database".

Table 6.3: Unit testing for Return Property

SL No.	Input	Expected Output	Actual Output	Remarks
1	Enter the property ID	Property has been successfully returned	Property has been successfully returned	Pass
2	Enter invalid property ID	Alert "Invalid property ID"	Alert "Invalid property ID"	Pass

Table 6.3 is the test case for testing for return property. Firstly, valid credentials are passed and noted the possible outcome in the data in the table. Secondly gave the wrong credentials to check the working of the system in the table, system has identified that invalid credentials and give the error message stating "Invalid property ID".

Table 6.4: Unit testing for Searching Property

SL No.	Input	Expected Output	Actual Output	Remarks
1	Enter the property ID	It is in our database	It is in our database	Pass
2	Enter invalid property ID	Not exist in our database	Not exist in our database	Pass

Table 6.4 is the test case for testing for searching property. Firstly, valid credentials are passed and noted the possible outcome in the data in the table. Secondly gave the wrong credentials to check the working of the system in the table, system has identified that invalid credentials and give the error message stating "Not exist in our database".

Table 6.5: Unit testing for Update Property

SL No.	Input	Expected Output	Actual Output	Remarks
1	Enter the valid property details	Property added successfully	Property added successfully	Pass
2	Enter the invalid property details	Property ID should be +ve integer	Property ID should be +ve integer	Pass

Table 6.5 is the test case for testing for update property . Firstly, valid credentials are passed and noted the possible outcome in the data in the table. Secondly gave the wrong credentials to check the working of the system in the table, system has identified that invalid credentials and give the error message stating "property ID should be +ive integer".

Table 6.6: Unit testing for User Registration

SL No.	Input	Expected Output	Actual Output	Remarks
1	Enter the valid details	Registration successful	Registration successful	Pass
2	Enter the invalid details	Invalid details	Registration successful	fail

Table 6.6 is the test case for testing for User Registration. Firstly, valid credentials are passed and noted the possible outcome in the data in the table. Secondly gave the wrong details to check the working of the system in the table, system has did not identified that invalid credentials and give the error message stating "Registration successful".

CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENT

7.1 Conclusion

In conclusion, the property management system project has been successfully developed and implemented, providing significant benefits and improvement to property management processes. Throughout the project, various features and functionalities have been incorporated to streamline operations, enhance efficiency, and improve overall property management. PMS have increased the efficiency to hospitality industries significantly simply by making it possible to update and consult centralized records from multiple computers and devices.

7.2 Future Enhancement

In future, advancements in technology are likely to bring several enhancements to property management systems. Here are some potential future enhancements:

- **Artificial Intelligence and Machine Learning:** Property management systems could leverage AI and ML algorithms to automate and optimize various tasks. AI can assist in automating routine processes, such as rent collection, maintenance scheduling, and lease renewals. Machine learning can analyse historical data to predict future trends and make informed decisions regarding pricing, occupancy rates, and maintenance requirements.
- **Internet of Things:** IOT devices can provide real-time data on various aspects to a property, such as energy consumption, security, and maintenance needs. Property management system could integrate with IOT devices to gather data, identify anomalies, and trigger automated response. For automatically notify maintenance personnel or shut off the water supply.
- **Blockchain for Smart Contracts:** Blockchain technology can enable the use of smart contracts in property management. Smart contracts are self-executing contracts with the terms of the agreement directly written into lines of code. By utilizing blockchain, property management system can automate and enforce rental agreements, lease payments, and other contractual obligations, providing increased transparency, security, and efficiency.

- **Energy Management and Sustainability:** As environment sustainability becomes increasingly important, property management systems can integrate energy management features. These systems can monitor energy consumption, identify areas of inefficiency, and suggest energy-saving measures. Additionally, they can assist in tracking and reporting sustainability metrics, such as carbon emissions and water usage, to comply with regulatory requirements and meet sustainability goals.

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APPENDIX

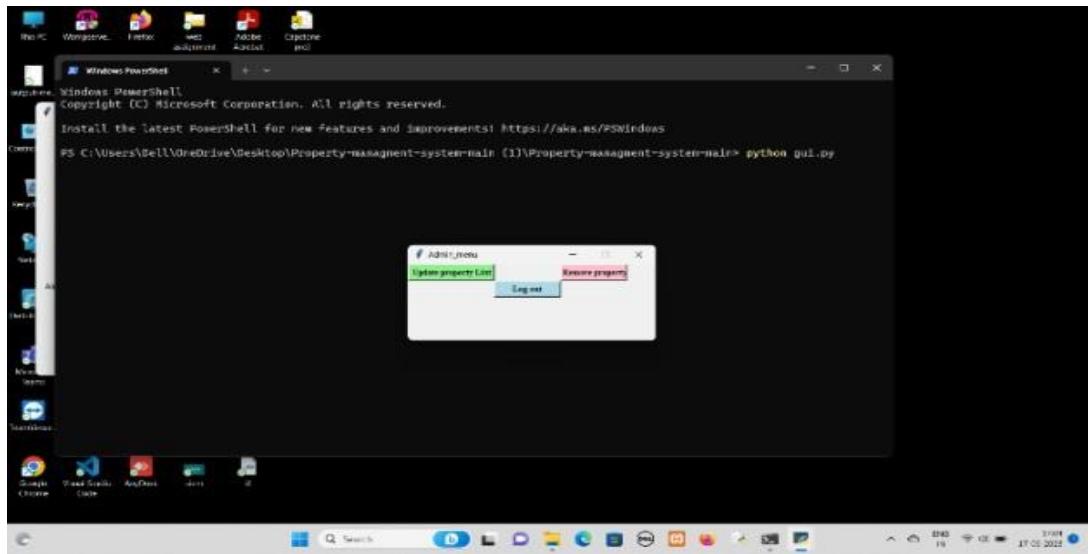
APPENDIX A-SNAPSHOTS

A.1 shows the view where the admin login to the property management system.



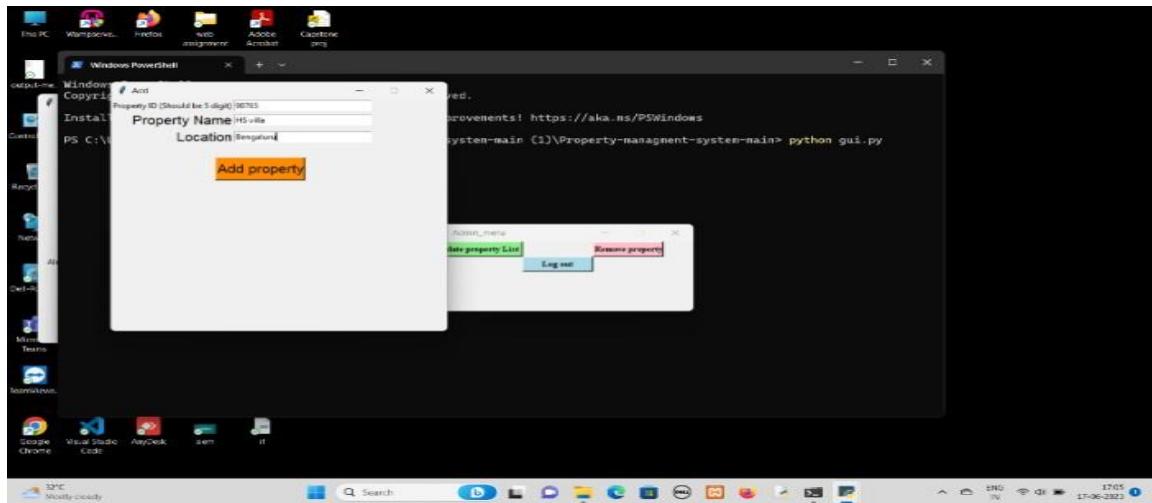
A.1 : Admin Login

A.2 shows the dashboard after admin login to the property management system.



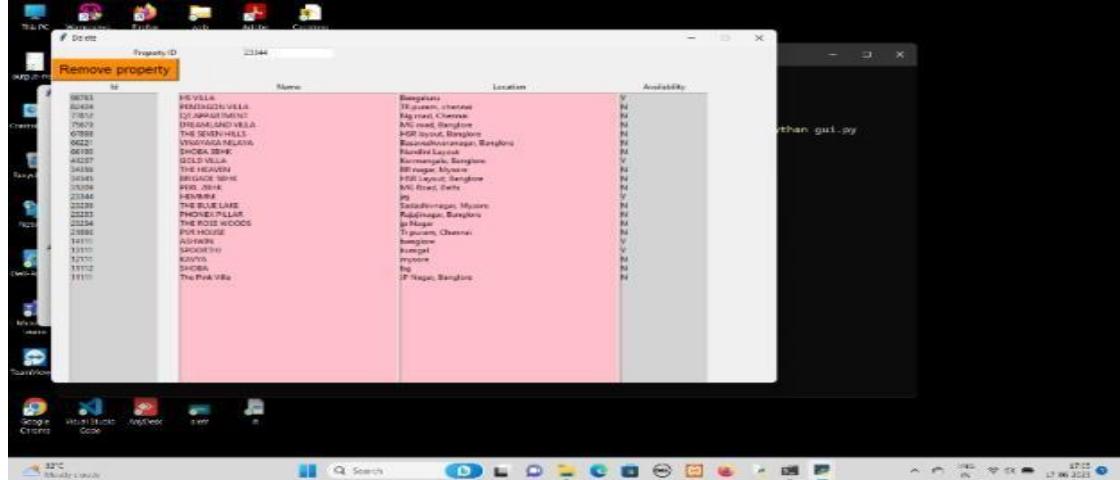
A.2: Admin Dashboard

A.4 shows the page where admin update the property list.



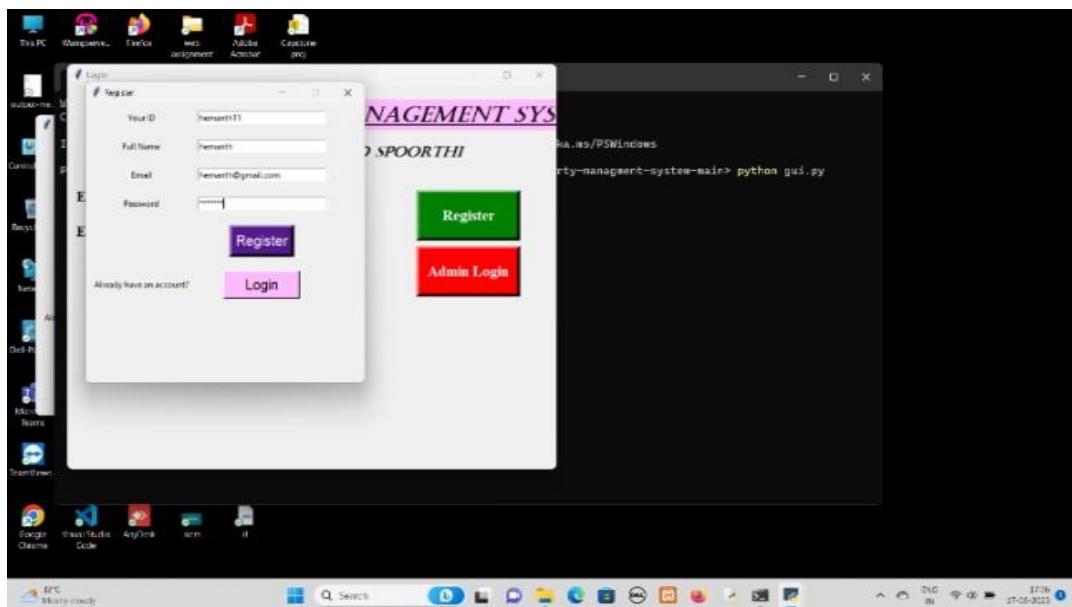
A.3: Update Property

A.4 shows the property details where admin can remove the details from the list.



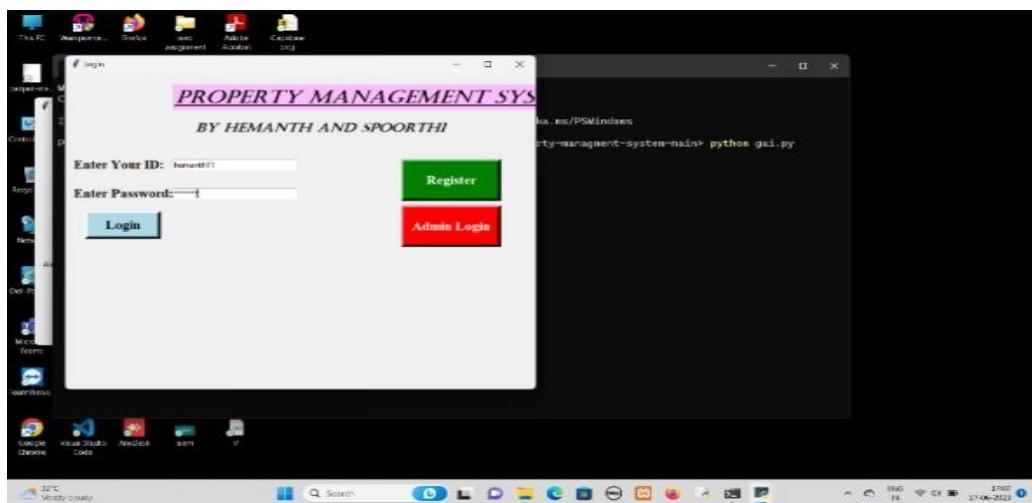
A.4: Remove Property

A.6 shows the page where user can register to the property management system.



A.6:User Registration

A.7 shows the page where user can login to the property management system



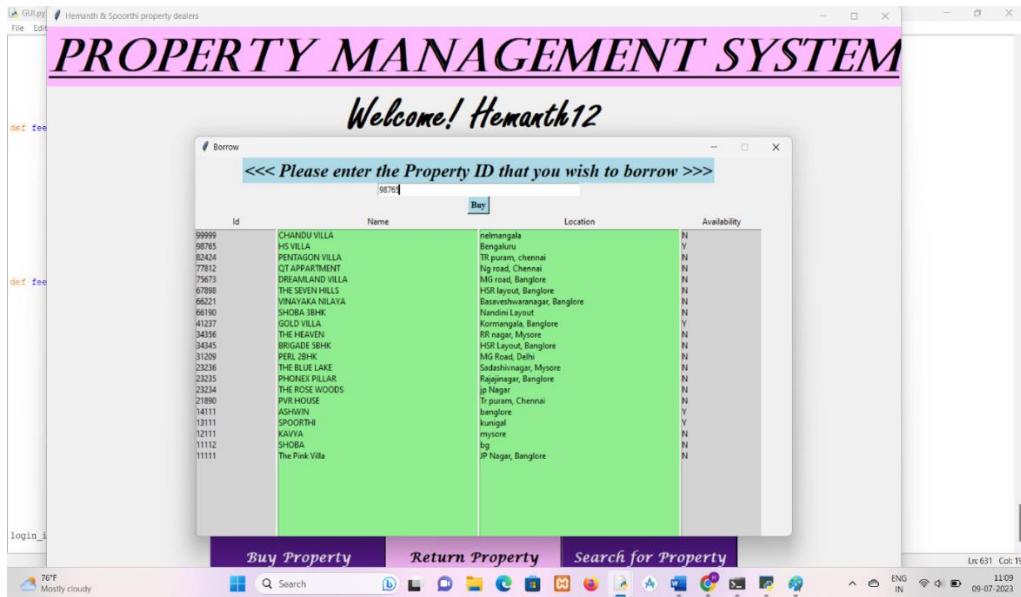
A.7:User Login

A.8 shows the user home page after the login.



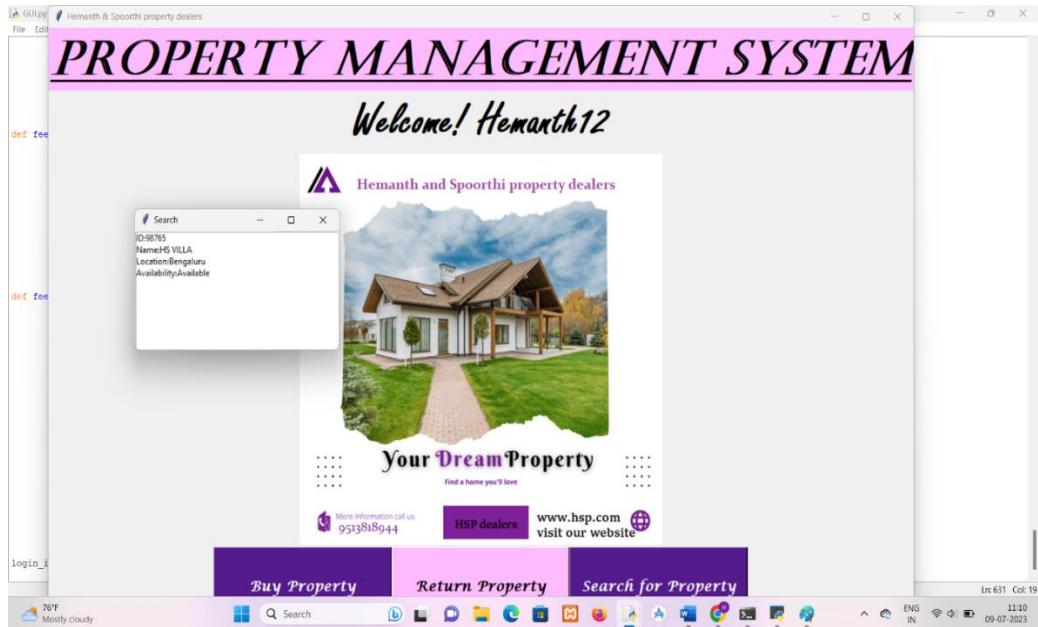
A.8:User Home Page

A.9 shows the page where the user can borrow the property



A.9: Borrow Property

A.10 shows the page where the user can search for the required property



A.10: Search Property

A.11 shows the page where user can return the property



A.11: Return Property