

**Tribhuvan University**

**Faculty of Humanities and Social Science**

**PropertyLord web Application**

**A Proposal Report**

Submitted to

**Department of Computer Application**

**Swoyambhu Int’l College**

***In partial fulfilment of the requirements for the Bachelors in Computer* Application**

Submitted by

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**Feb-26-2024**

Under the Supervision of

**Mr. Sujit Gyawali**



**Tribhuvan University**

**Faculty of Humanities and Social Science**

**Swoyambhu Int’l College**

**Supervisor’s Recommendation**

I hereby recommend that this project prepared under my supervision by **Ronix Malla** & **Suresh Tamang** entitled “**PROPERTYLORD WEB APPLICATION**” in partial fulfilment of thee requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

…………………

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**Faculty of Humanities and Social Science**

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**LETTER OF APPROVAL**

This is to certify that this project prepared by **Ronix Malla** & **Suresh Tamang** entitled “**PROPERTYLORD WEB APPLICATION**” in partial fulfilment of the requirement of the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

|  |  |
| --- | --- |
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| **………………**  **SIGNATURE of Internal Examiner** | **………………**  **SIGNATURE of External Examiner** |

**Abstract**

This system “**PROPERTYLORD**” will provide facility to the user to search Residential and Commercial property and view property. This system will provide facility to view the property by admin and user. User will be able to upload the property information to the site and able to manage it. This system will provide facility to the user to fill up their requirement and according to their Requirement Admin can add the Requirement property. This system was developed using PHP as (Backend) and HTML, CSS, JS as (Frontend).

The real estate business deals with the development of the property and the lease, rent or sale of establishment. It is one of the fastest growing enterprises in Nepal. It has potentially never-ending growth.

As the real estate agent, one has to maintain a lot of data. He is involved with the clients who has to lease out, rent or sale the property and with the customer who intends to buy, rent or lease the property. Hence it involves lot of information exchange.

The advent of computers can ease out this hassle. With help of our system “**PROPERTY LORD**” which allows faster search time, interaction. This system minimizes the risk of scams for buyers while maintaining fair commission rates. With the organized data storage system it allows faster search time and data manipulation. Indeed, the advent of RDBMS application can be a boom to the field of real estate.

**Acknowledgement**

Our earnest appreciation to the Supervisor **Mr. Sujit Gyawali** for directing us all through the arranging and advancement period of the framework. Without his vital role and direction, we would not have achieved the last phase of the improvement. We would also like to thank whole faculty of the college for their cooperation and important support. We would like to thank all other teaching staff for their valuable teaching and constant advice which made us to finish this project successfully. I would like to thank my close peers and classmates for being supportive and encouraging throughout the project development journey here in **Swoyambhu Int’l College.**

Finally, yet importantly, I would like to thank my family. Their endless support has been unconditional. Their hopes and faith on me had me keep going even when the days were challenging

We perceive this opportunity as a big milestone in our career development. We will definitely use these gained skills and knowledge to its best possible way, and we will continue to work on their improvement, in order to attain desired career objectives. Hope to continue cooperation with all of you in future

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# List of Abbreviations

|  |  |
| --- | --- |
| Abbreviation/ Acronym | Description |
| RMS | Real Estate Management System |
| HTML | Hypertext Markup Language |
| CSS | Cascading Style Sheet |
| PHP | Hypertext Preprocessor |
| WAMP | Cross-platform, Apache, MariaDB(MySQL), PHP |
| MS | Microsoft |
| MYSQL | Structured Query Language |
| DFD | Data Flow Diagram |
| IS | Information System |
| CRUD | Create, Retrieve, Update & Delete |
| CASE | Computer-aided System Engineering |
| CAPTCHA | Completely Automated Public Turning  Test to tell Computer & Human Apart |
| UML | Unified Modeling Language |

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# Chapter 1: Introduction of the Project

* 1. **Introduction**

With PropertyLord clients may fully utilize the potential of real estate applications in the digital age, thereby revolutionizing the real estate industry. In the current peak digitalization era, real estate trading is surging at a rate never seen before by dealers. In light of this, we are launching a multi-tenant system that will simplify the process of locating and renting a home, as well as purchasing and renting out lands and other types of properties.

With just a few clicks on our real estate application, you may find your ideal home! Welcome! We can assist you whether you're looking for a large family house in the suburbs, a comfortable apartment, or rooms in the city.

* 1. **Problem Statement**

Nowadays, purchasing or renting a home takes a lot of time. Making decisions and gaining knowledge about the location and values of properties takes a lot of time. It takes a long time to visit the property's location. Furthermore, after the purchase is sealed, the broker bears a great deal of responsibility.

Real estate buying and selling services are offered by a number of applications such as “dalaydai.com” .Upon examining this applications, we have discovered that some crucial elements are missing that are crucial for customers, such as requesting the necessary prerequisites before purchasing, selling, or renting real estate.

* 1. **Objectives**

This project aims to create a new system which will focus on having a user-friendly interface and a simplistic design which can be easily understood by any user.

Our objective is to carryout this project with the quality requirements as mentioned below:

* To offer an intuitive user interface for accessing further details about properties that are advertised.
* To shorten the time it takes to deal with real estate.
* To locate appropriate real estate based on client requirements
* To eliminate human errors and miscalculations from the process.

* 1. **Scope and Limitation**
     1. **Scope**
* Design the system to accommodate future growth and expansion.
* It supports the current process but centralizes it and makes it possible for decisions to be made earlier and easy way.
* This system allows people to post their property making it easier to sale.
* All the types of property listed in single place, easy to access and find.
  + 1. **Limitations**
* Cannot be used offline because it is an online program. So, internet connection is must.
* Basic computer knowledge is required to operate this system.
* Cannot receive feedbacks of buyer and sellers.
* Most of the features that must be included in real management system are not implemented.
* No payment gateways.

# Chapter 2: background Study and Literature Review

**2.1. Background Study**

Real estate refers to real, or physical, property, and can include land, buildings, rights above the land, and underground rights below the land. As a business term real estate also refers to producing, buying, and selling property.

In present system, most of people goes to agents who sales or provide rental properties and lands. People have to visit the organization with there requirement about the properties. This gives unnecessary burden to people who are willing to buy or rent properties, land and room. This system solves all the problem. This project will focus on providing high quality usability experiences to users mainly following Google’s user interface guideline.

This system helps in elimination of human error and miscalculations. And saves users time and money.

**2.2. Literature Review**

Understanding the optimal strategy for a real-estate investment and how performance changes based on characteristics is crucial for optimising the achievable return. This is prominent in touristic areas such as Paphos, Cyprus, where there is no clear distinction as to whether short- or long-term approaches are optimal. This study aimed to develop a model for predicting the optimal rental strategy whilst assessing which model performed best and which property attributes impacted its return the greatest. Short-term data were collected from AirDNA and long-term data were manually collected from real-estate agents’ websites. Furthermore, Random Forest, K-Nearest Neighbour, and Multiple Linear Regression models were created to predict the highest and best use for each property. Model accuracy varied between datasets, with the best-performing model for short-term properties being the Random Forest model (R-squared: 0.843), and the distance-based Multiple Linear Regression approach being the best for long-term properties (R-squared: 0.843). The study demonstrated that accurate models could be created to predict the optimal rental strategy with the number of bedrooms being the main driver for rental income, followed by luxury finishes and the presence of a pool. It was found that locational characteristics did not impact the returns significantly when assuming that the property was located within a touristic area.[1]

This paper uses a Markov-switching approach to examine why there is house price cycle comovement across some U.S. metropolitan areas (MSAs) but not others, and which MSAs cluster together for each of these reasons. Past studies have attributed common housing downturns in different regions as possible explanations for comovement. We explore other channels, and find some clusters based on common industry concentration (such as information technology), house price elasticity, as well as a cluster of MSAs that are desirable for retirees (in the sun belt). In addition, while prior research has found housing and business cycles to be related closely at the national level, we find very different house price comovement and employment comovement across clusters and across MSAs. [2]

**Chapter 3: System Analysis and Design**

**3.1. System Analysis**

Systems analysis is the process by which an individual studies a system such that an information system can be analysed, modelled, and a logical alternative can be chosen. Systems analysis projects are initiated for three reasons: problems, opportunities, and directives. The process by which systems are developed can be described by the systems development life cycle. This is the initial phase for any software being developed in waterfall software development model. This system will be following the waterfall software development methodology. As shown in the figure below, we will be developing the system in five different phases.

1. Requirement

2. Design

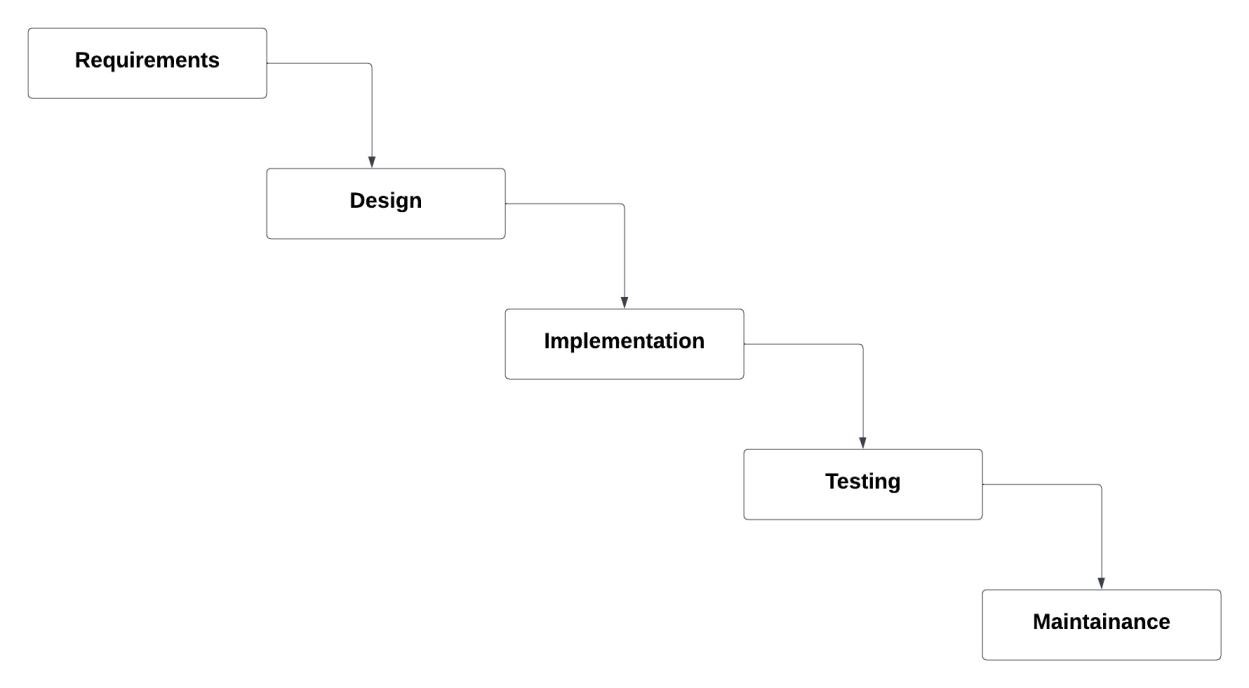
3. Implementation

4. Testing

5. Maintenance

In this methodology, while working in one phase another phase isn’t touch before completing previous one. While jumping into another phase we should go thoroughly about the previous phase, which helps to understand the system.

The proposed system has well defined and constant requirements and no needs to increment or add new features so best software methodology for this system is waterfall system development model.



**Figure 1: Waterfall Methodology**

**3.1.1. Requirements Analysis**

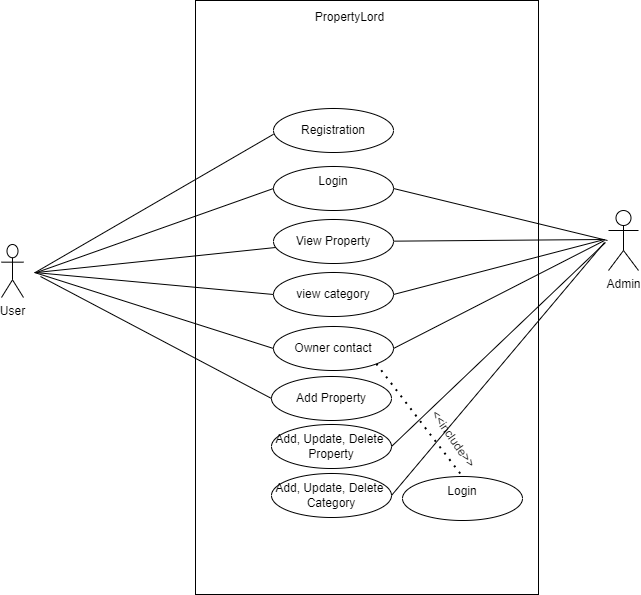
This system needs the following functional and non-functional requirements.

* **Functional Requirements**

1. This system includes search engine for the users.
2. Admin can view the information of the user.
3. Admin has full control over the properties, add new properties, delete properties as well as edit the properties.
4. Users can as well add properties they wish to sell.

A use case is a methodology used in system analysis to identify, clarify and organize system requirement.

Use case diagram for the proposed system is given below:



**Figure 2: Use case diagram**

* **Non-Functional Requirements.**

1. **Security:** only authorized person can have access to this system.
2. **Performance:** This system is designed for smooth performance with goodoptimization and good response.
3. **Reliability:** This system will be reliable for the users. the system will run 24/7
4. **User friendly:** The system is very interactive**.**

**3.1.2. Feasibility Analysis**

A feasibility study is simply an assessment of the practicality of a proposed project plan or method. This is done by analysing technical, economic, legal, operational and time feasibility factors. Following feasibilities were studied before building the system:

* **Technical Feasibility:**

To develop the proposed system we have Hypertext Markup Language(HTML), Cascading Style Sheet(CSS) and JavaScript for frontend and Hypertext Preprocessor(PHP) for the server side scripting which are Opensource and free to use.

The main tools and technology to be used in this system to make this project more feasible are:

**Table 1:** **Technical Feasibility Study Table**

|  |  |  |
| --- | --- | --- |
| **Technological requirements** | **Hardware requirements** | **Software requirements** |
| HTML | Laptop | MS WORD |
| CSS | Keyboard | Photoshop |
| Java Script | Mouse | Visual studio code |
| MYSQL |  | WAMP Sever |
| PHP |  | Figma |

* **Operational Feasibility:**

To make the system work, we have various web hosting service providers for domain registration and web servers, as well as cPanel’s to manage and serve the listing properties within the system.

* **Economic Feasibility:**

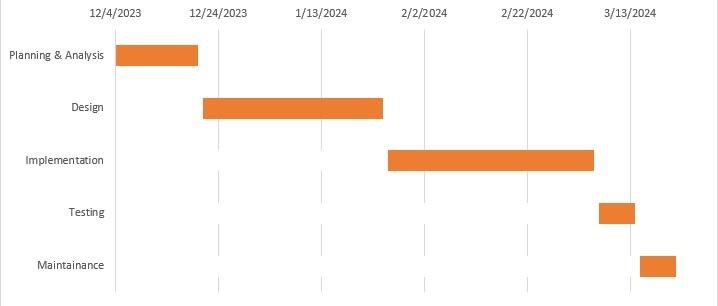
Study of the Estimated cost to develop and deploy is affordable. We have various web servers to host the system at a low cost.

Upon the requirement of the System, we can easily update the resources such as database size increment, servers increment at an affordable cost.

* **Schedule Feasibility:**

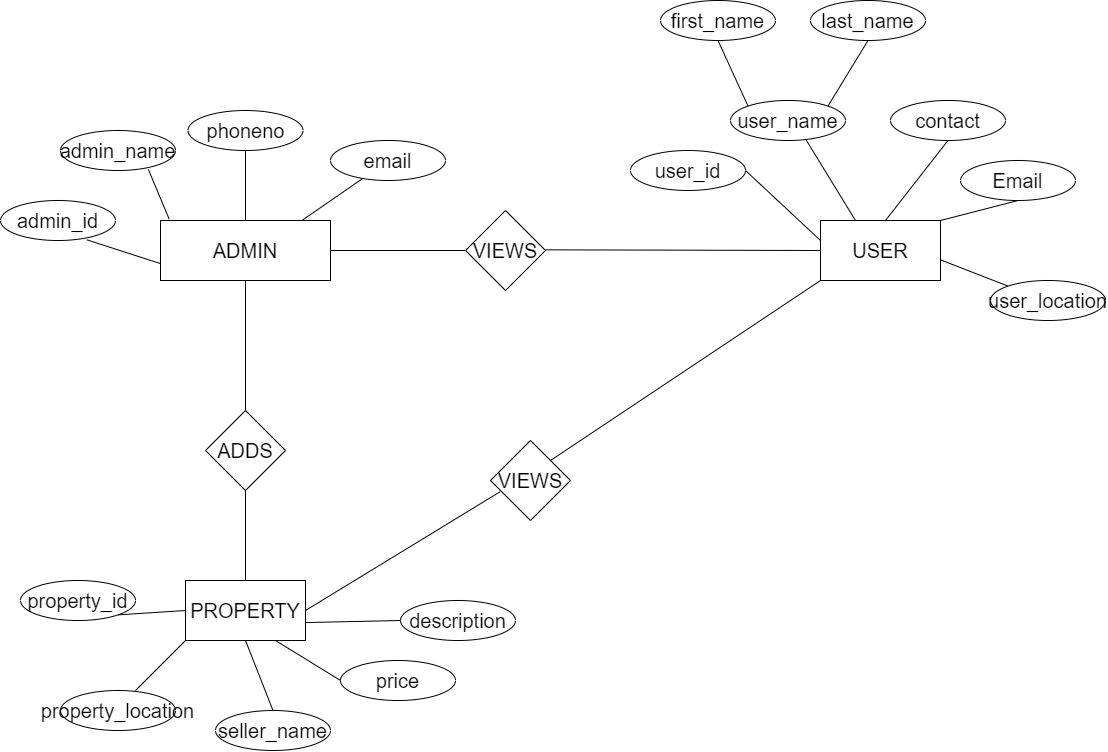
This assessment is the most important part for project success. After all, a project will fail if not completed in time.

In this project, Gantt Chart is used for Schedule feasibility study.



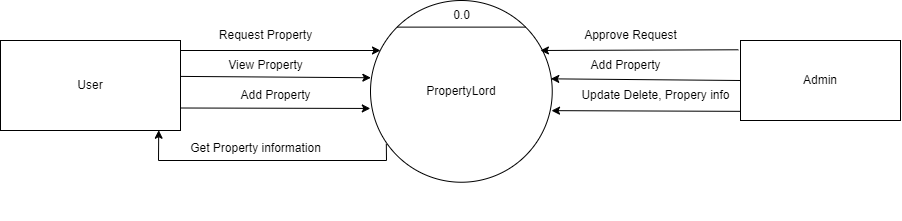
**Figure 3: Gantt Chart**

**3.1.3. Data Modelling (ER-Diagram)**

ER Diagram stands for Entity Relationship Diagram, also known as ERD is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases. ER diagrams are created based on three basic concepts: entities, attributes and relationships

**Figure 4: Entity Relation Diagram**

**3.1.4. Process Modelling (DFD)**

A Data Flow Diagram (DFD) is a graphical representation of the “flow” of data through an information system, modelling its process aspects. Often it is a preliminary step used to create an overview of the system that can later be elaborated. DFDs can also be used for the visualization of data processing (structured design) and show what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of processes or information about whether processes will operate in sequence or in parallel.

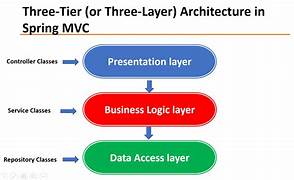
**Figure 5: DFD level 0**

**3.2. System Design**

System Design is the process of designing the architecture, components, and interfaces for a system so that it meets the end-user requirements.

**3.2.1. Architectural Design**

This phase of design will be planning the architecture of the application. There will be in some cases a separation of the user interface and data. The business layer will be totally independent and not embedded in the views of the website. Data will be stored in an SQL database. To query the database and code behind for server-side scripting will be in PHP. The other business objects will have their own layer. The architecture of the application is shown in the figure below:

** Figure 6: Three-tier Architecture**

* **Client layer:**

It is also called as Presentation layer which contains user interface part of application. This layer communicates with other through Application Program Interface calls.

* **Application layer:**

In this layer all business logic written like validation of data, calculations, data insertion etc. This acts as an interface between user tier and database tier for faster communication.

* **Database layer:**

In this layer actual database is comes in the picture. Database Layer helps to connect with database and to perform insert, update, delete, get data from database based on user input data. These data are kept independent of application layer.

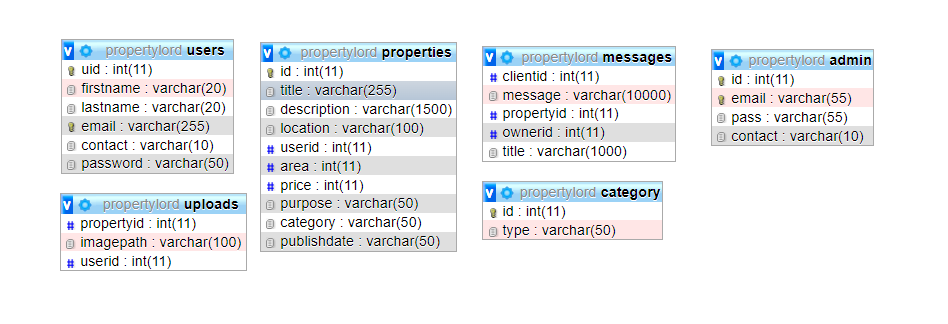
Following are the reasons behind choosing three tier-architecture:

* It makes the logical separation among three different layers.
* It makes the maintenance process easier.
* It makes us easier to update one tier without involving other.

**3.2.2. Database Schema Design**

A database schema is the skeleton structure that represents the logical view of the entire database. It defines how the data is organized and how the relations among them are associated. It formulates all the constraints that are to be applied on the data. A database schema defines its entities and the relationship among them.

Below shows the database scheme design of our system:



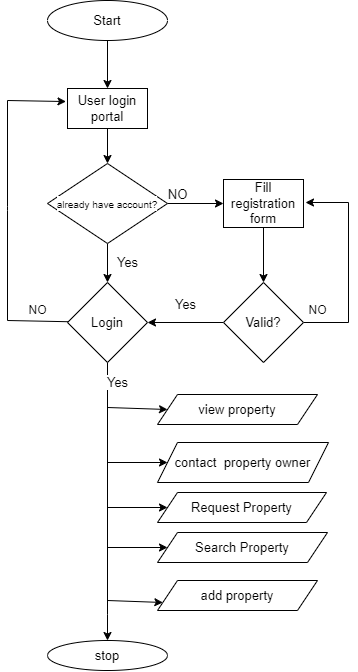
***Figure 7: Schema Design***

**3.2.3. Flow Charts**

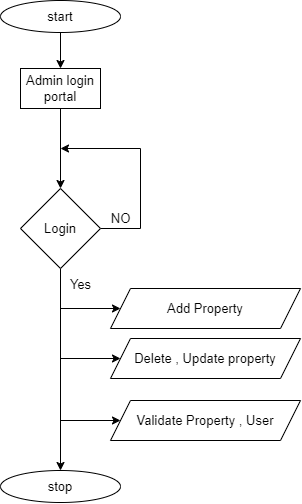
A flowchart is a type of diagram that represents a workflow or process. A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving task.

The working mechanism of the system is explained below with the help of system flow chart. In this system there are two modules namely user module & admin module.

**User module Flow-Chart**

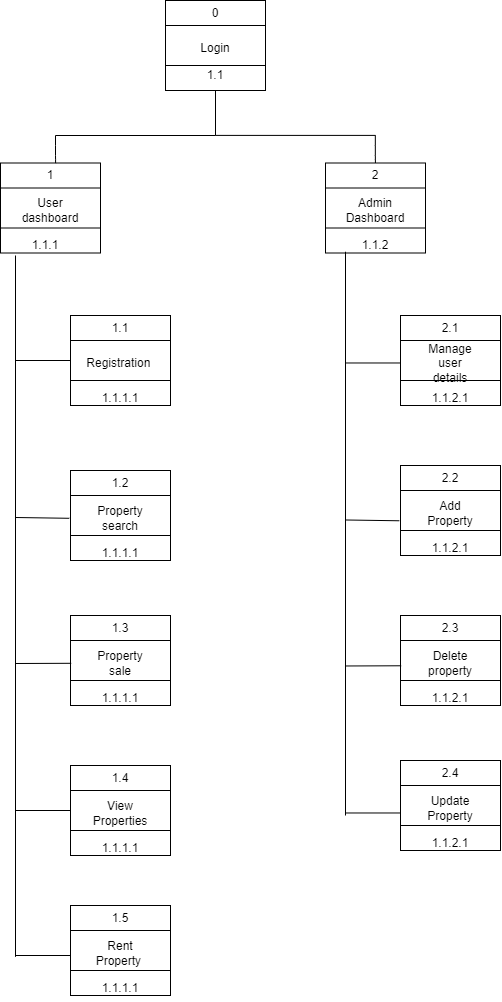
****

***Figure 8: User login Flow-chart***

****Admin module Flow-Chart**

***Figure 9: Admin login Flow-chart***

**3.2.4. Interface Design**

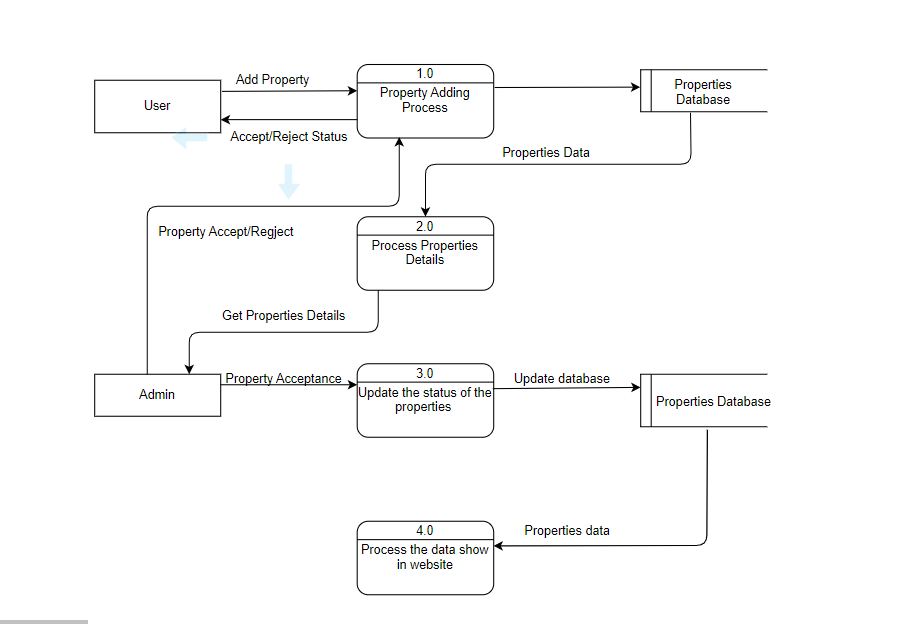
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***Figure 10: Interface Design***

According to this interface diagram, we can login to the system to visit either user dashboard or admin dashboard. When we are in user dashboard we can register, search property, sale property and many more.

Similarly, when we are in admin dashboard, we can Delete, Update and Insert properties.

**3.2.5. Physical DFD**

****

***Figure 11: Physical Design***

**Chapter 4: Implementation and Testing**

**4.1. Implementation**

Implementation includes user notification, user training, installation of hardware, installation of software onto production computers, and integration of the system into daily work processes. This phase continues until the system is operating in production in accordance with the defined user requirements

**4.1.1. Tools Used**

The various system tools that have been used in developing both the frontend and backend have been discussed in this chapter.

**FRONT END**

HTML, CSS, JavaScript.

* **HTML**

The Hyper Text Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. HTML is used in this project to describes the meaning and structure of web content.

* **CSS**

CSS is used in this project to describe the presentation of web pages, layout, including color, and fonts.

* **JavaScript**

JavaScript is a lightweight, interpreted programming language. JavaScript is used to enable dynamic and interactive elements on web pages.

**BACK END**

The back end is implemented using PHP and MySQL.

* **PHP**

PHP is used in this project to generate dynamic content, interact with databases, and perform server-side processing.

* **MySQL**

MySQL is one of the best RDBMS being used for developing web-based software applications. It is used in this project to manipulate, control and define the data in databases

**CASE TOOLS**

* **Figma**

Figma is the designing tool used to design the interface of the following project.

* **Font Awesome**

Font Awesome is the Internet's icon library and toolkit, used by millions of designers, developers, and content creators.

**4.2. Testing**

Testing is done to check the behaviour of a complete and fully integrated software product based on the software requirement specification document. For the application or website to be deployed it has to be tested. Hence test cases will be written to test this application. They are many types of tests to be carried out on a web application from performance, functionality, database loading time, response time, server time handling, user's actions and many others. We will not carry out all types of tests for the application considering the time scale to present this project. Hence performance check related to upload time, memory usage will be part of a future test. We will focus the test cases on functionality, security and performance So that various types of testing procedures were performed in order to check the working mechanism and correctness of the system.

**4.2.1. Test Case for Unit Testing**

**Table 2: Register page test case**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case Description** | **Test Data** | **Expected Result** | **Actual Result** | **Status**  **(Pass/ Fail)** |
| **User enters an invalid email** | **Email:hellogmail.com** | **Should not register the user** | **Registered the user** | **Fail** |
| **User enters valid email for registration** | **Email:ramesh@gmail.com**  **Password:Ramesh123** | **Should register the user** | **User registration success.** | **pass** |

**Table 3: Login page test case for User**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test Data** | **Expected Result** | **Actual Result** | **Status**  **(Pass/ Fail)** |
| **1** | User enters an invalid email | **Email:abcd@gmail.com** | **Should not logged in** | **Logged in** | **Fail** |
| **2** | User enters a Wrong password | **Password: xyapassword** | **Should not logged in** | **Logged in** | **failed** |
| **3** | User enters valid email and password | **Email:ramesh@gmail.com**  **Password:ramesh1234** | **Logged in to user dashboard** | **Logged in to user dashboard** | **pass** |

**Table 4: Login page test case for Admin**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test Data** | **Expected Result** | **Actual Result** | **Status**  **(Pass/ Fail)** |
| **1** | Admin enters an invalid email | **Email:admin123gmail.com** | **Should not logged in to admin portal** | **Wrong admin email** | **pass** |
| **2** | Admin enters a Wrong password | **Password:caradsasdsd** | **Should not logged in to admin portal** | **Logged in to admin portal** | **Fail** |
| **3** | Admin enters valid email and password | **Email:admin@gmail.com**  **Password:admin1234** | **Logged in to admin portal** | **Logged in to admin portal** | **Pass** |

**Table 5: Search page test case**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test Data** | **Expected Result** | **Actual Result** | **Status**  **(Pass/ Fail)** |
| **1** | User enters a property name, keyword | **Room, apartments, houses** | **Searched found** | **Found searched** | **Pass** |
| **2** | User enters a wrong information | **Road, car** | **Search should not found** | **Search found** | **Fail** |

**Table 6: Add property test case**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test Data** | **Expected Result** | **Actual Result** | **Status**  **(Pass/ Fail)** |
| **1** | **Adding property details with proper image file format** | **House for rent,**  **Sell,**  **Sanepa,**  **Imagefile.jpeg** | **Property added successfully** | **Property added successfully** | **pass** |
| **2** | **Adding property details with unproper image file format** | **House for sell,**  **Sell,**  **Sanepa,**  **Imagefile.pdf** | **User should not add the property** | **Property added successfully** | **Fail** |
|  |  |  |  |  |  |

**Table 7: Delete property test case**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test Data** | **Expected Result** | **Actual Result** | **Status**  **(Pass/ Fail)** |
| **1** | **Deleting the property** | **Property id: 3432** | **Successfully deleted** | **Successfully deleted** | **pass** |
| **2** | **Deleting the property** | **Property id: 12** | **Property should deleted** | **Delete unsuccessful** | **fail** |

**Table 8: Edit Product test case**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test Data** | **Expected Result** | **Actual Result** | **Status**  **(Pass/ Fail)** |
| **1** | **Editing title of the property** | **Apartments for sell** | **User shoul successful update the title of the property** | **Successfully updated** | **Pass** |
| **2** | **Editing title of the propertyss** | **Apartments for rent** | **User should successful update the title of the property** | **Unsuccessful update** | **fail** |

**Table 9: Test case to Change Password**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test Data** | **Expected Result** | **Actual Result** | **Status**  **(Pass/ Fail)** |
| **1** | **Changing user password with correct old password** | **Newpassword1234** | **User can change password** | **Password changed successfully** | **pass** |
| **2** | **Changing user password with incorrect old password** | **Password123** | **User cant change password** | **Password is changed** | **fail** |

**4.2.2. Test Case for System Testing**

1. Verify that all the specified fields are present on the registration page.
2. Verify that for better user interface dropdowns, radio buttons and checkboxes etc are displayed wherever possible instead of just textboxes.
3. Verify that clicking submits button after entering all the required fields, submits the data to the server.
4. Verify that not filling the optional fields and clicking the submit button will still send data to the server without any validation error.
5. Check validation on the email fields (only valid email Ids should be allowed).
6. Check validation on numeric fields by entering alphabets and special characters.

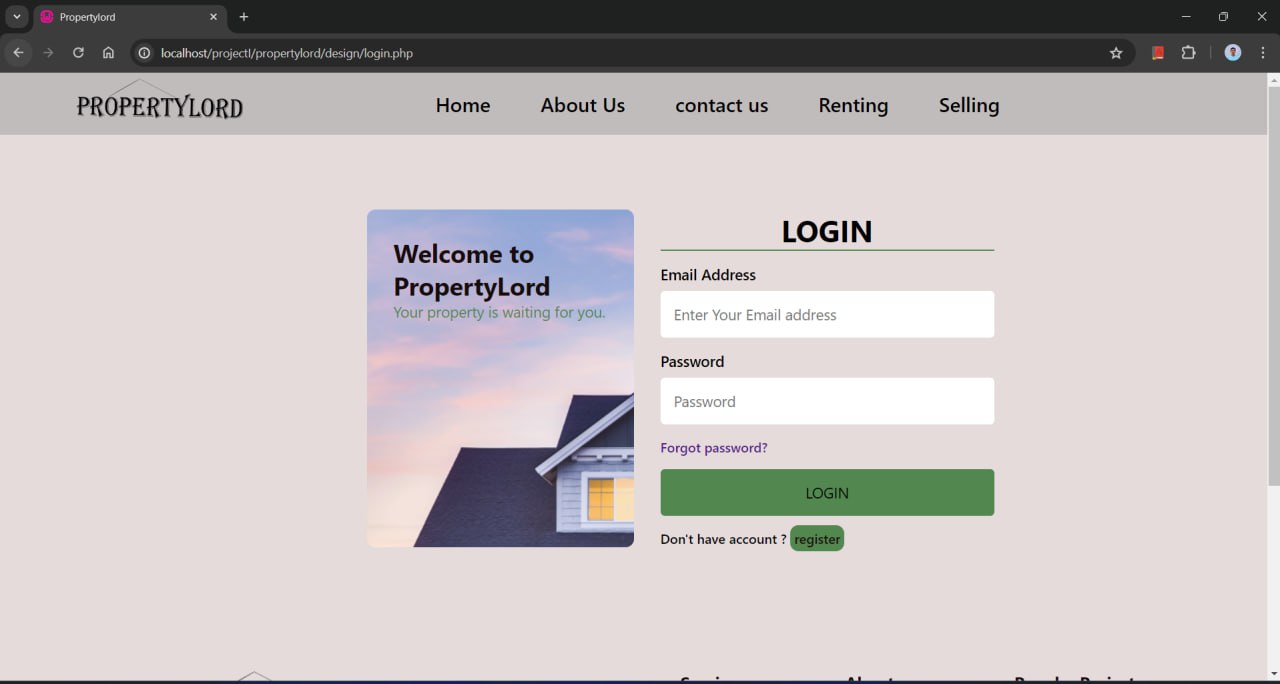
**Chapter 5: Conclusion and Future Recommendations**

**5.1. Lesson Learnt/ Outcome**

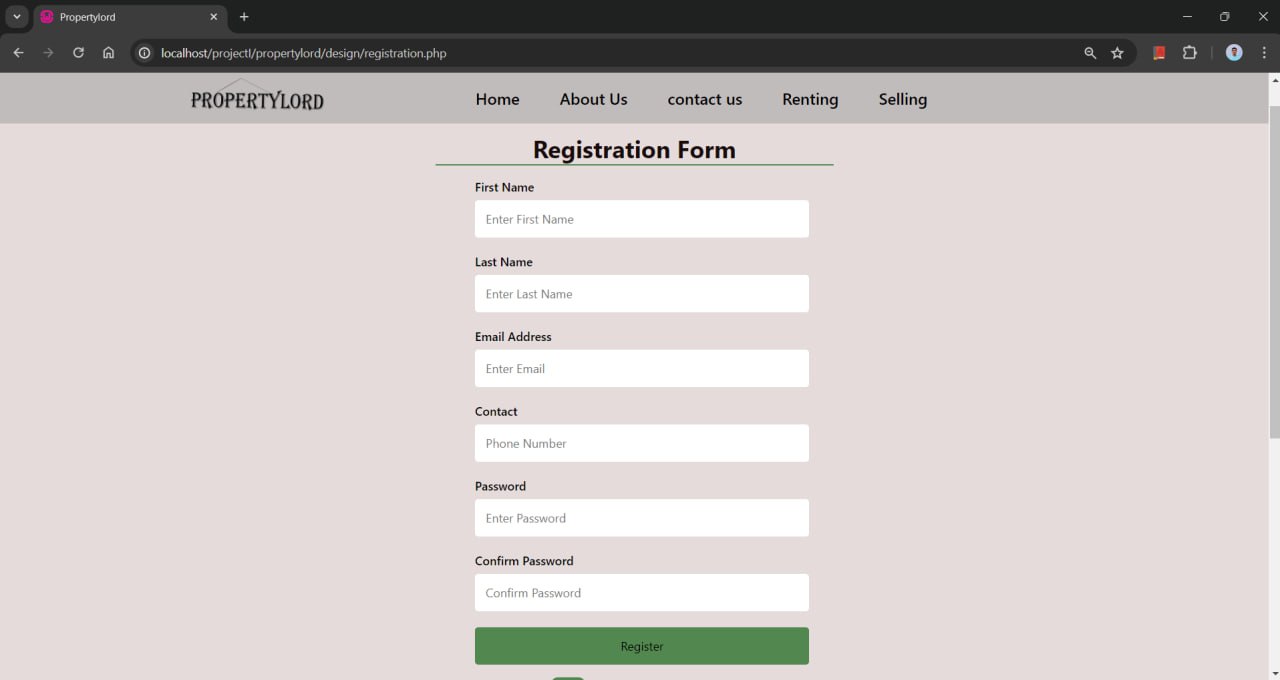
During this course of project implementation, we learned to implement HTML, CSS, JavaScript, PHP & SQL queries to create a runnable system that is based on CRUD operation of database. After several weeks of planning, analysis, design, coding, documentation, implementation & testing we created a working system for users

The main output of the project is shown below:

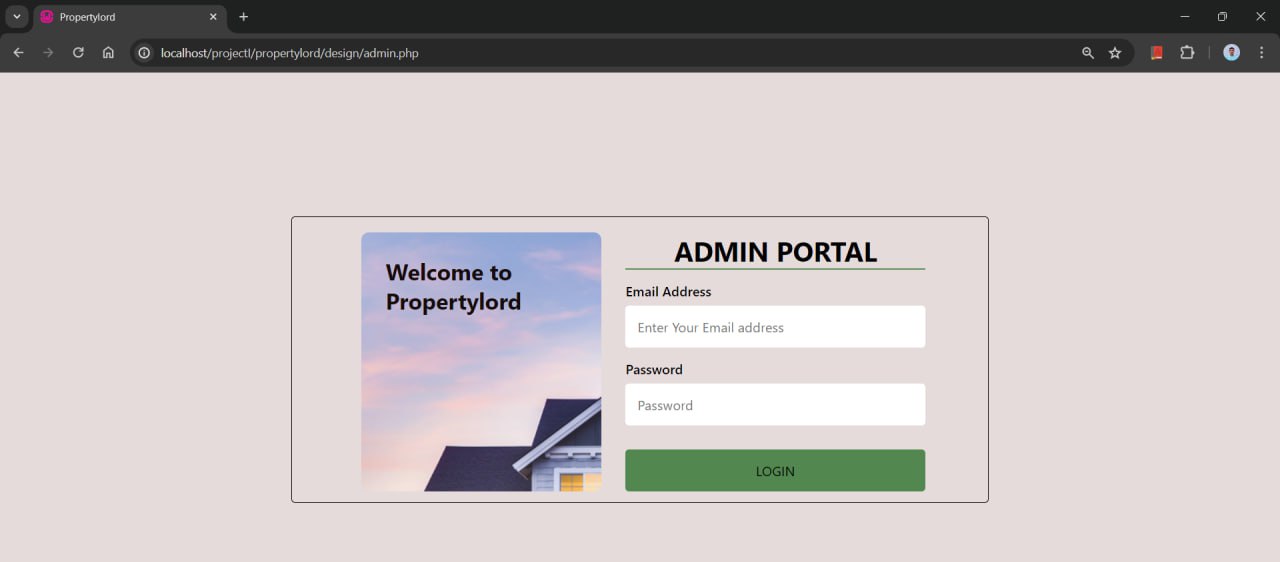
Index of the application



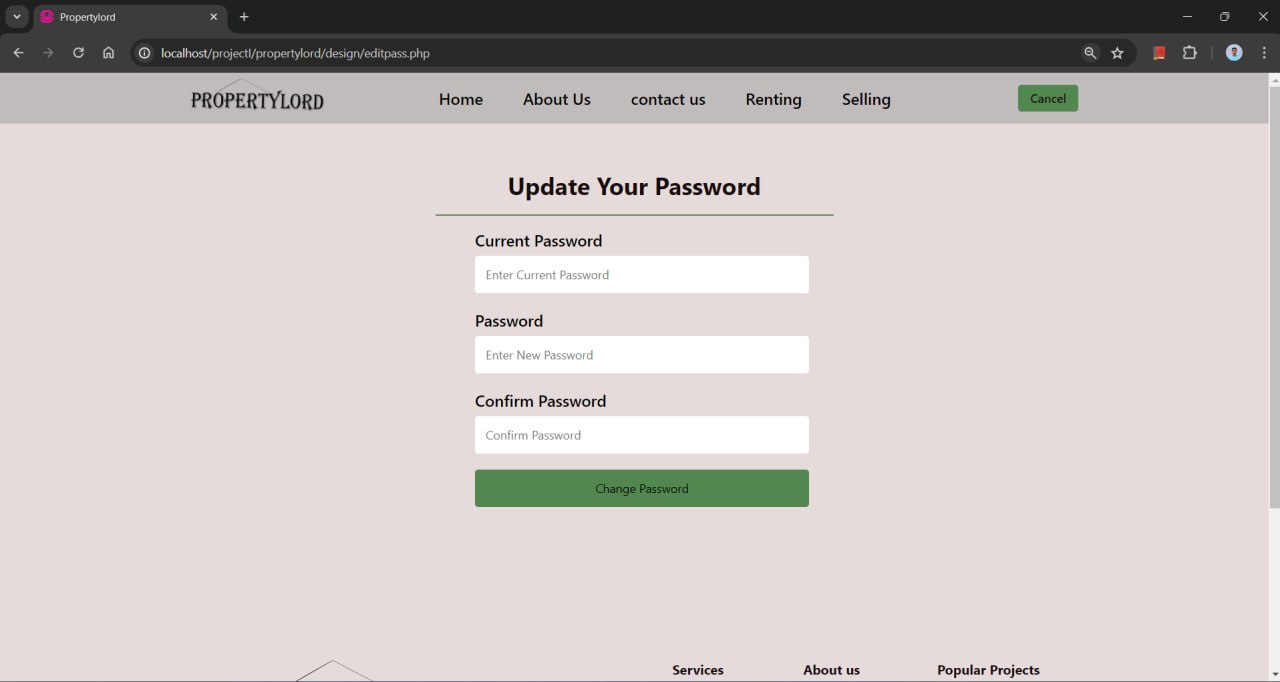
***Figure 12: Login Page***

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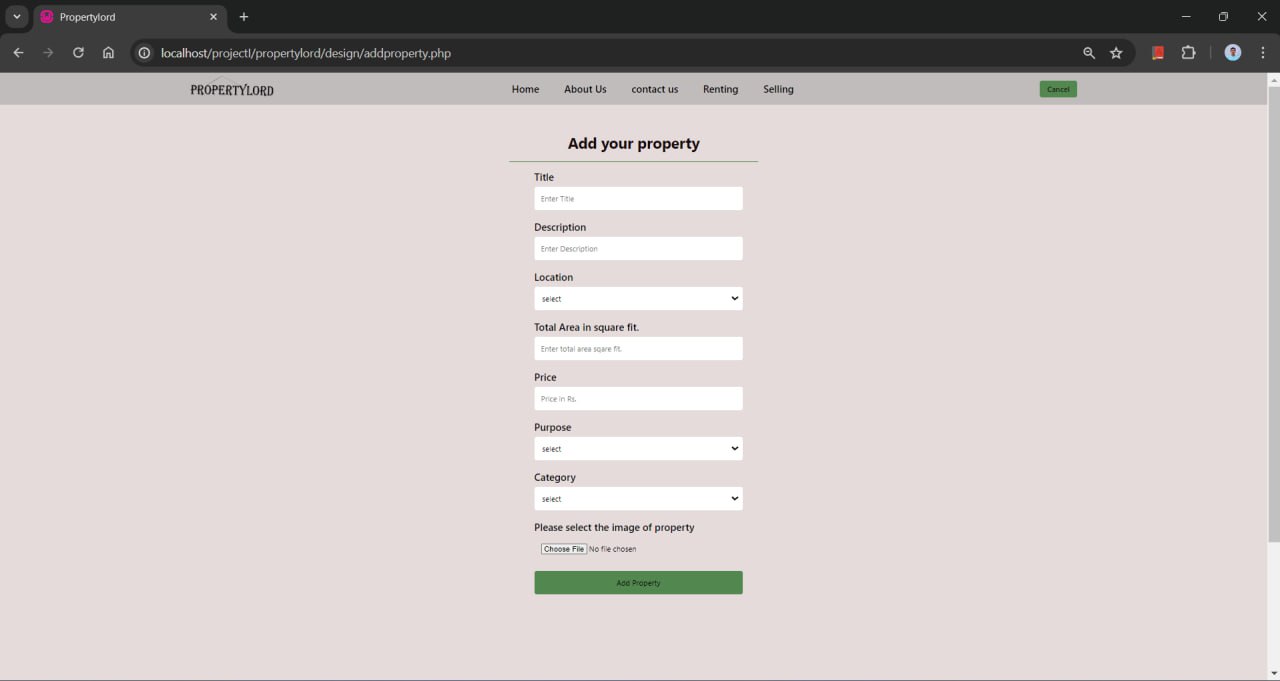
***Figure 13: Signup Page***

******

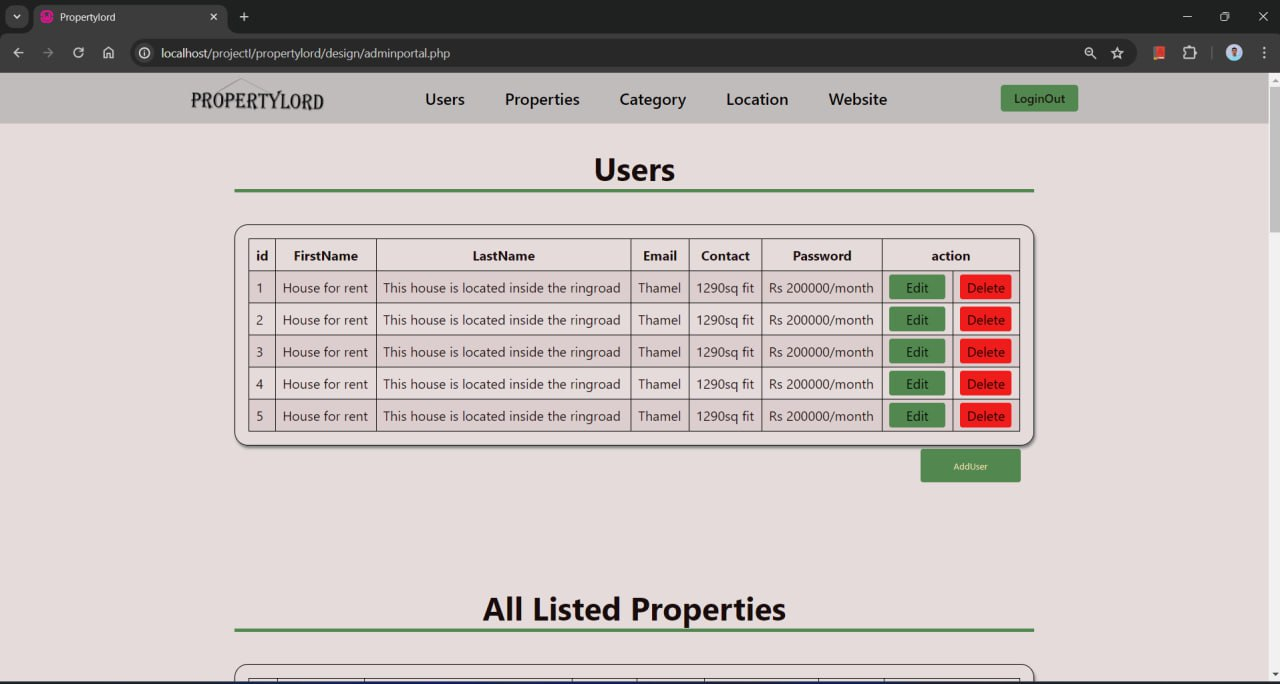
***Figure 14: Admin login Page***

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***Figure 15: Change Password Page***

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***Figure 16: Add Product Page***



***Figure 17: Admin Portal Page***

**5.2. Conclusion**

Our goal was to create an application where Real Estate business can have its own online platform from where users can review, add and buy properties.

Clearly, the PropertyLord project will provide numerous advantages to both client and the property owners. To sell and give for renting rooms, houses, lands to the clients who are willing makes easy.

The property owners can list out their houses, lands for the sell and the user who are willing to buy properties can easily make deals directly with the property owner.

**5.3. Future Recommendations**

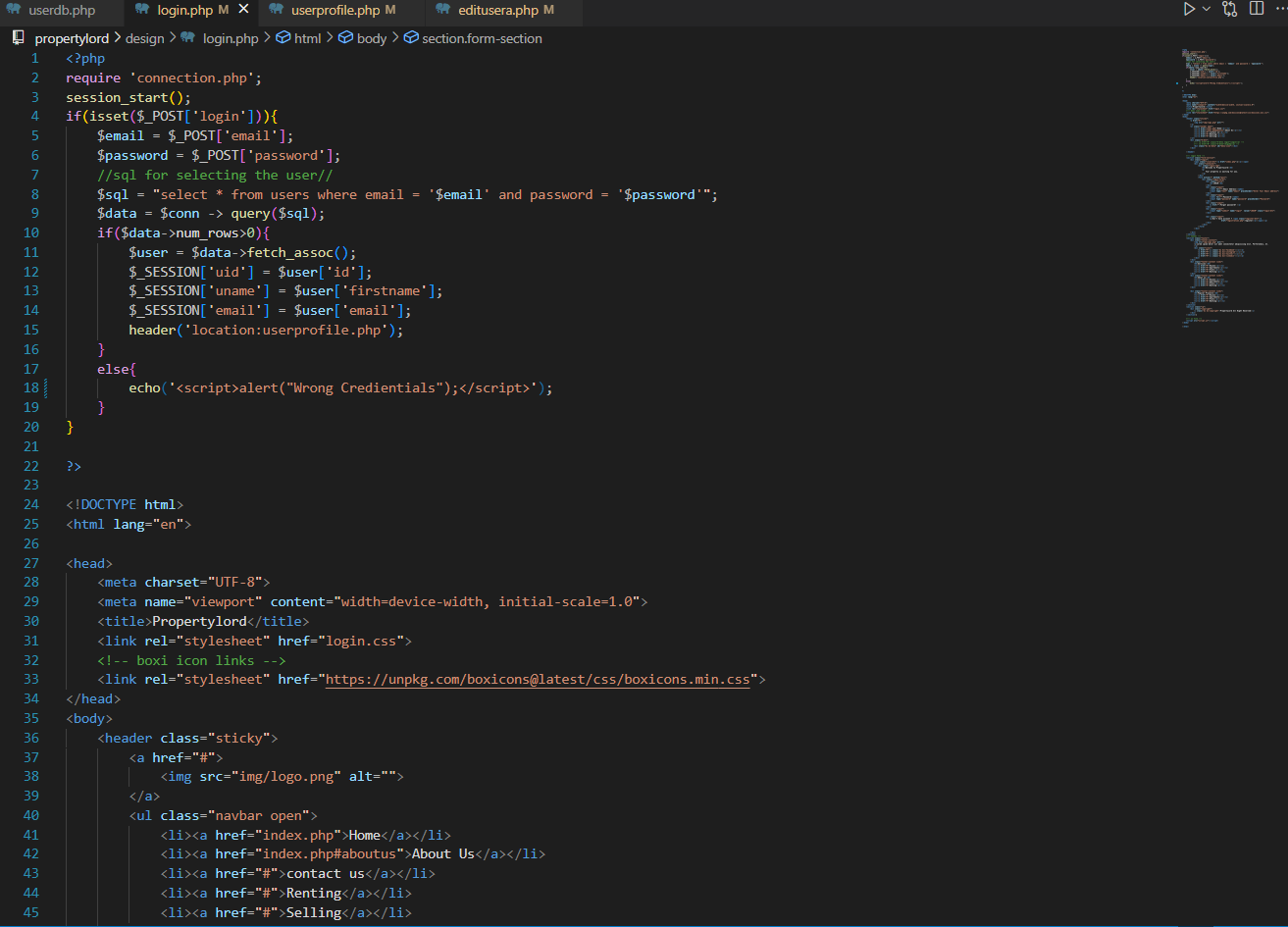
Here is what can be added in the future on this website to increase its usability, user experience and portability of the website. It will need more time and resources for all these to be done but is still very realistic and possible to achieve.

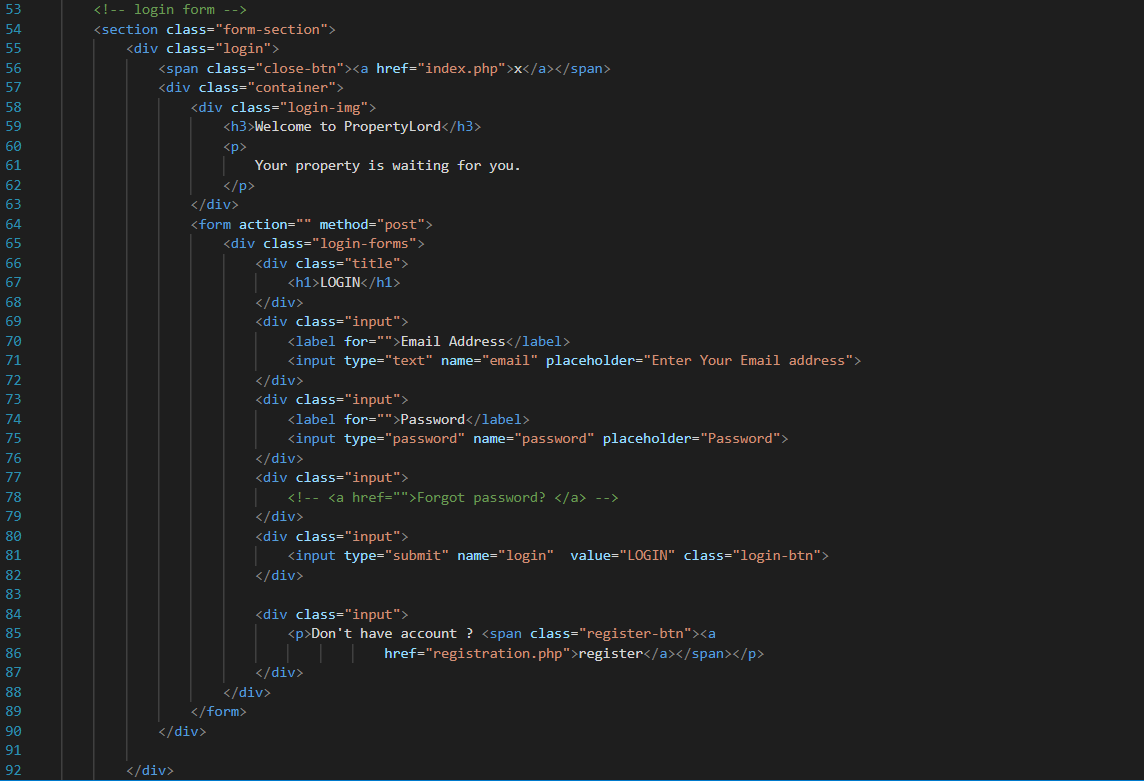
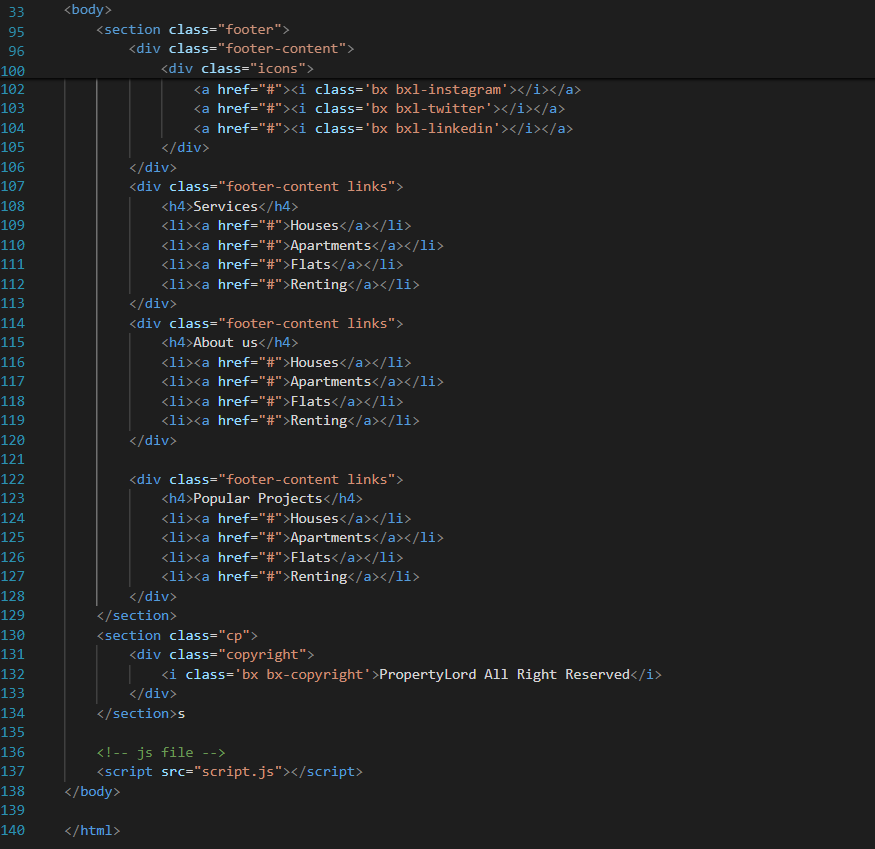
* Introducing client to client chat system.
* Add map api for the exact location of properties.
* Payment through online sources

**Appendices**

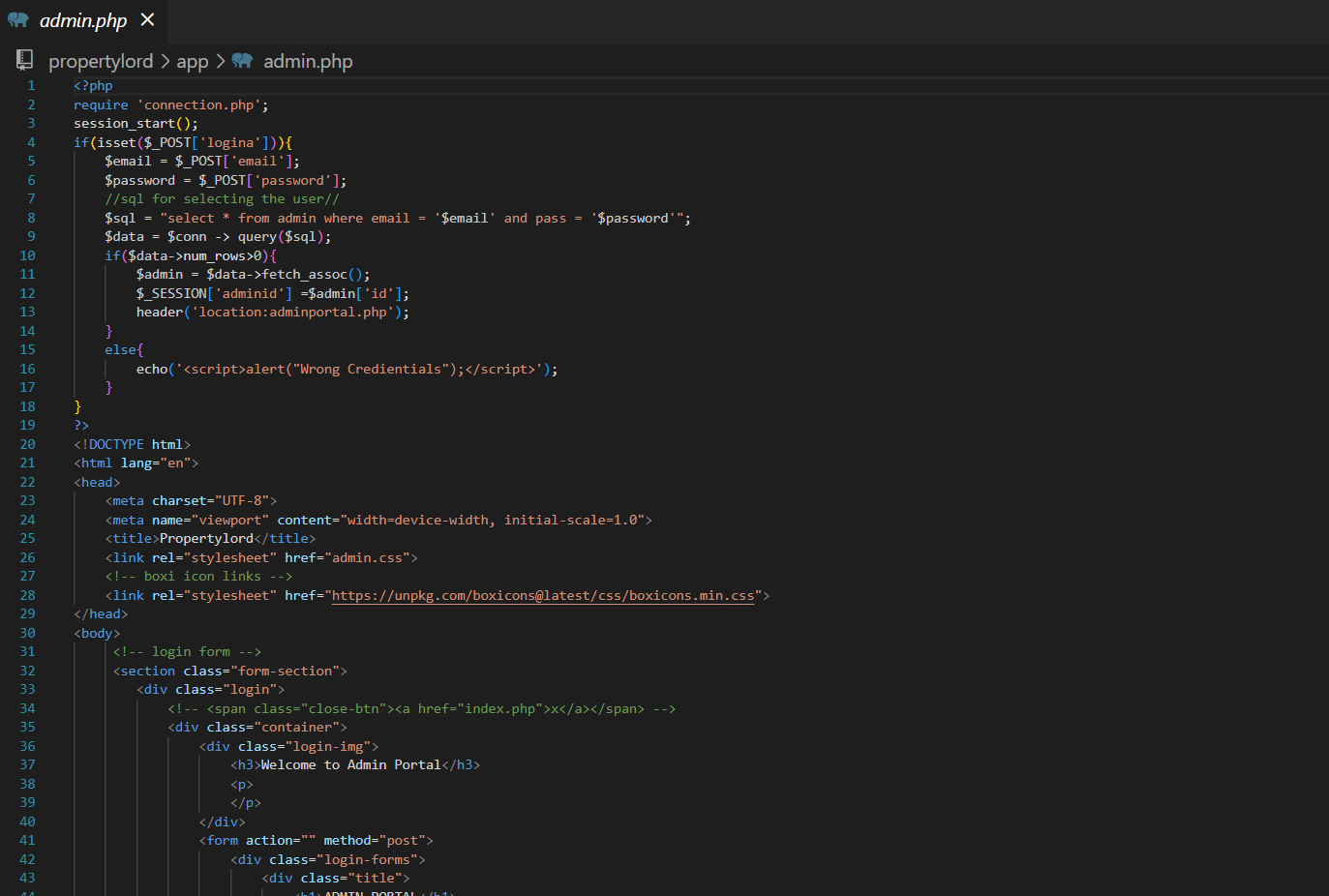
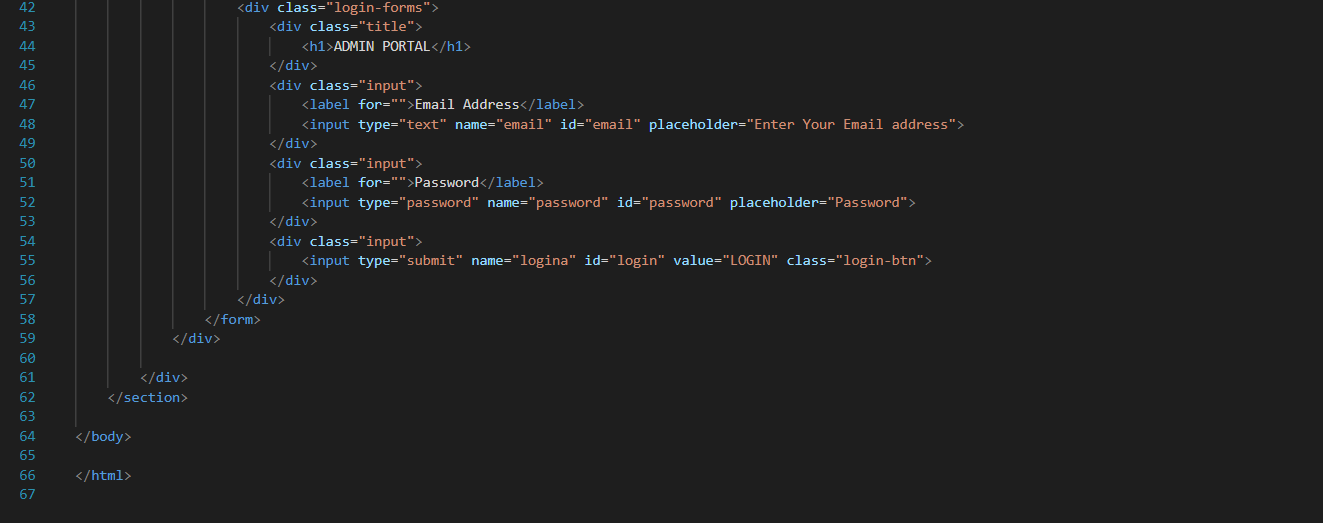
**Source Code**

Login Code

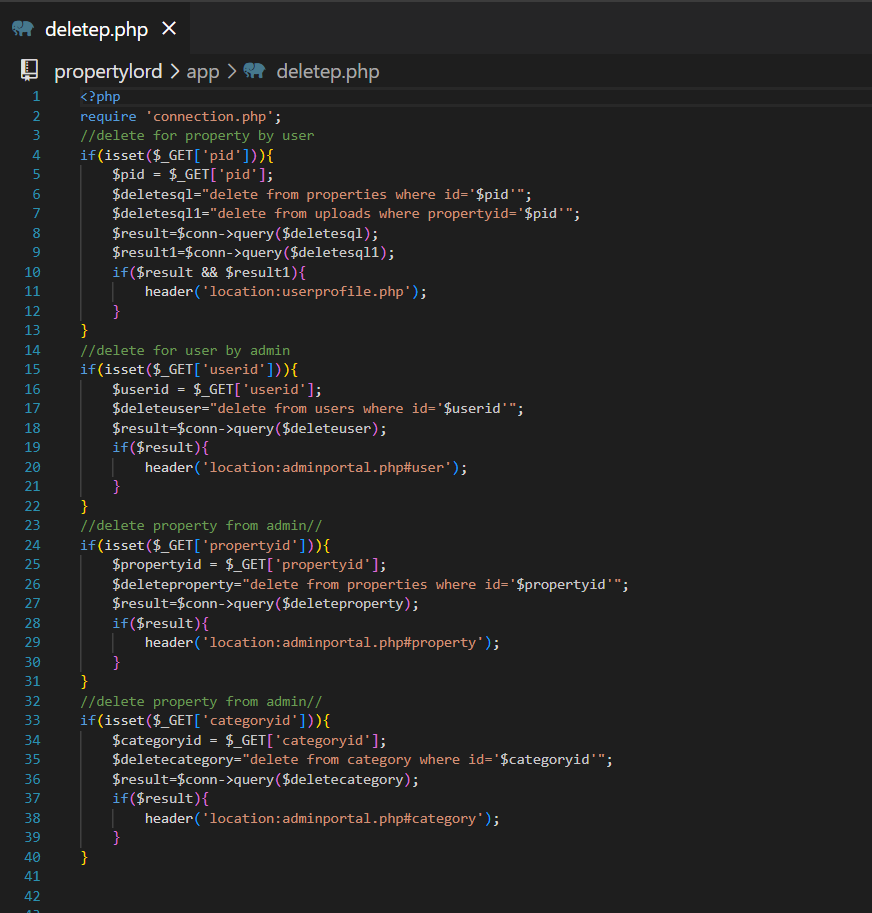


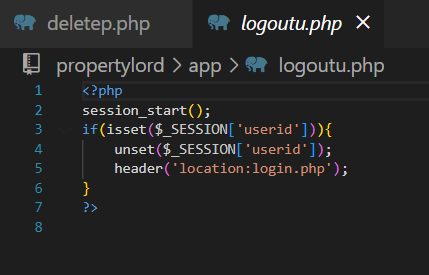


Admin Login code



Delete Product Code



Log out code

# References

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