GENERAL PLAN - LYON's AI Housing Investment Web Platform

This plan provides general steps to develop a streamlined web platform for predicting housing price appreciation, focusing on simplicity, efficiency, and a niche design using HTML, CSS, PHP, and a MySQL database.

Phase 1: Initial Setup and Database Design

1. Set Up Development Environment:

- **Install Local Web Server Environment:**
  - Download and install XAMPP or similar (includes Apache, MySQL, PHP).
  - Configure the local environment and ensure all services are running.
- **Configure Code Editor:**
  - Set up Visual Studio Code or any preferred IDE.
  - Install necessary plugins for HTML, CSS, PHP, and MySQL.

2. Design MySQL Database:

- **Create Database Schema:**
  - Use MySQL Workbench to design the schema.
  - Database tables:
    - Table `User`
    - Table `Property`
    - Table `Prediction`

3. Database Relationships and Indexes:

- **Define Relationships:**
  - Establish one-to-one relationship between `Property` and `Prediction`.
  - Define necessary foreign keys.
- **Optimize Database:**
  - Create indexes on frequently queried fields

Phase 2: Front-End Development (4 Weeks)

1. Develop Basic HTML Structure:

- **Create Main Pages:**
    - **Homepage:** Introduction, search bar, and featured properties.
    - **Search Page:** Search filters (location, price range, property type), and results grid.
    - **Property Details Page:** Detailed property information, historical price trends, predicted prices.
    - **User Profile Page:** User details, saved searches, feedback submission form.

2. Apply CSS Styling:

- **Design Visual Theme:**
    - Define a color palette, typography, and overall visual style using CSS.
    - Create reusable CSS classes for consistency across pages.
- **Responsive Design:**
    - Implement media queries to ensure the website is responsive on different devices (mobile, tablet, desktop).

3. Implement Client-Side Interactivity:

- **JavaScript for Interactivity:**
    - Form validation for user inputs.
    - Dynamic content updates
- **Mapping Integration:**
    - Use Leaflet.js for displaying interactive maps.

Phase 3: Back-End Development (6 Weeks)

1. Implement User Authentication:

- **Registration and Login:**
    - Develop PHP scripts for `register.php` and `login.php`.

        - Use password hashing (e.g., using PHP's `password_hash` function) and session management.
    - **Access Control:**
        - Implement session checks to ensure pages are protected for logged-in users only.

2. Develop Data Handling Scripts:

- **Database CRUD Operations:**
    - Create PHP scripts for data insertion, retrieval, update, and deletion.
    - Functions to handle:
        - Property data management (`addProperty.php`, `updateProperty.php`, `getProperty.php`) or User data management.

3. Integrate AI Prediction Model:

- **JSON Handling:**
    - Encode data in JSON format for interaction with AI model.
    - Decode the received JSON prediction data and update the `predicted_prices` field in `Property` table.

4. API Integration:

- **Call to External APIs:**
    - Query external APIs (e.g., Zillow Zestimate).
    - Parse API responses and store relevant data in MySQL.

SUMMARY OF IMPLEMENTATION STEPS:

1. **Initial Setup**: Configure the development environment and design the database.
2. **Front-End Development**: Create an intuitive and responsive user interface.
3. **Back-End Development**: Implement robust authentication, data handling, AI integration, and external API interaction.