General Sir John Kotelawala Defence University
Faculty Of Computing
Department of Computer Engineering / Department of Computer Science
BSc (Hons)Computer Engineering /Computer Science/ Software Engineering

Group Project Report

OnlineProperty.lk

REAL STATE LISTING SYSTEM

A Comprehensive Property Management Platform

Group Number: 06

Course: Web Development

Course Code: CS12012

Submission Date: 09.10.2025

Content

1.Team Distribution

1) D/COE/25/0004 -Property Listings Management
➢ Frontend:
- Designed the property listing pages (listings.php, property_details.php) with a responsive grid layout.
- Created user-friendly forms (add_listing.php, edit_listing.php) for adding and editing property details.
- Ensured listings and property details are visually appealing and easy to navigate.
➢ Backend:
- Developed backend/property_handler.php to handle all CRUD operations (Create, Read, Update, Delete) for property listings.
- Integrated image upload functionality and managed images in the uploads folder.
- Ensured smooth communication between frontend forms and the database for dynamic property management.
➢ Database:
- Created and managed the properties table containing fields like id, title, price, location, description, and image_path.
- Linked property data with the appropriate user/admin references for access control and updates.

2) D/BCS/25/0005 -User Authentication & Management
➢ Frontend:
- Designed user registration (register.php) and login (login.php) interfaces with form validation.
- Ensured a clear and intuitive design for authentication-related pages.
- Developed manage_users.php interface for admin to view and control user accounts.
➢ Backend:
- backend/auth_handler.php to handle user registration, login, logout, Implemented and admin-level actions.
- Secured authentication using session handling and password encryption.
- Managed user roles (admin/user) and access permissions dynamically.
➢ Database:
- Created the users table with fields such as user_id, username, email, password, and role.
- Established relationships between users and their related property listings or activities.

3) D/BSE/25/0009 -Content Management System
- ➢ Frontend:
  - ▪ Managed static pages such as about.php and contact.php to display dynamic text content.
  - ▪ Designed the admin interface manage_content.php for updating website text easily.
  - ▪ Ensured that page content updates reflect instantly without modifying code.
- ➢ Backend:
  - ▪ Developed backend/content_handler.php to handle Update operations for site content.
  - ▪ Implemented secure content update logic accessible only by the admin.
  - ▪ Integrated backend functions with the admin dashboard for content control.
- ➢ Database:
  - ▪ Created the site_content table with fields like content_id, page_name, section, and content_text.
  - ▪ Linked editable sections to the corresponding pages for dynamic content management.

4) D/BSE/25/0010-Search & Filtering
- ➢ Frontend:
  - ▪ Designed search.php page with an interactive search bar and filter options (price range, location, property type).
  - ▪ Integrated profile.php page where users can view and manage saved searches.
  - ▪ Ensured a responsive and visually organized layout for search results.
- ➢ Backend:
  - ▪ Developed backend/search_handler.php to handle search queries and filter saving/deletion logic.
  - ▪ Enabled dynamic fetching of property data based on user-selected filters.
  - ▪ Implemented backend logic for managing saved search preferences per user.
- ➢ Database:
  - ▪ Created the search_filters table with fields like filter_id, user_id, location, price_range, and property_type.
  - ▪ Linked search filters with user accounts for personalized experiences.

2.PROJECT OVERVIEW

2.1 Introduction

OnlineProperty.lk is a dynamic, full-featured web application designed to serve as a central hub for the real estate market in Sri Lanka. It provides a platform for users to browse, search, buy, and sell properties. The system is built with distinct user roles, allowing general users (buyers/sellers) to manage their own property listings, while a site administrator has overarching control over all content, users, and listings.

2.2 Project Objectives

- User-friendly interface for property listing/search
- Secure authentication & Role-based access
- Efficient property management for agents/owners
- Direct buyer-seller communication
- Advanced search & filtering
- Responsive design across devices

2.3 Main Modules

Module 1: Property Listing Management

- The core module that handles all CRUD operations for properties. This includes creating new listings with image uploads, displaying them in various views, updating existing details, and deleting them.

Module 2: User Authentication & Management

- This module controls user access. It handles user registration, login/logout, and session management. It also provides an interface for administrators to manage all user accounts and their roles.
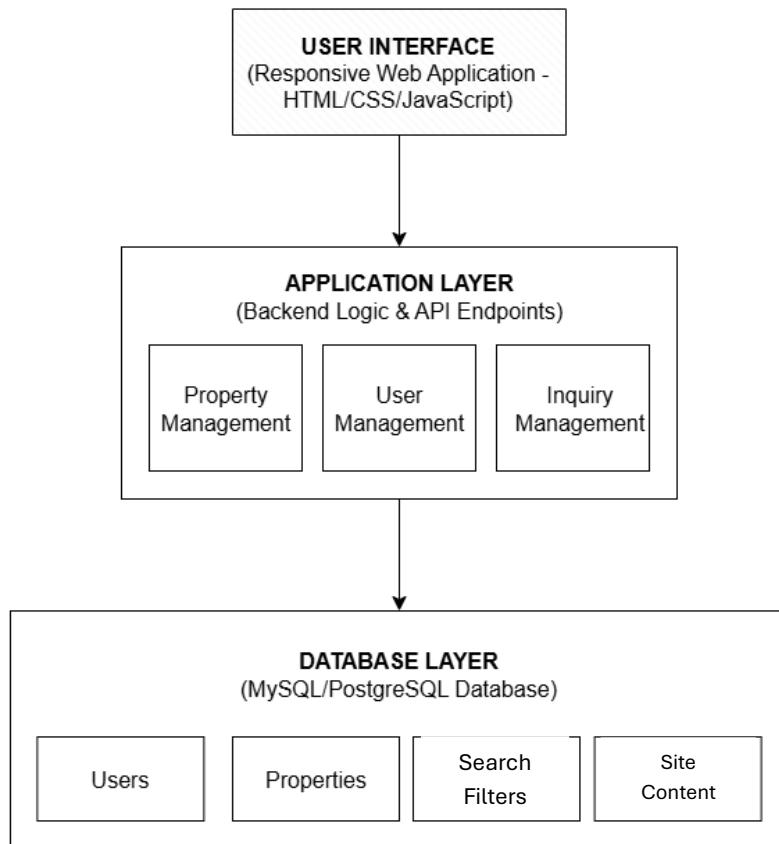
Module 3: Search & Filtering

- A powerful module that allows users to search for properties based on various criteria like location, price, and type. It also includes a feature for logged-in users to save their search filters for future use.

Module 4: Content Management System (CMS)

- A simple backend module for administrators to update static text content on the website (e.g., the homepage title and subtitle) without needing to alter the source code.

2.4 System Architecture Design

```
┌─────────────────────────────────┐
│         USER INTERFACE          │
│    (Responsive Web Application - │
│        HTML/CSS/JavaScript)     │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│       APPLICATION LAYER         │
│    (Backend Logic & API         │
│          Endpoints)             │
│  ┌────────┐ ┌────────┐ ┌──────┐ │
│  │Property│ │  User  │ │Inquiry││
│  │Manage- │ │Manage- │ │Manage-││
│  │ ment   │ │ ment   │ │ ment  ││
│  └────────┘ └────────┘ └──────┘ │
└─────────────────────────────────┘
                │
                ▼
┌──────────────────────────────────┐
│        DATABASE LAYER            │
│    (MySQL/PostgreSQL Database)   │
│ ┌─────┐ ┌────────┐ ┌──────┐ ┌──────┐│
│ │Users│ │Proper- │ │Search│ │ Site ││
│ │     │ │ ties   │ │Filter│ │Content││
│ └─────┘ └────────┘ └──────┘ └──────┘│
└──────────────────────────────────┘
```

2.5 Key Stakeholders

Primary Stakeholders:

- Property Buyers: Individuals or organizations searching for properties to purchase or rent.
- Property Sellers: Property owners looking to sell or rent their properties
- Real Estate Agents: Licensed professionals managing property listings on behalf of clients.

Secondary Stakeholders:

- System Administrators: Manage the platform, user accounts, and system configuration.
- Development Team: Responsible for system maintenance and updates

3. TOOLS AND TECHNOLOGIES

3.1 Technology Stack Overview

The OnlineProperty.lk is built using modern, industry-standard technologies to ensure scalability, maintainability, and high performance. It follows a three-tier architecture consisting of the presentation, application and data layers.

3.2 Frontend Technologies

HTML5

- Semantic markup for better structure and SEO
- Modern HTML5 elements for improved accessibility
- Form validation and input types.

CSS3 (Cascading Style Sheets)

- Custom styling for attractive user interface
- Flexbox and Grid layouts for responsive design

JavaScript

- Client-side validation and dynamic content loading
- Event handling and user interaction management

3.3 Backend Technologies

PHP
- Primary server-side scripting language used for backend logic.
- Handles form processing, database interaction, and user session management.

MySQL
- Relational database management system for storing application data.
- Stores user accounts, property listings, saved searches, and site content

XAMPP / Local Server

- Used as the local development environment.
- Includes Apache server, MySQL database, and PHP for testing and running the application locally

3.4 Development Tools

Tool	Purpose
Visual Studio Code	Primary code editor with extensions for PHP, HTML, CSS, JavaScript
XAMPP/WAMP	Local development server environment (Apache, MySQL, PHP)
Git & GitHub	Version control and collaborative development
phpMyAdmin	Database administration and management interface
Chrome DevTools	Frontend debugging, performance testing, responsive design testing
Postman	API testing and development

3.5 Responsive Design Implementation

Flexible Grid Layout:
- Utilizes CSS Grid in the style.css file for property listings.
- Example: display: grid; grid-template-columns: repeat(auto-fill, minmax(320px, 1fr));
- Automatically adjusts the number of columns based on screen width for smooth scaling.

Media Queries:
- CSS includes media queries such as @media (min-width: 992px) to apply layout adjustments for larger screens.
- Enables features like a two-column layout on the property details page for better readability.
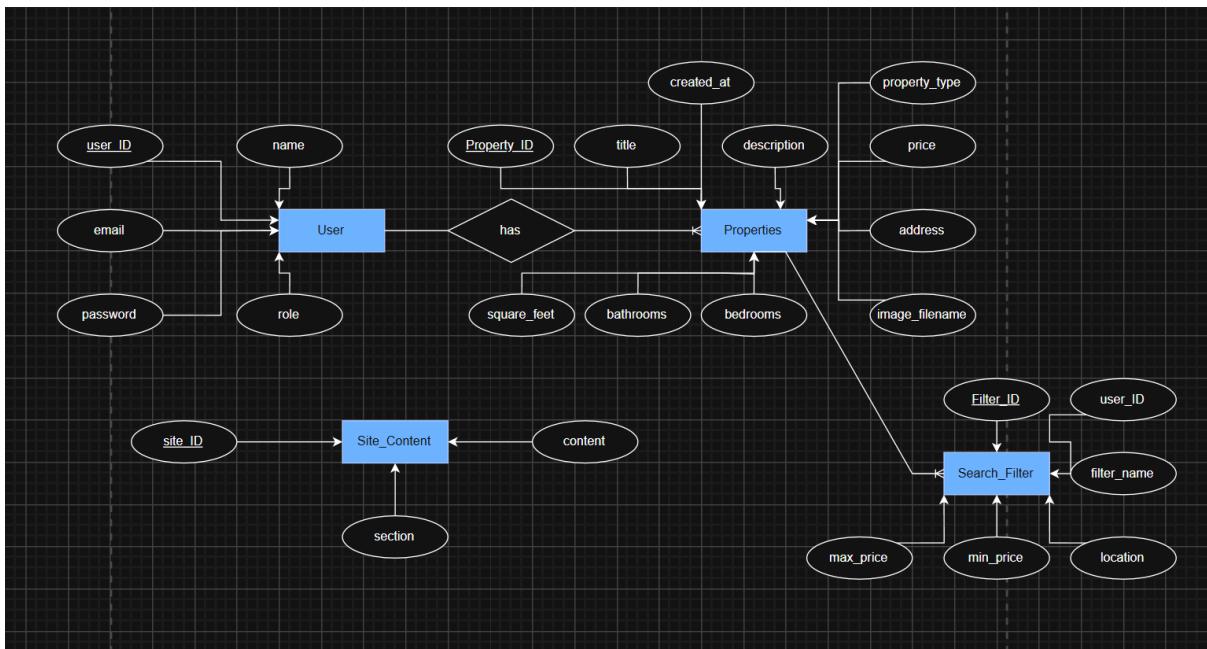
Viewport Meta Tag:
- The <meta name="viewport" content="width=device-width, initial-scale=1.0"> tag in header.php ensures proper scaling and responsiveness on mobile devices.

4.Databse Design

4.1 Database Overview

The database for the OnlineProperty.lk is designed using MySQL, following normalization principles to ensure data integrity, reduce redundancy, and improve performance. It includes interrelated tables managing users, properties, inquiries, and system configurations.

4.2 Entity-Relationship (ER) Diagram

4.3 Database Tables

4.3.1 Users Table

4.3.2 Properties Table

| | | Browse | Structure | SQL | Search | Insert | Export | Import | Privileges | Operations | Triggers |

Showing rows 0 - 5 (6 total, Query took 0.0006 seconds.)

SELECT * FROM `properties`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

			id	user_id	title	description	price	address	image_filename	bedrooms	bathrooms	square_feet	property_type	created_at
☐	Edit	Copy ⊘ Delete	6	NULL	Modern Apartment in Colombo 7	A stunning, fully-furnished apartment in the heart...	45000000.00	Cinnamon Gardens, Colombo 7	prop_sample_1.jpg	3	2	1800	Apartment	2025-09-30 13:58:41
☐	Edit	Copy ⊘ Delete	7	NULL	Spacious Family House with Lake View	A beautiful two-story house overlooking the Kandy...	62000.00	Aniwatta, Kandy	prop_sample_2.jpg	4	3	2500	House	2025-09-30 13:58:41
☐	Edit	Copy ⊘ Delete	8	NULL	Prime Beachfront Land in Unawatuna	A rare opportunity to own a piece of paradise. Thi...	8500000.00	Unawatuna, Galle	prop_sample_3.jpg	0	0	5445	Land	2025-09-30 13:58:41
☐	Edit	Copy ⊘ Delete	9	NULL	Luxury Villa with Private Pool	An exquisite villa located in a serene neighborhoo...	75000000.00	Lewis Place, Negombo	prop_sample_4.jpg	5	5	4000	House	2025-09-30 13:58:41
☐	Edit	Copy ⊘ Delete	10	NULL	Commercial Space in Colombo Fort	A multi-floor commercial building suitable for off...	99999999.99	Chatham Street, Colombo Fort	prop_sample_5.jpg	NULL	4	8000	Commercial	2025-09-30 13:58:41
☐	Edit	Copy ⊘ Delete	11	NULL	Cozy Apartment Near the Beach	A comfortable and affordable 2-bedroom apartment i...	18500000.00	De Saram Road, Mount Lavinia	prop_sample_6.jpg	2	1	950	Apartment	2025-09-30 13:58:41

4.3.3 Site_content Table

| | Browse | Structure | SQL | Search | Insert | Export | Import | Privileges | Operations | Triggers |

Showing rows 0 - 3 (4 total, Query took 0.0004 seconds.)

SELECT * FROM `site_content`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

			id	section	content
☐	Edit	Copy ⊘ Delete	1	homepage_title	Your Dream Property is Here
☐	Edit	Copy ⊘ Delete	2	homepage_subtitle	The best place to find apartments, houses, and lan...
☐	Edit	Copy ⊘ Delete	3	about_us_content	Welcome to OnlineProperty.lk, your number one sour...
☐	Edit	Copy ⊘ Delete	4	contact_info	Panadura, Western Province, Sri Lanka Phone: +94 1...

4.3.4 Search_filters Table

| | Browse | Structure | SQL | Search | Insert | Export | Import | Privileges | Operations | Triggers |

Showing rows 0 - 0 (1 total, Query took 0.0006 seconds.)

SELECT * FROM `search_filters`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

			id	user_id	filter_name	min_price	max_price	location
☐	Edit	Copy ⊘ Delete	2	2	Apartment	NULL	NULL	0
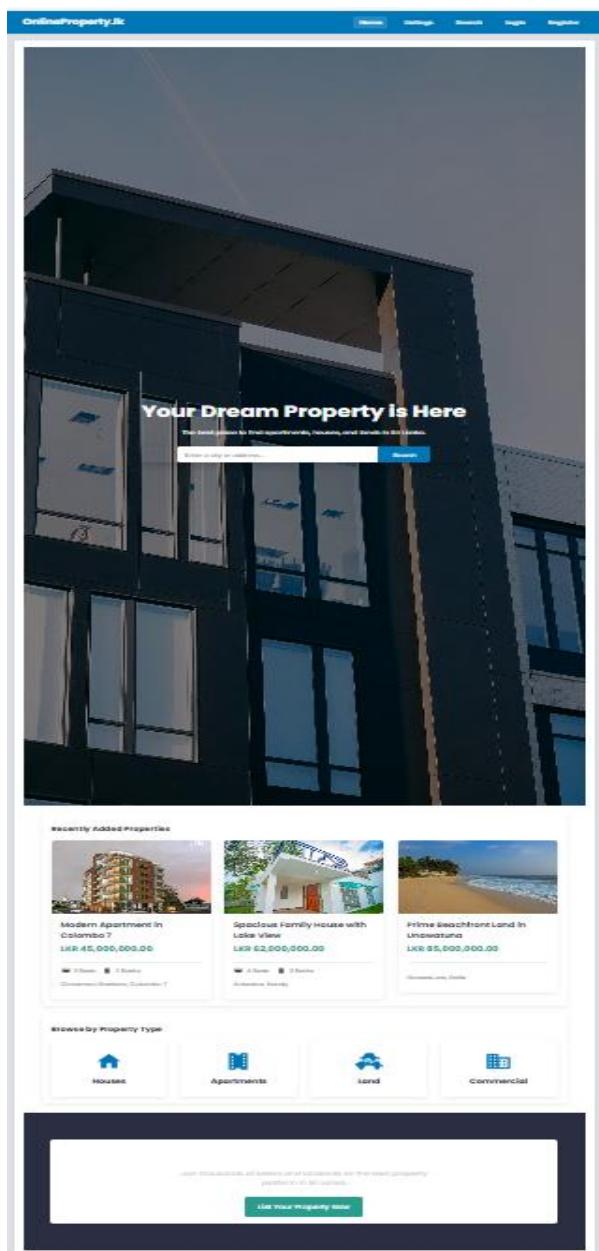
↑ ☐ Check all   With selected: Edit Copy ⊘ Delete Export

5.USER INTERFACE

The user interface design follows modern web design principles with focusing on usability, accessibility, and visual appeal. Our design incorporates clean layouts, intuitive navigation, consistent color schemes, and responsive elements that adapt seamlessly across all devices.

5.1 Homepage (index.php)

The main landing page with the hero image, search bar, and recent listings.

5.2 All Listings Page (listings.php)

The grid view showing all available properties.

5.3 Property Details Page (property_details.php)

Shows detailed information about a single property.

OnlineProperty.lk
Home Listings Search Login Register

Modern Apartment in Colombo 7

LKR 45,000,000.00

Cinnamon Gardens, Colombo 7

Type: Apartment	**Bedrooms:** 3
Bathrooms: 2	**Area:** 1800 sq.ft

Description

A stunning, fully-furnished apartment in the heart of Cinnamon Gardens. Features a rooftop pool and gym. Perfect for professionals and small families.

ABOUT ONLINEPROPERTY.LK

Your number one source for finding properties in Sri Lanka. We're dedicated to giving you the very best of the real estate market.

QUICK LINKS

Home
All Listings
Search
About Us
Contact Us

FOLLOW US

Facebook
Instagram
YouTube

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5.4 Login Page (login.php)

The user login form.

5.5 Registration Page (register.php)

The new user registration form.

OnlineProperty.lk   Home   Listings   Search   Login   Register

Create an Account

Full Name

Email Address

Password

Register

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5.6 Search Page (search.php)

Shows the advanced search form and the search results.

Home   Listings   **Search**   Login   Register

Search Properties

Location
e.g., Colombo

Property Type
Any Type ▼

Min Bedrooms
e.g., 3

Min Price (LKR)
e.g., 5000000

Max Price (LKR)
e.g., 10000000

Search

Search Results

Modern Apartment in Colombo 7

LKR 45,000,000.00

🛏 3 Beds   🚿 2 Baths

Cinnamon Gardens, Colombo 7

Spacious Family House with Lake View

LKR 62,000,000.00

🛏 4 Beds   🚿 3 Baths

Aniwatta, Kandy

Prime Beachfront Land in Unawatuna

LKR 85,000,000.00

Unawatuna, Galle

Luxury Villa with Private Pool

LKR 75,000,000.00

🛏 5 Beds   🚿 5 Baths

Lewis Place, Negombo

Commercial Space in Colombo Fort

LKR 99,999,999.99

🚿 4 Baths

Chatham Street, Colombo Fort

Cozy Apartment Near the Beach

LKR 18,500,000.00

🛏 2 Beds   🚿 1 Baths

De Saram Road, Mount Lavinia

ABOUT ONLINEPROPERTY.LK

Your number one source for finding properties in Sri Lanka. We're dedicated to giving you the very

QUICK LINKS

Home
All Listings

FOLLOW US

Facebook
Instagram

5.7 Add Listing Form (add_listing.php)

The form for logged-in users to add a new property.

5.8 Edit Listing Form (edit_listing.php)
The form pre-filled with data for editing a property.

5.9 User Profile Page (profile.php)
The welcome page for logged-in users, showing their saved search filters.

5.10 Admin Dashboard (admin_dashboard.php)
The main navigation hub for the administrator.

5.11 Admin Manage Properties Page (admin_manage_properties.php)
The admin's view of all properties with edit/delete options.

5.12 Admin Manage Users Page (manage_users.php)
The table showing all users with options to change roles or delete them.

5.13 Admin Manage Content Page (manage_content.php)
The form for the admin to edit the homepage text

6.FUTURE ENHANCEMENT

6.1 Possible Improvements and Additional Functionalities
The current application provides a solid foundation that can be expanded with more advanced features to improve user engagement and functionality:

- User-to-Seller Messaging System: An integrated messaging feature to allow potential buyers to contact property listers securely within the platform.
- Interactive Map Integration: Using an API like Google Maps or OpenStreetMap to display all properties on an interactive map, allowing for geographical searching.
- Advanced Property Features: Adding more fields to the properties table for amenities (e.g., swimming pool, parking), floor plans, and video tours.
- AJAX for Better UX: Implementing AJAX (Asynchronous JavaScript and XML) to allow for live search results that update as the user types, and form submissions without a full page reload.

6.2 Suggestions for Commercialization and Scalability
Commercialization:

- Featured Listings: A monetization model where users can pay a fee to have their property listing "featured," appearing at the top of search results and on the homepage.
- Agent/Agency Subscriptions: Creating a premium "Agent" role with a monthly subscription. Subscribers could get benefits like a public profile page, the ability to post unlimited listings, and access to analytics.
- On-Site Advertising: Selling dedicated ad space on the website to real estate agencies, mortgage brokers, or home furnishing companies.

Scalability:

- Framework Migration: As the application grows, migrating the backend from raw PHP to a more structured and scalable framework like Laravel or Symfony would improve maintainability and security.
- Cloud Infrastructure: Moving the application from a local server to a cloud provider like AWS or DigitalOcean. This would involve using services like EC2 for hosting, RDS for a managed database, and S3 for storing uploaded images.
- Content Delivery Network (CDN): Using a CDN to serve images and static assets. This would dramatically improve page load times for users by distributing the assets to servers closer to their geographical location.
- Caching: Implementing a caching layer with tools like Redis or Memcached to store the results of frequent database queries, reducing the load on the database and speeding up response times.