**Aleesha Batool SP24-BSE-131-B**

**Sara Riaz SP24-BSE-110-B**

**Fatima Khalid SP24-BSE-132-B**

# Summary of Housing Plot Management System

## Project Overview

Purpose: A JavaFX application designed for managing housing society plots, including user management, plot allocation, payment tracking, and more.

Technologies Used: Java, JavaFX, Serialization for data persistence.

## Key Features

### 1. User Interface

- Welcome screen with a simple button to proceed.  
- Login and registration screens for different user roles (Admin, Buyer).

### 2. Admin Functionalities

- Admin Dashboard: Access to manage users, plots, payments, and generate reports.  
- User Management: Add, edit, and delete users.  
- Plot Management: Add, edit, delete, and view details about plots, including price and development status.  
- Payment Management: Add, remove, or update payment records.  
- Report Generation: Create and print reports on the system's activities.

### 3. Buyer Functionalities

- Dashboard: Options to view plots, request plots, check ownership details, track payment status, update preferences, and view a map.  
- Request Plot: Reserve an available plot.  
- Ownership Details: View documents related to plot ownership.  
- Track Payments: Check payment history and outstanding balances.  
- Preferences: Update personal preferences like location, size, and budget.

## Data Handling

Serialization:  
- Data about users, plots, payments, and documents is saved and loaded using `.ser` files.  
- Includes methods for reading and writing data to files for persistence.

Objects Managed:  
- User and Buyer for user-related information.  
- Plot for housing plot details.  
- Payment for transaction records.  
- Document for ownership documents.

## Important Functionalities in Code

- User Authentication: Validation of login credentials for Admin and Buyer.  
- Dynamic Forms: JavaFX forms for CRUD operations on users and plots.  
- TableView: Displays lists of plots, users, and payments dynamically.  
- Error Handling: Includes basic validation and user feedback.

## Classes Used in the System

Below are the primary classes and their functionalities as observed in the code:

- HelloApplication: The main class that initializes the JavaFX application. It includes methods for navigating between various scenes like login, registration, and dashboards.

- User: Represents a user of the system. It includes fields like username, password,email, and phone number. It also has methods for loading and saving users.

- Buyer: Extends the User class to include additional fields like preferred location, size, and budget.

- Plot: Represents a housing plot with attributes like ID, dimensions, location, status, and price. It includes methods for loading and saving plot data.

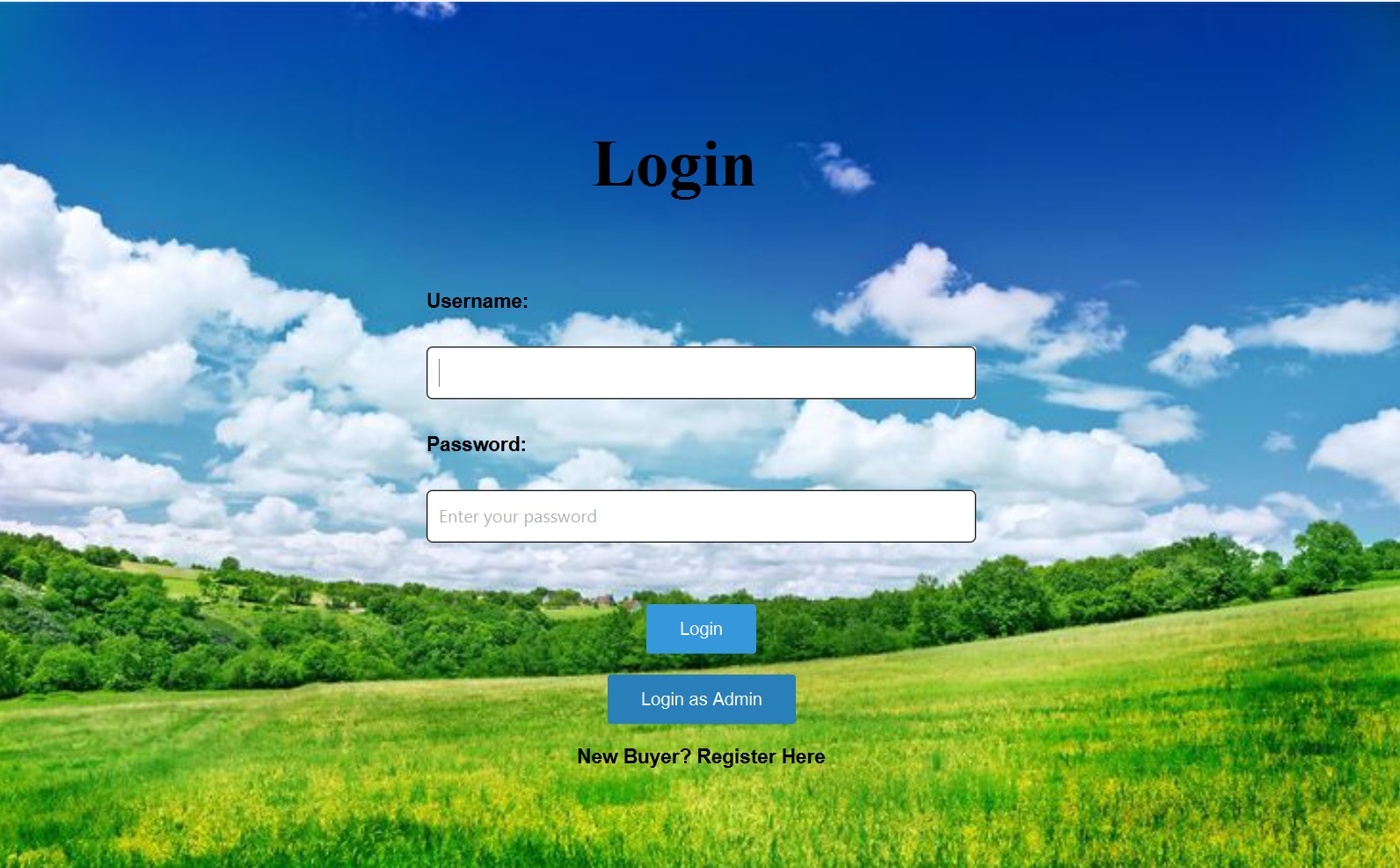
- Payment: Handles payment records, including payment ID, buyer ID, plot ID, amount paid, outstanding balance, and payment method.

- Document: Represents documents related to plot ownership or other records. Includes fields like document ID, buyer ID, plot ID, document type, and upload date.

- ViewMap: Handles functionality related to displaying a map of plots (briefly referenced in the buyer dashboard).

- Admin: Contains static methods for generating reports and analyzing plot statistics.

**Output:**

****

