|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Course Title: | Object Oriented Programming |  |  | Credit Hours: | 4 |
| Course Instructor/s: | Prof.Shahid Bhatti | Program Name: | BSE | | |
| **Due Date:** | **Friday, 10 May 2024.** | **Maximum Marks:** | |  | |

**NAME:** MUAHMMAD HARIS MUNIR

**Registration #:** FA23-BSE-114

# **Project Assignment**

**Abstract Summary**:

The House Rental System Project comprises several key classes and functionalities aimed at managing property rentals efficiently. The AdminManager class facilitates admin authentication and dashboard navigation through a menu-driven interface, enabling tasks such as tenant management, billing, and agreement handling. Dashboard class provides essential property information and directs operations like tenant management and billing. Tenant class manages tenant details, updating via file handling, while TenantDisplayClass retrieves and displays tenant data. PaymentClass handles various payment types, ensuring accurate financial records. Agreement Generation class generates rental agreements based on predefined terms. Through robust file handling, data persistence is maintained across classes, ensuring seamless operation and management of property rentals. This system offers a comprehensive solution for administering rental properties effectively.

**Graphical User Interface**

The GUI-based House Rental System Project offers a user-friendly interface for efficient property management. Admin authentication is handled through username and password inputs, allowing access to a menu-driven dashboard. Users can sign up or log in, with data securely written and read from files. Upon successful login, the static dashboard displays key property information. Nested menus facilitate tenant management, including addition, removal, and updating of tenant details. Tenant information is stored and retrieved via file handling, ensuring data persistence. The system supports various payment types, managed by the PaymentClass, and generates rental agreements based on predefined terms using the Agreement Generation module. With a focus on ease of use and functionality, this GUI system streamlines property rental administration.

**Application Construction Plan:**

Main Application Class:

This class initializes the JavaFX application.

It sets up the primary stage and loads the initial scene.

Login Scene:

Create a login form with text fields for username and password.

Include buttons for login and signup.

Upon successful login, transition to the dashboard scene.

Signup Scene:

Form for new admin registration with fields for username and password.

Button to submit the signup details.

Upon successful signup, return to the login scene.

Dashboard Scene:

Display static information such as total rooms, due date, occupied rooms, and total tenants.

Implement a menu or buttons for various actions like adding, removing, updating tenants, billing, and agreement management.

Each action should transition to the corresponding scene.

Add Tenant Scene:

Form to input tenant details such as name, nationality, contact number, CNIC number, address, room number, and rent amount.

Button to submit the tenant details.

Remove Tenant Scene:

List or table displaying current tenants with an option to select and remove them.

Button to confirm the removal.

Update Tenant Scene:

Form to update tenant details similar to the add tenant scene, pre-filled with existing information.

Button to submit the updated details.

Display Tenant Information Scene:

Display a list or table of all tenants with their details.

Allow sorting and filtering options if needed.

Billing/Payment Scene:

Form for recording different types of payments, such as monthly rent, security deposit, and utility bills.

Include options for selecting the tenant and type of payment.

Agreement and Bond Scene:

Form to generate rental agreements based on specified terms and conditions. Display the agreement document for review and confirmation.

File Handling:

Implement file handling for reading and writing data, ensuring persistence across sessions.

Utilize appropriate file formats (e.g., CSV, JSON) for storing admin, tenant, and payment information.

Event Handling and Navigation:

Implement event handlers for buttons and menu items to perform corresponding actions and transition between scenes.

Utilize JavaFX scene management techniques for seamless navigation.