

**ASSIGNMENT 2**

**Name:Waseeq Ahmed Siddiqui**

**Reg no:FA23-BSE-195**

**Course:Object Oriented Programming**

**Submitted To:Professor Shahid Bhatti**

**SEMESTER PROJECT**

**OBJECT ORIENTED PROGRAMMING**

**CAB BOOKING SYSTEM**

**Abstract:**

Sure, here's an abstract of the Cab Booking System presented in bullet points:

- **Purpose:**

The Cab Booking System is designed to simplify and streamline the process of booking cabs for users through a user-friendly graphical interface.

- **Functionality:**

* Users can securely log in to the system using their credentials.
* The system allows users to view available cabs and their details.
* Users can book a cab by providing their name, phone number, and selecting a desired cab from the available options.

- **Data Management:**

Robust file handling mechanisms are employed to store and retrieve user, cab, and booking data, ensuring data integrity and seamless operation.

- **Features:**

* User authentication to ensure secure access to the system.
* Display of available cabs with relevant details such as plate number and model.
* Booking functionality with validation to ensure all required fields are filled.

- **Benefits:**

* Provides a convenient solution for users to book cabs effortlessly.
* Ensures data integrity and security through robust file handling techniques.
* Simplifies the cab booking process, enhancing user experience and efficiency.

**Methods:**

**loadUsers():** This method loads user data from a file (users.txt) into a ArrayList. It reads serialized user objects using ObjectInputStream.

**loadCabs():** Similar to loadUsers(), this method loads cab data from a file (cabs.txt) into another ArrayList. It reads serialized cab objects using ObjectInputStream.

**loadBookings():** Responsible for loading booking data from a file (bookings.txt). It utilizes ObjectInputStream to read serialized booking objects from the file until an EOFException occurs, indicating the end of the file.

**saveBooking(Booking booking):** Saves booking data to the bookings.txt file. It writes the serialized booking object to the file using ObjectOutputStream.

**authenticateUser(String username, String password):** Checks the validity of the provided username and password by verifying them against the data loaded from the users.txt file.

**openCabBookingWindow(Stage primaryStage):** Displays the cab booking window upon successful user authentication. This window allows users to input their details and book available cabs.

**displayAvailableCabs():** Generates a string representation of available cabs by iterating over the ArrayList of cabs and checking their availability status.

**bookCab(String name, String phoneNumber, String plateNumber):** Books a cab based on the provided user details and cab plate number. It marks the selected cab as unavailable and saves the booking to the bookings.txt file.

**showAlert(String title, String message):** Displays an alert dialog with the specified title and message.