



A Project Report on

DU Shuttle Service

Department of Computer Science and Engineering

University of Dhaka

CSE-2112:Object-Oriented Programming Lab

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Project Overview

The **DU Shuttle Service** is a comprehensive software solution designed to facilitate transportation for students Of The **University Of Dhaka** by incorporating features such as **online payment, balance recharges , emergency calls, complaints and suggestions**, and a **QuickBot** for assistance. We built it using **Java Swing** for the UI, **MySQL** for database management, and **Apache NetBeans** as the IDE. This ensures secure payments, saves time, and provides information about routes efficiently.

Objectives

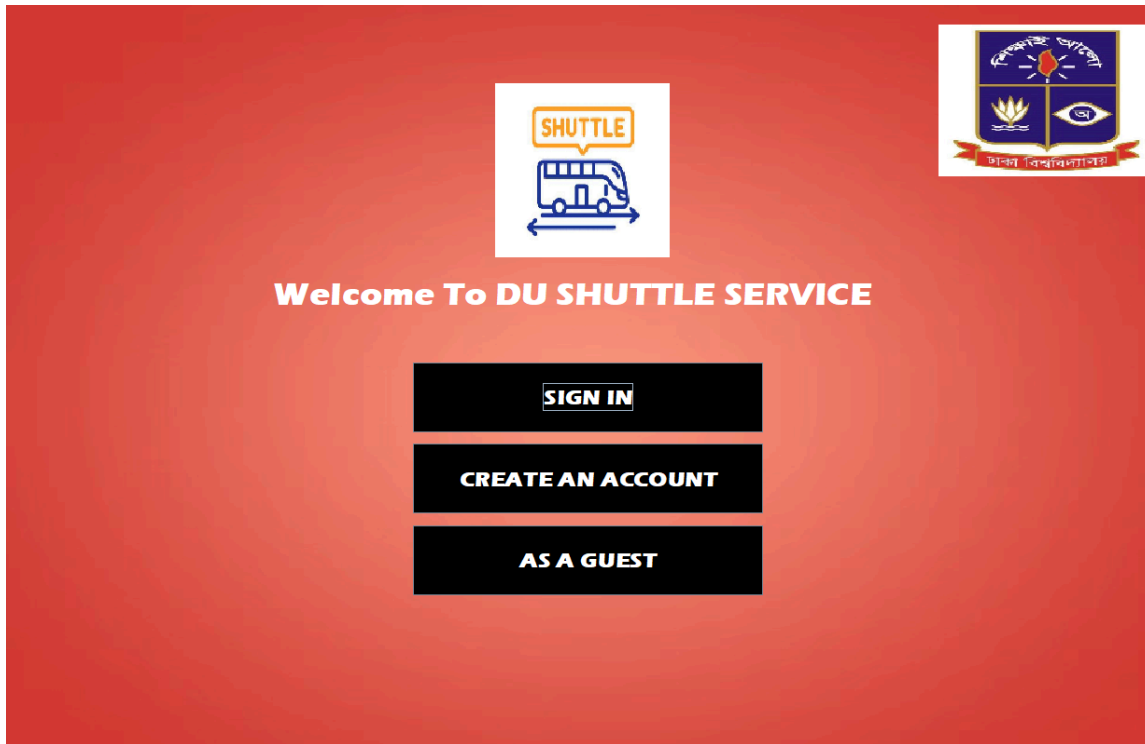
- **Automation:** It automates ticket purchasing, payment processing, and complaint and suggestion management.
- **User Accessibility:** A student of the University of Dhaka can easily access these services for their daily transportation.
- **Reduce Congestion And Affordable Campus Transportation :** Minimize traffic and ensure a budget friendly travel within the University Of Dhaka.
- **Data Management:** Maintain payment records, track data, and count tickets.

Platform and Tools

- **Programming Language:** Java (JDK 23)
- **IDE:** NetBeans
- **Build Tool:** Apache Ant
- **Database:** MySQL
- **UI Libraries & Tools:**
 - **Java Swing** (Graphical User Interface)
 - **JCalendar** (Date Selection)
 - **mysql-connector-java** (Connect To Database)

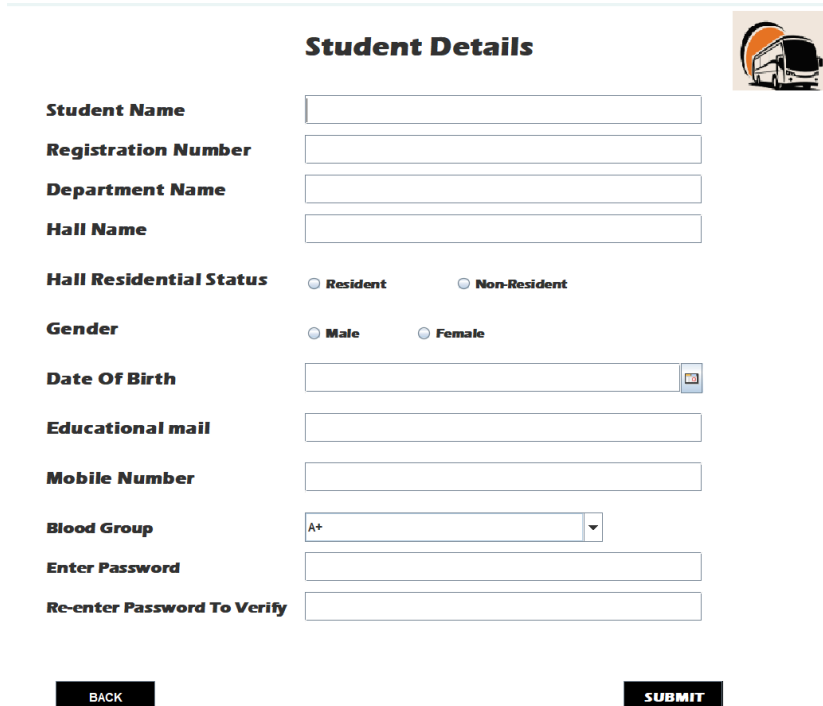
Pages & Sections(UI):

Start Page:



The start page features a red background. At the top center is a logo with a blue bus icon and the word "SHUTTLE" in a yellow speech bubble. To the top right is the DU logo. Below the bus logo, the text "Welcome To DU SHUTTLE SERVICE" is displayed in white. In the center, there are three black buttons with white text: "SIGN IN", "CREATE AN ACCOUNT", and "AS A GUEST".

- **Create Account/Sign Up:** You have to fill the necessary options to create an account

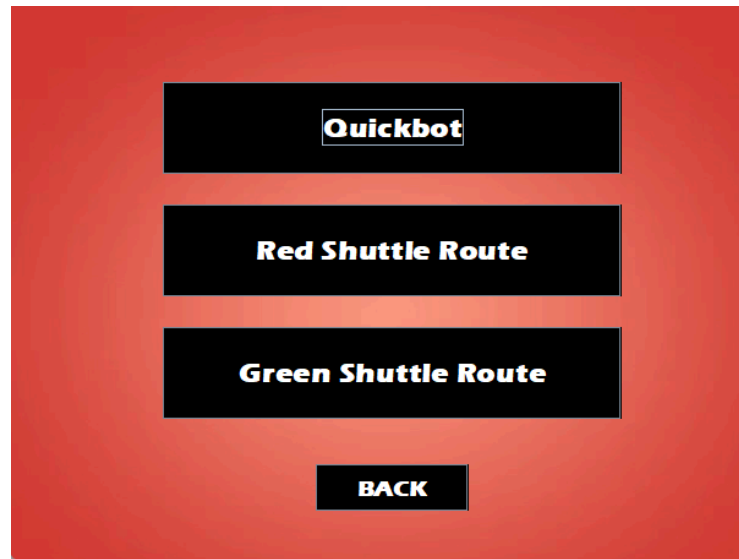


The "Student Details" form is titled "Student Details" and includes a bus icon. It contains the following fields and options:

- Student Name**: Text input field
- Registration Number**: Text input field
- Department Name**: Text input field
- Hall Name**: Text input field
- Hall Residential Status**: Radio buttons for ☐ Resident and ☐ Non-Resident
- Gender**: Radio buttons for ☐ Male and ☐ Female
- Date Of Birth**: Text input field with a calendar icon
- Educational mail**: Text input field
- Mobile Number**: Text input field
- Blood Group**: Dropdown menu with "A+" selected
- Enter Password**: Text input field
- Re-enter Password To Verify**: Text input field

At the bottom, there are two black buttons: "BACK" and "SUBMIT".

- **Guest Page:** You can see the quickbot service and red & green shuttle route without any account.



Login Page: You need to enter reg no & password to login.

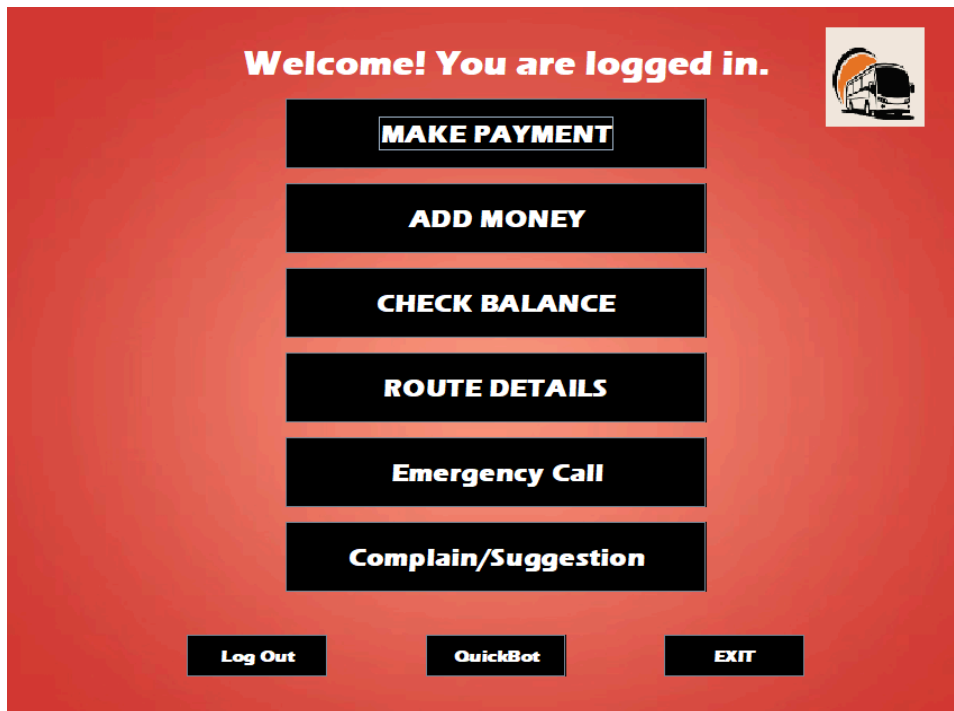
A screenshot of a login page with a red background. At the top center is the text 'Log In To Your Account'. In the top right corner is a small icon of a bus. Below the header are two input fields: 'Registration No' and 'Enter Password'. To the right of the 'Enter Password' field is a 'Forgot Password?' link. Below these fields is a line of text: 'Don't have any account? Click the Sign Up Button'. At the bottom of the page are three black buttons: 'BACK', 'SIGN UP', and 'LOG IN'.

————→ **Forgot Password:** If you forget your password, you can create a new one by giving your registration no and mobile number.

Reset Your Password

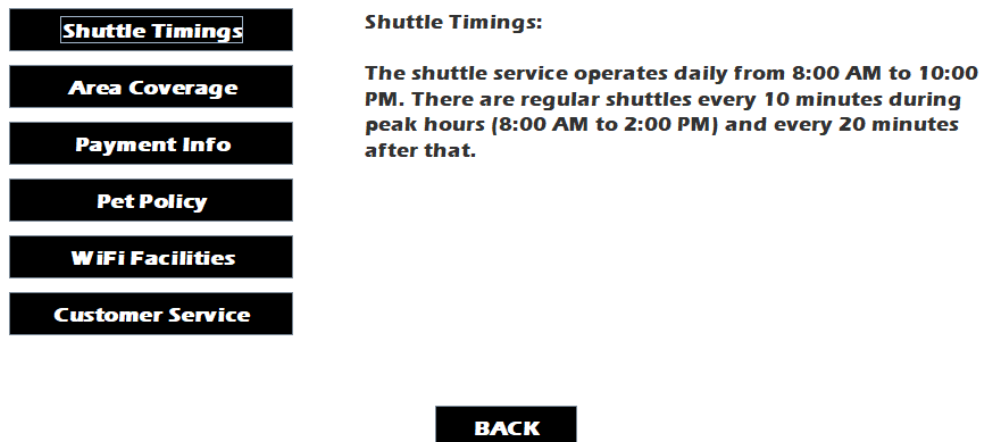
A screenshot of a 'Reset Your Password' form. It has a white background. The form contains four labeled input fields: 'Registration Number:', 'Mobile Number:', 'New Password:', and 'Confirm Password:'. At the bottom of the form are two black buttons: 'Reset Password' and 'Back'.

Profile Page:



- **Quickbot Service:** It will help you to get all the necessary information about the shuttle service all at once.

Find all the details about the shuttle service below.



Other profile features:

- **Payment** : For buying tickets
- **Add Money**: To add money in the account
- **Balance**: For checking balance and last paid and adding history.
- **Route Details**: For the red shuttle and green shuttle route
- **Emergency Call**: To call the proctor or DMC ambulance for any emergency.
- **Complain/Suggestion**: For sending complain/suggestions.

METHOD

Mobile Number

Enter PIN

Amount



BACK

DONE

Add Money

Balance



Your Current Account Balance: Tk 10

Your last added Balance: Tk 500

Your last paid Balance: Tk 80

BACK

Balance

Shuttle Type:

Passenger numbers:

Green Shuttle Ticket Price[Per Passanger]: TK 5

Red Shuttle Ticket Price[Per Passanger]: TK 10

BACK

LOG OUT

DONE

Back

Payment

Send your complaints and suggestions to us.
Please choose your preferred method.



COMPLAIN VIA GMAIL



COMPLAIN VIA FACEBOOK



COMPLAIN ANONYMOUSLY



Complain/Suggestion

DU Proctorial Team
Mobile number - +88-09666911463



CALL PROCTOR

DMC Ambulance
mobile no - 01919-339689



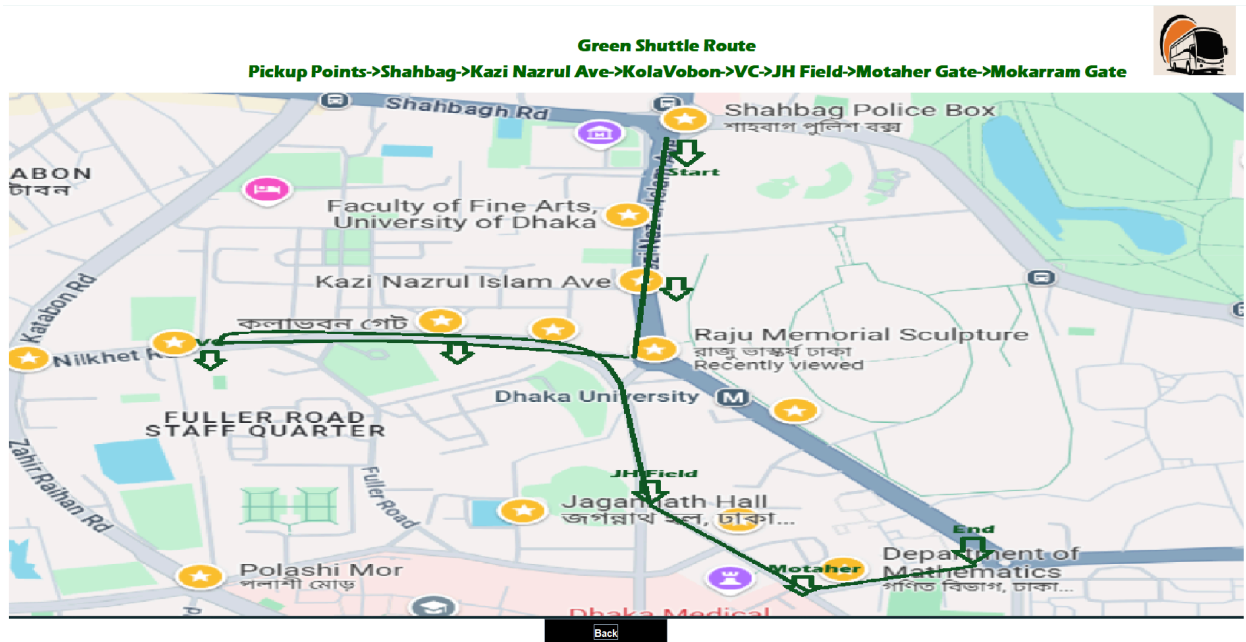
CALL AMBULANCE

Back

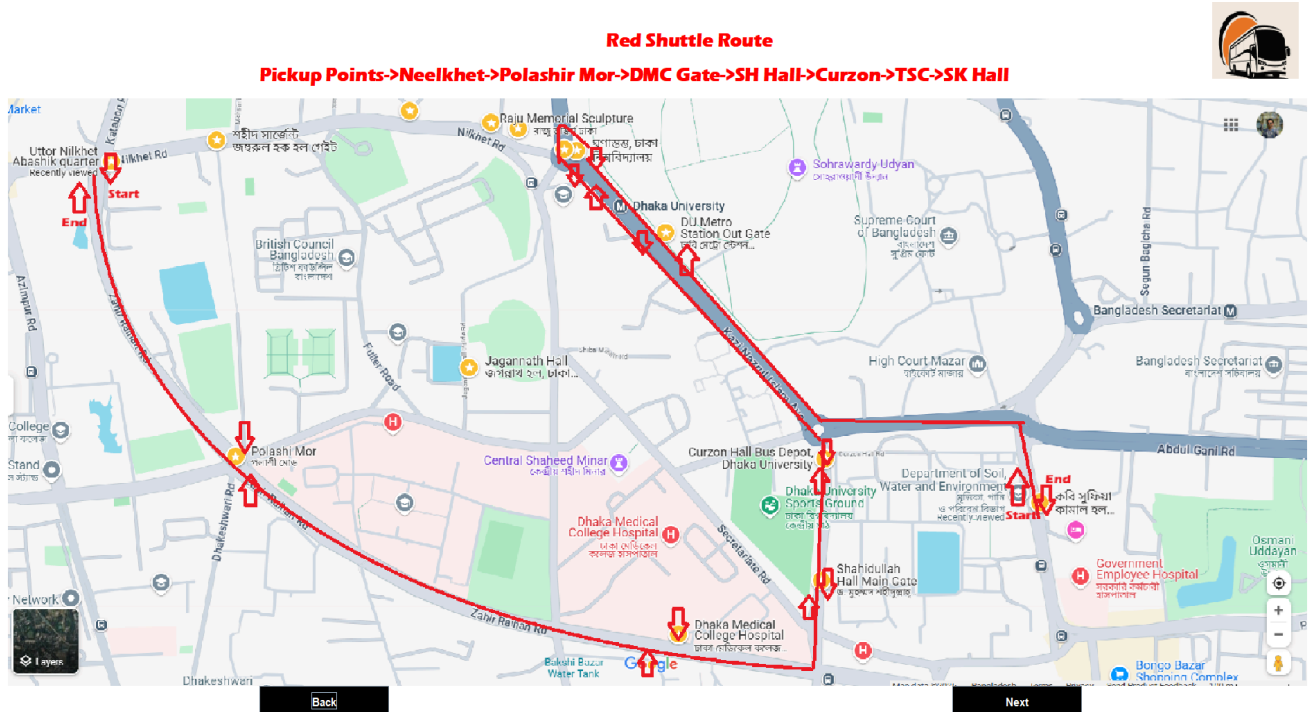
Emergency

- Route Details:

Green Shuttle:



Red Shuttle



UML Diagram:

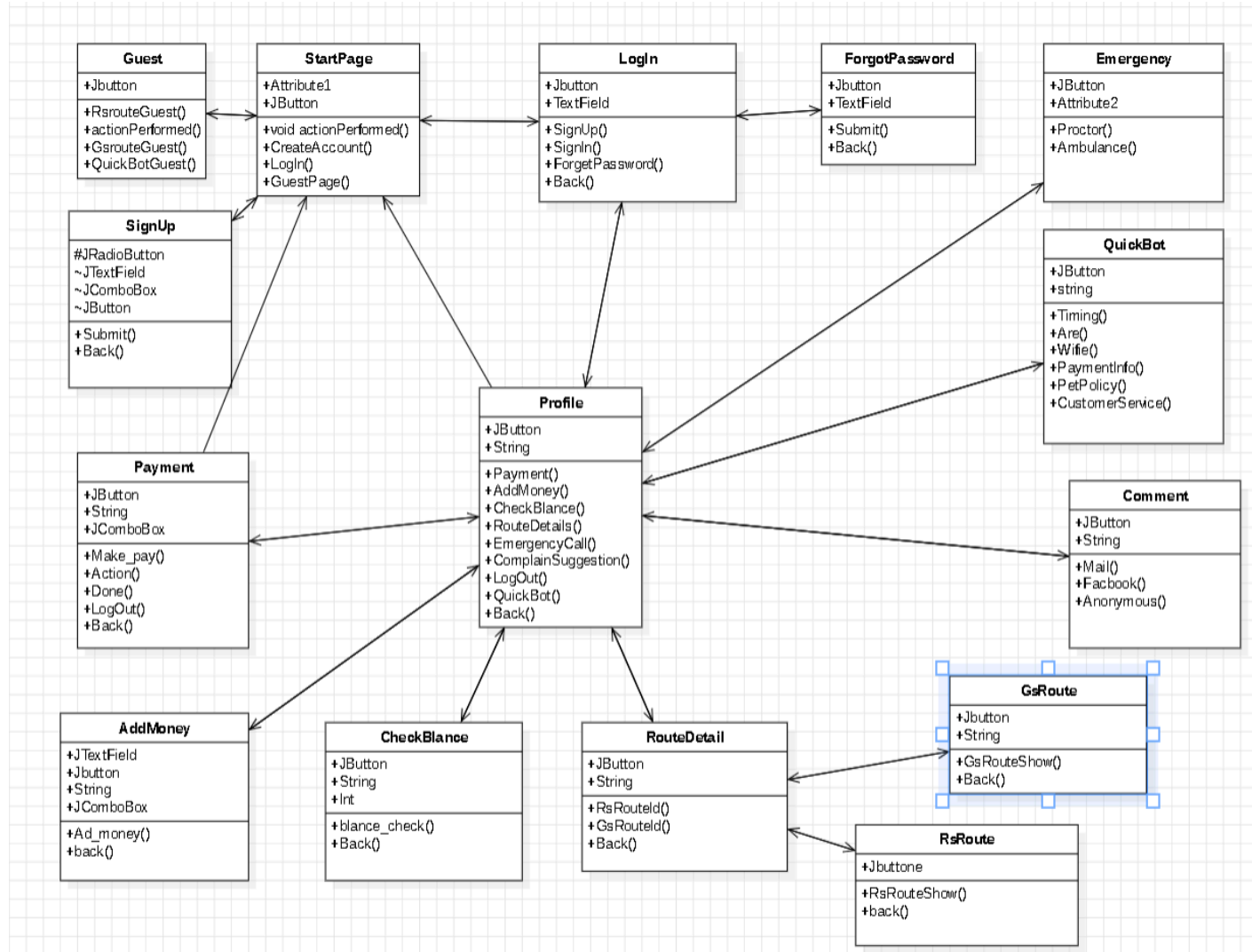


Figure: UML Diagram

Implementation of OOP and Design Principles

- **Encapsulation:**

- Securely manages user credentials, payments, add money, and ticket details.
- Used private attributes with getter and setter methods.

- **Abstraction:**

- Implemented buttons and ActionListener for event handling to simplify logic.

- **Inheritance:**

- Extended JFrame, JPanel, and JButton for reusable UI components.

- **Polymorphism:**

- Overrode actionPerformed() for dynamic event handling.

- **Open/Closed Principle:**

- Designed modular components to allow easy addition of new features without modifying existing code.

- **Thread Usage:**

- Threads handle multiple tasks at a time in the start page.

Conclusion: Challenges, Discussion, and Future Plan

Challenges:

- Designing and placing the buttons and icons in a proper place.
- Connecting and updating databases while working as a group.

Discussion:

- The system successfully integrates OOP principles, database management .
- Automates ticket purchasing, payment processing.

Future Plan:

- **Admin Interface** – To control and observe the ticket buyers.
- **Online Payment Integration** – Integrating with popular online payment methods.
- **Mobile Application** – Develop an Android/iOS version for better accessibility.
- **Live Location Tracking** – Live Location of the transport.

Code Repository

The project's source code is managed using Git and hosted on GitHub. This facilitates version control, collaboration, and easy deployment. The repository includes:

<https://github.com/aditto007/DU-Shuttle-Service-CSE-2112-OOP>

Video Demonstration

For a complete walkthrough of the project, refer to our video demonstration: Project Demo Video Link

<https://youtu.be/syQ1ycEErM0>

Contribution

1. Aditto Raihan (09)

- **Login**
- **Forget Password**
- **Balance**
- **Route Details**
- **Design**

2. Jotish Biswas (31)

- **Start Page**
- **Guest Page**
- **QuickBot**
- **Emergency Call**
- **UML Diagram**

3.Abul Hasan Anik (53)

- **Login**
- **Profile**
- **Add Money**
- **Make Payment**
- **Complain Suggestion**

