Bus Ticketing System

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I. Background and Description

Bus Ticketing System is a desktop application capable of collecting bus fare more efficiently and conveniently. It allows the user to personally monitor and select their desire destination. The desktop application is capable of conducting bus ticketing by allowing the user to select a destination, displays the fare for each destination, and allows the user to confirm the purchase of a ticket for a selected destination. The initial concept of the programmers for this application is for this desktop application to be user-friendly that simplifies the process of collecting bus fare. It eliminates the hassle of manual ticket sales and offers a more efficient way to manage transactions. With its easy-to-use interface, passengers can quickly purchase tickets, reducing waiting times and improving overall satisfaction. Overall, the Bus Ticketing System is a convenient solution that enhances the ticketing process for everyone involved. However, the desktop application is not capable of storing and recording bus tickets used and also is not capable of monitoring the number of tickets being distributed for each of the buses.

A key element of public transportation networks is bus ticketing. It makes fare collecting more effective and structured and helps guarantee that only paying passengers can board a bus (Smith, 2019).

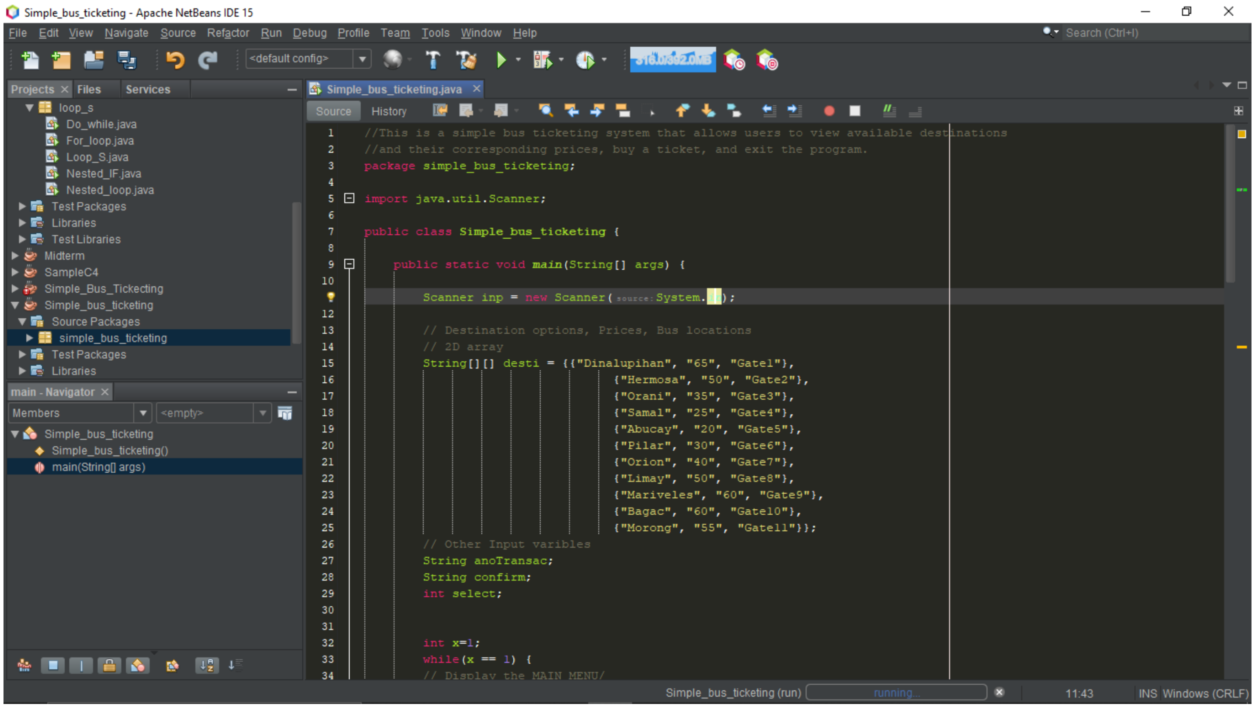
The need for dependable and practical public transit is greater than ever in the fast-paced world of today. Bus ticketing systems are essential for meeting the population's transportation needs as cities expand and become more urbanized (Doe, 2020). Additionally, using bus ticketing systems may contribute to a decrease in fare evasion, which may result in more money for transportation companies (Smith, 2019).
Additionally, the adoption of smart cards or mobile ticketing has increased passenger convenience and made it possible to monitor a passenger's behavior and mobility (Doe, 2020). Utilizing this data helps improve routes, schedules, and system performance, which can save costs for transportation companies and improve the passenger experience.

In conclusion, modern public transportation networks must have bus ticketing systems (Smith, 2019). They facilitate effective and coordinated fare collection, lessen fare evasion, and give crucial information for improving transportation services (Doe, 2020).
This study aims to create a program that will allow the user to select a destination, displays the fare for each destination, and allows the user to confirm the purchase of a ticket for a selected destination. Also, this study aims to allow the user to exit the program.

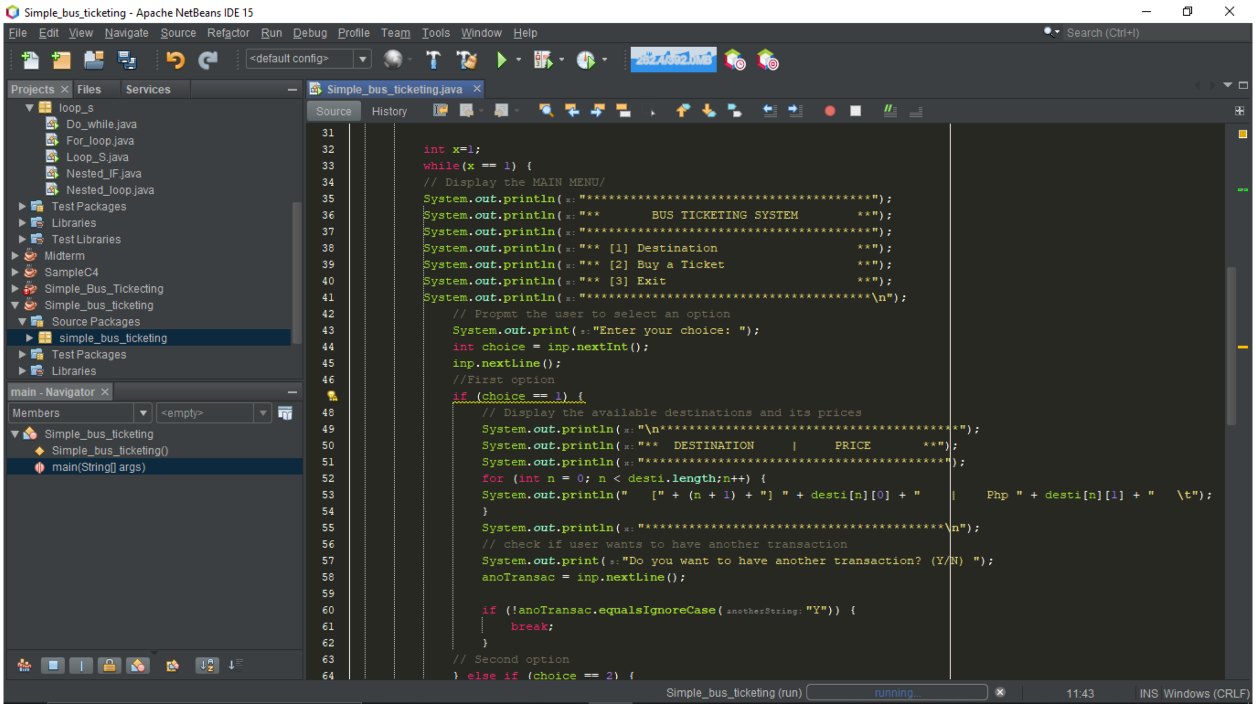
The problem that this program aims to solve is providing a simple and easy-to-use interface for purchasing bus tickets.

ii. Code the Program

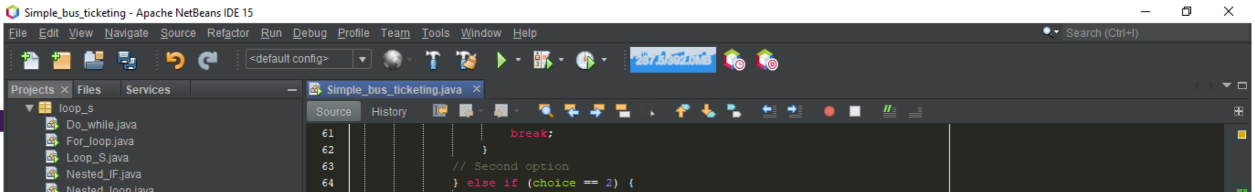
This is the source code of the simple bus ticketing program



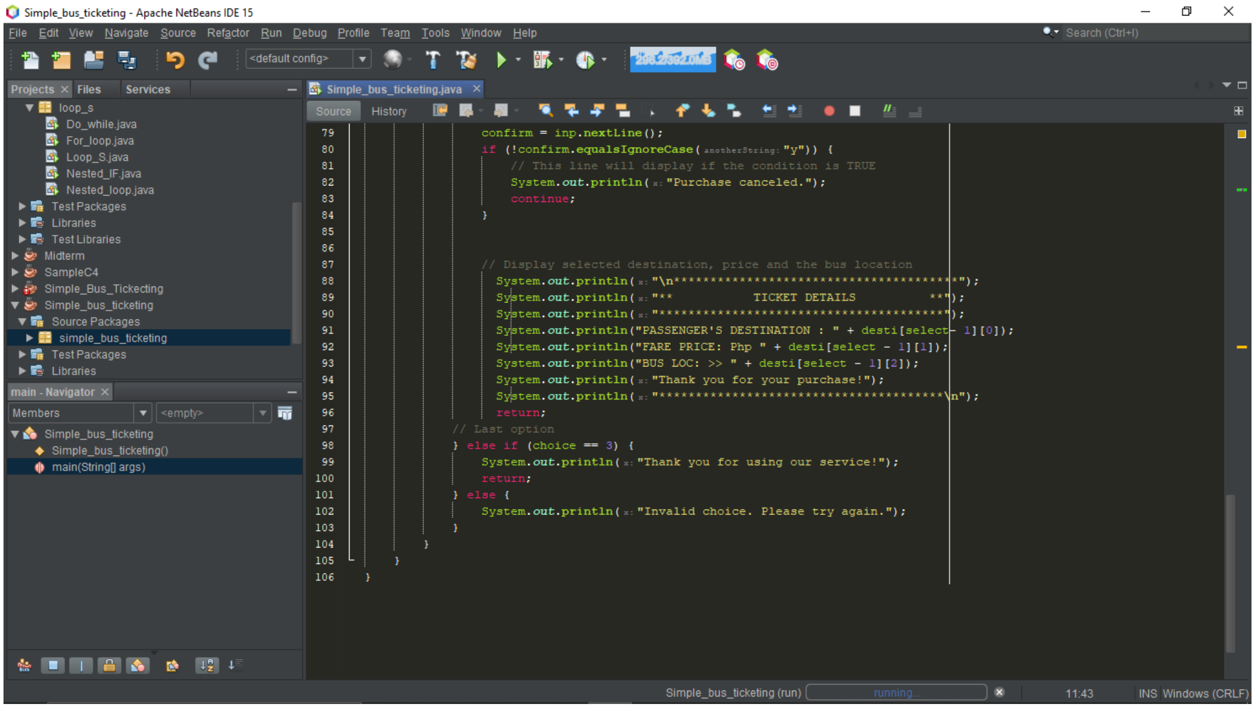
```java
//This is a simple bus ticketing system that allows users to view available destinations
//and their corresponding prices, buy a ticket, and exit the program.
package simple_bus_ticketing;

import java.util.Scanner;

public class Simple_bus_ticketing {

    public static void main(String[] args) {

        Scanner inp = new Scanner( source: System.in);

        // Destination options, Prices, Bus locations
        // 2D array
        String[][] desti = {{"Dinalupihan", "65", "Gate1"},
                            {"Hermosa", "50", "Gate2"},
                            {"Orani", "35", "Gate3"},
                            {"Samal", "25", "Gate4"},
                            {"Abucay", "20", "Gate5"},
                            {"Pilar", "30", "Gate6"},
                            {"Orion", "40", "Gate7"},
                            {"Limay", "50", "Gate8"},
                            {"Mariveles", "60", "Gate9"},
                            {"Bagac", "60", "Gate10"},
                            {"Morong", "55", "Gate11"}};
        // Other Input varibles
        String anoTransac;
        String confirm;
        int select;


        int x=1;
        while(x == 1) {
        // Display the MAIN MENU/
```



```java

        int x=1;
        while(x == 1) {
        // Display the MAIN MENU/
        System.out.println( x: "****************************************");
        System.out.println( x: "**       BUS TICKETING SYSTEM         **");
        System.out.println( x: "****************************************");
        System.out.println( x: "** [1] Destination                    **");
        System.out.println( x: "** [2] Buy a Ticket                   **");
        System.out.println( x: "** [3] Exit                           **");
        System.out.println( x: "****************************************\n");
            // Propmt the user to select an option
            System.out.print( s: "Enter your choice: ");
            int choice = inp.nextInt();
            inp.nextLine();
            //First option
            if (choice == 1) {
                // Display the available destinations and its prices
                System.out.println( x: "\n****************************************");
                System.out.println( x: "**  DESTINATION     |     PRICE       **");
                System.out.println( x: "******************************************");
                for (int n = 0; n < desti.length;n++) {
                System.out.println("   [" + (n + 1) + "] " + desti[n][0] + "     |     Php " + desti[n][1] + "   \t");
                }
                System.out.println( x: "******************************************\n");
                // check if user wants to have another transaction
                System.out.print( s: "Do you want to have another transaction? (Y/N) ");
                anoTransac = inp.nextLine();

                if (!anoTransac.equalsIgnoreCase( anotherString: "Y")) {
                    break;
                }
            // Second option
            } else if (choice == 2) {
```

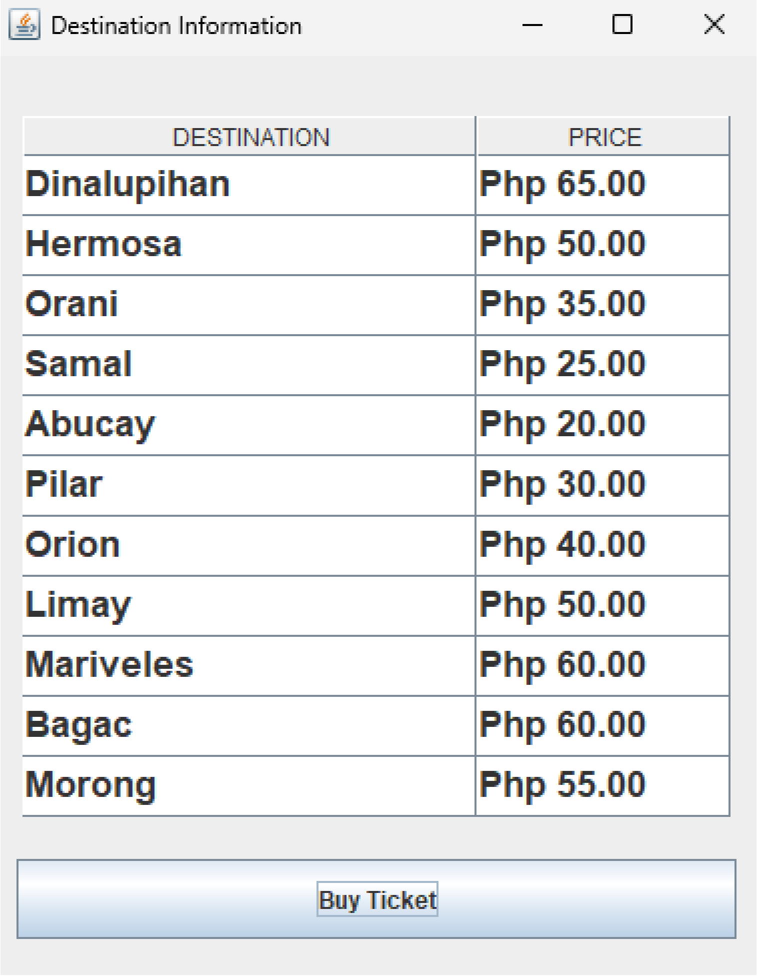


```java
                    break;
                }
            // Second option
            } else if (choice == 2) {
```



```java
                confirm = inp.nextLine();
                if (!confirm.equalsIgnoreCase("y")) {
                    // This line will display if the condition is TRUE
                    System.out.println("Purchase canceled.");
                    continue;
                }


                // Display selected destination, price and the bus location
                  System.out.println("\n****************************************");
                  System.out.println("**              TICKET DETAILS          **");
                  System.out.println("****************************************");
                  System.out.println("PASSENGER'S DESTINATION : " + desti[select - 1][0]);
                  System.out.println("FARE PRICE: Php " + desti[select - 1][1]);
                  System.out.println("BUS LOC: >> " + desti[select - 1][2]);
                  System.out.println("Thank you for your purchase!");
                  System.out.println("****************************************\n");
                  return;
            // Last option
            } else if (choice == 3) {
                System.out.println("Thank you for using our service!");
                return;
            } else {
                System.out.println("Invalid choice. Please try again.");
            }
        }
    }
}
```

iii. Program Structure



DESTINATION	PRICE
Dinalupihan	Php 65.00
Hermosa	Php 50.00
Orani	Php 35.00
Samal	Php 25.00
Abucay	Php 20.00
Pilar	Php 30.00
Orion	Php 40.00
Limay	Php 50.00
Mariveles	Php 60.00
Bagac	Php 60.00
Morong	Php 55.00

Figure 1. *Destination Information*

Figure 1 illustrates the Destination Information of the desktop application. The page shows the available destinations and their corresponding prices in each of the destination.

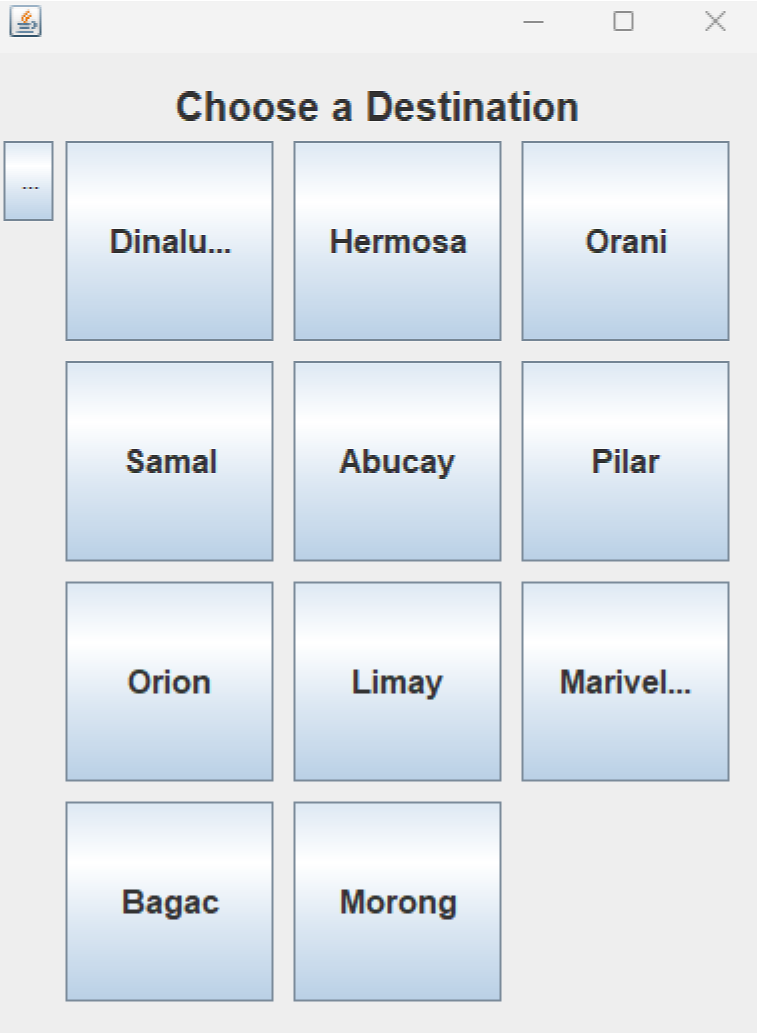


Figure 2. *Choosing a Destination*

Figure 2 illustrates the destination where the user can choose their designated places.

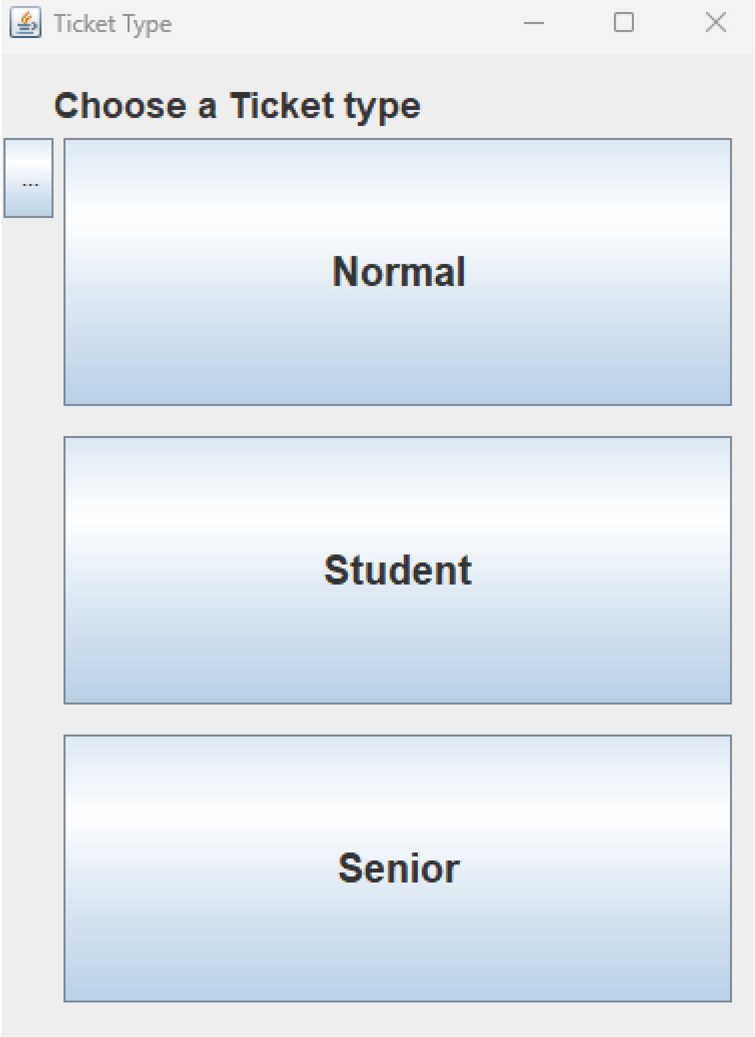
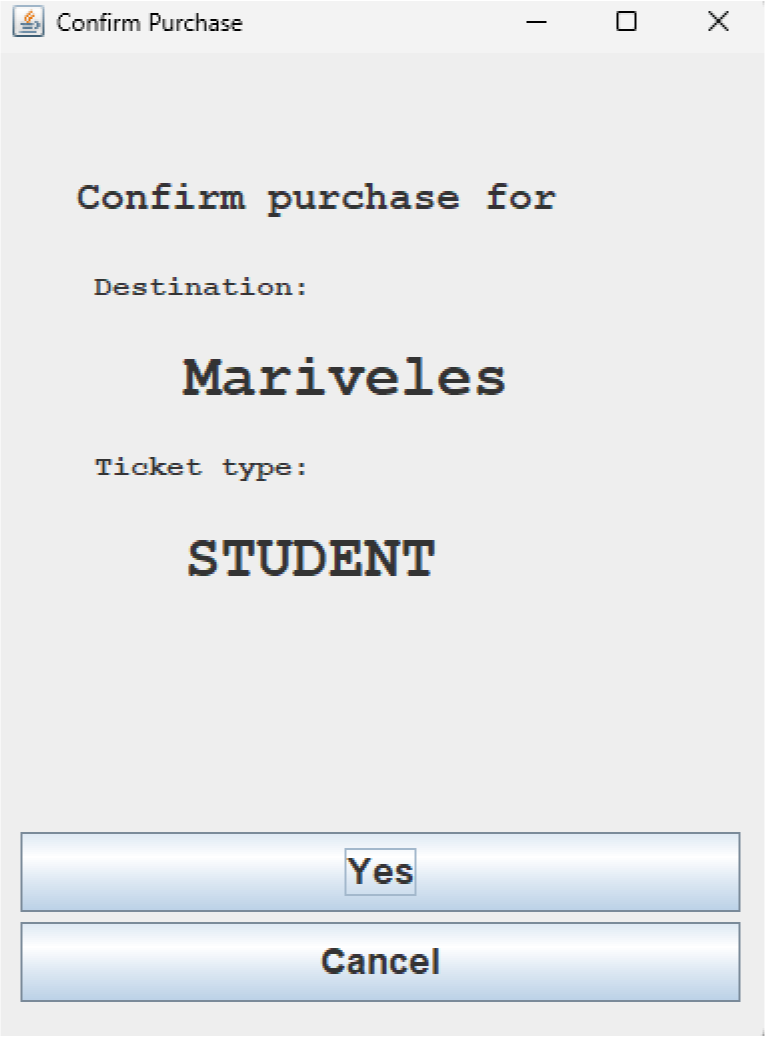


Figure 3. *Choosing a ticket type*

Figure 3 illustrates a ticket type where the user can choose between normal passengers or student and senior, which have a 20% discount on fare.



Confirm Purchase

Confirm purchase for

Destination:

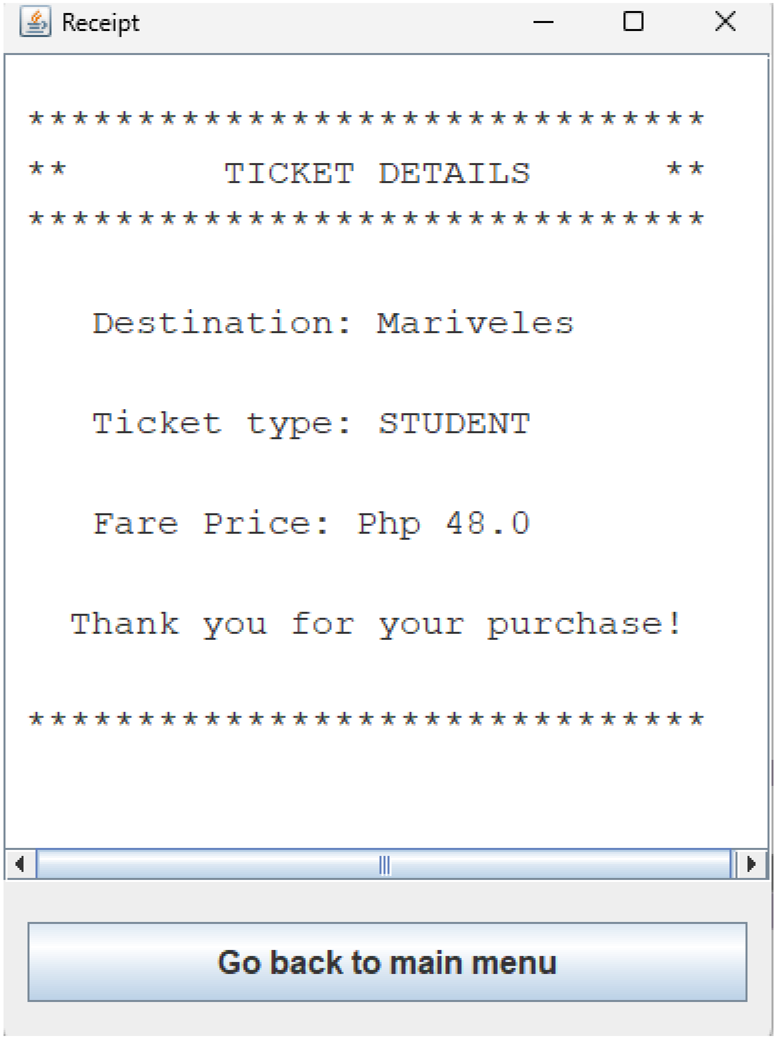
Mariveles

Ticket type:

STUDENT

Figure 4. Confirming Purchase

Figure 4 illustrates a confirming purchase window where user can review their choices from previous windows. The user can choose 'Yes' to proceed with the purchase and 'Cancel' to discard their current selection and turn back to destination information.



```
*******************************
**        TICKET DETAILS     **
*******************************

   Destination: Mariveles

   Ticket type: STUDENT

   Fare Price: Php 48.0

  Thank you for your purchase!

*******************************
```

Figure 5. Receipt

Figure 5 illustrates the receipt. The user can review all the details provided, from the destination and ticket type to the fare price. The button ‘Go back to main menu’ is provided for the next user to choose their destination and ticket type.

iv. Repository

Repository Name: **busticketing-dat1b-ctcc0323**

https://github.com/HououinKyoumaEPC/busticketing-dat1b-ctcc0323

References:

Doe, J. (2020). "Advancements in Bus Ticketing Systems." International Journal of Transportation, vol. 15, no. 4, pp. 312-318.

Smith, J. (2019). "The Importance of Bus Ticketing Systems." Journal of Transportation, vol. 12, no. 3, pp. 123-126.