Tax Calculation Application

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1. Introduction

This document provides documentation for the Tax Calculation Application, a Java program that calculates property and vehicle taxes based on user input. The program is designed to handle property and vehicle details, calculate taxes, and provide a summary of tax-related information.

2. System Overview

The Tax Calculation Application consists of several classes that manage property and vehicle operations. Users can log in, add property and vehicle details, calculate tax amounts, and view tax summaries. The application is organized into classes to ensure modularity and ease of maintenance.

3. Class Structure

The program is structured into the following classes:

3.1. Property Class

- Manages property details such as base value of land, city status, age of property, property tax, ID, built-up area, and tax.
- Calculates property tax based on input parameters.

3.2. Vehicle Class

- Manages vehicle details such as registration number, brand, maximum velocity, number of seats, vehicle type, cost, and tax.
- Calculates vehicle tax based on the type of vehicle.

3.3. TaxEntry Class

- Represents tax summaries with fields for particular, quantity, and tax amount.

3.4. PropertyOperations Class

- Handles property-related operations including adding property details, calculating property tax, viewing property details, and generating property tax summaries.

3.5. VehicleOperations Class

- Handles vehicle-related operations including adding vehicle details, calculating vehicle tax, viewing vehicle details, and generating vehicle tax summaries.

3.6. TaxMain Class

- Manages the main program flow.
- Calculates and displays the total tax based on property and vehicle taxes.

4. Class Descriptions

In this section, each class is described in detail, including its properties and methods.

4.1. Property Class

Properties:

- baseValueOfLand
- isInCity
- ageOfProperty
- propertyTax
- id
- builduparea
- tax

Methods:

- calculatePropertyTax()

4.2. Vehicle Class

Properties:

- RegNum
- brand
- maxvelocity
- noOfSeats
- vehicleType
- cost
- tax

Methods:

- calculateVehicleTax()

4.3. TaxEntry Class

Properties:

- particular
- quantity
- tax

4.4. PropertyOperations Class

Methods:

- addPropertyDetails1()
- viewPropertyDetails()
- calculatePropertyTax()
- propertytaxmenu()
- getPropertyTaxSummary()
- calculateTotalPropertyTax()

4.5. VehicleOperations Class

Methods:

- addVehicleDetails()
- DisplayVehicle()
- calculateVehicleTaxByRegNum1()
- vehicletaxmenu()
- getVehicleTaxSummary()
- calculateTotalVehicleTax()

4.6. TaxMain Class

Methods:

- calculateTotalTax()

5. Program Flow

The Program starts by initializing lists to store propert and vehicle objects

Instances of the PropertyOperations, vehicleOpertaions, and TaxMain classes are created.

- **Login**

  The Program prompts the user for a username and password to login.

  If the login is successful the user proceeds to the main menu. Otherwise the program displays a login failed message and exits.

- **Main Menu**

  The user is presented with a main menu that offers several options:

  - Property Tax Operations
  - Vehicle Tax Operations
  - Calculate Total Tax
  - Exit

- **Property Tax Operations**

  If the user selects this option they can add properties, calculate property taxes for a specific property and they can view the what are properties are present and return to main menu

- **Vehicle Tax Operations**

  If the user selects this option they can add, calculate and view the vehicle details and return back to main menu

- **Calculate Total Tax**

  If the user selects this option the user can retrieves property and vehicle tax summeries and calculates the grand total tax by summing up property and vehicle taxes and display the summeries.

- **Exit**

  If the user choose this the program displays a thank you message and terminates.

6. Sample Usage

Examples of how to use the program with screenshots output.

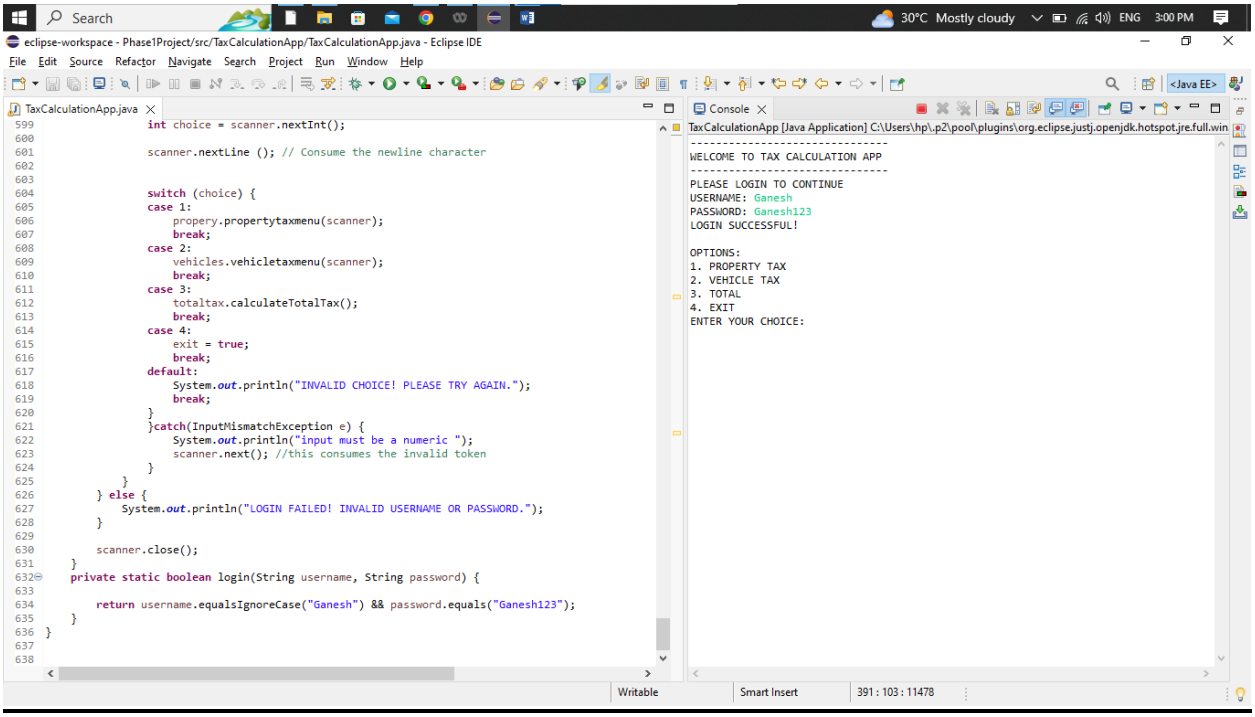
Step 1

- Login

  The Program prompts the user for a username and password to login.

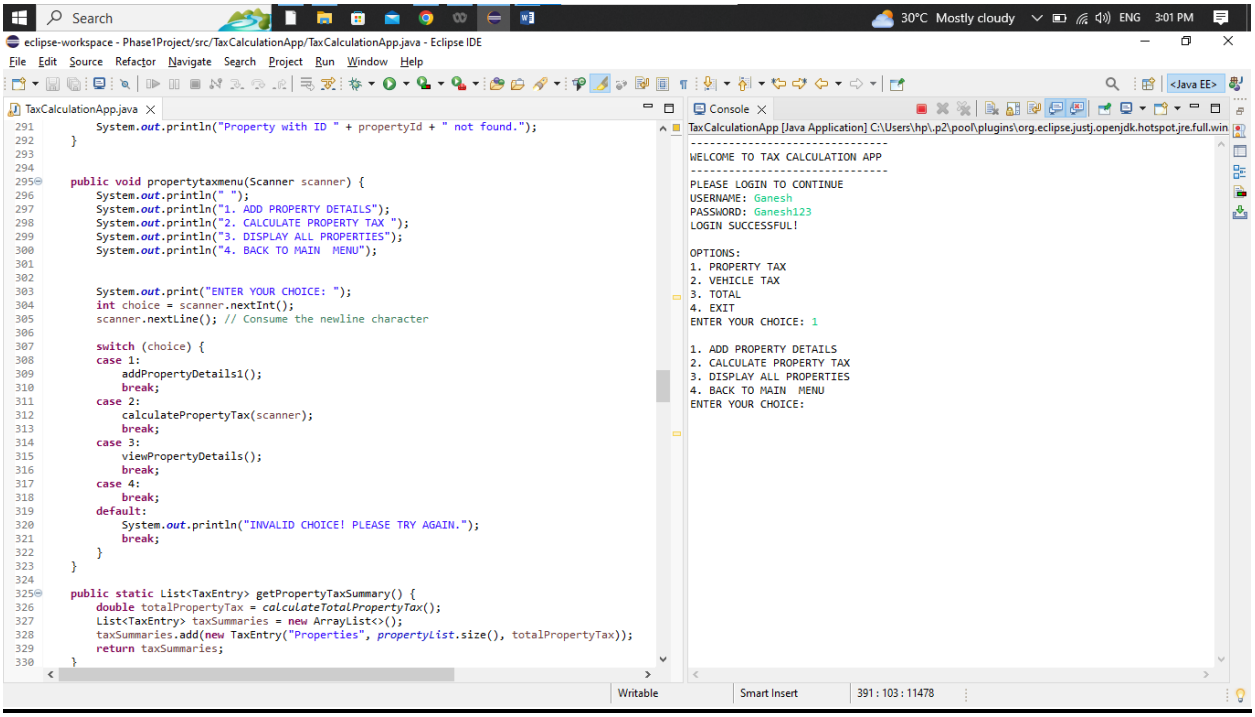
  If the login is successful the user proceeds to the main menu. Otherwise the program displays a login failed message and exits.

  Enter the Correct username and password to Login.



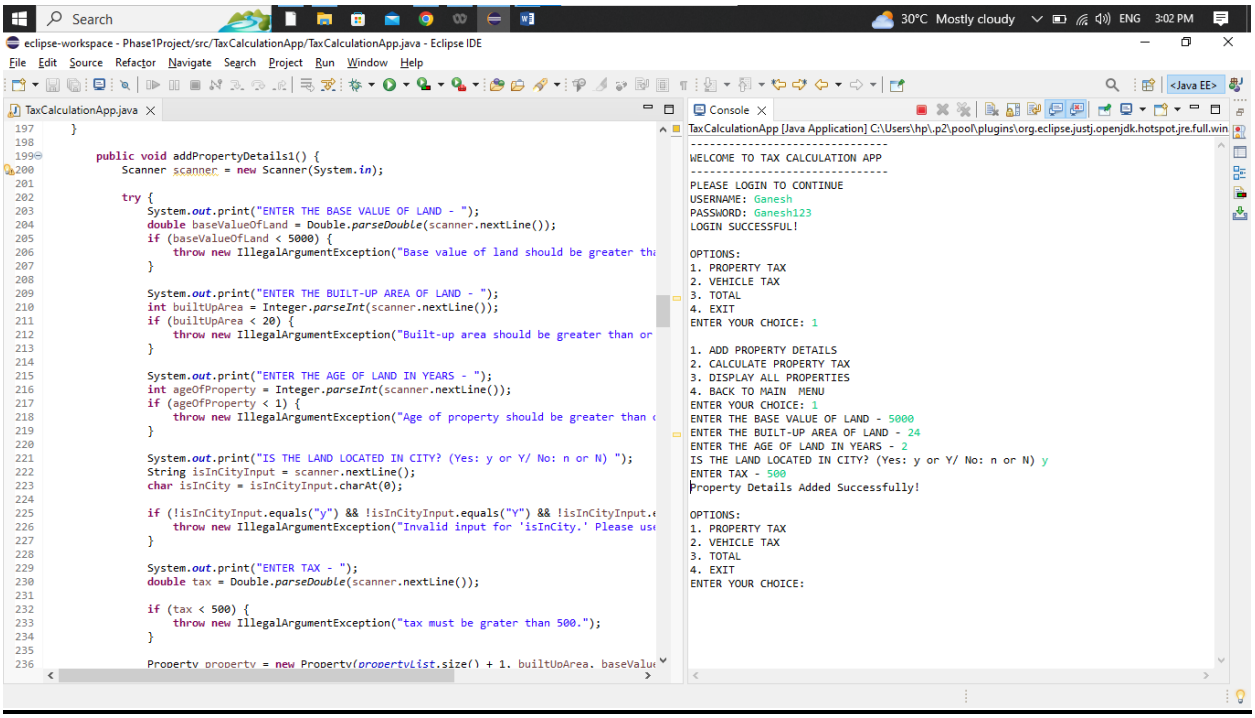
Step 2:

To perform Property Tax Operations select Property Tax i.e. Enter 1.



Step 3:

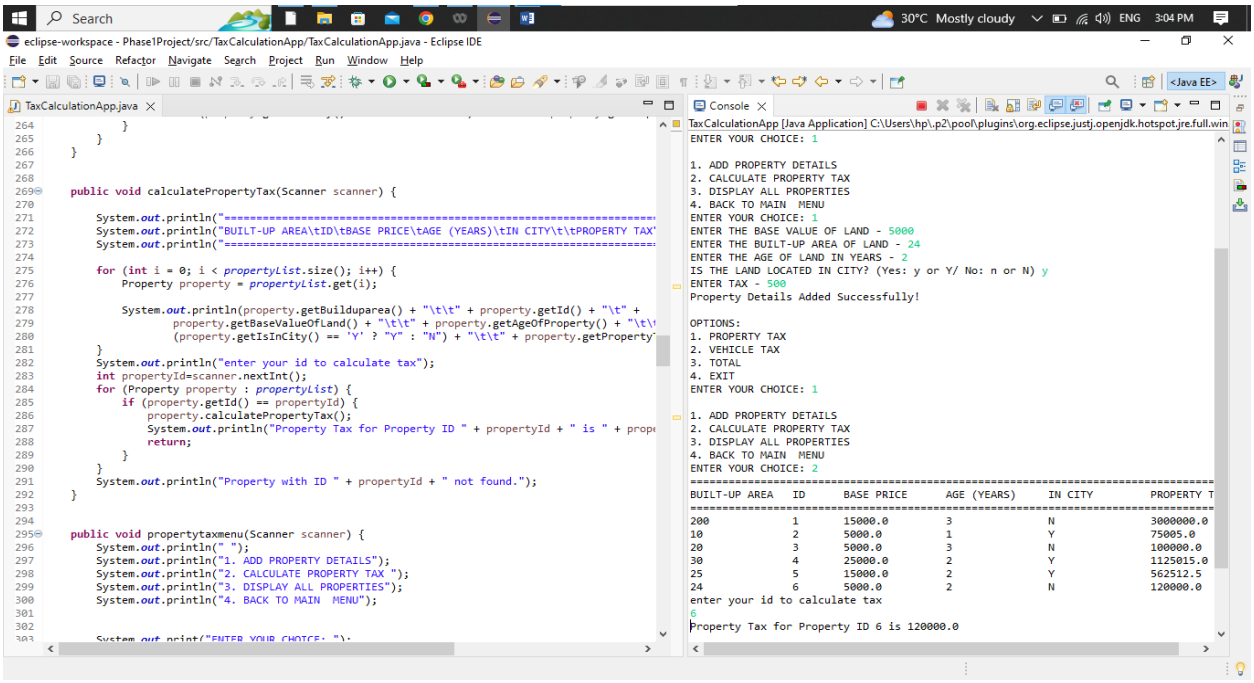
After choosing Property Tax, Enter 1 to add property details



Step 4:

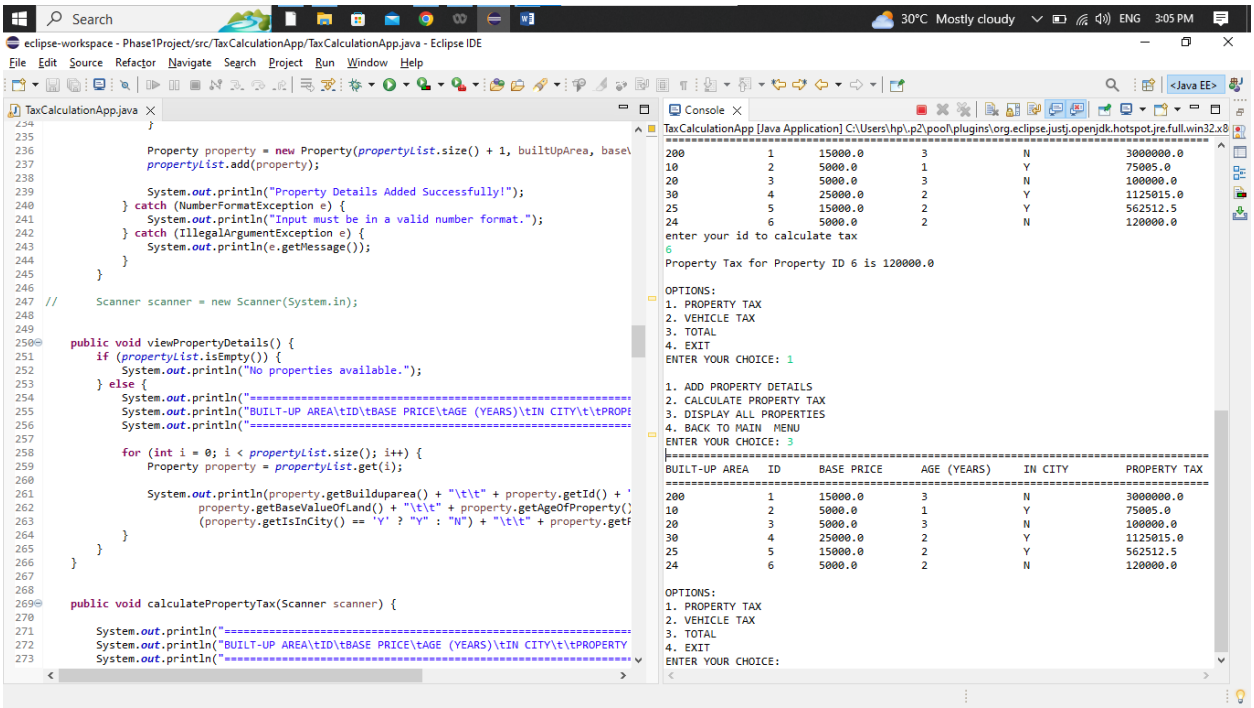
After Adding the property details to calculate the added property details Enter 2

and select the property ID to perform the tax calculation in Property Tax Menu



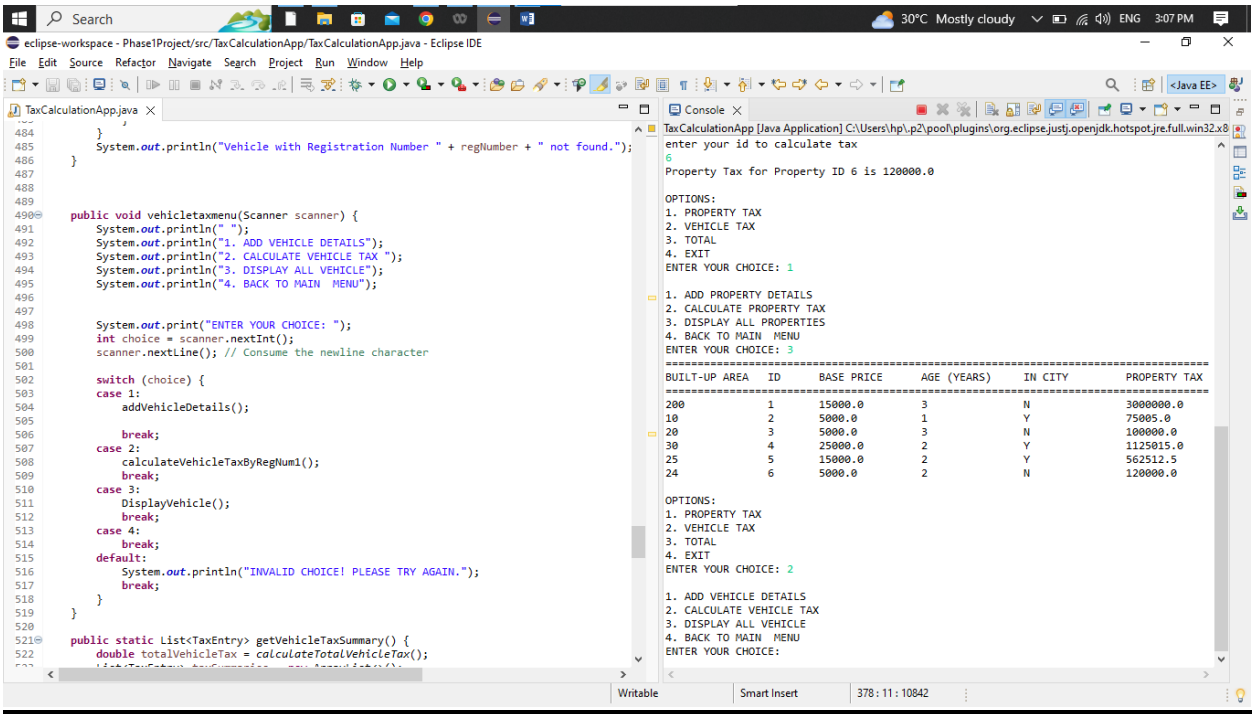
Step 5:

To display all the Property Details Enter 3 in Property Tax Menu.



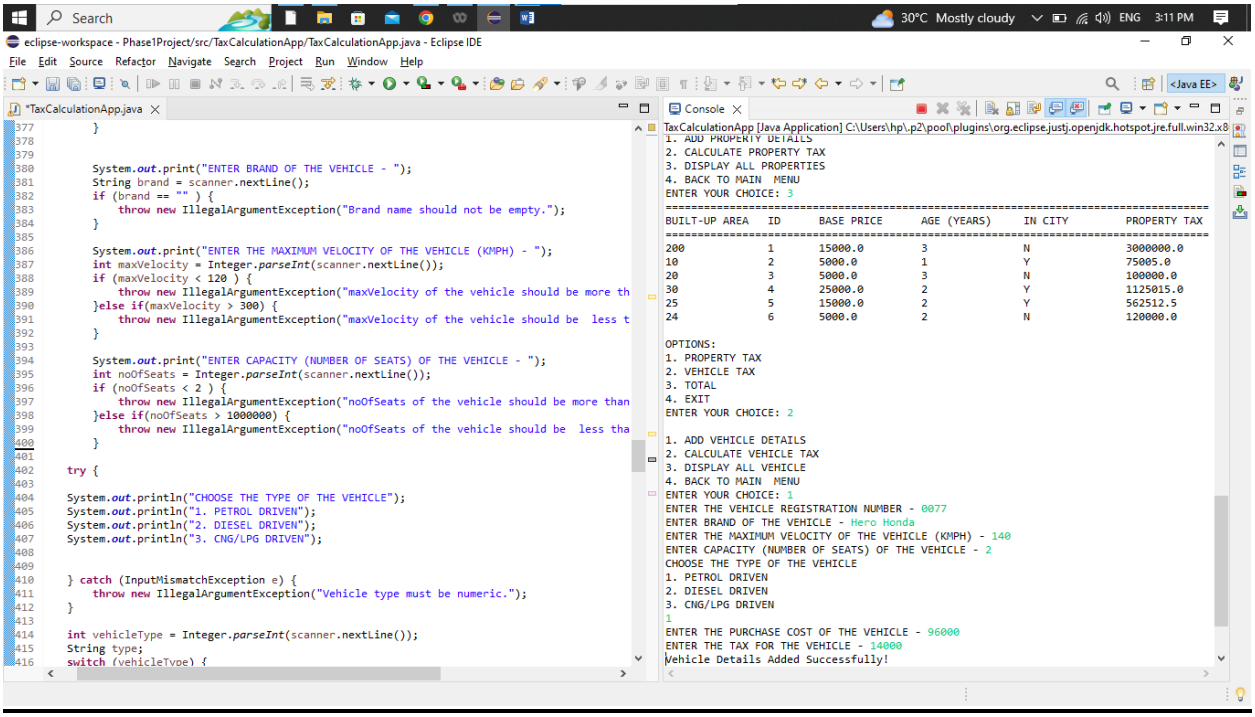
Step 6:

To perform Vehicle Operations, select the Vehicle Tax i.e. Enter 2.in Main Menu



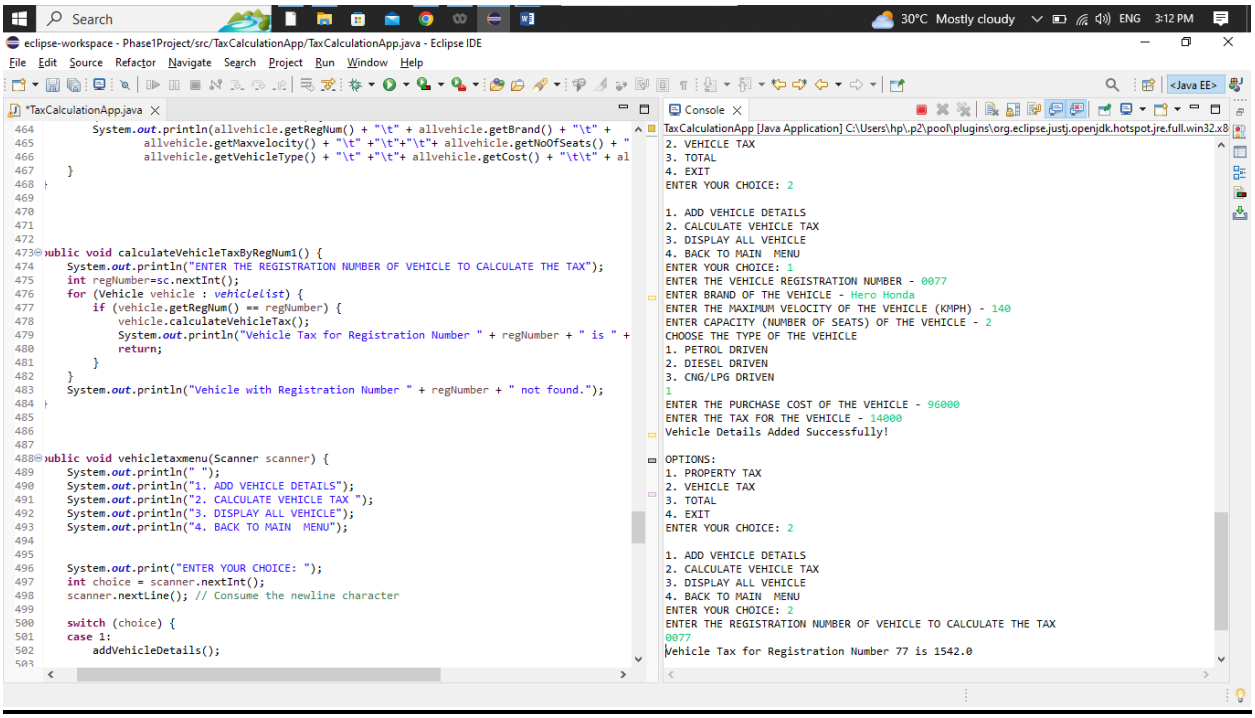
Step 7:

After Selecting the Vehicle Tax enter 1 to add Vehicle Details.



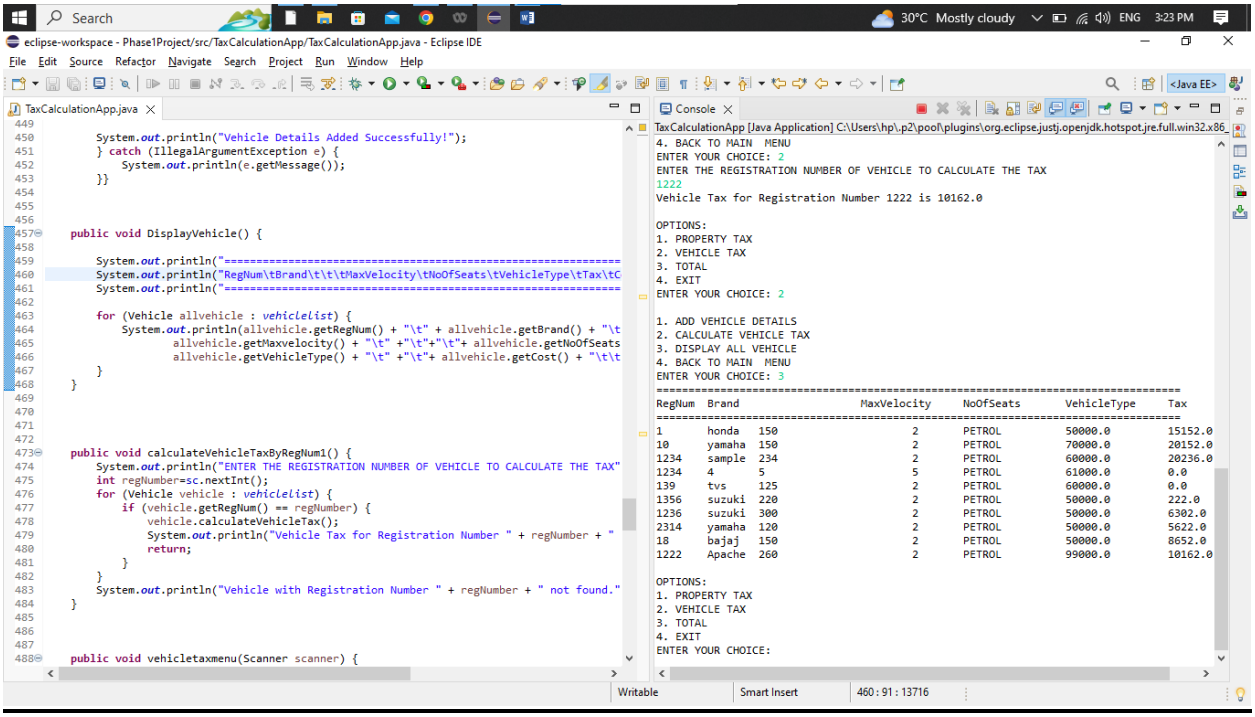
Step 8 :

To Calculate the Vehicle Tax Details Enter 2. In Vehicle Tax Menu.



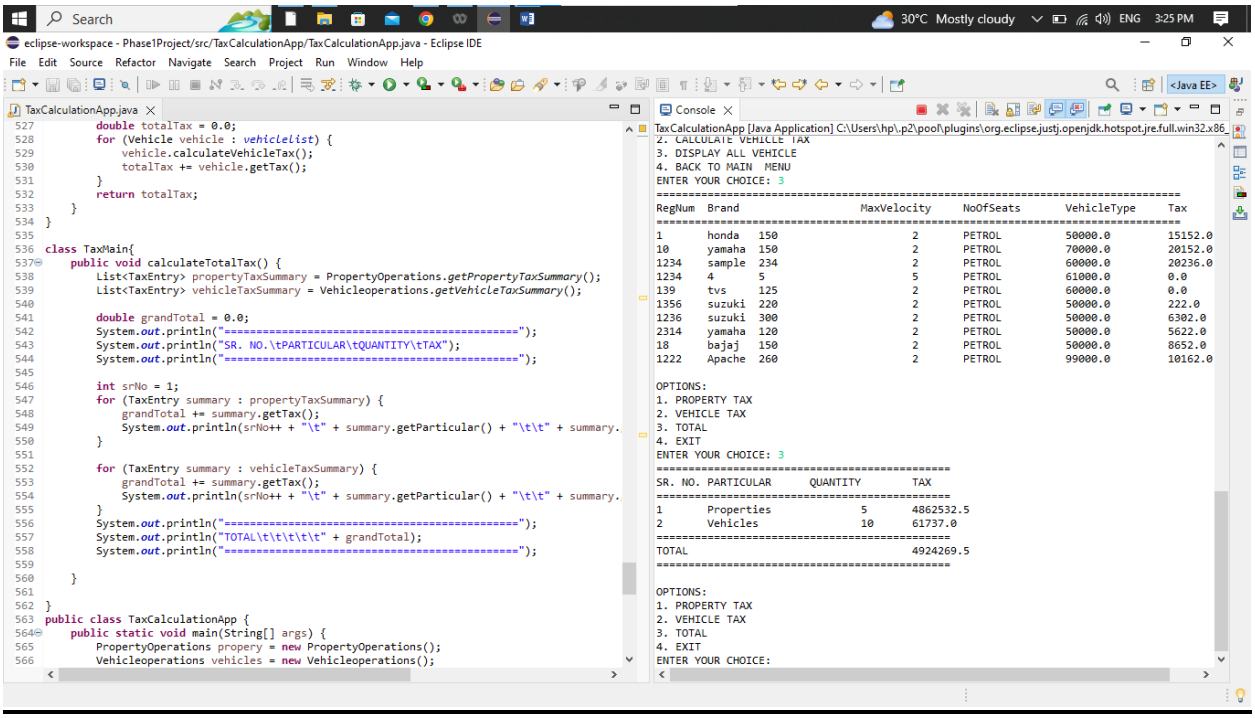
Step 9:

To Display All the Vehicle Details Enter 3 in Vehicle Tax Menu.



Step 10:

To Calculate Both the Property Tax and the Vehicle Tax Enter 3 in Main Menu



```
        double totalTax = 0.0;
        for (Vehicle vehicle : vehiclelist) {
            vehicle.calculateVehicleTax();
            totalTax += vehicle.getTax();
        }
        return totalTax;
    }
}

class TaxMain{
    public void calculateTotalTax() {
        List<TaxEntry> propertyTaxSummary = PropertyOperations.getPropertyTaxSummary();
        List<TaxEntry> vehicleTaxSummary = Vehicleoperations.getVehicleTaxSummary();

        double grandTotal = 0.0;
        System.out.println("================================================");
        System.out.println("SR. NO.\tPARTICULAR\tQUANTITY\tTAX");
        System.out.println("================================================");

        int srNo = 1;
        for (TaxEntry summary : propertyTaxSummary) {
            grandTotal += summary.getTax();
            System.out.println(srNo++ + "\t" + summary.getParticular() + "\t\t" + summary.
        }

        for (TaxEntry summary : vehicleTaxSummary) {
            grandTotal += summary.getTax();
            System.out.println(srNo++ + "\t" + summary.getParticular() + "\t\t" + summary.
        }
        System.out.println("================================================");
        System.out.println("TOTAL\t\t\t\t\t" + grandTotal);
        System.out.println("================================================");

    }

}
public class TaxCalculationApp {
    public static void main(String[] args) {
        PropertyOperations propery = new PropertyOperations();
        Vehicleoperations vehicles = new Vehicleoperations();
```

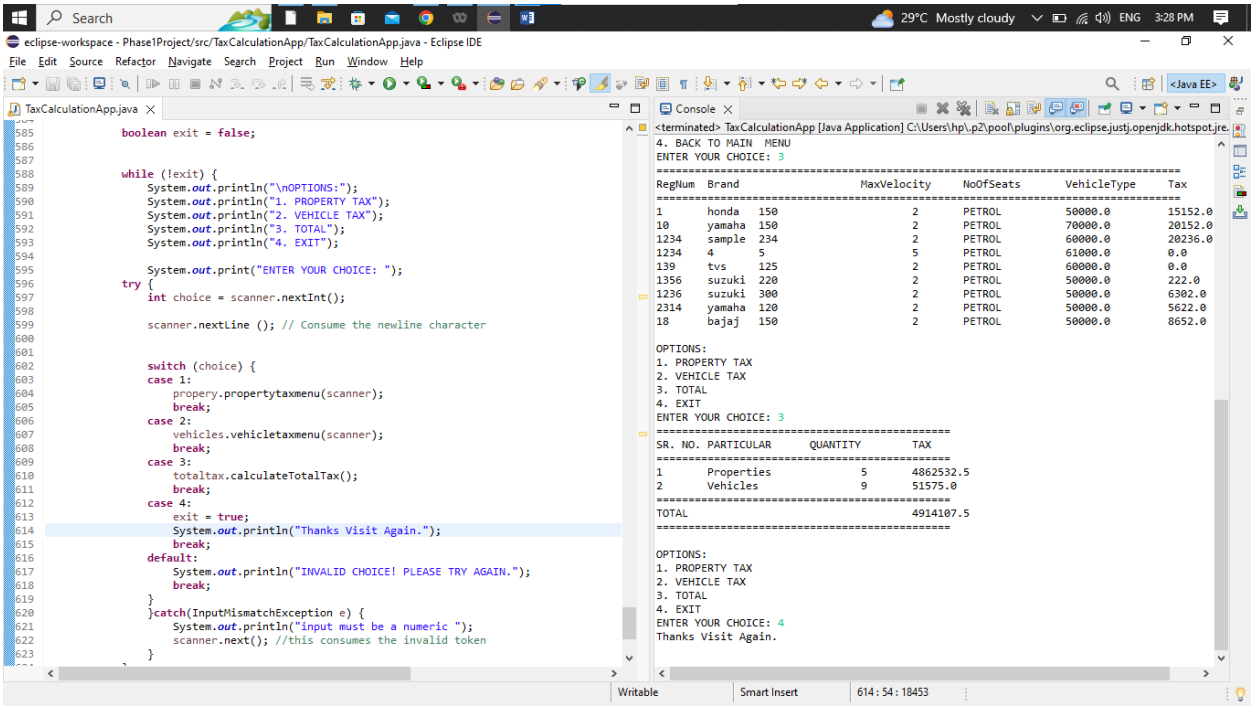
```
TaxCalculationApp [Java Application] C:\Users\hp\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_
2. CALCULATE VEHICLE TAX
3. DISPLAY ALL VEHICLE
4. BACK TO MAIN  MENU
ENTER YOUR CHOICE: 3
================================================================================
RegNum  Brand                   MaxVelocity     NoOfSeats       VehicleType     Tax
================================================================================
1       honda   150                     2       PETROL          50000.0         15152.0
10      yamaha  150                     2       PETROL          70000.0         20152.0
1234    sample  234                     2       PETROL          60000.0         20236.0
1234    4       5                       5       PETROL          61000.0         0.0
139     tvs     125                     2       PETROL          60000.0         0.0
1356    suzuki  220                     2       PETROL          50000.0         222.0
1236    suzuki  300                     2       PETROL          50000.0         6302.0
2314    yamaha  120                     2       PETROL          50000.0         5622.0
18      bajaj   150                     2       PETROL          50000.0         8652.0
1222    Apache  260                     2       PETROL          99000.0         10162.0

OPTIONS:
1. PROPERTY TAX
2. VEHICLE TAX
3. TOTAL
4. EXIT
ENTER YOUR CHOICE: 3
================================================
SR. NO. PARTICULAR      QUANTITY        TAX
================================================
1       Properties              5       4862532.5
2       Vehicles                10      61737.0
================================================
TOTAL                                   4924269.5
================================================

OPTIONS:
1. PROPERTY TAX
2. VEHICLE TAX
3. TOTAL
4. EXIT
ENTER YOUR CHOICE:
```

Step 11:

To Exit the Application Enter 4.



```
            boolean exit = false;


            while (!exit) {
                System.out.println("\nOPTIONS:");
                System.out.println("1. PROPERTY TAX");
                System.out.println("2. VEHICLE TAX");
                System.out.println("3. TOTAL");
                System.out.println("4. EXIT");

                System.out.print("ENTER YOUR CHOICE: ");
            try {
                int choice = scanner.nextInt();

                scanner.nextLine (); // Consume the newline character


                switch (choice) {
                case 1:
                    propery.propertytaxmenu(scanner);
                    break;
                case 2:
                    vehicles.vehicletaxmenu(scanner);
                    break;
                case 3:
                    totaltax.calculateTotalTax();
                    break;
                case 4:
                    exit = true;
                    System.out.println("Thanks Visit Again.");
                    break;
                default:
                    System.out.println("INVALID CHOICE! PLEASE TRY AGAIN.");
                    break;
                }
                }catch(InputMismatchException e) {
                    System.out.println("input must be a numeric ");
                    scanner.next(); //this consumes the invalid token
                }
```

```
<terminated> TaxCalculationApp [Java Application] C:\Users\hp\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.
4. BACK TO MAIN  MENU
ENTER YOUR CHOICE: 3
================================================================================
RegNum  Brand                   MaxVelocity     NoOfSeats       VehicleType     Tax
================================================================================
1       honda   150                     2       PETROL          50000.0         15152.0
10      yamaha  150                     2       PETROL          70000.0         20152.0
1234    sample  234                     2       PETROL          60000.0         20236.0
1234    4       5                       5       PETROL          61000.0         0.0
139     tvs     125                     2       PETROL          60000.0         0.0
1356    suzuki  220                     2       PETROL          50000.0         222.0
1236    suzuki  300                     2       PETROL          50000.0         6302.0
2314    yamaha  120                     2       PETROL          50000.0         5622.0
18      bajaj   150                     2       PETROL          50000.0         8652.0

OPTIONS:
1. PROPERTY TAX
2. VEHICLE TAX
3. TOTAL
4. EXIT
ENTER YOUR CHOICE: 3
================================================
SR. NO. PARTICULAR      QUANTITY        TAX
================================================
1       Properties              5       4862532.5
2       Vehicles                9       51575.0
================================================
TOTAL                                   4914107.5
================================================

OPTIONS:
1. PROPERTY TAX
2. VEHICLE TAX
3. TOTAL
4. EXIT
ENTER YOUR CHOICE: 4
Thanks Visit Again.
```

7. Conclusion

This Summarize the key features and functionality of the Tax Calculation Application.

This documentation provides an overview of the Tax Calculation Application, its class structure, and usage guidelines. For detailed information about each class and method, refer to the respective sections above.