

Algorithm :

Step 1 : Take input from user for username and password and validate whether they are correct or not. If they are correct then continue with the application else display a error message.

Step 2 : After validating show an Mainmenu to user and ask for an option to enter property Tax, Vehicle Tax, Total or exit from the Application.

Step 3 : If the option is Property Tax then display the corresponding options like add property details, calculate property Tax, Display all Properties, or back to Main menu.

Step 4 : Based on the option selected by the user follow the corresponding operations as described. If the user has selected the option as back to Main menu then show the user the Main menu options.

Step 5 : Similarly if the user has selected the option Vehicle Tax then display the following options Add vehicle details, Calculate vehicle tax, Display all Vehicles, Back to Main menu.

Step 6 : Based on the option selected by the user follow the corresponding operations as described. If the user has selected the option as back to Main menu then show the user the Main menu options.

Step 7 : If the user has selected the total option then display the required data as mentioned.

Step 8 : If the user has selected the wrong option then ask the user to enter the correct option.

Step 9 : If the user has selected the exit option then display a good bye message and exit from the application.

Source Code :

```
//Main
```

```
package TaxCalculation;
```

```
import java.util.Scanner;
```

```
class Mainmenu{
```

```

public Mainmenu() {
    while(true) {
        System.out.println("1.PROPERTY TAX");
        System.out.println("2.VEHICLE TAX");
        System.out.println("3.TOTAL");
        System.out.println("4.EXIT");
        System.out.println("Enter your choice");
        Scanner sc = new Scanner(System.in);
        int ch=sc.nextInt();
        switch(ch) {

            case 1 :    propertyMenu pm= new propertyMenu();
                        pm.propertyMenu();
                        break;

            case 2 :    VehicleMenu v = new VehicleMenu();
                        break;

            case 3 :    Display();
                        break;
            case 4 :    System.out.println("Thanks visit again");
                        System.exit(0);
                        break;
            default :    System.out.println("enter correct choice");
                        }
        }
    }

private void Display() {

    int id=propertyMenu.propertyQuantity();
    double ptot=propertyMenu.propertyTotal();
    int t=VehicleMenu.vehicleQuantity();
    double vtot=VehicleMenu.VehicleTotal();

    System.out.println("+-----+");
    System.out.println("| SR. NO.          PARTICULAR");
    System.out.println("QUANTITY  TAX|");
    System.out.println("+-----+");
    System.out.println("| 1          PROPERTIES          "+id+"");
    System.out.println("| "+ptot+"|");
    System.out.println("| 2          VEHICLES");
    System.out.println("| "+t+"          "+vtot+"|");
}

```

```

        System.out.println("+-----+");
        System.out.println("| TOTAL -----");
        "+(id+t)+"          "+(ptot+vtot)+"|");
        System.out.println("+-----+");
    }
}

```

```

public class TaxMain {

    public static void main(String args[])
    {
        System.out.println("+-----+");
        System.out.println("| WELCOME TO TAX CALCULATION APP |");
        System.out.println("+-----+");
        System.out.println("PLEASE LOGIN TO CONTINUE");
        System.out.print("USERNAME - ");
        Scanner sc = new Scanner(System.in);
        String uname=sc.next();
        System.out.print("PASSWORD - ");
        String pass=sc.next();
        if(uname.equals("admin") && pass.equals("admin123"))
        {
            Mainmenu menu= new Mainmenu();
        }
        else
        {
            System.out.println("you have entered wrong data try
again");
        }
    }
}

```

// Property menu

```

package TaxCalculation;

import java.util.Scanner;

```

```

public class propertyMenu {
    static int id,pid;
    private static double ptot;
    static int[] base = new int[10];
    static int[] area = new int[10];
    static int[] age = new int[10];
    static double[] pt = new double[10];
    static String[] Land = new String[10];
    static int propertyQuantity() {
        return id;
    }
    static double propertyTotal() {
        return ptot;
    }

    private static void display() throws
    ArrayIndexOutOfBoundsException{

        System.out.println("=====
        =====");
        System.out.println("id BUILD UP AREA BASE PRICE
        AGE(YEARS) IN CITY PROPERTY TAX");

        System.out.println("=====
        =====");

        for(int i=1;i<=id;i++) {
            System.out.printf("%1d %14d %20d %16d %18s %23.2f
            \n",i,area[i],base[i],age[i],Land[i],pt[i]);
        }

        System.out.println("=====
        =====");
    }

    static void propertyMenu() {

        Scanner sc = new Scanner(System.in);
        while(true) {
            System.out.println("1. ADD PROPERTY DETAILS");
            System.out.println("2.CALCULATE PROPERTY TAX");
            System.out.println("3.DISPLAY ALL PROPERTIES");
            System.out.println("4.BACK TO MAIN MENU");
            System.out.println("enter your choice");
            int c =sc.nextInt();

```

```

        switch(c) {
            case 1 : System.out.println("enter the property
details -");
                    System.out.println("enter the
property id -");
                    id = sc.nextInt();
                    System.out.println("enter the base
value of the land");
                    base[id] =sc.nextInt();
                    System.out.println("enter the build
up area of the land");
                    area[id] = sc.nextInt();
                    System.out.println("enter the age of
land in years");
                    age[id] = sc.nextInt();
                    System.out.println(" is the land
located in city? Y: Yes, N: No");
                    Land[id] =sc.next();
                    if(Land[id].equals("Y")) {
                        pt[id]=(area[id]*age[id]*base[id])+((1/2)*area[id]);
                    }
                    else {
                        pt[id]=area[id]*age[id]*base[id];
                    }
                    System.out.println("Values entered
successfully");
                    ptot = pt[id]+ptot;
                    break;
            case 2 :
                    display();
                    System.out.println("Enter the
Property id to Calculate Tax -");
                    pid = sc.nextInt();
                    System.out.println("Property Tax for
Property id -"+pid+"is"+pt[pid]);
                    break;
            case 3 : display();
                    break;
            case 4 : Mainmenu m = new Mainmenu();

```

```

        default : System.out.println("enter correct
choice");
    }

}
}
}

//vehicle menu

package TaxCalculation;

import java.util.Scanner;

public class VehicleMenu {
    private static int t=1,rid,s=0;
    private static double vtot;
    static int[] reg = new int[10];
    static int[] velocity = new int[10];
    static int[] seats = new int[10];
    static int[] temp = new int[10];
    static double[] cost = new double[10];
    static double[] vt = new double[10];
    static String[] brand = new String[10];
    static String[] type = new String[10];
    public VehicleMenu()
    {
        Scanner sc = new Scanner(System.in);
        while(true) {
            System.out.println("1.ADD VEHICLE DETAILS");
            System.out.println("2.CALCULATE VEHICLE TAX");
            System.out.println("3.DISPLAY ALL VEHICLES");
            System.out.println("4.BACK TO MAIN MENU");
            System.out.println("enter your choice");
            int c =sc.nextInt();
            switch(c) {
                case 1 : System.out.println("ENTER THE VEHICLE
REGISTRATION NUMBER -");
                    reg[t]= sc.nextInt();
                    System.out.println("ENTER BRAND OF THE
VEHICLE -");
                    brand[t] = sc.next();
                    System.out.println("ENTER THE MAXIMUM
VELOCITY OF THE VEHICLE(KMPH) -");
                    velocity[t] = sc.nextInt();

```

```

        System.out.println("ENTER CAPACITY(NUMBER
OF SEATS) OF THE VEHICLE -");
        seats[t] = sc.nextInt();
        System.out.println("CHOOSE THE TYPE OF
THE VEHICLE - \n 1.PETROL DRIVEN \n 2. DIESEL DRIVEN \n 3. CNG/LPG
DRIVEN");

        temp[t] = sc.nextInt();
        System.out.println(temp[t]);
        System.out.println("ENTER THE PURCHASE
COST OF THE VEHICLE -");

        cost[t] = sc.nextDouble();
        if(temp[t]==1) {
            type[t]="Petrol";

vt[t]=velocity[t]+seats[t]+(0.1*cost[t]);
        }
        else
            if(temp[t]==2) {
                type[t]="Diesel";

vt[t]=velocity[t]+seats[t]+(0.11*cost[t]);
            }
            else
            {
                type[t]="CNG/LPG";

vt[t]=velocity[t]+seats[t]+(0.12*cost[t]);
            }
            vtot = vt[t]+ vtot;
            s=t;
            t++;
            break;

        case 2 : System.out.println("ENTER THE REGISTRATION
NO OF VEHICLE TO CALCULATE THE TAX - ");
            rid = sc.nextInt();
            for( int i=1;i<=t;i++)
            {
                if(reg[i]==rid) {
                    System.out.println("VEHICLE
TAX FOR REGISTRATION NO - "+rid+"IS"+vt[i]);
                }
                else {

System.out.println("REGISTRATION NO NOT FOUND");
            }

```

```

        }

        case 3 :    display();
                    break;
        case 4 :    Mainmenu m = new Mainmenu();
                    break;
        default    :    System.out.println("ENTER THE CORRECT
CHOICE");
    }
}

private void display() {

    System.out.println("=====
=====
=====");
    System.out.println("REGISTRATION NO          BRAND
MAX. VELOCITY          NO OF SEATS    VEHICLE TYPE    PURCHASE
COST    VEHICLE TAX");

    System.out.println("=====
=====
=====");

    for(int i=1;i<t;i++) {
        System.out.printf("%1d %25s %17d %20d %20s %17.2f %16.2f
\n",reg[i],brand[i],velocity[i],seats[i],type[i],cost[i],vt[i]);
    }

    System.out.println("=====
=====
=====");

}

public static int vehicleQuantity() {
    return s;
}

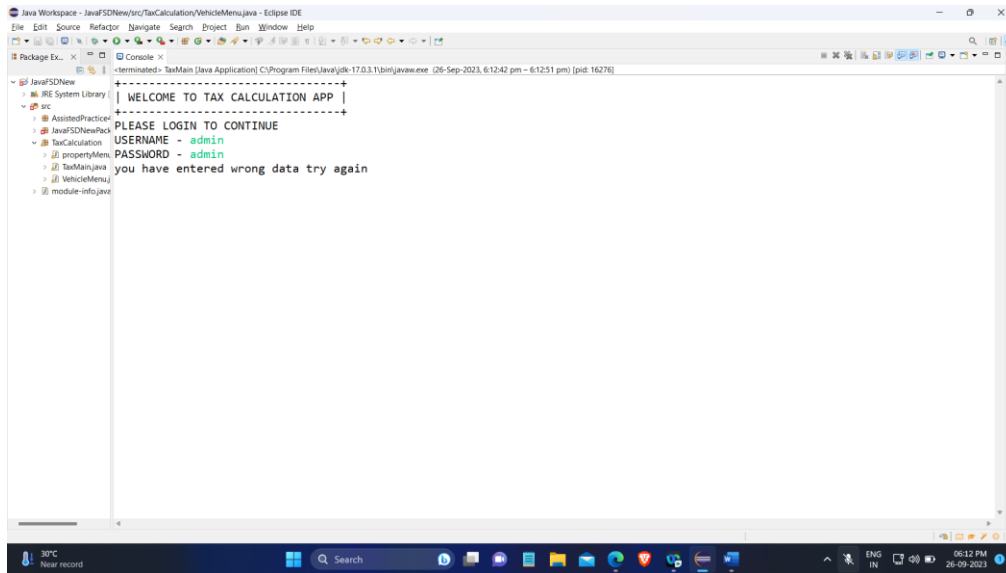
public static double VehicleTotal() {

    return vtot;
}

}

```

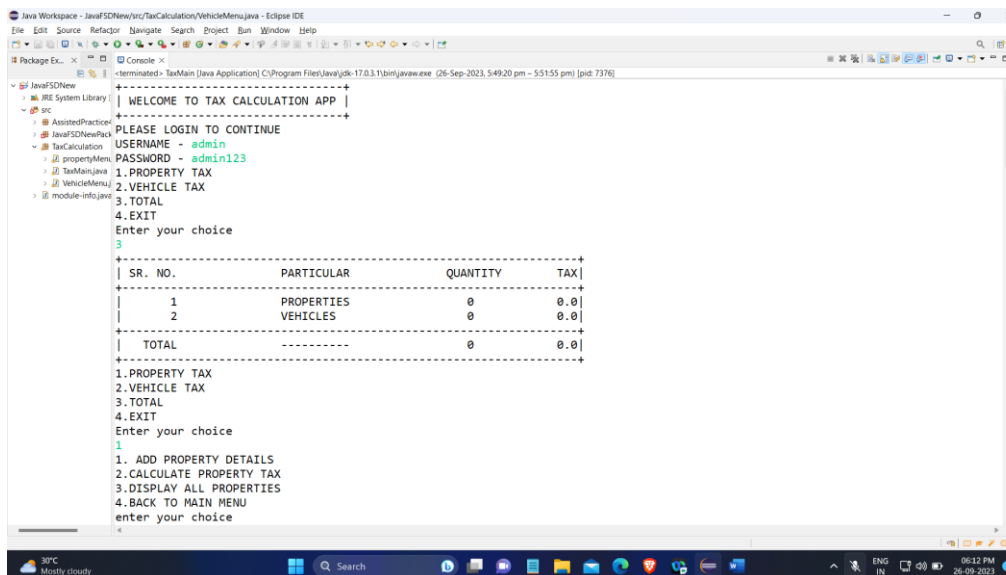

Output :



The screenshot shows the Eclipse IDE interface. The console window displays the following output:

```
<terminated> TaxMain [Java Application] C:\Program Files\Java\jdk-17.0.3.1\bin\javaw.exe (26-Sep-2023, 6:12:42 pm - 6:12:51 pm) [pid: 16276]
+-----+
| WELCOME TO TAX CALCULATION APP |
+-----+
PLEASE LOGIN TO CONTINUE
USERNAME - admin
PASSWORD - admin
you have entered wrong data try again
```

Screenshot for wrong login data



The screenshot shows the Eclipse IDE interface. The console window displays the following output:

```
<terminated> TaxMain [Java Application] C:\Program Files\Java\jdk-17.0.3.1\bin\javaw.exe (26-Sep-2023, 5:49:20 pm - 5:51:55 pm) [pid: 7376]
+-----+
| WELCOME TO TAX CALCULATION APP |
+-----+
PLEASE LOGIN TO CONTINUE
USERNAME - admin
PASSWORD - admin123
1.PROPERTY TAX
2.VEHICLE TAX
3.TOTAL
4.EXIT
Enter your choice
3
+-----+
| SR. NO.    PARTICULAR    QUANTITY    TAX|
+-----+
|      1      PROPERTIES         0        0.0|
|      2      VEHICLES          0        0.0|
+-----+
|   TOTAL    -----         0        0.0|
+-----+
1.PROPERTY TAX
2.VEHICLE TAX
3.TOTAL
4.EXIT
Enter your choice
1
1. ADD PROPERTY DETAILS
2.CALCULATE PROPERTY TAX
3.DISPLAY ALL PROPERTIES
4.BACK TO MAIN MENU
enter your choice
```

Screenshot for correct login data

```
Java Workspace - JavaFSDNew/src/TaxCalculation/VehicleMenu.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer Console
TaxMain (Java Application) C:\Program Files\Java\jdk-17.0.3\bin\javaw.exe (26-Sep-2023, 6:12:56 pm) [pid: 19492]
PASSWORD - admin123
1. PROPERTY TAX
2. VEHICLE TAX
3. TOTAL
4. EXIT
Enter your choice
1
1. ADD PROPERTY DETAILS
2. CALCULATE PROPERTY TAX
3. DISPLAY ALL PROPERTIES
4. BACK TO MAIN MENU
enter your choice
1
enter the property details -
enter the property id -
1
enter the base value of the land
15000
enter the build up area of the land
10
enter the age of land in years
3
is the land located in city? Y: Yes, N: No
Y
Values entered successfully
1. ADD PROPERTY DETAILS
2. CALCULATE PROPERTY TAX
3. DISPLAY ALL PROPERTIES
4. BACK TO MAIN MENU
enter your choice
```

Screenshot for 1st property tax data

```
Java Workspace - JavaFSDNew/src/TaxCalculation/VehicleMenu.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer Console
TaxMain (Java Application) C:\Program Files\Java\jdk-17.0.3\bin\javaw.exe (26-Sep-2023, 6:12:56 pm) [pid: 19492]
PASSWORD - admin123
1. PROPERTY TAX
2. VEHICLE TAX
3. TOTAL
4. EXIT
Enter your choice
1
1. ADD PROPERTY DETAILS
2. CALCULATE PROPERTY TAX
3. DISPLAY ALL PROPERTIES
4. BACK TO MAIN MENU
enter your choice
1
enter the property details -
enter the property id -
2
enter the base value of the land
20000
enter the build up area of the land
20
enter the age of land in years
3
is the land located in city? Y: Yes, N: No
N
Values entered successfully
1. ADD PROPERTY DETAILS
2. CALCULATE PROPERTY TAX
3. DISPLAY ALL PROPERTIES
4. BACK TO MAIN MENU
enter your choice
```

screenshot for 2nd property tax data

The screenshot shows the Eclipse IDE with a Java project named 'JavaSDNew'. The console output displays the following sequence of events:

```
enter the property details -
enter the property id -
enter the base value of the land
20000
enter the build up area of the land
20
enter the age of land in years
3
is the land located in city? Y: Yes, N: No
N
Values entered successfully
1. ADD PROPERTY DETAILS
2. CALCULATE PROPERTY TAX
3. DISPLAY ALL PROPERTIES
4. BACK TO MAIN MENU
enter your choice
3
```

id	BUILD UP AREA	BASE PRICE	AGE(YEARS)	IN CITY	PROPERTY TAX
1	10	15000	3	Y	450000.00
2	20	20000	3	N	1200000.00

Below the table, the menu is repeated:

```
1. ADD PROPERTY DETAILS
2. CALCULATE PROPERTY TAX
3. DISPLAY ALL PROPERTIES
4. BACK TO MAIN MENU
enter your choice
```

Screenshot for Display of property tax data

The screenshot shows the Eclipse IDE with the same Java project. The console output displays the following sequence of events:

```
2.CALCULATE VEHICLE TAX
3.DISPLAY ALL VEHICLES
4.BACK TO MAIN MENU
enter your choice
1
ENTER THE VEHICLE REGISTRATION NUMBER -
1122
ENTER BRAND OF THE VEHICLE -
SUZUKI
ENTER THE MAXIMUM VELOCITY OF THE VEHICLE(KMPH) -
150
ENTER CAPACITY(NUMBER OF SEATS) OF THE VEHICLE -
2
CHOOSE THE TYPE OF THE VEHICLE -
1. PETROL DRIVEN
2. DIESEL DRIVEN
3. CNG/LPG DRIVEN
1
ENTER THE PURCHASE COST OF THE VEHICLE -
50000
1.ADD VEHICLE DETAILS
2.CALCULATE VEHICLE TAX
3.DISPLAY ALL VEHICLES
4.BACK TO MAIN MENU
enter your choice
1
ENTER THE VEHICLE REGISTRATION NUMBER -
1050
ENTER BRAND OF THE VEHICLE -
YAMAHA
```

screenshot for Vehicle Data

The screenshot shows the Eclipse IDE with a Java project named 'JavaFSDNew'. The console window displays the following text:

```
YAMAHA
ENTER THE MAXIMUM VELOCITY OF THE VEHICLE(KMPH) -
125
ENTER CAPACITY(NUMBER OF SEATS) OF THE VEHICLE -
2
CHOOSE THE TYPE OF THE VEHICLE -
1. PETROL DRIVEN
2. DIESEL DRIVEN
3. CNG/LPG DRIVEN
1
ENTER THE PURCHASE COST OF THE VEHICLE -
54000
1.ADD VEHICLE DETAILS
2.CALCULATE VEHICLE TAX
3.DISPLAY ALL VEHICLES
4.BACK TO MAIN MENU
enter your choice
3
=====
REGISTRATION NO      BRAND      MAX. VELOCITY      NO OF SEATS      VEHICLE TYPE      PURCHASE COST      VEHICLE TAX
=====
1122                  SUZUKI      150                2                Petrol            50000.00           5152.00
1050                  YAMAHA      125                2                Petrol            54000.00           5527.00
=====
1.ADD VEHICLE DETAILS
2.CALCULATE VEHICLE TAX
3.DISPLAY ALL VEHICLES
4.BACK TO MAIN MENU
enter your choice
```

screenshot for vehicle data display

The screenshot shows the Eclipse IDE with the same Java project. The console window displays the following text:

```
<terminated> TaxMain [Java Application] C:\Program Files\Java\jdk-17.0.3\bin\javaw.exe (26-Sep-2023, 6:12:56 pm - 6:16:13 pm) [pid: 19492]
=====
1122                  SUZUKI      150                2                Petrol            50000.00           5152.00
1050                  YAMAHA      125                2                Petrol            54000.00           5527.00
=====
1.ADD VEHICLE DETAILS
2.CALCULATE VEHICLE TAX
3.DISPLAY ALL VEHICLES
4.BACK TO MAIN MENU
enter your choice
4
=====
1.PROPERTY TAX
2.VEHICLE TAX
3.TOTAL
4.EXIT
Enter your choice
3
+-----+
| SR. NO. | PARTICULAR | QUANTITY | TAX |
+-----+
| 1 | PROPERTIES | 2 | 1650000.0 |
| 2 | VEHICLES | 2 | 10679.0 |
+-----+
| TOTAL | ----- | 4 | 1660679.0 |
+-----+
1.PROPERTY TAX
2.VEHICLE TAX
3.TOTAL
4.EXIT
Enter your choice
4
Thanks visit again
```

screenshot for total tax display and Exiting Application