ALGORITHM AND FLOW OF TAX CALCULATION APPLICATION

START

STEP 1: DISPLAY WELCOME MESSAGE AND DEVELOPER INFORMATION
STEP 2: DISPLAY USER INTERFACE
STEP 3: INITIALIZE A LOOP AND ALLOW USER TO CHOOSE OPTION
STEP 4: BASED ON THE USER'S CHOICE FOLLOWING ACTIONS PERFORMED

- **OPTION 1: PROPERTY TAX**
  - **SUB-OPTION 1: ADD PROPERTY DETAILS**
    - USER ENTER THE PROPERTY DETAILS LIKE
      - BUILT-UP AREA
      - BASE-PRICE
      - CONSTRUCTION AGE
      - PROPERTY IS IN CITY OR NOT
  - **SUB-OPTION 2: CALCULATE TAX**
  - **SUB-OPTION 3: DISPLAY PROPERTIES DETAILS WITH CALCULATED TAX**
    - IT DISPLAYS THE ALL THE PROPERTIES DETAILS ALONG WITH THEIR TAX.
  - **SUB-OPTION 4: BACK TO MAIN MENU**
- **OPTION 2: VEHICLE TAX**
  - **SUB-OPTION 1: ADD VEHICLE DETAILS**
    - USER ENTER THE VEHICLE DETAILS LIKE
      - REGISTRATION NUMBER
      - BRAND NAME
      - PURCHASE COST
      - VELOCITY
      - CAPACITY
      - FUEL TYPE
  - **SUB-OPTION 2: CALCULATE TAX**
  - **SUB-OPTION 3: DISPLAY VEHICLES DETAILS WITH CALCULATED TAX**
    - IT DISPLAYS THE ALL THE VEHICLES DETAILS ALONG WITH THEIR TAX.
  - **SUB-OPTION 4: BACK TO MAIN MENU**
- **OPTION 3: TOTAL TAX**
  - IT DISPLAYS TOTAL TAX (includes property tax and vehicle tax) THAT HAVE TO PAID BY USER.
- **OPTION 4: EXIT APPLICATION**
  - IT CLOSE THE APPLICATION WITH MESSAGE **"CLOSING THE APPLICATION GOODBYE"**

STEP 5: HANDLE INVALID INPUTS WITH APPROPRIATE MESSAGE
STEP 6: REPEAT THE USER INTERFACE LOOP THAT ALLOWS THE CONTINUOUS USE OF APPLICATION UNTIL THE USER CHOOSES OPTION 4 THAT CLOSE THE APPLICATION.

END

1. WELCOME SCREEN IS CREATED
    a. IN THIS WELCOME SCREEN THERE IS A DETAIL OF DEVELOPER AND IT SHOW USER A INTERFACE WHICH INCLUDES SOME OPTIONS TO NAVIGATE THROUGH APPLICATION

```
TaxCalculatorAp [Java Application] C:\Users\Admin\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_
**********WELCOME TO TAX CALCULATOR APPLICATION**********

My name is Yadav Dhiraj Rajendra Prasad and  I Developed this application

**********USER INTERFACE**********

Choose an option:
1. Property Tax
2. Vehicle Tax
3. Total Tax
4. Close Application
```

```
public static void main(String[] args) {

    System.out.println("**********WELCOME TO TAX CALCULATOR APPLICATION**********\n");
    System.out.println("My name is Yadav Dhiraj Rajendra Prasad and  I Developed this application\n");
    System.out.println("**********USER INTERFACE**********\n");
    user_interface();

}
private static void user_interface() {
    Scanner sc=new Scanner(System.in);

    while(true) {
        System.out.println("Choose an option:");
        System.out.println("1. Property Tax");
        System.out.println("2. Vehicle Tax");
        System.out.println("3. Total Tax");
        System.out.println("4. Close Application");
```

2. If the user selects **1. Property Tax** then users see some more options related to property tax which leads to further navigation.

```
Choose an option:
1. Property Tax
2. Vehicle Tax
3. Total Tax
4. Close Application
1
Choose an option:
1. Add Property
2. Calculate Property Tax
3. Display All Property
4. Back To Main Menu
1
```

```
private static void Property_Tax(Scanner sc, List<Property> properties) {
    while(true) {
        System.out.println("Choose an option:");
        System.out.println("1. Add Property");
        System.out.println("2. Calculate Property Tax");
        System.out.println("3. Display All Property");
        System.out.println("4. Back To Main Menu");

        int ch;
        try {
            ch=sc.nextInt();
        }
        catch (InputMismatchException exp){
            System.out.println("Invalid input, please select a valid option");
            sc.nextLine();
            continue;
        }
```

```
******************************* PROPERTY TAX CALCULATION *******************************
+-------------+-----------------+------------+------------+----------------+-------------+
| Property-No | Built-up Area   | Base Price | In-City    | Age            | Tax         |
+-------------+-----------------+------------+------------+----------------+-------------+
| 1           | 200             | 16000.00   | N          | 2              | $6400000.00 |
| 2           | 30              | 10000.00   | Y          | 2              | $605000.00 |
| 3           | 500             | 30000.00   | Y          | 1              | $15015000.00 |
+-------------+-----------------+------------+------------+----------------+-------------+
Choose an option:
1. Add Property
2. Calculate Property Tax
3. Display All Property
4. Back To Main Menu
```

3. If the user selects **2. Vehicle Tax** then users see some more options related to vehicle tax which leads to further navigation.

```
Choose an option:
1. Property Tax
2. Vehicle Tax
3. Total Tax
4. Close Application
2
Select an option:
1. Add Vehicle
2. Calculate Vehicle Taxes
3. Display Vehicle Details
4. Back to Main Menu
```

```java
private static void Vehicles_Tax(Scanner sc , List<Vehicles> vehicles) {
    while (true) {
        System.out.println("Select an option:");
        System.out.println("1. Add Vehicle");
        System.out.println("2. Calculate Vehicle Taxes");
        System.out.println("3. Display Vehicle Details");
        System.out.println("4. Back to Main Menu");

        int c;
        try {
            c=sc.nextInt();
        }
        catch (InputMismatchException exp){
            System.out.println("Invalid input, please select a valid option");
            sc.nextLine();
            continue;
        }
```

```
************* VEHICLE TAX CALCULATION *************
+-----------+-----------+----------------+----------------+----------+-------+
| Reg-2Number | Brand     | Purchase Cost  | Velocity(km/h) | Capacity | Type  |
+-----------+-----------+----------------+----------------+----------+-------+
| 1962      | HONDA     | 70000.0        | 151.0          | 2        | 1     |
| 1552      | HYUNDAI   | 500000.0       | 250.0          | 4        | 2     |
| 1997      | TATA-Tiago | 700000.0      | 275.0          | 5        | 3     |
+-----------+-----------+----------------+----------------+----------+-------+
Select an option:
1. Add Vehicle
2. Calculate Vehicle Taxes
3. Display Vehicle Details
4. Back to Main Menu
```

4. If the user selects **3. Total Tax** then users see the total tax that has to be paid by him.

```
double totalPropertyTax = properties.stream().mapToDouble(Property::calculateTax).sum();
double totalVehicleTax = vehicles.stream().mapToDouble(Vehicles::calculateTax).sum();
double totalTax = totalPropertyTax + totalVehicleTax;
int a = properties.size();
int b = vehicles.size();
System.out.println("****************** TOTAL TAX CALCULATIONS ******************");
System.out.println("+------+--------------------+-----------------+-----------------------+");
System.out.println("|SR.NO |3    Tax Category   |     Quanity     |       Total Tax       |");
System.out.println("+------+--------------------+-----------------+-----------------------+");
System.out.printf("|  1   |     Property Tax   |       %-5d     |      $%-8.2f     |\n", a,totalPropertyTax);
System.out.printf("|  2   |     Vehicle Tax    |       %-5d     |      $%-8.2f     |\n", b,totalVehicleTax);
System.out.println("+-------------------------------------------+-----------------------+");
System.out.printf("| Total Tax Payable         |       %-5d     |       $%-5.2f   |\n",(a+b), totalTax);
System.out.println("+-------------------------------------------+-----------------------+");

break;
```

```
****************** TOTAL TAX CALCULATIONS ******************
+------+--------------------+-----------------+-----------------------+
|SR.NO |3    Tax Category   |     Quanity     |       Total Tax       |
+------+--------------------+-----------------+-----------------------+
|  1   |     Property Tax   |       3         |      $22020000.00     |
|  2   |     Vehicle Tax    |       3         |      $146687.00       |
+-------------------------------------------+-----------------------+
| Total Tax Payable         |       6         |       $22166687.00    |
+-------------------------------------------+-----------------------+
Choose an option:
1. Property Tax
2. Vehicle Tax
3. Total Tax
4. Close Application
```

5. If the user wants to close the application then user go for option **4. Close Application.**

```
case 4:
    System.out.println("Closing the application. Goodbye!");
    System.exit(0);
default:
    System.out.println("Invalid input, please select a valid input :");
```

```
Choose an option:
1. Property Tax
2. Vehicle Tax
3. Total Tax
4. Close Application
4
Closing the application. Goodbye!
```

Here is my github link for the full project.

https://github.com/dhiraj0803/JAVA-fsd.git