COMP101 LAB6

Requirements

Write a program which with the minimal amount of questions identifies the class and type of a vehicle and then calculates the cost for the vehicle to go through a tunnel given weather it is a weekday or not

Analysis and Design

There will be 3 classes within my solution, a Vehicle class, responsible for identifying the vehicle type and class, a TunnelTollCost Class, responsible for calculating the cost of the trip and a TunnelTollCostUser Class responsible for producing the understandable output to the user

PseudoCode

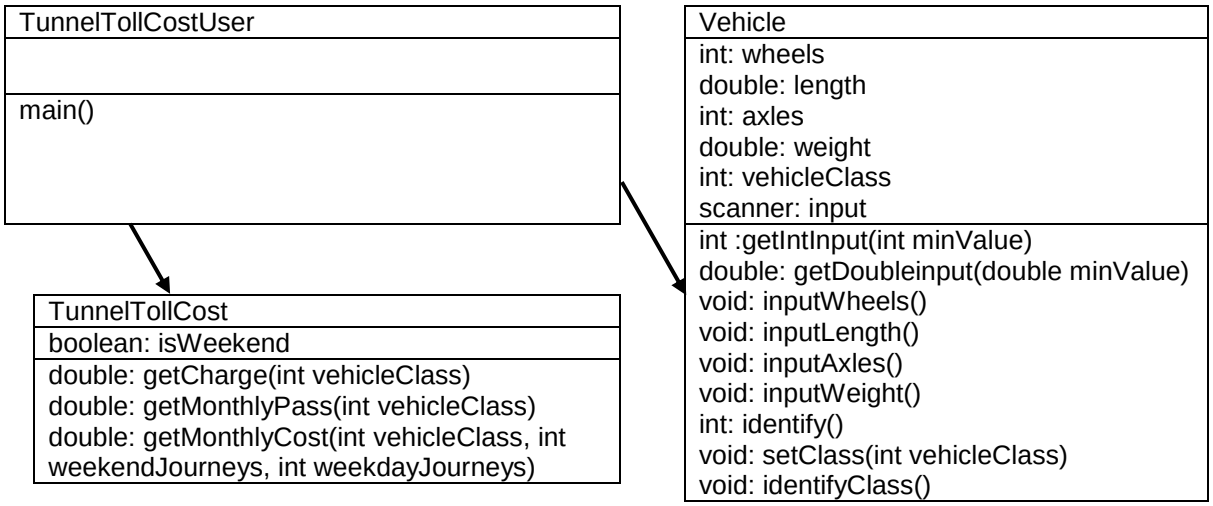
Vehicle Class

```
Vehicle.getIntInput(int MinValue)
        INT Value = -1
        WHILE Value<minValue
                Value = INPUT INT
                IF Value < minValue
                        OUTPUT The number must be greater than or equal to to minValue
                        OUTPUT enter a different number:
                ELSE
                        BREAK
        RETURN Value


Vehicle.getDoubleInput(int MinValue)
        DOUBLE Value = -1
        WHILE Value<minValue
                Value = INPUT DOUBLE
                IF Value < minValue
                        OUTPUT The number must be greater than or equal to to minValue
                        OUTPUT enter a different number:
                ELSE
                        BREAK
        RETURN Value
Vehicle.inputWheels()
        OUTPUT Please enter the number of wheels:
        wheels = getIntInput(2)
```

```
Vehicle.inputLength()
        OUTPUT lease enter the Vehicle Length:
        length = getDoubleInput(0)
these are repeated for inputting axles and weight
Vehicle.Identify()
        inputWheels()
        IF wheels<4
                RETURN 1
        inputLength()
        IF wheels==4 AND length <= 15
                RETURN 2
        inputAxles()
        IF wheels==4 AND axles ==2
                RETURN 4
        inputWeight()
        IF weight<2
                RETURN 3
        IF 2<weight<3.5
                RETURN 5
        IF weight>3.5
                RETURN 6
Vehicle.setClass(INT vehicleClass)
        vehicleClass = vehicleClass

Vehicle. identifyClass()
                switch (vehicleClass)
                        CASE  0 :
                                RETURN
                        CASE 1 :
                                OUTPUT Motorbike (Class 1)
                                BREAK
                        CASE 2 :
                                OUTPUT Car (Class 2)
                                BREAK
```

```
CASE 3 :
        OUTPUT Car with Trailer (Class 3)
        BREAK
CASE 4 :
        OUTPUT Van (Class 4)
        BREAK
CASE 5 :
        OUTPUT Small lorry/bus (Class 5)
        BREAK
CASE 6 :
        OUTPUT Large Lorry (Class 6)
        BREAK
```

Class Diagram



Testing

Wheels	Length	Axles	Weight	Weekend	Vehicle Class	Cost	As Expected
2				True	1	1.50	Yes
4	7			True	2	2.40	Yes
6	16	3	2	True	3	2.85	Yes
4	17	2		False	4	4.40	Yes
4	22	4	2.2	False	5	8.00	Yes
8	33	4	3.6	False	6	12.00	Yes
1	Asks for greater number to be input						Yes

```
Please enter the number of wheels: 8
  Please enter the Vehicle Length: 33
 Please enter the Number of axles: 4
  Please enter the Vehicle Weight: 3.6
Input true if travelling on a weekend (sat/sun) and false otherwise: false
A Large Lorry (Class 6) traveling on a weekday will be charged 12.00

Please enter the number of wheels: 1
The number must be greater than or equal to to 2
Please enter a different number:
```