**Toyota Ireland – Ordering System**

Toyota Dealerships purchase vehicles by ordering from Toyota Ireland and avail of the following discounts:

|  |  |  |
| --- | --- | --- |
| **Model** | **Unit Price €** | **5% Discount** *(applies to orders in excess of the following)* |
| Corolla | 27000 | 10 |
| Avensis | 32500 | 8 |
| Rav | 38750 | 6 |

* A valid order can only consist of a maximum of 40 vehicles. You are required to use a Boolean data type named ValidOrder when processing same.
* VAT is charged at 21% on the total cost.
* A flat rate processing fee of €100 is charged per order *(this is exempt from VAT)*

The person ordering the vehicles has to supply contact details. This includes their name and mobile phone number.

Design, code and test a Java program that will read in the required details and will output:

* The name of the manager making the order.
* The mobile number of the person making the order.
* The quantity of each of the 3 vehicle models ordered.
* Whether it is a valid order or not.
* The total cost of all vehicles – less discount
* VAT at 21%
* The flat processing fee
* The total cost

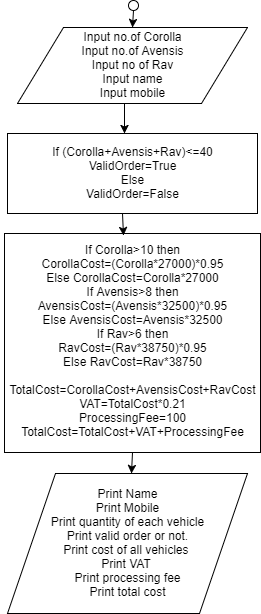
A data dictionary and flow chart must be provided including commented source code and screenshots of all test data used. You are required to use test data to test every possible outcome or scenario. You may use Excel to calculate the correct values for test data.

Source code should be indented as appropriate and commented also. Suitable identifier and variable names must be used in line with commonly used standards as discussed in class.

**Data Dictionary**

|  |  |  |
| --- | --- | --- |
| Identifier/Variables | Data Type | Description |
| Corolla | int | Quantity of Corolla vehicles |
| Avensis | int | Quantity of Avensis vehicles |
| Rav | int | Quantity of Rav vehicles |
| Name | String | Name of manager |
| Mobile | String | Mobile number |
| CorollaCost | double | Cost of Corolla vehicles |
| AvensisCost | double | Cost of Avensis vehicles |
| RavCost | double | Cost of Rav vehicles |
| VAT | double | VAT of 21% of vehicles cost |
| ProcessingFee | double | Flat fee of €100 |
| TotalCost | double | Total cost of order |

**Flow Chart**



**Test Data**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Corolla** | **CorollaCost** | **Avensis** | **AvensisCost** | **Rav** | **RavCost** | **Total** | **VAT** | **Fee** | **Cost** |
| 4 | 108000 | 6 | 195000 | 7 | 257687.5 | 560687.5 | 117744.375 | 100 | 678531.875 |
| 12 | 307800 | 9 | 277875 | 7 | 257687.5 | 843362.5 | 177106.125 | 100 | 1020568.625 |
| 10 | 270000 | 3 | 97500 | 8 | 294500 | 662000 | 139020 | 100 | 801120 |
| 46 | 1179900 | 43 | 1327625 | 33 | 1214812.5 | 3722337.5 | 781690.875 | 100 | 4504128.375 |
| 1 | 27000 | 9 | 277875 | 20 | 736250 | 1041125 | 218636.25 | 100 | 1259861.25 |

**Source Code**

**import** java.util.Scanner;

**public** **class** ToyotaOrders {

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

// Ray O'Connor Toyota Dealerships Order Prog

Scanner in = **new** Scanner(System.***in***);

System.***out***.print("Input no. of Corolla: ");

**int** Corolla = in.nextInt();

System.***out***.print("Input no. of Avensis: ");

**int** Avensis = in.nextInt();

System.***out***.print("Input no. of Rav: ");

**int** Rav = in.nextInt();

System.***out***.print("Input name: ");

String name = in.next();

System.***out***.print("Input mobile: ");

String mobile = in.next();

**boolean** ValidOrder;

**if** ((Corolla + Avensis + Rav)<=40) {

ValidOrder = **true**;

}

**else**

{

ValidOrder=**false**;

}

**double** CorollaCost, AvensisCost, RavCost;

**if** (Corolla>10) {

CorollaCost=(Corolla\*27000)\*(0.95);

}

**else** {

CorollaCost=(Corolla\*27000);

}

**if** (Avensis>8) {

AvensisCost=(Avensis\*32500)\*0.95;

}

**else** {

AvensisCost=Avensis\*32500;

}

**if** (Rav>6) {

RavCost=(Rav\*38750)\*0.95;

}

**else** {

RavCost=Rav\*38750;

}

**double** VehicleCost=CorollaCost+AvensisCost+RavCost;

**double** VAT=VehicleCost\*0.21;

**double** ProcessingFee=100;

**double** TotalCost = VehicleCost + VAT + ProcessingFee;

System.***out***.println("Name: " + name);

System.***out***.println("Mobile: " + mobile);

System.***out***.println("Corolla: " + Corolla);

System.***out***.println("Avensis: " + Avensis);

System.***out***.println("Rav: " + Rav);

System.***out***.println("Valid order: " + ValidOrder);

System.***out***.println("Vehicles Cost: " + VehicleCost);

System.***out***.println("VAT: " + VAT);

System.***out***.println("Fee: " + ProcessingFee);

System.***out***.println("Total Cost: " + TotalCost);

}

}

**Output**

