**COP2250 Lab #8**

1. **READ THE ENTIRE PROBLEM BEFORE YOU START TO DO THE EXERCISES.**
2. **IN THE INTEREST OF TIME YOU MAY COPY & PASTE THE CODES/OR MAKE MODIFICATION WHERE YOU SEE NECESSARY**

Suppose you are writing a program for a gasoline station owner who sells three grades of gasoline products: **regular**, **premium**, and **super** unleaded. Your program reads (**R**, **P**, or **S**) that designates which kind of gasoline was purchased. Using the switch statement, the following program determines the type of gasoline that was purchased. Here is the class that determines the type of petrol and the cost.

**class Petrol**

**{**

**char gas;**

**String type;**

**double amount, cost;**

**Petrol(char ch, double a)**

**{**

**gas = ch;**

**amount = a;**

**}**

**void calculateCost()**

**{**

**switch(gas)**

**{**

**case 'r':**

**case 'R':**

**type = "Regular";**

**break;**

**case 'p':**

**case 'P':**

**type = "Premium";**

**break;**

**case 's':**

**case 'S':**

**type = "Super";**

**break;**

**default:**

**type = "Unknown";**

**break;**

**}**

**}**

**public String toString()**

**{**

**return type.equalsIgnoreCase("Unknown")? "Petrol is " + type + " cannot be served": "The type of petrol that will be served is " + type;**

**}**

**}**

Test your program with the following class.

**import javax.swing.JOptionPane;**

**class TestPetrol**

**{**

**public static void main(String[] arg)**

**{**

**String str = JOptionPane.showInputDialog("COP2210 Petrol Station"**

**+ "\nEnter the type of petrol"**

**+ "\nr/R - for regular gas"**

**+ "\np/P - for premium gas"**

**+ "\ns/S - for super gas");**

**char ch = str.charAt(0);**

**str = JOptionPane.showInputDialog("Enter the amount of gas to be purchased");**

**float amount = Float.parseFloat (str);**

**Petrol p = new Petrol(ch, amount);**

**p.calculateCost();**

**JOptionPane.showMessageDialog(null, p.toString());**

**}**

**}**

Suppose that the cost for each grade of petrol **is $2.99, $3.15**, and **$3.25**, respectively; the program should read the amount of petrol sold and calculates each customer's bill.

The petrol station owner is a generous person, as such the following rewards are given:

If a customer purchases 10 gallons of petrol or more, free wash is offered.

* If the petrol purchased is regular: **"You get free wash excluding under carriage and wheels";**
* If the petrol purchased is premium: **"You get free wash excluding under carriage";**
* If the petrol purchased is super: **"You get free super wash";**

Modify the program to include the following features:

1. Constant declarations as follows in the class called **Petrol.java**:

**static final float REGULAR\_GAS = 2.99f;**

**static final float PREMIUM\_GAS = 3.15;**

**static final float SUPER\_GAS = 3.25;**

**static final String REGULAR\_WASH =**  **"You get free wash excluding under carriage and wheels";**

**static final String REGULAR\_WASH = "You get free wash excluding under carriage";**

**static final String REGULAR\_WASH = "You get free super wash";**

1. Include the following variable **String free**. This variable stores the one of the sentences above.
2. Modify the **case** statements that have valid petrol type, to include:

* Determining whether or not the customer gets free wash
* Calculate the cost for the amount of petrol purchased.

For instance:

**case 'r':**

**case 'R':**

**type = "Regular";**

**cost = amount \* regular;**

**if (amount > 10)**

**free = REGULAR\_WASH;**

**break;**

1. Modify the method **String toString()** to reflect the customer's bill. That is:

**public String toString()**

**{**

**if (type.equals("Unknown"))**

**return "Petrol is " + type + " cannot be served";**

**else**

**return "The type of petrol that will be served is " + type**

**+"\nYour bill is: $" + cost + "\n " + free;**

**}**

Test the program with the following data:

**R 15**

**D 20**

**S 5**

**p 10**

When you have completed the program, do the following:

* Demonstrate your program to the lab instructor
* Print a copy of the program along with sample output and submit it to the lab instructor