IT 168 Fall 2015

**Program 2**

**Due Date:**

MW: Wednesday, September 22, 11:55 pm

TR: Thursday, September 23, 11:55 pm

***Total Points:*** 50 programming points

***Problem:***

A program is needed to take orders for a fund raising event for your school. The fund raising involves selling four different types of cheesecake: plain, marble, chocolate chip and variety. The prices per item are as follows:

|  |  |
| --- | --- |
| **Item** | **Price** |
| Plain | $10.00 |
| Marble | $15.00 |
| Chocolate chip | $18.00 |
| Variety | $24.00 |

All cheesecake orders will be sorted ready for pick up at the school. The online ordering system will allow parents to order as many of each type of cheesecake they want to buy. 12% of the cost of the order goes to the school. When the order is completed, a bill will be displayed showing the cost of each type of cheesecake order, total cost of the order, and the amount that would be donated to the school.

***Input and Output:***

You need to use the Scanner for input from the console.

Your program is to display a Menu with the type and price of each type of cheesecake. It should then prompt the user for the number of plain cheesecake they would like to order. When the number of plain cheesecake has been entered, the current cost of the order (sub-total that includes the cost for all items that have been ordered so far) should be displayed. Then the user should be prompted for the number of marble cheesecake the user would like to order. The current cost of the order should be displayed. Continue the prompt and current cost statement for chocolate chip and variety cheesecakes. After the orders for each cheesecake has been entered and the subtotal displayed, the program will display a summary of the order.

You can use printf to format amounts to 2-decimal places and line up columns.

A sample run of the program would look like this:

Lincoln High School Fundraiser

Cheesecake Price

Plain $10.00

Marble $15.00

Chocolate Chip $18.00

Variety $24.00

Please enter number of Plain Cheesecake: 2

Subtotal = $20.00

Please enter number of Marble Cheesecake: 1

Subtotal = $35.00

Please enter number of Chocolate Chip Cheesecake: 1

Subtotal = $53.00

Please enter number of Variety Cheesecake: 0

Subtotal = $53.00

Lincoln High School Fundraiser Order Summary

Cheesecake Ordered

Plain 2

Marble 1

Chocolate Chip 1

Variety 0

Sub-Total: $53.00

Total Amount: $59.36

Amount Donated to School: $6.36

***Design:***

Your program should have one driver class with a main method. Create the other class without a main method where the methods to do all of the processing are to be placed.

More specifically, you need to use the following classes for your program:

**CheesecakeOrder class**

Keeps track of the number of each kind of cheesecakes ordered and handles all calculations. It should include the following:

* Named Constants
  + Use constants for the rate that will be used to calculate the amount from the total cost that will be donated to the school
  + Use constants for the prices for different types of ice creams
* Instance Variables
  + Four variables to keep track of how many cheesecakes are ordered for each type
* Methods
  + calculateSubTotal method which will determine the cost for the cheesecake ordered.
  + calculateTotal method to compute the total cost.
  + calculateDonationAmount to calculate the amount from the total order cost that will be donated to the school
  + Getters and setters for each instance variable
  + Getters for the all price constants

**CheesecakeOrderDriver class**

This is the starting point for the application which is the only class to contain a main method. It needs to create an object for the other class and implements the algorithm for the program. For your information, it handles all of the input and output for the program.

**Design Requirements**

* Algorithm written for the main method (in PDF or MS-word format)
* Test data and expected results form filled out. A document (both in PDF and MS-Word format) that can be filled out on the computer and saved will be provided. You may use either format that works for you better.

***Submission:***

* Zip your .java files for all of the classes together into a file with your initials and Program 2. (Do not include the design documents.)
  + Example format: KS-Program2.zip
* Upload the following three files to ReggieNet
  + You zip files with your Java code
  + Algorithm for the main method (in PDF or MS-word format).
  + Thorough test data with expected results calculated (in PDF or MS-word format).

**Class Diagrams:**

|  |
| --- |
| CheesecakeOrder |
| * PLAIN\_CHEESECAKE\_PRICE = 10 : double * MARBLE\_CHEESECAKE \_PRICE = 15 : double * CHOCO\_CHIP\_CHEESECAKE \_PRICE =18: double * VARIETY\_CHEESECAKE \_PRICE =24: double * SCHOOL\_SHARE\_RATE=.12: double * plainCheesecakeCount: int * marbleCheesecakeCount: int * chocoChipCheesecakeCount: int * varietyCheesecakeCount: int |
| +getPLAIN\_CHEESECAKE\_PRICE (): double  +getMARBLE\_CHEESECAKE\_PRICE (): double  +getCHOCO\_CHIP\_CHEESECAKE\_PRICE (): double  +getVARIETY\_CHEESECAKE\_PRICE (): double  +getPlainCheesecakeCount(): int  +setPlainCheesecakeCount(int plainCheesecakeCount): void  +getMarbleCheesecakeCount(): int  +setMarbleCheesecakeCount (int marbleCheesecakeCount): void  +getChocoChipCheesecakeCount(): int  +setChocoChipCheesecakeCount(int chocoChipCheesecakeCount): void  +getVarietyCheesecakeCount(): int  +setVarietyCheesecakeCount (int varietyCheesecakeCount): void  +calculateSubTotal():double  +calculateDonationShare(): double  +calculateTotal():double |