ITEC 109: Problem Solving and Programming

Homework 3b: Living in the Material World

 >>>>>>>> **Due Date: Wednesday, November 30th at 10:00 PM via D2L**   <<<<<<<

In doing this homework, remember to abide by the RU Honor Code. This is not a group assignment

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Problem 1
100 points

You are a citizen in the Material World society. The Material World society focuses on buying products. Products have a particular cost, how much of a discount you get on the product, the number of reward points for a product (you get rewarded for buying since you are living in the Material World), and its category (Electronics, Food, or Clothes). Another factor in the Material World Society is buzz. It is important to know if what you buy is more popular than other items that you could buy. The buzz is determined by the product's category. Electronics have the highest buzz, followed by Food, then Clothes.

If this sounds like a complicated way to live it is! However, you can write a program to help you decide what to buy while you are living in the Material World. The program reads in the information about two different products and tells you which one is cheaper along with the buzz implications of the cheaper product.

Input
Each product is entered on a line by itself. The line holds the price, the discount (a percentage), the number of reward points for the product, and its category. The format of the line is as follows Price|Discount|Points-Category.

Computation
Your program must calculate how much each product costs. There is a simple formula for figuring out the total cost of the product. The product cost is its price minus its price times the discount, then ten cents off for each reward point associated with the product. Each reward point is modified by the category of product because products with a higher buzz earn more rewards. Electronics get 50% more reward points, Food gets 5% more reward points, and Clothes reduce award points by 25%.

Output
The program prints out a one line result that tells you about the price of the item and its buzz status. You need to make sure you account for 7 possible outputs. Four for when the prices are not the same (Cheaper but lower buzz or cheaper and the buzz doesn't matter), and three when they are the same (which one has more buzz or if they are equal buzz).

Sample usage scenario 1:
Enter product 1 information>
30|.10|0-Clothes
Enter product 2 information>
27|0|0-Food

Output:
Product 1 and Product 2 cost the same but Product 2 has more buzz

Sample usage scenario 2:
Enter product 1 information>
30|0|20-Electronics
Enter product 2 information>
27|0|0-Food

Output:
Product 1 and Product 2 cost the same but Product 1 has more buzz

Hint: you may want to add debug output that prints the prices of the objects and the buzz status to help you determine what to print out. **Also, come up with your own test cases, when I test your program I will use test cases other than the ones listed in the assignment.**

Constraints:
You must use at least four functions in your program. Note, they must be well designed not simply functions that print out a statement and then return.

The reference solution for this project is 85 lines of code without comments. Feel free to use more or less code in your solution. This number is provided to help you gauge the difficulty of the assignment.

Submission requirements:
You must submit the file containing your program to D2L under the Homework #3 folder. If your submitted file does not run, it will receive a 0.

Grading Rubric
60 Points - Does it properly display which product is cheaper and its buzz status?
40 Points - Are functions properly used in the program?