

# ITEC 120: Principles of Computer Science I

## Homework 4

>>>>> **Due Date: Friday, February 11th at 10:00 PM via Desire 2 Learn** <<<<<<<

In doing this homework, remember to abide by the RU Honor Code.

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### Problem 1

15 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. Each line holds the price, the discount (a percentage), the number of reward points for the product, and its category. The format of each 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 cheapest item and its buzz status. You need to make sure you account for all possible outputs. For example, when the prices are not the same (cheaper but lower buzz or cheaper and the buzz doesn't matter, etc...), when they are the same (which one has more buzz or if they are equal buzz), and when the prices are equal.

*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 submit at least one test case that is not included in this specification when you submit your program. Use the Desire2Learn comment functionality when submitting the assignment. You must use at least four functions other than main in your program.

No fields, instance, or class variables may be used in this program. If you don't know what they are, don't worry about it. The purpose for this rule is to make sure you must pass information through the program with parameters.

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 .java file containing your program to Desire 2 Learn under the Homework #4 assignment. If your submitted file does not compile, it will receive a 0. You can demo the homework the next school day after it is due, or it will be graded automatically. If you choose not to demo your homework you cannot contest the grade you receive.

### **Grading Rubric**

10 Points - Does it properly display which product is cheaper and its buzz status?

3 Points - Are functions properly used in the program?

2 Points - Did you include a reasonable test case with your program?