Assignment 4

8 March 2013

due Monday 1 April by email

Before you begin, you should work through the Python notes I have posted:

1. Python Introduction
2. Conditionals in Python

For this assignment, you will write and test a short Python program that computes and displays a simple store receipt. Your program will ask the user to type in the prices of 3 different items. (We can pretend that this input comes via a bar scanner.) The program will then ask for a coupon code, which (if valid) might result in some discount on the price.

Additionally, the receipt should display tax information and subtotals, according to these rules:

1. Any single item that costs over $10 is subject to a 5% sales tax.

2. Items that are taxed should appear with an asterisk (*) on the receipt.

3. The receipt must display the taxable and non-taxable subtotals, the tax amount, and the discount amount, if any.

4. Amounts on the receipt do **not** need to be rounded to the nearest cent, padded to two decimal places, or have decimal points aligned.

5. The coupon code `10over25` should give the shopper a 10% discount on orders over $25 total. (If the total is not over $25, then the discount is not applied.)

6. The coupon code `20off` will take 20% off the single most expensive item in the order. This one is a little trickier than the previous!

Below are some sample runs of the program. Your solution should work for these inputs, but also for others according to the rules above. User input is underlined. In the first two samples, I just pressed enter to leave the promotional code blank.

Sample 1

Sample 2

Sample 3

Sample 4

Notes and hints

1. Start with the simplest pieces of the functionality you can, and get them to work before adding more. For example, just ask for the price of *one* item, and determine whether or not it is taxable. Run and test that program before moving on.

2. We need the user to input numbers with decimals, which are called 'floats' in most programming languages. Recall the syntax of the input statement. The *prompt* is inside the quotes. The variable `price1` will then contain whatever number the user typed.

   ```python
   price1 = float(raw_input("Enter price of item 1: "))
   ```

3. The problem description refers to percentages, such as a 5% tax rate, and a 10% discount. You cannot use the percent sign directly in Python, instead we have to divide by 100 and use that decimal number. So 5% is written as `0.05`, as in:

   ```python
   tax = taxable_sum * 0.05
   ```

4. Try to use sensible variable names, such as `tax`, `total`, `discount`, etc. Names cannot have spaces in them – instead we use the 'underscore' character, as in `nontax_sum`.

Email your `.py` file to me as an attachment by class time on the due date.