Homework # 4 Guidesheet ~ Strategic Planning for Wy'East Coffee (50 pts)

Analyzing Some Data

A good friend of yours, Madeline, owns a small, rather successful coffee shop near center campus. She has gathered some data in an Excel spreadsheet over the past week and now wants to analyze this data to see if it is worth it to open a coffee shop near South campus.

You meet with Madeline, over coffee, and she explains what she wants the program to do. She would like you to write a program that will do the following:

- Determine the total sales by zip code. She wants to enter a zip code (48088, 48093, 48066 or 48026) and then see what the total sales were for that zip code.
- Determine the total sales by coffee type. She wants to be able to enter a coffee type (mocha, latte, regular, decaf or caramel) and see how much money each type produced.
- Determine the grand total. She wants to see how much money was made for all 4 zip codes and all 5 types of coffee.
- Determine which coffee type sold the most in a particular zip code. She wants to enter the zip code and then be told which coffee type sold the most and made the most money.
- Determine which zip code sold the most given a particular coffee type. She wants to enter a coffee type and then see which zip code sold the most and the amount of money that was made.

The menu below lists the menu and pricing. All of her coffee is one size, 16 oz.

Item	Price
Café Mocha	$3.50
Café Latte	$4.00
Café Regular	$2.50
Café' Regular Decaf	$2.50
Café Caramel	$4.50

Finally she gives you a copy of the Excel spreadsheet with her current sales.

	A	B	C	D	E	F	G	H
1	**Zip Code**	**Mocha**	**Latte**	**Regular**	**Decaf**	**Caramel**		
2	**48093**	180	100	200	180	150		
3	**48088**	270	330	160	150	250		
4	**48026**	240	310	450	100	320		
5	**48066**	200	230	350	110	360		
6								
7								

She likes menus and doesn't want to do a lot of typing in order to run the program.

Program Requirements

Your program will need to do the following:

- Feature a menu so that all you need to do is enter a letter and the program will perform the necessary task. Use the following letters to correspond to what the program needs to do:

Menu Option	Operation
Z	Get the total sales per zip code. The user will get prompted for the zip code and the program will display the total sales.
C	Get the total sales by coffee type. The user will enter the coffee type and the program will determine the total sales for that type.
G	Grand total for all coffee types and zip codes.
HZ	The user will provide a zip code. The program will then tell the user which coffee product sold the most. It will generate the total sales not the quantity.
HC	The user will provide the coffee type. The program will then find out which zip code sold the highest quantity for that type. It will generate and print the total sales for that type and display the zipcode with that type.
E	Exit or exits the program

- Allow you to pick numerous tasks before you are done with the program. **HINT: you will need a loop here.**
- Load all arrays with data when the program loads. In other words, you will not get prompted to load these values separately. Instead you will initialize your arrays with these numbers at the beginning of the program.
- Nice clean output.
- **Utilization of modular programming. At the minimum you should have 5 modules counting the main module as one of them.**

Some Help with the Logic

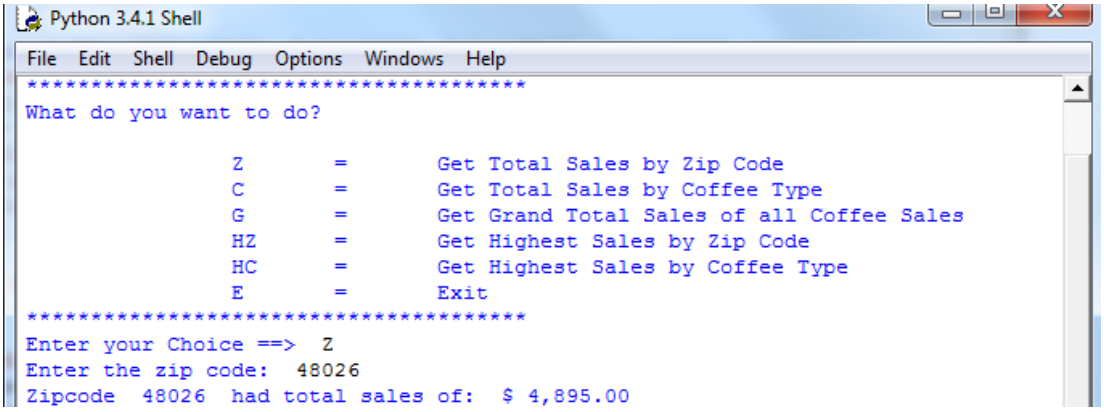
Start your analysis of inputs and outputs. Write a problem statement and create a list of your variables. Try to figure out what variables will go in what module. Create a 30,000 foot view and write pseudocode for each module. Remember that pseudocode should not look like working code. Copied and pasted working Python code into a text file will give you 0 points for the pseudocode portion of this assignment.

Time to Code

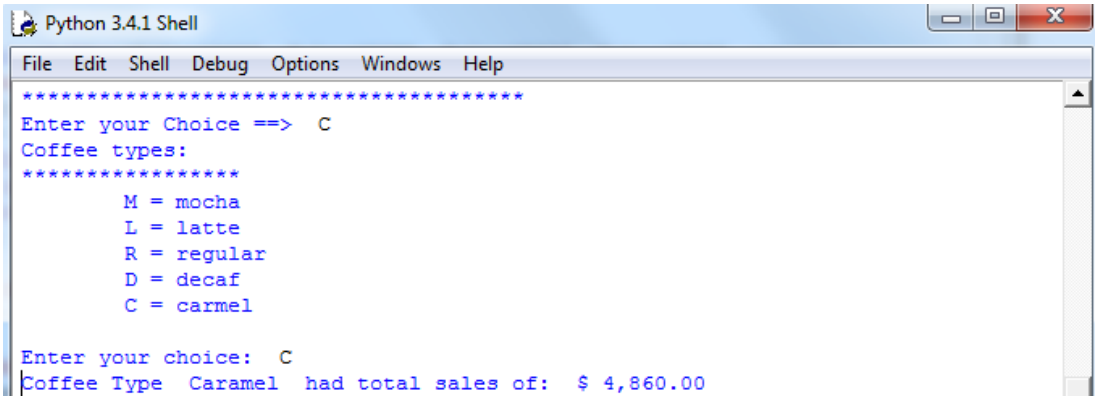
Once you have planned your attack you can start to code. Write each module separate from each other. Write a module and then test it. Don't go on to the next module until the one you are coding works. Finally be watchful of how lists behave in Python. Remember that lists are by reference parameter passes and not by value.

- Remember the proper flow of a program ➔ declare variables at the top, fill the variables, process the variables and print out the variables
- Choose good variable names. These are not too long but descriptive.
- Take care with your output. This does need to make sense.
- Don't forget your comments! Points will be deducted.
- Since this program is a little longer than your lab programs, test as you go. If you type all of your code in and then test at the end, your debugging will last longer.

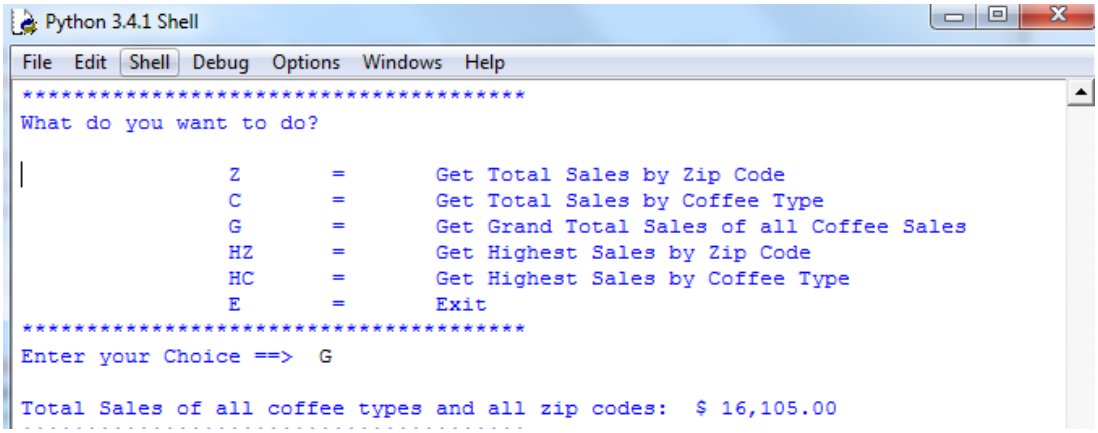
Once you have your code typed in, using the test data above, test your program. My output looked like the following when I entered Z and 48026 for the zip code:



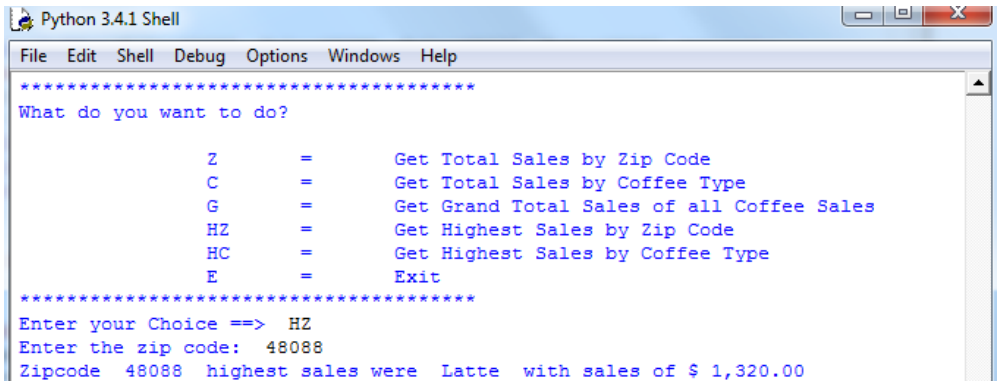
My output when I selected C and C for Caramel



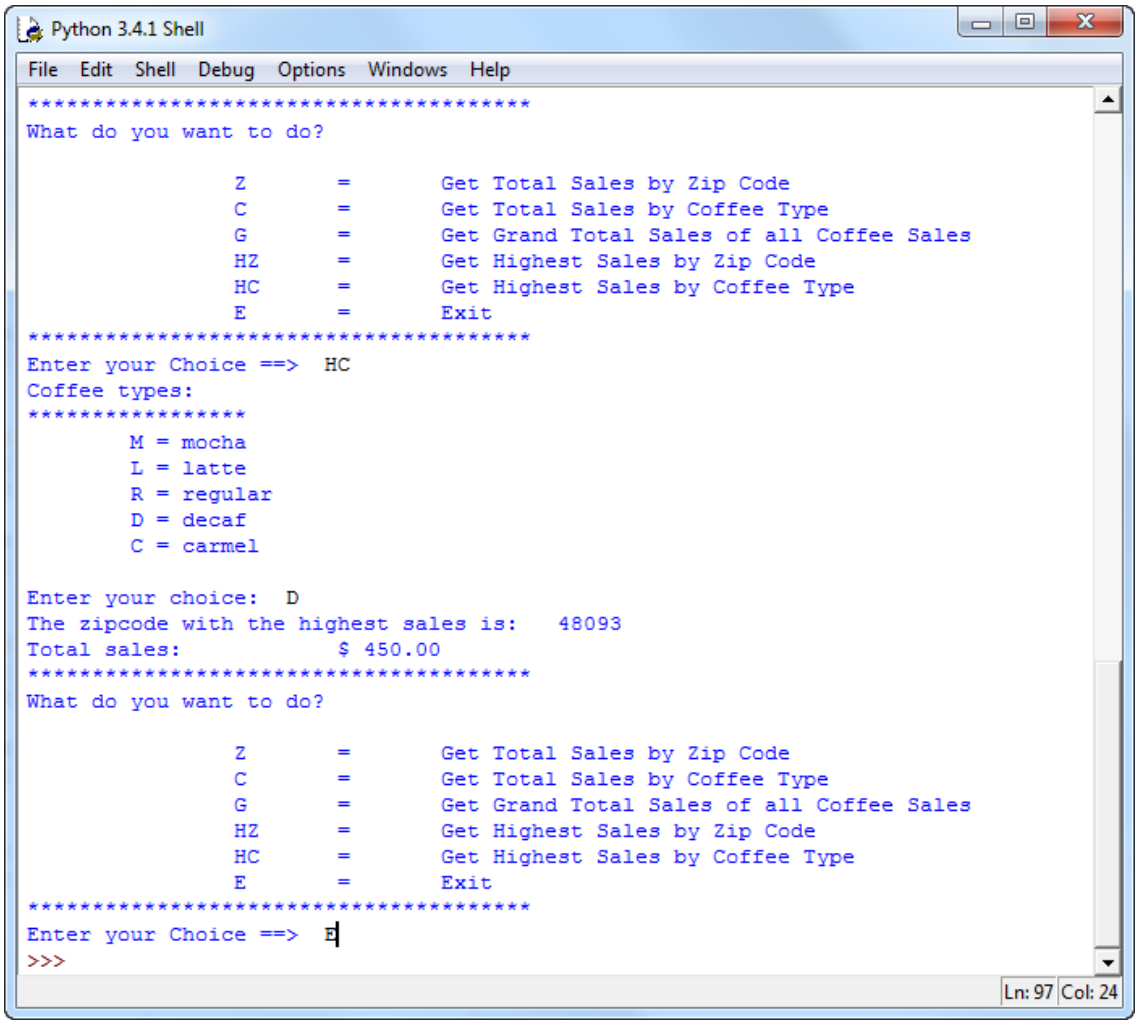
My output when I select G



My output when I select HZ and 48088 for the zip code



My output when I selected HC and D for decaf



Try to get your program to look as much like mine as you can. Utilize the format function and the tab character to line your output up.

When completed print and turn in your Planning Document.