

**IS115 Introduction to Programming** Fall 2016  
**Assignment #11**

Date Assigned: 11/14

**Date Due: 11/21**

**DO NOT share your answers with anyone. DO NOT collaborate on completing work with anyone.**  
**Failure to meet this requirement leads to a violation of the academic integrity principles.**

This assignment is based on the material covering **Python concepts of chapter 4 of our optional textbook.**

**It's always a good idea to start with a pseudocode for the problem, but I'm not requiring a pseudocode to be turned in.**

**What to submit:** One Python files (.py file). A good file naming convention always includes your name. For example, I might name my file something like:  
**hw11\_q1\_foo\_bar.py**

**Helper file:** See the helper file under the Assignment link where you picked up this assignment file for a sample question and answer.

I am also asking for **code documentation**. Your program must contain several comment lines with the following information:

**Your name:**

**Course number and course section:**

**Date of completion:**

**The time it took you to complete this exercise: Log your time from the time you start this exercise till completion. For example, you could write 1 hour of 30 minutes, 90 minutes, etc.**

**Brief explanation of the program:**

In **Python**, comment lines start with the # symbol. You may also highlight the text you want to be commented, click Format/Comment Out Region. Make sure to include comments throughout your code explaining the key steps of the program.

**10 points for proper documentation.**

**Write Python code for the following problem. Make sure to test your code as you write the individual pieces.**

1. Use **Python. Based on chapter 4 - Loops:** Write a program to process items that a person purchases for as many persons as we like. Ask for the number of persons

and for each person perform the following actions. This requires an outer loop for the number of persons and an inner loop for the items to be purchased by a given person. Of course, you'll have another loop to validate the price of items.

- a) We like to be able to have the user enter prices for as many items that she wants to purchase. Allow for a sentinel value to end the input loop. Select an appropriate sentinel value based on the data you're processing. **Avoid the use of Yes/NO or DONE input to end the data input loop.** If the user chooses not to enter any data at all, issue an error message and do not calculate/display any output.
- b) Do not allow the user to enter an invalid price (A price greater than \$350). Issue an error message and allow the user to enter a valid price.
- c) Calculate and display the total amount of all purchases and the number of items purchased.
- d) Calculate and display the total amount with an applied 8% tax rate.
- e) Calculate and display the average price of all purchases after the application of tax.
- f) Find and display the lowest valid price entered.
- g) Find and display the highest valid price entered.

We use -1 for price as our sentinel value

**Test case:**

Number of users: 2

Price 1: 100

Price 2: 400

Invalid message: ask again

Price 2: 200

Price 3: -1

OUTPUT: Total price: 300

Number of items: 2

Total with tax: 324

Average price: 162 <<<<<<note: 324/2 gives us the average

Lowest price: 100

Highest price: 200

You should now be prompted to enter data for the second user:

Price 1: 2

Price 2: 4

Price 3: 1

Price 4: 3

Price 5: -1

OUTPUT: Total price: 10

Number of Items: 4

Total with Tax: 10.8  
Average price: 2.7 <<<< 10.8/4  
Lowest price: 1  
Highest price: 4

**Clearly explain the output. Format the values with 2 digits after the decimal point.**