CISC106 Summer 2014 Lab01

Submission Deadline: 06/15/2014 11:55 PM EDT on Sakai.

Assignment:

For this lab you will need to submit a report containing the answers for all the questions. Type your responses (no scanning or photographing is allowed) and submit it together with the Python files (.py) you are going to generate. Please do not forget to add your name at the top of all the submitted files.

1) **Installing Python**

If you plan on using your own computer to do this (and future labs), you'll have to install Python. Go to https://www.python.org/downloads/ and install Python 3.4.1 to your computer.

2) **Using Python as a calculator (20 pts)**

Open **Idle** and in the Python Shell window, type in the number 8, and then hit the Enter key. Python gives you back the number 8. This is an example of an atomic expression. We can also write compound expressions, which consist of two expressions (either atomic or compound), with an operator between them and optionally surrounded by parenthesis.

Here are some examples, each conforming to the definition of "expression" by repeatedly applying the two definitions given above. Type each expression into the Python Shell window and make sure you understand the results returned by Python.

8

5

(8 + 5)

((8 + 5) - 3)

(((8 + 5) - 3) * 2)

Save the shell window to lab1_2.py

3) **Data types (20 pts)**

What are types of following expressions?

    a) 1
    b) 1.0
    c) "1.0"
    d) 1+1
    e) "1" + "1"

Verify your answers by typing type(expression) in python shell window.

Save the shell window to lab1_3.py

4) **Variables (30 pts)**

  income = 1000

  federal_tax_rate = 0.2

  state_tax_rate = 0.01

  net_income = income – (federal_tax_rate * income) – (state_tax_rate * income)

  print(net_income)

Copy and paste the code above to lab1_4.py file and run. What is the output? Update the income to 150 and federal_tax_rate to 0.3. What is the output? We forgot to add city tax to net income calculation, so add city tax variable to the code and set its value to 10. Its value is independent of income. Update the net_income formula in lab1_4.py.

4) **Puzzles (20 pts)**

Contrary to popular belief, computer science is really incredibly creative. It is a matter of taking the tools you have and solving the problem you are given (or are interested in solving). In essence, it is puzzle solving. Along those lines, here are 2 puzzles, along with your accompanying tools.

    a. Following the tips provided, find out the color of each house and the nationality of the person who lives on each one of them (10 points)
- The Spanish lives on the right of the red house
- The German lives in the blue house.
- The Italian lives in an even-numbered house.

	House 1	**House 2**	**House 3**
Color			
Nationality			

    b. Five women are at a beauty salon waiting to be attended. Following the tips, find out their names, profession, the service they are looking for, the color of their bags, the state of their hometown and what is their favorite juice flavor (10 points).

- The woman who is going to color her hair is on the exact left of Claudette.
- The lady in the middle is going to relax her hair.
- The one who is going to cut her hair is somewhere in between the girl from FL and the one who has a red bag, who is on the right.
- The one who is going to have make-up is sitting on the first chair.
- The lady from PA is sitting on the exact left of the Publicist.
- Mary is a programmer.
- The dentist is sitting on the fourth chair.
- The chef is sitting side-by-side with the lady from Massachusetts.
- Anna is on the exact right of the woman who is having a make-up.
- Tania is sitting in one of the ends.
- The lady from PA loves lemonade.
- The lady who has a red bag is sitting somewhere on the left of the one who drinks strawberry juice.
- The person who drinks Orange juice is sitting on the second chair.
- The owner of the green bag is sitting side-by-side with the one who likes grape-flavored juice.
- The lady from MA is sitting on the exact right of the lady who has a White bag.
- The woman from Georgia loves strawberry juice.
- The lawyer is sitting side-by-side with the woman who is going to cut her hair.
- The owner of the yellow bag is sitting on the exact left of the owner of the White bag.

	Chair1	Chair2	Chair3	Chair4	Chair5
Bag color					
State					
Favorite juice					
Name					
Profession					
Service					