CS-521 Homework Assignment 1

Answer the following 10 questions (and subparts) using information you find in Chapter 1 of “The Practice of Computing Using Python.” You can use the book’s exact text for your answers. Answers should be short, clear, and reasonably complete. The answers must be in this document.

1. According to the textbook, what is a computer program?

***Answer:***

A program is a human – readable essay on problem solving that also happens to execute on computer.

2. Python is an interpreted language. What does “interpreted” mean in this context?

***Answer:***

It means that there is a program within Python called the interpreter that executes code line by line, and it allows to test lines of code one at a time.

3. What is a Python comment? In what ways can you indicate a comment? What are some purposes for writing comments?

***Answer:***

Python comment is anything following # and Python interpreter ignores them. We indicate a comment if code includes a novel or noteworthy solution and make notes about the function of code. The purposes for writing comments are to clarify, explain its intent and improve readability.

4. In Python, what is a namespace?

***Answer:***

Namespace is a relation between names and objects

5. Regarding Whitespace in python:

a. What is whitespace? Include examples.

***Answer:***

Whitespace is character to sperate words. Example: Space, tab, return, linefeed, formfeed and vertical tab.

b. When does whitespace matter?

***Answer:***

When whitespace at the beginning of a line, its defined indentation.

c. When does whitespace not matter?

***Answer:***

Within expression and statements, blank lines

6. Regarding Python statement and expressions:

a. Explain the difference between a statement and an expression

***Answer:*** Expression returns value. Statement does not return value and performs a task and may have a side effect

b. Give an example of both a statement and an expression

***Answer:***

Example:

1. Statement: price = 11
2. Expression: price\_discount = price – 2 ( price\_discount = 9, because price = 11)

c. Explain what is meant by a statement having a side effect

***Answer:***

A side effect is some change that results from executing a statement. Example price = 11 does not have return value but it assigns value (11) to variable (price).

7. Mixed operations:

a. What data type results when you divide an integer by a float?

***Answer:*** Float

b. What data type results when you divide a float by an integer?

***Answer:*** Float

c. Why do the resulting data type(s) answered above make sense - as opposed to other data type(s)?

***Answer:*** Because when data type is float there is no information lost but converting a float to integer may lose the fractional information in the float.

8. Consider integer values of a, b, and c, and the expression (a + b) \* c.

In mathematics, we can substitute square brackets [] or curly braces {} for parentheses ().

Is that same substitution valid in Python? Explain why or why not and be specific.

***Answer:*** No, It is not same substitution valid in Python. Because in Python square brackets [] define a list and curly braces define a dictionary. When we substitute square brackets [] return list. And substitute curly braces, it shows TypeError for set and int

9. Evaluate the following 3-line Python program:

1> my\_int = 4 + 3 \* 2

2> my\_int = my\_int + 5

3> print(my\_int)

a. If you execute the three lines of code above, what will be printed?

***Answer:***

I will print 15

b. Explain your answer using the rules of assignment.

***Answer:***

Line number 1: get return value (10) from the expression from the right-hand side, then assign value (10) to variable my\_int

Line number 2: get the value 10 associate with my\_int in line number 1 and add 5, we have result 15, and then assign value 15 to my\_int (on the left hand side). my\_int has two roles in this line. On the right-hand side, it presents a value, On the lef-hand side, it represents the variable that we will assign value to.

Line number 3: print that total amount in line number 2(because my\_int has been update in line number 2)

c. Rewrite line 2 using the += symbol

***Answer:***

my\_int +=5

10. Evaluate the following 3-line Python program:

1> my\_var1 = 9.0

2> my\_var2 = 4

3> print(my\_var1 % my\_var2)

If you execute this program, what will be printed and why?

Answer:

I will print 1. Because my\_var1%my\_var2 (9%4) is remainder (%) operator.