CPSC 1301, Computer Science I Lab Assignment

Lab 01b

June 3, 2021

Installing and Testing your Python

Install the appropriate Python for your machine. Use Python3. See `https://www.python.org/`. Test your Python by doing this lab.

```
C:\Users\ccc31\cols-st\cpsc1301>python
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> # VARIABLES ########################################
>>> print ("Hello, CSU!");
Hello, CSU!
>>> name = "Student"
>>> print("Hello", name, "!")
Hello Student !
>>> c = "Columbus"
>>> s = "State"
>>> u = "University"
>>> print("Hello", c, s, u)
Hello Columbus State University
>>> h = "Hello"
>>> print(h, c, s, u)
Hello Columbus State University
>>> greeting = "Hello, CSU!"
>>> print(greeting)
Hello, CSU!
>>> # assign your name to a variable and greet yourself
>>> # ----------- your code here -----------------

>>> # ARITHMETIC #######################################
>>> x = 5
>>> y = 7
>>> z = 9
>>> x + y
12
>>> x * z
45
>>> z - y
2
>>> z / x
1.8
>>> z % x
4
>>> x % z
```

```
5
>>> x // z
0
>>> z // x
1
>>> x / z
0.5555555555555556
>>> z / x
1.8
>>> print(x + y, x - z, z * y, z / x, z % x, y // x)
12 -4 63 1.8 4 1
>>> x + y * z
68
>>> (x + y) * z
108
>>> x + (y * z)
68
>>> x + y * z - x
63
>>> (x + y) * (z - x)
48
>>> x + (y * z) - x
63
>>> x * y / z
3.888888888888889
>>> (x * y) / z
3.888888888888889
>>> x * (y / z)
3.888888888888889
>>> x / y * z
6.428571428571429
>>> (x / y) * z
6.428571428571429
>>> x / (y * z)
0.07936507936507936
>>> # COMPARISON OPERATORS ########################################
>>> x == 5
True
>>> x != 5
False
>>> x == y
False
>>> x != y
True
>>> x > y
False
>>> x < y
True
>>> x >= 5
True
>>> x >= y
False
>>> 5 >= x
True
```

```
>>> 5 > x
False
>>> w = print("Hello")
Hello
>>> w
>>> print(w)
None
>>> # LOGICAL OPERATORS ########################################
>>> 0 and 0
0
>>> 1 and 1
1
>>> 2 and 4
4
>>> 2 or 4
2
>>> True
True
>>> not True
False
>>> False
False
>>> not False
True
>>> not (1 and 1)
False
>>> not (1 or 12)
False
>>> not (0 and 0)
True
>>> not (0 or 0)
True
>>> True and True
True
>>> True and False
False
>>> False and True
False
>>> False and False
False
>>> True or True
True
>>> True or False
True
>>> False or True
True
>>> False and False
False
>>> # Construct an exclusive or expression
>>> # XOR returns True when both operands are different and False when both operands are the same
>>> # ----------- your code here ------------------

>>> # Given a square with Side = 3, compute the area and perimeter of the square
>>> # ----------- your code here ------------------
```

```
>>> # given a cube with Side = 4, compute the volume and surface area of the cube
>>> # ----------- your code here -----------------

>>> # prove De Morgan's Laws
>>> # ----------- your code here -----------------
>>> # DOING MATH ######################################
>>> import math
>>> math.pi
3.141592653589793
>>> sqrt(4)
>>> math.sqrt(4)
2.0
>>> # Given a right triangle with Side A = 3 and Side B = 4, compute the length of the hypotense
>>> # ----------- your code here -----------------

>>> # Given the same right triangle, compute the area of the triangle
>>> # ----------- your code here -----------------

>>> exit()
```

Writing and Running your First Python Program

Use this template for writing your Python programs. Use any text editor of your choice. I recommend Notepad++ (`https://notepad-plus-plus.org/`).

```
1  #!python
2  # Name: template.py
3  # Author: Charles Carter
4  # Date; May 16, 2021
5  # Purpose: creates a template for python programs
6
7  # import statements here (if any)
8
9  # define methods here (if any)
10 def hello():
11     print("Hello from 'template.py'")
12
13 #main function executes the defined functions
14 if __name__ == '__main__':
15     hello()
```