**SENG 1000**

**Software Engineering Foundations and Practice**

**Assignment 1**

Date Assigned: Thu. 23rd Jan. Due Date: Thu. 30th Jan. Midnight

Maximum Possible Marks: 100

**This assignment serves two purposes:**

* First, it is designed to get you started with Python immediately, particularly with the command shell or the Python IDE.
* Second, it gives you hands on experience with Python expressions, using assignment statements, math functions, and creating scripts.

**Note:**

* Import “import math” into your python script to use math functions.
* While executing, any of the following statements, if you encounter an error, explain the reason for the error in short sentence.

**Questions:**

1. [15 Points] Write a python script “q1.py” to evaluate all the following expressions. Then fill the following table (submit q1.py and the Table below):

|  |  |
| --- | --- |
| **Expression** | **Result** |
| 2 \* 3 |  |
| 2 \*\* 3 |  |
| 5+2\*5 |  |
| (5 + 2) \* 5 |  |
| -4 - -4 - -4 |  |
| 2 \*\* 2 \*\* 0 |  |
| (2 \*\* 2) \*\* 0 |  |
| 6 // 2 |  |
| 6 // 4 |  |
| 6.0 / 4.0 |  |
| 2.0 // 2.5 |  |
| 9.0 \* 0.5 |  |
| 9.0 \*\* 0.5 |  |
| 6 % 2 |  |
| 8 % 3 |  |
| 6.2 % 4 |  |

1. [15 Points] Write a python script “q2.py” to evaluate all of the following expressions, then fill the following table (submit q2.py and the Table below):

|  |  |
| --- | --- |
| **Expression** | **Result** |
| float(4) |  |
| int(5.3) |  |
| int(True) |  |
| float(int(5.3)) |  |
| int(5.7) |  |
| float(7) // 4 |  |
| int(7 / 4) |  |
| 6.2 and False |  |
| True and 6.2 |  |
| type(4.5) |  |
| type(True and 3) |  |

1. [10 Points] How does “**and**” and “**or**” operators work if one of the two operands is not a Boolean values?
2. [15 Points] Write a python script “q4.py” to evaluate all of the following expressions. Then fill the following table (submit q4.py and the Table below):

|  |  |
| --- | --- |
| **Expression** | **Result** |
| min(25, 4) |  |
| max(25, 4) |  |
| min(5,max(7,4)) |  |
| abs(25) |  |
| abs(-25) |  |
| round(25.6) |  |
| round(-25.6) |  |
| round(25.64, 0) |  |
| round(25.64, 1) |  |
| round(25.64, 2) |  |
| len('Hello') |  |
| len(‘Hello World’) |  |
| chr(65) |  |
| chr(66) |  |
| ord('A') |  |
| ord('AB') |  |

1. [15 Points] Write a python script “q5.py” to evaluate all of the following expressions. Then fill the following table (submit q5.py and the Table below):

|  |  |
| --- | --- |
| **Expression** | **Result** |
| math.sqrt(9) |  |
| math.sqrt(-9) |  |
| sqrt(4) |  |
| math.floor(3.7) |  |
| math.ceil(3.7) |  |
| math.ceil(-3.7) |  |
| math.trunc(3.7) |  |
| math.trunc(-3.7) |  |
| math.pi |  |
| math.cos(math.pi) |  |
| math.acos(1.0) |  |
| math.e |  |
| math.log(math.e) |  |
| math.log(4,2) |  |

1. [30 points] Write a python script q6.py to accept two integer numbers from the user using a prompt and print the result of all operations like shown below. Also, write appropriate comments for this program. (Submit q6.py)

Example output:

Enter first number: 6

Enter second number: 2

Addition: 6 + 2 = 8

Subtraction: 6 – 2 = 4

Multiplication: 6 \* 2 = 12

Division: 6 / 2 = 3.0

Integer Division: 6 // 2 = 3

Modulus: 6 % 2 = 0

Exponent: 6 \*\* 2 = 36