Laboratory Partner 1:_____

Laboratory Partner 2:_____

CSCI 1523: Class Laboratory 2B
Variable naming, operators, comments
and
Elementary Coding

Instructor: Warren W. Sheaffer

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Storing data in in variables

Below find a series of questions which relate to numerics and literals used in the Python language. Students should attempt to complete these exercises without the use of the internet or your text. **Sometimes** guessing then correctly identifying an error can help a new user become familiar with a language more quickly so try to work without reference.

Following completion of the exercise uses the inactive Python prompt to test your answer:

1. >>>**0varible = 6.7** Results and reason: _____

2. >>>**newString = my new string** Results and reason: _____

3. >>>**myfloat = 45.6** Results and reason: _____

4. >>>**myFloat = 4.3e-25** Results and reason: _____

5. >>>**__myint = 25** Results and reason: _____

6. >>>**myString = 'a little string"** Results and reason: _____

7. >>>**$$myVar = 22.5** Results and reason: _____

Now some questions on ***format***

8. >>>**format(7/8)** Results and reason: _____

9. >>>**format(7/8,'.1f'** Results and reason: _____

10. >>>**format(25*3,'.1f')** Results and reason: _____

Take care to answer each of the questions above collaboratively and to the best of your joint knowledge. Once you have completed each of the questions above use the interactive Python prompt on your workstation to test your solution.

We are using Python version 3.4.2 in this course so please be certain to check your prompt to insure you are testing for the correct answers.

Correct the solutions yourself and try to do a critical self-assessment of your knowledge of this topic.

Manipulating integer data

Below find a series of questions which relate to integer operations used in the Python language. Students should attempt to complete these exercises without the use of the internet or your text. **Sometimes** quessing then correctly identifying an error can help a new user become familiar with a language more quickly so try to work without reference.

Assume the following variable assignment when completing your work on the problems below:

- AAA = 8
- BBB = 20
- CCC = 1
- DDD = 11
- EEE = 13
- FFF = 5

Following completion of the exercise uses the inactive Python prompt to test your answer:

1. >>>**A = BBB // AAA**
   >>>**print("The value of A is: ",A)** Results and reason: _____

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2. >>>**B = BBB % AAA**
   >>>**print("The value of B is: ",B)** Results and reason: _____

---

3. >>>**C = DDD * 3 + FFF**
   >>>**print("The value of C is: ",C)** Results and reason: _____

---

4. >>> **D = EEE - FFF * 4**
   >>>**print("The value of D is: ",D)** Results and reason: _____

---

5. `>>> E = EEE // FFF + CCC`
   `>>>print("The value of E is:  ",E)` Results and reason: _____

---

6. `>>> F = EEE // (FFF + CCC)`
   `>>>print("The value of F is:  ",F)` Results and reason: _____

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7. `>>> G = FFF // 2 * 2`
   `>>>print("The value of G is:  ",G)` Results and reason: _____

Take care to answer each of the questions above collaboratively and to the best of your joint knowledge. Once you have completed each of the questions above use the interactive Python prompt on your workstation to test your solution.

We are using Python version 3.4.2 in this course so please be certain to check your prompt to insure you are testing for the correct answers.

Correct the solutions yourself and try to do a critical self-assessment of your knowledge of this topic.

Mixed type operations on numeric data

Below find a series of questions which relate to assignment operations using mixed types in the Python language. Students should attempt to complete these exercises without the use of the internet or your text. **Sometimes** quessing then correctly identifying an error can help a new user become familiar with a language more quickly so try to work without reference.

Assume the following variable assignment when completing your work on the problems below:

- AAA = 9
- BBB = 13
- XXX = 17.9
- YYY = 1.2e+3
- ZZZ = 5.625e-12

Please note we have excluded the use of the >>>symbol here as we are assuming it's use.

Following completion of the exercise uses the inactive Python prompt to test your answer:

1. `A = int(XXX)`
   `print("The value of A is:  ",A)` Results and reason: _____

2.
```
B = int(XXX + 4.8)
print("The value of B is:  ",B)
```
Results and reason: _____

3.
```
C = int(XXX-AAA//2)
print("The value of C is:  ",C)
```
Results and reason: _____

4.
```
D = int(ZZZ)
print("The value of D is:  ",D)
```
Results and reason: _____

5.
```
E = int(YYY - ZZZ)
print("The value of E is:  ",E)
```
Results and reason: _____

6.
```
X = float(XXX)
print("The value of X is:  ",X)
```
Results and reason: _____

7.
```
Y = float(BBB // 2)
print("The value of Y is:  ",Y)
```
Results and reason: _____

Take care to answer each of the questions above collaboratively and to the best of your joint knowledge. Once you have completed each of the questions above use the interactive Python prompt on your workstation to test your solution.

We are using Python version 3.4.2 in this course so please be certain to check your prompt to insure you are testing for the correct answers.

Correct the solutions yourself and try to do a critical self-assessment of your knowledge of this topic.

Programming application - Quadratic Equation

Consider the quadratic equation:

$$Ax^2 + Bx + C = 0$$

and its solution:

$$x = \frac{-B \pm \sqrt{B^2 - 4AC}}{2A}$$

where x is the unknown and A, B and C are constants (with A not equal to 0). A quadratic equation has two solutions (called roots), which may not be distinct values and which may not be real values.

Develop a program to compute the two roots of a quadratic equation.

Test your program on the following values:

1. **A=4, B=0, C= -36**

   Root 1:_____

   Root 2:_____

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2. **A=1, B=5, C= -36**

   Root 1:_____

   Root 2:_____

---

3. **A=2, B=7.5, C= 6**

   Root 1:_____

   Root 2:_____

---

4. **A=0, B=3.5, C= 8**

   Root 1:_____

   Root 2:_____

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5. **A=5, B=0, C= 6.5**

   Root 1:_____

   Root 2:_____

Demonstrate your completed program to your Instructor.

