Lab1

1. To make sure that you can interact with the Python interpreter, try the following steps on your computer:
   - Start the Python interpreter in interactive mode.
   - At the >>> prompt, type the following statement then press Enter: print('This is a test of the Python interpreter.') Enter
   - After pressing the Enter key, the interpreter will execute the statement. If you typed everything correctly, your session should look like this:
     >>> print('This is a test of the Python interpreter.') Enter
     This is a test of the Python interpreter.
     >>>
   - If you see an error message, enter the statement again, and make sure you type it exactly as shown.
   - Take a screen and submit it along the rest of the lab in canvas.

   - Exit the Python interpreter. (In Windows, press Ctrl-Z followed by Enter. On other systems, press Ctrl-D.)

2. To make sure that you can interact with IDLE, try the following steps on your computer:
   - Start IDLE. To do this in Windows, type IDLE in the Windows search box. Click the IDLE desktop app, which will be displayed in the search results.
   - When IDLE starts, it should appear similar to the window previously shown in Figure 1-20. At the
   - >>> prompt, type the following statement then press Enter:
   - print('This is a test of IDLE.') Enter
   - After pressing the Enter key, the Python interpreter will execute the statement. If you typed everything correctly, your session should look like this:
   - >>> print('This is a test of IDLE.') Enter
   - This is a test of IDLE.
   - >>>
   - If you see an error message, enter the statement again and make sure you type it exactly as shown.

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- Take a screen and submit it along the rest of the lab in canvas.
- Exit IDLE by clicking File, then Exit (or pressing Ctrl-Q on the keyboard).

3. Use what you've learned about the binary numbering system in this chapter to convert the following decimal numbers to binary:
   - 11
   - 65
   - 100
   - 255

4. Use what you've learned about the binary numbering system in this chapter to convert use the following binary numbers to decimal:
   - 1101
   - 1000
   - 101011

In Exercises 5 through 16, evaluate the numeric expression without the computer, and then use Python to check your answer.

5. 3 * 4

6. 3 + (4 * 5)

7. 7 // 3

8. 14//4

9. 7 ** 2

10. (5 - 3) * 4

11. 14 % 4

12. 5//5

13. 1 / (2 ** 3)

14. 3 * ((-2) ** 5)

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15. 7 % 3

16. 5 % 5

In Exercises 17 through 22, determine whether the name is a valid variable name.

17. sales.2008

18. 104GB

19. room&Board

20. expenses?

21. fOrM_1040

22. INCOME 2008

In Exercises 23 through 28, evaluate the numeric expression where a = 2, b = 3, and c = 4.

23. (a * b) + c

24. a * (b + c)

25. (1 + b) * c

26. a ** c

27. b ** (c - a)

28. (c - a) ** b

In Exercises 29 through 34, write lines of code to calculate and display the values.

29. 7.8 + 5

30. $15 - 3(2 + 3^4)$

31. $(1 + 2.\ 9)^3$

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32. 17(3 + 162)

33. 5.5 % of 20

34. $4^{½} - 3^{5/8}$

In Exercises 33 through 38, determine the output displayed by the lines of code.

33.
```
a = 4
b = 5 * a
print(a + b)
```

34.
```
num = 5
num *= 2
print (num)
```

35.
```
totalMinutes = 135
hours = totalMinutes // 60
minutes = totalMinutes % 60
print(hours, minutes)
```

36.
```
n = 7
n += 1
print(1, n, n + 1)
```

37.
```
tax = 200
tax = 25 + tax
print(tax)
```

38.
```
totalOunces = 90
pounds = totalOunces // 16
ounces = totalOunces % 16
```

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```
print(pounds, ounces)
```

39. Write a program that finds the area of a circle whose radius is 15 inches.

40. Write a program finds the area of a rectangle whose length is 25 inches and width is 20 inches.

Please take a screen shot using snipping tool and paste all that you have done in this lab in a word document and submit it in canvas.