Python Exercises

1. What is the Python interpreter?
2. What is difference between source code and byte code?
3. What are the popular Python versions available today?
4. What is a module and what's the significance in Python?
5. What is the value of the following expressions in Python?

   2 * (3 + 4)

   2 * 3 + 4

   2 + 3 * 4

   2 + (3 * 4)

   What do you infer from the above?
6. What tools can you use to find a number's square root, as well as its square?
7. How can you truncate and round a floating-point number?
8. How can you convert an integer to a floating-point number?
9. Given a string S with the value "s,pa,m", name two ways to extract the two characters
   in the middle.
10. How many characters are there in the string "a\nb\x1f\000d"?
11. How would you search if an item is present in a list ?
12. Name two ways to build a list containing five integer zeros?
13. L=[0,1,2,3])
    - What happens when you try to index out of bounds (e.g., L[4])?
    - What about slicing out of bounds (e.g., L[−1000:100])?
    - How would you delete the element located in third index from the list ?
14. >>> X = 'spam'
    >>> Y = 'eggs'
    >>> X, Y = Y, X

    What will be the output of above ? What is happening here and what do you infer from above?

15. Define a string S of four characters again: S = "spam". Write an assignment that changes the string to "slam", using only slicing and concatenation.
    Could you perform the same operation using just indexing and concatenation? How about index assignment?

16. Write a script that creates a new output file called *myfile.txt* and writes the string "Hello file world!" into it. Then write another script that opens *myfile.txt* and reads and prints its contents.

17. Write a Python program to display the current date and time.
    Sample Output :
    Current date and time :
    2014-07-05 14:34:14

18. Write a Python program which accepts the radius of a circle from the user and compute the area. The user should enter radius as input and the area should be computed.

19. Write a Python program which accepts the user's first and last name and print them in reverse order with a space between them

20. Write a Python program which accepts a sequence of comma-separated numbers from user and generate a list and a tuple with those numbers.
    Sample data : 3, 5, 7, 23
    Output :
    List : ['3', ' 5', ' 7', ' 23']
    Tuple : ('3', ' 5', ' 7', ' 23')

21. Write a Python program to accept a filename from the user and print the extension of that.

    Sample filename : abc.java
    Output : java

22. Write a Python program to display the first and last colors from the following list.
    color_list = ["Red","Green","White" ,"Black"]

23. Write a Python script to check max of 2 numbers. Write a function to compute the max of 2 numbers. 2 numbers should be entered by user as input.

24. Write a Python program to test whether a passed letter is a vowel or not. The letter should be entered as input from user.

25. Write a Python program to check whether a specified value is contained in a group of values.

Test Data :
3 -> [1, 5, 8, 3] : True
-1 -> [1, 5, 8, 3] : False

26. Write a Python program to list all files in a Windows directory.
27. Write a Python to find local IP addresses using Python's stdlib module.
28. Write a Python program to get a string made of the first 2 and the last 2 chars from a given a string. If the string length is less than 2, return instead of the empty string.
    Sample String : 'w3resource'
    Expected Result : 'w3ce'
    Sample String : 'w3'
    Expected Result : 'w3w3'
    Sample String : ' w'
    Expected Result : Empty String
29. Write a Python program to count the occurrences of each word in a given sentence.
30. Write a Python function to reverses a string. If your name is entered as input, the reverse of your name should be displayed as output.
31. Write a Python program to print the index of the character in a string.

    Sample string: w3resource
    Expected output:
    Current character w position at 0
    Current character 3 position at 1
    Current character r position at 2
    -
    Current character c position at 8
    Current character e position at 9
32. Write a Python program to sum all the items in a list
33. Write a Python program to get the largest number from a list
34. Write a Python program to get the smallest number from a list
35. Write a Python program to check a list is empty or not
36. Write a Python program to clone or copy a list

37. Write a Python program to get unique values from a list.

38. Write a Python script to add a key to a dictionary.

    Sample Dictionary : {0: 10, 1: 20}
    Expected Result : {0: 10, 1: 20, 2: 30}

39. Write a Python script to concatenate following dictionaries to create a new one.

    Sample Dictionary :
    dic1={1:10, 2:20}
    dic2={3:30, 4:40}
    dic3={5:50,6:60}
    Expected Result : {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}

40. Write a Python script to check if a given key already exists in a dictionary.

41. Write a Python program to iterate over dictionaries using for loops.

42. Write a Python program to remove a key from a dictionary.

43. Write a Python program to map two lists into a dictionary.

44. Write a Python program to get the top three items in a shop.
    Sample data: {'item1': 45.50, 'item2':35, 'item3': 41.30, 'item4':55, 'item5': 24}
    Expected Output:
    item4 55
    item1 45.5
    item3 41.3

45. Write a Python program to convert a tuple to a string.

46. Write a Python program to find the length of a tuple. Also, remove an item from a tuple.

47. Write a Python program to reverse a tuple

48. Write a Python program to print a tuple with string formatting.
    Sample tuple : (100, 200, 300)
    Output : This is a tuple (100, 200, 300)

49. Write a Python program to create a set. Also, remove an item from a set if it is present in the set.

50. Write a Python program to find maximum and the minimum value in a set.