1. What is an identifier in Python?
2. What are the rules for writing an identifier in Python?
3. What are some examples of valid identifiers in Python?
4. What are some examples of invalid identifiers in Python?
5. What are the advantages of using identifiers in Python?

Conditional Statement - Assignments

1. Write a program to read 2 numbers from the keyboard and print sum?
2. How to read multiple values from the keyboard in a single line?
3. Program to check if a number is divisible by 7 or not?
4. Program to check if a number is multiple of 3 not not?
5. Program to check if a number is positive or not?
6. Write a program to take a single digit number from the keyboard and print in english?
7. Write a program to find the biggest of given 2 numbers from the command prompt?
8. Write a program to find the biggest of given 3 numbers from the command prompt?
9. Program to check if a number is a 3-digit number or not?
10. Program to print even or odd for a given number from CMD/CLA?
11. Program to print the greatest number in given two numbers?
12. Program to print the least/small number is given two numbers?
13. Program to print the greatest number in given three numbers?
14. Program to print given 3 numbers in ascending order?
15. Program to print given 3 numbers in descending order?
16. Program to print min numbers in given 3 numbers ?
17. Program to print max numbers in given 3 numbers ?
18. Print min numbers in given 3 numbers - using Ternary Operator?
19. Print max numbers in given 3 numbers- using Ternary Operator?

Iterative Statement - Assignments

1. Print numbers from 1 to 10 using **a for loop**?
2. Print numbers from 1 to 10 using a while **loop**?
3. Program to calculate the sum of the first 10 natural numbers using for Loop- for loop and While loop?
4. Program to print 15 to 10 numbers using for loop and while loop?
5. Program to print 15 to 10 numbers using a **while loop**?
6. Program to print the first 10 even numbers using a **while loop?**
7. Program to print the first 5 even numbers using a for loop?
8. Program to print the first 10 odd numbers using a while loop?

9. Print Good Morning 10 times?
10. Print numbers from 10 to 1 descending order?
11. Print odd numbers from 10 to 30?
12. Program to print the first 5 even numbers using a for loop?
13. Program to print the first 5 odd numbers using a for loop?
14. Program first ten multiples of 4 using a for loop(4,8,12,16...)?
15. Program first ten multiples of 5 using a while loop(5,10,15,20...)?
16. Program to print a multiplication table of 6 using a for loop.
17. Program to print a multiplication table of 6 using a while loop.
18. Program Factors of 24 using while loop-
     Example : Factors of 24 are (1,3,4,6,12,24)
19. Program to print the reverse of digits of numbers.
20. Program to read 5 numbers from CLA and print only even numbers
21. Program to print Fibonacci number series up to a given number
     Expected Out 17: - 0 1 1 2 3 5 8 13
22. Write a program to check if a given number is an Armstrong number or not.
23. Write a program to print the sum of first n numbers?
24. Write a program to print odd numbers in the range 10,50.

Python - Pattern Example Assignment :1

1. **Print given numbers of '*' or stars in a row.**
2. **Print square pattern with 'A' symbols.**

        A A A
        A A A
        A A A

3. **Print square pattern with '*' symbols.**

4. **Print square pattern with given number/digit.**

        5 5 5 5 5
        5 5 5 5 5
        5 5 5 5 5
        5 5 5 5 5
        5 5 5 5 5

5. **Print square pattern with a given fixed digit in every row.**

        1 1 1 1
        2 2 2 2
        3 3 3 3
        4 4 4 4

6. **Print square pattern with given digit in descending order.**

        5 5 5 5 5
        4 4 4 4 4

```
3 3 3 3 3
2 2 2 2 2
1 1 1 1 1
```

7. **Print Right Angle Triangle pattern with '*' symbol.**

```
*
* *
* * *
* * * *
```

8. **Print Right AngleTriangle pattern with 'A' Symbol.**

```
A
A A
A A A
A A A A
```

9. **Print Reverse Right Angle Triangle Pattern with '*' Symbol**

```
* * * * *
* * * *
* * *
* *
*
```

10. **Print Right Angle Triangle with Fixed Alphabet Symbol**

```
A
B B
C C C
D D D D
```

11. **Print right angle triangle with fixed digit symbol in every row**

```
1
2 2
3 3 3
4 4 4 4
```

12. **Print Right Angle Triangle with Sequence of Digits - each row**

```
1
1 2
1 2 3
1 2 3 4
```

13.Print Right Angle Triangle with Sequence of Alphabet - each row

```
A
A B
A B C
A B C D
```

14.Print inverted right angle triangle using number

```
1 2 3 4
1 2 3
1 2
1
```

15.Python program to print a hollow square pattern of star

```
* * * * *
*       *
*       *
*       *
* * * * *
```

16. Print inverted Right Angle Triangle with **sequence of Alphabets**

```
A B C D
A B C
A B
A
```

17. Print Inverted Right Angle Triangle using sequence number in descending order

```
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5
```

18. Reverse or Inverted Right Angle Triangle using alphabet in **descending order**.

```
D C B A
D C B
D C
D
```

19. Print the string in right angled triangle pattern

```
p
py
pyt
pyth
pytho
Python
```

_____

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20. Print Right Angle Triangle with Continuous Character pattern

     A
     B C
     D E F
     G H I J
     K L M N O

21. Print Right Angle Triangle with numbers continuous pattern

     1
     2 3
     4 5 6
     7 8 9 10
     11 12 13 14

22. Print Right Angle Triangle with number are in continuous column pattern

     1
     2 7
     3 8 12
     4 9 13 16
     5 10 14 17 19
     6 11 15 18 20 21

23. Print Right Angle Triangle with Alphabet are in continuous column pattern

     A
     B   F
     C   G   J
     D   H   K   M
     E   I   L   N   O

24. Print Right Angle Triangle with Numbers are in continuous column pattern - Shape 1

     1
     2 9
     3 8 10
     4 7 11 14
     5 6 12 13 15

25. Print Right Angle Triangle with Alphabets are in continuous column pattern - Shape 2

     A
     B I
     C H J
     D G K N
     E F L M O

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Python Interview Q and A

1 .Write a program which will find all such numbers which are divisible by 7
but are not a multiple of 5, between 2000 and 3200 (both included).

The numbers obtained should be printed in a comma-separated sequence on a single line.

Hints:

Consider use range(#begin, #end) method

2. Write a program which can compute the factorial of a given number.

Python Interview Questions
1. What are the key features of Python?
2. Differentiate between lists and tuples?
3. Explain the ternary operator in Python?
4. What are negative indices?
5. Is Python case-sensitive?
6. How long can an identifier be in Python?
7. How would you convert a string into lowercase?
8. What is the pass statement in Python?
9. Explain help() and dir() functions in Python.
10. How do you get a list of all the keys in a dictionary?
11. What is slicing?
12. How would you declare a comment in Python?
13. How will you check if all characters in a string are alphanumeric?
14. How will you capitalize the first letter of a string?
15. We know Python is all the rage these days. But to be truly accepting of a great technology, you must know its pitfalls as well. Would you like to talk about this?
16. With Python, how do you find out which directory you are currently in?
17. How do you insert an object at a given index in Python?
18. And how do you reverse a list?
19. What is the Python interpreter prompt?
20. How does a function return values?
21. How would you define a block in Python?
22. Why do we need to break and continue in Python?
23. Will the do-while loop work if you don't end it with a semicolon?
24. In one line, show us how you'll get the max alphabetical character from a string?
25. What is Python good for?

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26. Can you name ten built-in functions in Python and explain each in brief?
27. Can you name ten built-in functions in Python and explain each in brief?
28. How will you convert a list into a string?
29. How will you remove a duplicate element from a list?
30. Can you explain the life cycle of a thread?
31. What is a dictionary in Python?
32. Explain the //, %, and ** operators in Python.?
33. What do you know about relational operators in Python.?
34. What are assignment operators in Python?
35. Explain logical operators in Python.?
36. What are membership operators?
37. Explain identity operators in Python?
38. Finally, tell us about bitwise operators in Python?
39. What data types does Python support?
40. What is a docstring?
41. How would you convert a string into an int in Python?
42. How do you take input in Python?
43. What is a function?
44. What is recursion?
45. What does the function zip() do?
46. How do you calculate the length of a string?
47. Explain Python List Comprehension?
48. How do you get all values from a Python dictionary?
49. What if you want to toggle the case for a Python string?
50. What is the purpose of bytes() in Python?
51. What is a control flow statement?
52. Create a new list to convert the following list of number strings to a list of numbers. Output : nums=['22','68','110','89','31','12']
53. Given the first and last names of all employees in your firm, what data type will you use to store it?
54. How would you work with numbers other than those in the decimal number system?
55. What is the usage of help() and dir() functions in Python?
56. How many arguments can the range() function take?
57. What is PEP 8?
58. How is Python different from Java?
59. What is the best code you can write to swap two numbers?
60. How can you declare multiple assignments in one statement?
61. If you are ever stuck in an infinite loop, how will you break out of it?
62. How do we execute Python?
63. Explain Python's parameter-passing mechanism.
64. What is the with statement in Python?
65. How is a .pyc file different from a .py file?

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66. What makes Python object-oriented?
67. How many types of objects does Python support?

Python List, Tuple , Set and Dict Interview Q and A

Python List:

1. When To Use Lists And When To Use Tuples, Dictionaries Or Sets
2. How To Select An Element From A List
3. How To Transform Lists Into Other Data Structures
4. How To Determine The Size Of Your List
5. What's The Difference Between The Python append() and extend() Methods?
6. How To Concatenate Lists
7. How To Sort a List
8. How To Clone Or Copy A List
9. How Does List Comprehension Work In Python?
10. How To Count Occurrences Of A List Item In Python
11. How To Split A List Into Evenly Sized Chunks
12. How To Loop over A List
13. How To Create Flat Lists Out Of Lists
14. How To Get An Intersection Of Two Lists
15. How To Remove Duplicates From A List
16. Why NumPy Instead Of Lists?
17. How To Create Empty NumPy Arrays
18. How To Do Math With Lists.

Python List Exercises

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1. Reverse a list in Python
2. Concatenate two lists index-wise
3. Turn every item of a list into its square
4. Concatenate two lists in the following order
5. Iterate both lists simultaneously
6. Remove empty strings from the list of strings
7. How to add a new item to the list after a specified item?
8. Extend the nested list by adding the sublist?
9. Replace list's item with new value if found?
10. Remove all occurrences of a specific item from a list?

Python Dict Assignments:

1. How to Convert two lists into a dictionary?
2. Merge two Python dictionaries into one?
3. Print the value of key 'key_name' from the below dict?
4. Initialize dictionaries with default values?
5. Write a program to find the number of occurrences of each letter present in the given string?
6. Write a program to find the number of occurrences of each Vowel present in the given string?
7. Create a dictionary by extracting the keys from a given dictionary?
8. Write a Python program to iterate over dictionaries using for loops?
9. How to Delete a list of keys from a dictionary?
10. Write a Python script to print a dictionary where the keys are numbers between 1 and 5 (both included) and the values are the square of the keys.
    output:{1: 1, 2: 4, 3: 9, 4: 16, 5: 25}
11. How to Check if a value exists in a dictionary
12. How to Rename key of a dictionary
13. How to get the key of a minimum value from the following dictionary
14. How to Change the value of a key in a nested dictionary?
15. Write a Python program to sort a dictionary by key?
16. Write a Python program to remove duplicates from the dictionary?
17. Write a Python program to combine two dictionaries by adding values for common keys.
    d1 = {'a': 10, 'b': 200, 'c':300}
    d2 = {'a': 100, 'b': 200, 'd':400}
    Sample output: Counter({'a': 110, 'b': 400, 'd': 400, 'c': 300})

18. Write a Python program to print all distinct values in a dictionary.

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Python String Data Types

1. program to count and display the number of vowels in a given string?

2. Write a program that reads a string from keyboard and display:
   * The number of uppercase letters in the string
   * The number of lowercase letters in the string
   * The number of digits in the string
   * The number of whitespace characters in the string.

3. Your program should create and display a new string where the first and last characters have been exchanged.
   For example if the user enters the string 'HELLO' then new string would be 'OLEEH'

4. Your program should create a new string in reverse of the first string and display it.
   For example if the user enters the string 'EXAM' then new string would be 'MAXE'

5. Write a program that display following output: input - stack
   ● stack
   ● tacks
   ● ackst
   ● cksta
   ● kstac

6. program should create a new string by shifting one position to left. For example if the user enters the string '**Pro Stack Academy**' then new string would be '**ro Stack AcademyP**'

Python CSV - Assignments

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1. What Is a CSV File?
2. Write a program to read the entire data from a file ?
   file name : 'emp.csv' ?
3. Write a program to add/insert records in 'emp.csv'.
   Structure of a record is : eid,ename,esal
4. Write a program to copy the data from 'emp.csv' to 'temp.csv'?
5. Write a program to read all content of 'emp.csv' and display
   records only those employees whose salary is more than 50000.
   a. Structure of a record is : eid,ename,esal
6. Write a program to count the number of records present in
   'emp.csv'?
7. Write a program to modify the record of an employee in a file
   'emp.csv'. Following records are saved in file.

   ```
   eid,ename,esal
   101,rahul,45000
   102,sonia,55000
   ```

8. Write a program to show the details of the highest salaried
   employee in an emp csv file?

Python JSON?

What is JSON?

Can you explain the difference between JSON and XML?

What are some advantages of using JSON over XML?

How to convert json to python dict object?

How to convert a python dict object to json?

Is there any way to get all keys from a JSON file's data structure in Python?

What do you understand about serialization and deserialization?

What does the json.loads() method do in Python?

In Python, what is the best way to extract data from a list of dictionaries?

What is the usage of the "with" statement in Python?

What is the purpose of the load() and loads() methods in Python?

What is the function of the dump() and dumps() methods in Python?

Python - Rest API Assignments

Python File Handling:
Assignment 2:

Rest API URL: https://dummyjson.com/products
Method Type: GET
Access Type: Public
Req Field: None

Invoke products api, and write into
1)New json file/CSV file
2)Insert into Mysql Table / MongoDB Database

Mysql Table
Table Name: products
Column Names:pid pname price brand

```
create table products(
    pid int,
    pname varchar(100),
    price int,
    brand varchar(32)
)
```