

1. What are the key features of Python?

The key features of python are as follows:-

1. High level language:-

- Python is a high level language because it is use to binary language(0/1).

2. Easy to understand:-

- Python is a easy to understand because it is use a simple english language.

3. Interpreted language:-

- Python is the interpreted language because Python program are executed one line at a time.

4. Object-Oriented Language:-

- Python supports object-oriented language,it help to write reusable code.

5. It is simple to debug.

2. What are the Data Types in Python?

The followings are python Data Types is:-

1. Numerical:-

- Numerical values are stored in numbers (int, float, and complex)
- eg:-10, 14.84, 22+16j.

2.String:-

- A string can be defined in Python single, double, or triple quotes.
- eg:- 'Python', "Machine"

3.Boolean:-

- True and False are two values for the Boolean type.

4.List:-

- List can be defined in python square brackets[]
- In list we can put the int,float,character.
- List is a mutable.
- eg:-str=["16", "dec", "python"]

5.Set:-

- It is a mutable.
- It is similar to the list.

3. What are local variables and global variables in Python?

Local variable:-

- Local variables are those that are defined and used inside a function.

Global variable:-

- Global variables are those that are defined outside any function

4. How do you write comments in python? And Why Comments are important?

- Write a comment in Python you can use the hash symbol (#) at beginning of the line.
- Also use triple quotes (""" """ or control+/) to write multi-line comments.

Comments are important in python:-

- Comments help to programmers to understand your code and logics.
- They help you remember why you write code.

5. How to comment on multiple lines in python?

- This is to use triple quotes (""" """ or control+/) to comment multi-line string that is ignored by the interpreter.
- For example:-

```
""" Python is a high level language """
```

6. What are different ways to assign value to variables?

Assigning single value to multiple variable:-

- You can assign values to multiple variables in one line same value but multiple variables.
- For example:-

```
A="Python"  
B="Python"  
C="Python"  
print(f'A=={A},B=={B},C=={C}')
```

Output:-

```
A==Python,B==Python,C==Python
```

Assigning different value to different variable:-

- You can assign different values to different variables in one line different value but different variables.
- For example:-

```
x="Python"  
y="Machine Learning"  
z="javascript"  
print(f'x=={x},y=={y},z=={z}')
```

Output:-

```
x==Python,y==Machine Learning,z==javascript
```

7. What are the Escape Characters in python?

Escape character in python:-

- Escape characters are special symbols that are preceded by a backslash (\) in a Python string.
- It used to insert characters that have a special meaning such as quotes, newlines, tabs, backslashes.

- \\: Backslash
- \': Single quote
- \": Double quote
- \r: Carriage return

8. Which are the different ways to perform string formatting? Explain with example.

String formatting:-

- Using the % operator.
- It uses formatting like %s, %d, %f to indicate where to substitute the values of variables.
- For example:-

```
name = "Rahul"
age = 20
print(f"Hello, %s. You are %d years old." % (name, age))
```

output:-

Hello, Rahul. You are 20 years old.

9. Write a program to print every character of a string entered by the user in a new line using a loop

```
In [2]: str="Python is a easy to understand"
        for i in str:
            print(i)
```

P
y
t
h
o
n

i
s

a

e
a
s
y

t
o

u
n
d
e
r
s
t
a
n
d

10. Write a program to find the length of the string "machine learning" with and without using len function.

```
In [13]: #With using Len function
```

```
str="machining learning"
len(str)
```

Out[13]: 16

```
In [12]: #Without using Len function
```

```
string = "machine learning"
count = 0
for char in string:
    count += 1
print(count)
```

16

11. Write a program to check if the word 'orange' is present in the "This is orange juice".

```
In [19]: word= "This is orange juice"
i = "orange"
if i in word:
    print("orange word is present")
else:
    print("orange word is not present")
```

orange word is present

12. Write a program to find the number of vowels, consonants, digits, and white space characters in a string.

```
In [80]: string1=" Python code "
string2="12134"
print(string1.strip())
print(string2.isdigit())
```

Python code
True

```
In [78]: A=input("enter the string:")
vowel=0
cons=0

for i in range(0,len(A)):
    if A[i] != " ":
        if(A[i]=="a", A[i]=="e", A[i]=="i", A[i]=="o", A[i]=="u" ,
            A[i]=="A", A[i]=="E", A[i]=="I", A[i]=="O", A[i]=="U"):
            vowel=vowel+1
        else:
            cons=cons+1

print("total vowels=",vowel)
print("total consonants=",cons)
```

enter the string:aaaaaa
total vowels= 6
total consonants= 0

13. Write a Python program to count Uppercase, Lowercase, special character, and numeric values in a given string.

```
In [76]: #Uppercase

string1="techpaathshala assignment"
string2="2024"
print(string1.upper())
print(string1.lower())
print(string2.isnumeric())
```

```
TECHPAATHSHALA ASSIGNMENT
techpaathshala assignment
True
```

14. Write a Python program to change a given string to a new string where the first and last characters have been exchanged.

```
In [10]: string="Macchine"
print(string[-1:]+string[1:-1]+string[:1])
```

```
eacchinM
```

15. Write a Python program to count the occurrences of each word in a given sentence.

```
In [132]: string='Book'
count=0
for i in string:
    print(f'char at index {count} is {i}')
    count=count+1
```

```
char at index 0 is B
char at index 1 is o
char at index 2 is o
char at index 3 is k
```

16. How do you count the occurrence of a given character in a string?

```
In [21]: string="elephant"
string.count('e')
```

```
Out[21]: 2
```

17. Write a program to find last 10 characters of a string?

```
In [18]: A="Microsoft google"
string=len(A)
print(A[string-10])
```

```
o
```

18. WAP to convert a given string to all uppercase if it contains at least 2 uppercase characters in the first 4 characters.

```
In [17]: string="Coconut"  
string.upper()
```

Out[17]: 'COCONUT'

19. Write a Python program to swap commas and dots in a string ○ Sample string: "32.054,23" ○ Expected Output: "32,054.23"

```
In [41]: string='32.054,23'  
string.replace(".", ",")  
string.replace(",", ".")
```

Out[41]: '32.054.23'

20. Write a Python program to find the first repeated character in a given string

```
In [ ]:
```

21. Python program to Count Even and Odd numbers in a string

```
In [49]: String='kimaya'  
String[1::2]
```

Out[49]: 'iaa'

```
In [46]: str = "123456789"  
print("Even number:",str[1::2])  
print("Odd number:",str[::2])
```

Even number: 2468
Odd number: 13579

22. How do you check if a string contains only digits?

```
In [40]: str="1622"  
str.isdigit()
```

Out[40]: True

23. How do you remove a given character/word from String?

```
In [29]: string="Techpaathshala"
         string.replace("h","")
```

Out[29]: 'Tecpaatsala'

24. Write a Python function to reverses a string if its length is a multiple of 5.

```
In [9]: string="numpy"
        print(reverse_string_if_multiple_of_5("numpy"))
```

ypmun

```
In [28]: str1='numpy'
         str2=len(str1) % 5==0
         for i in str1:
             str2=i+str1
         print(str2)
```

ynumpy

25. Write a Python program to reverse words in a string

```
In [108]: str="Student"
          str[::-1]
```

Out[108]: 'tnedutS'

26. Write a Python program to swap cases of a given string

```
In [23]: A="python assignment"
         A.swapcase()
```

Out[23]: 'PYTHON ASSIGNMENT'

27. Write a Python program to remove spaces from a given string

```
In [66]: str1="Car is Red"
         str2=''
         for i in str1:
             if i!=" ":
                 str2=str2+i
         print(str2)
```

CarisRed

28. Write a Python program to remove duplicate characters of a given string


```
In [26]: string=input("Enter a value:")
string1=""
for i in string:
    if i not in string1:
        string1=string1+i
print(string1)
```

Enter a value:mood off
mod f

29. Write a Python Program to find the area of a circle

```
In [71]: i=int(input("Enter the value:"))
Area=3.14*r*r
print("Area of the circle is:",Area)
```

Enter the value:5
Area of the circle is: 28.259999999999998

30. Python Program to find simple interest and compound interest

```
In [72]: p=int(input("Enter the principle amount:"))
r=int(input("Enter the rate of value:"))
t=int(input("Enter the time of year:"))

si= p*r*t/100
ci= p*(1+r)**t

print("simple interest:",si)
print("compound interest:",ci)
```

Enter the principle amount:200
Enter the rate of value:5
Enter the time of year:3
simple interest: 30.0
compound interest: 43200

In []: