

```
In [ ]: #Q.no.1 what are the key features of python??
#key features of python
```

```
1>> python is a interpreted language. It does not require prire coplilation.
2>> python is a programer friendly language. It means it is easy to read,write and learn.
3>> python has a freeware and open source.
4>> python has a vast liabrary supports.
5>> python is a platforn independant language.
6>> python is a dynamically typed language.
7>> python is a simple and easy to debug.
```

```
In [ ]: # Q.no.2.What are the data types in python??
#Data types in python
```

There are no of data types **in** python. some of they are:

- 1.Numeric data **type>>** it includes integers,floats **and** complex numbers.
a.integers means whole numbers which include **all** positive **and** negaive numbers **with** zero(0).
b.floats contains positive **and** negative numbers **with** decimal point.
c.complex numbers contains real **and** imaginary part.
- 2.text data **type>>** denoted by "**str**".it contain **all** alphabets,digits **and** specials charcters enclosed by single double **or** triple quotes.
- 3.sequence data **type>** includes **list** ,**tuple**,**range**,**set**,**frozenset**
- 4.mapping data **type>>** includes **dict=={"a":100, "b":200}**
- 5.set data **Type>>** it includes **set** , **frozenset**
- 6.Boolean data **type>>** it includes **bool (True/False)"}**

```
In [ ]: # Q.no.3.What are local variables and global variables in python?
#Local and Global variables in python
```

There are two types of variables **in** python named local **and** **global**.local variables are declaired inside the function **and** **global** variables are declaired outside the function

```
In [ ]: # Q.no.4.How do you write cooments in python and why comments are impotant?
#comments in python and its importance
```

Comments **in** python are the lines **in** the code that are ignored bythe interpreter during the excution of program.

```
1. #>> To comment the code
2. control + / >> single line or multiple line comments
3. Triple quotes
comments are used to explain how code works and for testing purpose
```

```
In [ ]: #Q.no.5.how do you comment multiple lines in python?
#multilpe line comments
```

by using control slash(control+/) we can comment multiple lines **in** python **or** by using tripple quotes(""**"""** "**"""**") also we can comments multiple lines **in** python

```
In [ ]: # Q. no.6.what do you mean by python literls?
#python literls
```

literal **is** nothing but the value stored **in** variable

```
In [ ]: # Q.no.7.Whataredifferent ways to assign value to variable?
# different ways to assign value to variable
```

first method **is** direct initialization :inthis method , we drectely declare variable **and** assign a value using **=** sign.
for example :
 x=5
 y=7
 print(x)
second method **is** using some condition like **if else** statement.

```
In [ ]: # Q.no.8.what are the escape characters in python?
#Escape characters in python
```

```
1.backslash \ to use single quotes in single quotes double in doubleand triple in triple quotes
2.\n newline going to newline
3.\t atomatically add space
```

In [8]: #Q.no.9 what are the different ways to perform string formatting.Explain with example.

```
#different ways to perform string formatting

""" string formatting:
1>>using f string
2>>using format string
3>>using % sign"""

#to add two numbers using f string

a=29
b=34
c=a+b
print(f"addition of {a} & {b} is :{c}")
#to add two numbers using format string
a=29
b=34
c=a+b
print("addition of {} & {} is :{}".format(a,b,c))
#addition of 2 numbers using %sign
a=29
b=34
c=a+b

print(f"addition of %d & %d is :%d" %(a,b,c))
```

```
addition of 29 & 34 is :63
addition of 29 & 34 is :63
addition of 29 & 34 is :63
```

In [40]: # Q.no.10.Write a program to print every character of a string entered by user in a new line using a loop

```
# to print every character of string entered by user in a new line using loop
A= input ("enter your string : ")

for i in A:
    print(f"char is {i}")

print("loop completed")
```

```
enter your string : velocity
char is v
char is e
char is l
char is o
char is c
char is i
char is t
char is y
loop completed
```

In [4]: # Q.no.11. Write a program to find length of string "machine Learning" with and without using a len function

```
#to find length of string

#1>>using length:

string="machine learning"
print(len(string))

#without using length function

string="machine learning"
str1=string.index('g',10, 17)+1    #in case of lengthy string take -1 instead of 10&17

print(f"length of string is :{str1}")
#using count function

string="machine learning"
count=0
for i in string:
    count=count+1
print(f"length of string is :{count}")
```

```
16
length of string is :16
length of string is :16
```

In [5]: *# Q no 12.write a program to check if the word orange is present in "This is orange juice"*

```
s1= input("Enter your string :")
s2="orange"
if s2 in s1:
    print("orange is present in s1")
else:
    print("orange is not present in given string")
```

Enter your string :This is orange juice
orange is present in s1

In [52]: *#Q.no.13 write a program to find no of vowels,consonants,digits and white spaces characters in a string*

```
v=0
c=0
d=0
s=0
string=input("Enter the string: ")

for i in string:
    if i in("a,e,i,o,u"):
        v=v+1
    elif i.isalpha():
        c=c+1
    elif i.isdigit():
        d=d+1
    elif i.isspace():
        s=s+1

print(f"vowels are : {v}")
print(f"consonants are: {c}")
print(f"digits are : {d}")
print(f"spaces are : {s}")
```

Enter the string: It has vast library support
vowels are : 6
consonants are: 17
digits are : 0
spaces are : 4

In [72]: *#Q.no.14.write a program to count uppercase,lowecase,special character and numeric values in a given string*

```
u=0
l=0
sp=0
n=0
string=input("Enter the string: ")

for i in string:
    if i.isupper():
        u=u+1
    elif i.islower():
        l=l+1
    elif i in ("@,#,$,%,^,&,*"):
        sp=sp+1
    elif i.isnumeric():
        n=n+1

print(f"uppercase are : {u}")
print(f"lowercase are: {l}")
print(f"speacial characters are : {sp}")
print(f"nureric are : {n}")
```

Enter the string: POONAMsanjyotPATIL123@#
uppercase are : 11
lowercase are: 7
speacial characters are : 3
nureric are : 3

In [93]: *#Q.no.15 write a program to make new string with all consonant deleted from the string "hello,have a good day"*

```
string="Hellow, have a good day"

for i in string:
    if i in ("a","e","i","o","u"," "):
        print(i, end= '')
```

eo ae a oo a

In [9]: *#Q no.16 write a python program to remove nth index character from a non empty string.*

```
def remove(string, n):
    first = string[:n]
    last = string[n+1:]
    return first + last
string=input("Enter the string:")
n=int(input("Enter the index of the character to remove:"))
print("Modified string:")
print(remove(string, n))
```

Enter the string:python and data science
Enter the index of the character to remove:9
Modified string:
python and data science

In [12]: *#Q.no.17 write a python program to change given string to new string where 1st and last characters have been exchanged*

```
string="India is my country"
start=string[0]
end=string[-1]
new_string=end+string[1:-1]+start
new_string
```

Out[12]: 'yndia is my countrI'

In [16]: *#Q.no.18 write a python program to count occurrence of each word in a given sentence*

```
string=input("Enter string:")
word=input("Enter word:")
a=[]
count=0
a=string.split(" ")
for i in range(0,len(a)):
    if(word==a[i]):
        count=count+1
print("Count of the word is:")

print(count)
```

Enter string:compressers are broadly classified
Enter word:are
Count of the word is:
1

In []: *# Q.no.19 how do you count occurrence of given character in a string*

By using count() function we can count the number of characters occurring **in** a string **in** python. It will **return** how many times the character **or** word appears **in** a string.

In [92]: *#Q.no.20 write a program to find last 10 characters of a string*

```
given_string="India is my country"
print(given_string[len(given_string)-10:len(given_string)])
```

my country

In [71]: *# Q.no.21 WAP to convert given string to all uppercase if it contains at least 2 uppercase characters in first 4 characters*

```
string="PYthon is a programming language"
string.upper()
```

Out[71]: 'PYTHON IS A PROGRAMMING LANGUAGE'

In [18]: *#Q.no.22 write a python program to remove newline in python*

```
string="""DATA SCIENCE IS THE FIELD OF STUDY THAT COMBINES DOMAIN EXPERTISE,
PROGRAMMING SKILLS, AND KNOWLEDGE OF MATHEMATICS AND STATISTICS TO EXTRACT
MEANINGFUL INSIGHTS FROM DATA."""
string.replace("\n", "")
```

Out[18]: 'DATA SCIENCE IS THE FIELD OF STUDY THAT COMBINES DOMAIN EXPERTISE, PROGRAMMING SKILLS, AND KNOWLEDGE OF MATHEMATICS AND STATISTICS TO EXTRACT MEANINGFUL INSIGHTS FROM DATA.'

In [58]: *#Q.no.23 write a python program to swapes commas and dots in a string.*

```
#sample string  ="32.054,23"
#Expected output="32,054.23"
sample="32.054,23"
print(sample[:3].replace(".",",")+sample[3:].replace(",","."))
len(sample)
```

32,054.23

Out[58]: 9

In [53]: *#Q.no.24 write a python program to find 1st repeated character in a given string*

```
string=input("Enter string : ")
st=string.lower()

for index,c in enumerate(st):
    if st[:index+1].count(c)>1:
        print(f"first repeated character is : {c}")
        break
```

Enter string : velocity class
first repeated character is : c

In [6]: *#Q.no.25 write a python program to find second most repeated word in a*

```
string=input("enter a string: ")
list=string.split()
max=0
second=0
secmax=0
for i in list:
    if list.count(i)>=max:
        max=list.count(i)
    elif list.count(i)>=second:
        second=list.count(i)
        secmax = i
print("second most repeated word is : ",secmax,'=',second)
```

enter a string: hellow mumbai hellow to python hellow to all
second most repeated word is : to = 2

In [29]: *# Q.no.26 write a program to count Even and Odd numbers in a given string*

```
string=[12,52,4,13,8,5,33,77,45,55]
Even=0
Odd=0
for numbers in string:
    if numbers % 2 == 0:
        Even=Even+1
    else:
        Odd=Odd+1
print("Even numbers are: ",Even)
print("Odd numbers are: ",Odd)
```

Even numbers are: 4
Odd numbers are: 6

In [107]: *#Q.no.27 how do you check if strings contain only digits*

```
"""By using isdigit function you can chack in given string there are only digits or not. If the ans is true your
string contains only digits.And in other hand ans is false your string is not containg the only digits."""

string="567894"
print(string.isdigit())
string="op9754po"
print(string.isdigit())
```

True
False

In [30]: *#Q.no.28 how do you remove a given character or a word from string*

```
""" by using replace function we remove a given character or word from a string"""

string="Global variables are declaired outside the function"
string.replace(" ", "")
string.replace("Global", "")
```

Out[30]: ' variables are declaired outside the function'

In [40]: *#Q.no.29 write a python program to remove characters which have odd index values in a given string*

```
str1=input("Enter your string : ")
str2=""

for i in range(len (str1)):
    if(i % 2 == 0):
        str2=str2+str1[i]
print("Original string is :",str1)
print("final string is      :", str2)
```

Enter your string : variables names must start with alphabet
Original string is : variables names must start with alphabet
final string is : vralsnmsms tr ihapae

In [62]: *#Q.no.30 write a python function to reverse a strin if it's length is multiple of 5*

```
def reverse_string(str1):
    if len(str1) % 5 == 0:
        return ''.join(reversed(str1))
    return str1
```

```
print(reverse_string('pytho'))
```

#anather method

```
name=input("Enter a name: ")
if(len(name)%5==0):
    print(name[::-1])
else:
    print("name is not multiple of 5")
```

ohtyp
Enter a name: poonam
name is not multiple of 5

In []: *#Q.no.31 write a python program to format a number with precentage(0.05>>5%)*

```
anumber=0.05
percentage="{:.2%}".format(anumber)
print(f"formatting a number {anumber} with percentage to : ",percentage)
```

In [71]: *#Q.no.32 write a python program to reverse words in a string*

```
string = "variables are case sensitive"
words = string.split()
## reversing the words using reversed() function
words = list(reversed(words))
## joining the words and printing
print(" ".join(words))
```

sensitive case are variables

In [73]: *#Q.no.33 write a python program to swappcases of given string*

```
string="sanjyotpatil"
print(string.swapcase())
a="SAjyOtPatIl"
print(a.swapcase())
```

SANJYOTPATIL
saNJYoTpATiL

In [17]: *#Q.no.34 write a python program to remove spaces from given string*

```
string="Global variables are declaired outside the function"
string.replace(" ","")
```

Out[17]: 'Globalvariablesaredeclairedoutsidethefunction'

In [75]: *#Q.no.35.write a python program to remove duplicate character from a string*

```
string="data science"
p=""
for char in string:
    if char not in p:
        p=p+char
print(p)
k=list("data science")
```

dat scien

In [19]: *#Q.no.36 write a python program to find area of circle*

```
pi=3.14
radius=int(input("the radius of circle is:"))
area_of_circle=pi*radius*radius
print("the area of cicle is:",area_of_circle)
```

the radius of circle is:12
the area of cicle is: 452.15999999999997

In [25]: *#Q.no.37write a python program to find sum of squres of n natural numbers*

```
N = int(input("Enter value of N: "))
# calculating sum of square
sum = (int)((N * (N+1) * ((2*N) + 1))/6 )
print("Sum of squares =",sum)
```

Enter value of N: 25
Sum of squares = 5525

In [76]: *#Q.no.38 python program to find cube sum of first n natural numbers*

```
n = int(input("Enter Number: "))
sum = 0
for i in range(n+1):
    sum = i**3
# Print Result
print("Sum of cubes of first {} natural numbers: ".format(n), sum)
```

Enter Number: 4
Sum of cubes of first 4 natural numbers: 64

In [24]: *#Q.no. 39 python program to find simple interest and compound interest*

```
#simple intrest

p=int(input("principal "))
n=int(input("no of year "))
r=int(input("rate of interest "))
si=(p*r*n)/100
print(f"simple intrest is: {si}")
print()
#compound intrest

p=int(input("principal "))
n=int(input("no of year "))
r=int(input("rate of interest "))
ci=int(p*(1+(r/100))**n)
print(f"compound intrest is: {ci}")
```

principal 1000
no of year 25
rate of interest 5
simple intrest is: 1250.0

principal 1000
no of year 25
rate of interest 5
compound intrest is: 3386

In [74]: *#Q.no.40 python program to check whether no is prime or not*

```
num=29
flag="false"
if num>1:
    for i in range(2,num):
        if (num%i)==0:
            flag=true

if flag:
    print(num,"is not a prime number")
else:
    print(num,"is a prime number")
```

29 is not a prime number

In []: