1. What are the key features of Python?

In [ ]:
```
1. python is very care sensitive language
2. it is simple and easy to learn
3. it is an object oriented language
4. it is platform independent because it helps to convert in machine understanding
5. it is interpreted , bcz it executes line by line
6. and it has its own extensive libraries
7. it is dynamical type language
```

2. What are the Data Types in Python?

In [ ]:
```
string
boolean
list
tuple
distinary
int

numeric : int,float,complex
text : str
sequence : list,tuple,range
mapping : dist
setDT: set ,frozenset
boolena: bool
```

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

In [ ]:
```
1. local variable is nothing but the varible which is declared in the function it
2. global is which is declared out side the function
```

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

In [ ]:
```
we can write the comments in python buy using Symbol #
comments are imp bcz to explain the python code , and also to avoid the program ru
```

5. How to comment on multiple lines in python?

In [ ]:
```
by the help of (""" """) we can use a triple coat.
```

6. What do you mean by Python literals?

In [ ]:
```
1)Numeric literals: These represent numeric values and can be integers,
floating-point numbers, or complex numbers.
2)Boolean literal: True,false
3)List literal: [1, 2, 3]
4)Tuple literal: (4, 5, 6)
5)Dictionary literal: {'key': 'value', 'name': 'John'}
6)Set literals: These represent sets in Python.
```

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

In [ ]:
```
1)Direct initialization(=)
x = 10
2)Initialization using a conditional expression (if)
x = 10 if True
else 0
3)Unpacking a collection: If you have a collection of values,
such as a list or tuple, you can unpack them into variables.
fruits = ["apple", "banana", "cherry"]
x, y, z = fruits
4)Multiple assignments: You can also assign multiple
values to multiple variables in one line.
x, y, z = 10, 20, 30
5)Assignment with operators:
x += 10
```

8. What are the Escape Characters in python?

In [ ]:
```
\n: Newline character.
\t: Tab character.
': Single quote character.
": Double quote character.
\: Backslash character.
```

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

In [ ]:
```
1)Formatting with f-strings= f-strings are a new feature in Python 3.6 that allow y
to format strings in a more concise way.
f-strings use the f prefix to indicate that the string is an f-string,
and they can contain variables or literals inside curly braces.
For example:
name = "mini"
age = 30
print(f"My name is {name} and I am {age} years old.")
2)Formatting with the format() string method=The format() string method is a more
modern way to format strings in Python.
The format() method takes a string and a list of arguments,
and it returns a new string with the arguments formatted into the string.
For example:
name = "mini"
age = 30
print("My name is {} and I am {} years old.".format(name, age))
3)comma separated
name="srushh"
print('my name is:',name)
```

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

In [ ]:
```
str="hrutik B Khot"
for i in str:
    print (i)
```

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

In [ ]:
```
str1="machine learning"
len(str1)
```

In [ ]:
```
str1="machine learning"
result=0
for i in str1:
    result+=1
print(result)
```

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

In [ ]:
```
str1="This is orange juice"
for i in str1:
    if "orange" in str1:
        print("orange is present")
        break
    else:
        print("orange is not present")
```

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

In [ ]:
```
str1="hrutik khot"
vowels=0
consonates=0
digit=0
white_space=0
for i in range(0,len(str1)):
    if (str1[i]=="a" or str1[i]=="e" or str1[i]=="i" or str1[i]=="o" or str1[i]=="
        vowels=vowels + 1
    elif (str1[i]>="a" and str1[i]<="z"):
        consonates=consonates+1
    elif (str1[i]>="0" and str1[i]<="9"):
        digit=digit+1
    elif (str1[i]==" "):
        white_space=white_space+1

        print("vowels : ",vowels)
        print("consonates :",consonates)
        print("digit :" ,digit)
        print("white space: ",white_space)
```

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

In [ ]:
```
str1="Python is@ a dynamic Type language 6565"
upper=0
lower=0
special_char=0
numeric=0

for i in str1:
    if i.isupper() :
        upper=upper+1
    elif i.islower():
        lower=lower+1
    elif i.isdigit():
        numeric=numeric+1
    else:
        special_char=special_char+1
print("upper:",upper)
print("lower:",lower)
print("special_char:",special_char)
print("numeric:",numeric)
```

```
upper: 2
lower: 26
special_char: 7
numeric: 4
```

15. Write a program to make a new string with all the consonants deleted from the string "Hello, have a good day".

In [ ]:
```
str1="Hello, have a good day"
str2="aeiouAEIOU"
str3=" "

for i in str1:
    if i in str2:
        str3 += i

print(str3)
```

16. Write a Python program to remove the nth index character from a non-empty string

In [ ]:
```
str1="ETLHive is having  data science course"
n=4
str2=str1[0:n]
str3=str1[n+1:]
print(str2+str3)
```

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

In [ ]:
```
lis1="self hrutik my"
list2=lis1[-2]+lis1[-1]+lis1[0:11]
print("new string is :",list2)
```

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

In [ ]:
```
str1="hrutik khot khot"
str3=str1.count("khot")
str2=str1.count("hrutik")
print("khot:",str3)
print("hrutik:",str2)
```

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

In [ ]:
```
str1="mechanical engineering"
str2=str1.count("m")
str3=str1.count("e")
print(str2)
print(str3)
```

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

In [ ]:
```
str1="the duration of the data science course is 5 months"
str1[-10:]
```

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

In [ ]:
```
str1="DAta science"
str1.upper()
```

22. Write a Python program to remove a newline in Python.

In [ ]:
```
str1="data\nscience\ncourse"
for i in str1:
    i.replace("\n"," ")
    print(str1)
    break
```

23. Write a Python program to swap commas and dots in a string

○ Sample string: "32.054,23" ○ Expected Output: "32,054.23"

In [ ]:
```
Sample_string= "32,054,23"
result=Sample_string.replace("," , ".")
result
```

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

In [ ]:
```
str="Hrutik khot "
a=0
for i in range(0 , len(str) ):
    if a==1:
        break
    for j in range(i+1 , len(str)):
        if str[i]==str[j]:
            print(str[i])
            a=1
            break
if a==0:
        print(-1)
```

In [ ]:
```

```

25. Write a Python program to find the second most repeated word in a given string

In [ ]:
```
input_string = "Hello rahul , hello roy, rahul is a good boy"
words = input_string.split()
word_count = {}
for word in words:
    word = word.lower() # Convert word to lowercase for case-insensitive comparison
    if word in word_count:
        word_count[word] += 1
    else:
        word_count[word] = 1


most_common = None
second_most_common = None

for word, count in word_count.items():
    if most_common is None or count > word_count[most_common]:
        second_most_common = most_common
        most_common = word
    elif second_most_common is None or count > word_count[second_most_common]:
        second_most_common = word
if second_most_common:
    print(f"The second most repeated word is: {second_most_common}")
else:
    print("No second most repeated word found in the string.")
```

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

In [ ]:
```
str1=int(input("enter the number"))
if str1%2==0:
    print("this is even number",str1)
else:
    print("this is odd number",str1)
```

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

In [ ]:
```
#01
str1="ngjdoffo655646"
str2=str1.isdigit()
print(str2)

#02
str3="6464666"
str4=str3.isdigit()
print(str4)
```

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

In [ ]:
```
str1="my self hrutik khot"
str1.replace("self", "")
```

29. Write a Python program to remove the characters which have odd index values of a given string

In [ ]:
```
str1="remove the characters which have odd index values"
str2=""
for i in range (len(str1)):
    if (i%2==0):
        str2=str2+str1[i]
print(str2)
```

In [ ]:
```
str1=str(input("enter the str:"))
str2=""
for i in range (len(str1)):
    if (i%2==0):
        str2=str2+str1[i]
print("old string:",str1)
print("new string:",str2)
```

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

In [ ]:
```
str1=input("write the str: ")
if len(str1)%5==0:
    print(str1[::-1])
else:
    print("is not equal to 5")
```

31. Write a Python program to format a number with a percentage(0.05 >> 5%)

In [ ]:
```
str1=0.05
format(str1,".0%")
```

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

In [ ]:
```
str1="data science"
str2=str1[::-1]
str2
```

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

In [ ]:
```
str1="DaTA SciEncE"
str1.swapcase()
```

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

In [ ]:
```
str1="  data Science"
str1.lstrip()
```

In [ ]:
```
str1="data Science    "
str1.rstrip()
```

In [ ]:
```
str1="         data Science    "
str1.strip()
```

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

In [ ]:
```
str1="data science course"
dub=[]
for i in str1:
    if i not in dub:
        dub.append(i)
print(dub)
```

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

In [ ]:
```
r=eval(input("enter the value"))
str2=3.14*r*r
print("area of the circle = ",str2)
```

37. Python Program to find Sum of squares of first n natural numbers

In [ ]:
```
n=eval(input("enter the number"))
str2=0
for i in range (1, n+1):
    str2+=(i*i)
print(str2)
```

38. Python Program to find cube sum of first n natural numbers

In [ ]:
```
n=eval(input("enter number:" ))
result=0
for i in range (1,n+1):
    result+=(i*i*i)
    print("cube sum of first n number ",result)
```

39. Python Program to find simple interest and compound interest

In [13]:
```
#simple interese
P=eval(input("number:"))
T=eval(input("number:"))
R=eval(input("number:"))
S_I = (P * T * R) / 100
print(S_I)
#compound interest
t=eval(input("number:"))
C_I = P *(1+R / 100) *t-P
print(C_I)
```

```
number:2
number:3
number:4
0.24
number:3
4.24
```

40. Python program to check whether a number is Prime or not

In [50]:
```
n=int(input("Enter the number:"))
if n==1:
    print("Number is not prime.")
elif n%2==0:
    print("Number is not prime.")
else:
    print("Number is prime.")
```

```
Enter the number:8
Number is not prime.
```

In [ ]: