1. What are the key features of Python?

1. Easy to understand
2. Open Source
3. Can be used as object oriented
4. Platform independent.
5. Dynamic Type :- no need to declare data type
6. Huge number of library support
7. Automatic memory management
8. Interpreted Language :- Virtual Compiler
9. High Level Language
10. Portable :- Work on linux/Windows/Mac

2.What are the Data Types in Python?

Text Type: str Numeric Types: int, float, complex Sequence Types: list, tuple, range Mapping Type: dict Set Types: set, frozenset Boolean Type: bool Binary Types: bytes, bytearray, memoryview

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

Local Variable- If we create a variable with the same name inside a function, this variable will be local, and can only be used inside the function. glocal Variable - If we create a variable with the same name outside a function, this variable will be glocal, and can be used outside the function.

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

Comments can be used to explain Python code. Comments can be used to make the code more readable. Comments can be used to prevent execution when testing code. Comments can be placed at the end of a line, and Python will ignore the rest of the line A comment does not have to be text that explains the code, it can also be used to prevent Python from executing code. Python does not really have a syntax for multi line comments.

5. How to comment on multiple lines in python?

To add a multiline comment you could insert a # for each line not quite as intended, you can use a multiline string. Since Python will ignore string literals that are not assigned to a variable, we can add a multiline string (triple quotes) in your code, and place your comment inside it

6. What do you mean by Python literals?

Generally, literals are a notation for representing a fixed value in source code. They can also be defined as raw value or data given in variables or constants. Python provides the four types of literal collection such as List literals, Tuple literals, Dict literals, and Set literals.

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

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume). Rules for Python variables: A variable name must start with a letter or the underscore character A variable name cannot start with a number A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _) Variable names are case-sensitive (age, Age and AGE are three different variables)

8.What are the Escape Characters in python?

To insert characters that are illegal in a string, use an escape character. An escape character is a backslash \ followed by the character you want to insert. Other escape characters used in Python ' Single Quote
\ Backslash
\n New Line
\r Carriage Return
\t Tab
\b Backspace
\f Form Feed
\ooo Octal value
\xhh Hex value

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

Python String format() is a function used to replace, substitute, or convert the string with placeholders with valid values in the final string. It is a built-in function of the Python string class, which returns the formatted string as an output. The placeholders inside the string are defined in curly brackets.

For example, “Welcome to Velocity class {}”. format(‘value here’).

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

In [2]:

```
#Python program to Print Characters in a String

str1 = input("Please Enter your Own String : ")

for i in range(len(str1)):
    print("The Character at %d Index Position = %c" %(i, str1[i]))
```

```
Please Enter your Own String : sanket
The Character at 0 Index Position = s
The Character at 1 Index Position = a
The Character at 2 Index Position = n
The Character at 3 Index Position = k
The Character at 4 Index Position = e
The Character at 5 Index Position = t
```

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

In [16]:

```
string="This is orange juice"
substring="orange"
print(f"'{substring}' is present in '{string}' string") if substring in string el
```

```
'orange' is present in 'This is orange juice' string
```

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

In [3]:

```
# with using length function
string= "machine learning"

print(len(string))
```

```
16
```

In [10]:

```
# User inputs the string and it gets stored in variable str.
str = input("Enter a string: ")
# counter variable to count the character in a string.
counter = 0
for s in str:
    counter = counter+1.
print("Length of the input string is:", counter)
```

```
Enter a string: machine learning
Length of the input string is: 16.0
```

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

string.

In [9]:

```
str=input("Please enter a string as you wish: ");
vowels=0
consonants=0
for i in str:
    if(i == 'a'or i == 'e'or i == 'i'or i == 'o'or i == 'u' or
       i == 'A'or i == 'E'or i == 'I'or i == 'O'or i == 'U' ):
           vowels=vowels+1;#vowel counter is incremented by 1
    else:
        consonants=consonants+1;

# define all digits as string
all_digits = ['0', '1', '2', '3', '4', '5', '6', '7', '8', '9']


# given string
string = "Velocity Corporate Training centre 642"

# initialized value
total_digits = 0


# iterate through all characters
for s in string:

    # if character found in all_digits then increment total_digits by one
    if s in all_digits:
        total_digits += 1




def check_space(string):

    # counter
    count = 0

    # loop for search each index
    for i in range(0, len(string)):

        # Check each char
        # is blank or not
        if string[i] == " ":
            count += 1

    return count

# driver node
string = "Velocity Corporate Training centre"

# call the function and display

print("The number of vowels:",vowels);
print("\nThe number of consonant:",consonants);
print("Total digits found :-", total_digits);
print("number of spaces ",check_space(string))
```

```
Please enter a string as you wish: Velocity Corporate Training centre
```

```
The number of vowels: 12

The number of consonant: 22
Total digits found :- 3
number of spaces  3
```

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

In [13]:

```
string=" 246 #@Velocity Corporate Training centre@# 642"
upper=0
lower=0
special_char=0
num_val=0


for i in string:
    if (i>='a'and i<='z'):

        # counting lower case
        lower=lower+1
    if (i>='A'and i<='Z'):

        #counting upper case
        upper=upper+1

    if(i=="!, @, #, $, %, ^, &, * "):

        special_char=special_char+1

print('Lower case characters: ',lower)
print('Upper case characters: ',upper)
print('special characters: ',special_char)
```

```
Lower case characters:  28
Upper case characters:  3
special characters:  0
```

In [23]:

```
def count_special_character(string):

    special_char= 0

    for i in range(0, len(string)):


        ch = string[i]


        if (string[i].isalpha()):
            continue


        elif (string[i].isdigit()):
            continue

        else:
            special_char += 1


    if special_char >= 1:
        print("String contains {} Special Character/s ".format(special_char))
    else:
        print("There are no Special Characters in this String.")

if __name__ == '__main__' :
    string = "246 #@Velocity Corporate Training centre@# 642"
count_special_character(string)
```

```
String contains 9 Special Character/s
```

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

In [28]:

```
a = ['a','e','i','o','u','A','E','I','O','U',' ']
b = "Hello, have a good day"
c = ""
for i in b:
    if i not in a:
        continue
    else:
        c=c+i
print(c)
```

```
eo ae a oo a
```

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

In [41]:

```
def remove_char(str, n):
      first_part = str[:n]
      last_part = str[n+1:]
      return first_part + last_part
print(remove_char('Hello, have a good day', 0))
print(remove_char('Hello, have a good day', 3))
print(remove_char('Hello, have a good day', 5))
print(remove_char('Hello, have a good day', 7))
print(remove_char('Hello, have a good day', 9))
print(remove_char('Hello, have a good day', 11))
print(remove_char('Hello, have a good day', 13))
print(remove_char('Hello, have a good day', 15))
print(remove_char('Hello, have a good day', 17))
print(remove_char('Hello, have a good day', 19))
print(remove_char('Hello, have a good day', 21))
```

```
ello, have a good day
Helo, have a good day
Hello have a good day
Hello, ave a good day
Hello, hae a good day
Hello, havea good day
Hello, have agood day
Hello, have a god day
Hello, have a goo day
Hello, have a good ay
Hello, have a good da
```

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

In [47]:

```
string="PANASONIC"
s1=string.replace('P','C')
s2=string.replace('C','P')
print(f"Given String={string}")
print(f"New String={s1,s2}")
print(f"New String={s2}")
```

```
Given String=PANASONIC
New String=('CANASONIC', 'PANASONIP')
New String=PANASONIP
```

In [58]:

```python
def changed_word(word):
    if len(word) ==1: # without this single character will print twice
        return word
        first_char= word[0]
        last_char = word[-1]
        a = word.strip(first_char)
        b = a.strip(last_char)
        new_word = last_char + b + first_char
        return new_word

w1 = changed_word("s")
n1 = changed_word("1")
w2 = changed_word("super")
n2 = changed_word("12345")

print(w1)
print(n1)
print(w2)
print(n2)
```

```
s
1
None
None
```

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

In [1]:

```python
def word_count(str):
    counts = dict()
    words = str.split()

    for word in words:
        if word in counts:
            counts[word] += 1
        else:
            counts[word] = 1

    return counts

print( word_count('Velocity corporate Training Centre Pune.'))
```

```
{'Velocity': 1, 'corporate': 1, 'Training': 1, 'Centre': 1, 'Pune.': 1}
```

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

In [3]:

```
s = "The quick brown fox jumps over the lazy dog."
print("Original string:")
print(s)
print("Number of occurrence of 'a' in the said string:")
print(s.count("o"))
```

```
Original string:
The quick brown fox jumps over the lazy dog.
Number of occurrence of 'a' in the said string:
4
```

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

In [4]:

```
string="Velocity corporate training centre Pune"
string_1=list(string)
print(string_1)
string_1[-10::]
```

```
['V', 'e', 'l', 'o', 'c', 'i', 't', 'y', ' ', 'c', 'o', 'r', 'p', 'o', 'r',
'a', 't', 'e', ' ', 't', 'r', 'a', 'i', 'n', 'i', 'n', 'g', ' ', 'c', 'e', 'n',
't', 'r', 'e', ' ', 'P', 'u', 'n', 'e']
```

Out[4]:

```
['e', 'n', 't', 'r', 'e', ' ', 'P', 'u', 'n', 'e']
```

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

In [9]:

```
string="pyThoN"
print(string.upper())
```

```
PYTHON
```

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

In [14]:

```
string="Python is an interpreted, object-oriented, \nhigh-level programming langu
print(f"string before:-",string)
str=string.replace("\n"," ")
print(f"string after:-",str)
```

```
string before:- Python is an interpreted, object-oriented,
high-level programming language with dynamic semantics
string after:- Python is an interpreted, object-oriented,  high-level programmi
ng language with dynamic semantics
```

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

In [10]:

```
string="32.054,23"
string=string.replace(",","temp")
string=string.replace(".",",")
string=string.replace("temp",".")
print(string)
```

```
32,054.23
```

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

In [8]:

```
string=input("Enter the string:")
for index,char in enumerate(string):
    if string.count(char)>1:
        string=char
print(f"Repeated character in stirng: {string}")
```

```
Enter the string:Sanket Gangadhar Pandit
Repeated character in stirng: a
```

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

In [10]:

```
string=input("Enter the string:")
new_string=string.split(" ")
repeated=""
c=0
d=0

for index,i in enumerate(new_string):
    if i in repeated:
        pass
    else:
        repeated+=i
        if c<new_string.count(i):
            c=new_string.count(i)
            if c>d and d<index:
                print(i)
        elif c>new_string.count(i) and d>new_string.count(i):
            d=new_string.count(i)

print(new_string[c])
print(new_string[d])
```

```
Enter the string:Python is an interpreted high-level general-purpose programmin
g language. Its design philosophy emphasizes code readability with its use of s
ignificant indentation. Its language constructs as well as its object-oriented
approach aim to help programmers write clear, logical code for small and large-
scale projects
Its
an
Python
```

26. python program to count Even number and Odd number in given string

In [15]:

```
string=input("Enter a numeric string:-")
even=0
odd=0

for i in string:

    if int(i)%2==0:
        even+=1
    else:
        odd+=1

print(f"Even no:{even} \nOdd no:{odd}")
```

```
Enter a numeric string:-98556587136832489247987654321
Even no:14
Odd no:15
```

27. How to check if string contains only digits?

```
Use str. isdecimal() to check if a string contains only numbers. Call the
built-in str. isdecimal() method on
the target string str to return a boolean value that represents whether all
characters of the string are numeric digits or not.
```

28. How to remove a given character/word from string?

In [ ]:

```
There are two way to remove char/word from string.
Using string.replace():
    This function is used to replace a char with given char.

If weprovide an empty string as a second argument, then char will get removed fro
>>syntax: string.replace(old_string,new_string,[count])
```

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

In [16]:

```
string1=input("Enter the string:-")
string2=""

for i in range(len(string1)):
    if(i%2==0):
        string2=string2+string1[i]
print("After removing odd index character:-", {string2})
```

```
Enter the string:-velocity corporate training institute pune
After removing odd index character:- {'vlct oprt riigisiuepn'}
```

30.Write a python program to reverse string if its length is multiple of 5

In [19]:

```
string=input("ENTER THE NAME:-")
if(len(string)%5==0):
    print(string[::-1])
else:
    print("Size criteria didnt match")
```

```
ENTER THE NAME:-WATER
RETAW
```

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

In [23]:

```
x=float(input())
print("Original Number=", x)
print(f"Formated number with percentages={x:.5%}")
```

```
0.05
Original Number= 0.05
Formated number with percentages=5.00000%
```

32.Write a python program to reverse word in string

In [24]:

```
string=input("ENTER STRING=")
print(string[::-1])
```

```
ENTER STRING=Python is an interpreted, object-oriented, high-level programming
language
egaugnal gnimmargorp level-hgih ,detneiro-tcejbo ,deterpretni na si nohtyP
```

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

In [26]:

```
string=input("Enter String=")
print(string.swapcase())
```

```
Enter String=Python is AN interpreted, OBJECT-oriented, HIGH-level PROGRAMMING
language WITH DYNAMIC semantics
pYTHON IS an INTERPRETED, object-ORIENTED, high-LEVEL programming LANGUAGE with
dynamic SEMANTICS
```

34. Write a python program to REMOVE Spaces of a given string

In [27]:

```
string=input("Enter the string=")
remove_space=string.replace(" ","")
print("String after removing spaces",remove_space)
```

```
Enter the string=Python is AN interpreted, OBJECT-oriented, HIGH-level PROGRAMM
ING language WITH DYNAMIC semantics
String after removing spaces PythonisANinterpreted,OBJECT-oriented,HIGH-levelPR
OGRAMMINGlanguageWITHDYNAMICsemantics
```

35. Write a python program to remove duplicate character in given string

In [2]:

```
string=input("Enter a string=")
new_string=""
for i in string:
    if i not in new_string:
        new_string=new_string+i
print(f"After removing duplicate values=", {new_string})
```

```
Enter a string=ssaaannnnkkkkkeeeeetttttt
After removing duplicate values= {'sanket'}
```

36. Write a python program to find area of circle

In [3]:

```
pi=3.1416
r=float(input("Enter the radius of circle="))
area=pi*r*r
print("Area of the circle=%f" %area)
```

```
Enter the radius of circle=5
Area of the circle=78.540000
```

37. Write a python program to find sum of squares of first n natural numbers

In [6]:

```
sum=0
n=0
n=int(input("ENTER THE VALUE OF n="))
for value in range(1,n+1):
    sum+=value**2
print(f"sum of {n} is={sum}")
```

```
ENTER THE VALUE OF n=5
sum of 5 is=55
```

38. Write a python program to find cune sum of first n natural numbers

In [7]:

```
sum=0
n=0
n=int(input("ENTER THE VALUE OF n="))
for value in range(1,n+1):
    sum+=value**3
print(f"sum of {n} is={sum}")
```

```
ENTER THE VALUE OF n=5
sum of 5 is=225
```

39. Write a python program to find simple interest and compound interest

In [13]:

```
p=float(input("Enter the amount="))
q=float(input("Enter the time="))
r=float(input("Enter the rate of interest="))

simple=(p*q*r)/100
compound=(p*(1+r/100)**q -1)

print("Simple Interest is=%f"% (simple))
print("Compound Interest is=%f"% (compound))
```

```
Enter the amount=42000
Enter the time=5
Enter the rate of interest=7
Simple Interest is=14700.000000
Compound Interest is=58906.172689
```

40. Write a python program to check wheter number is prime or not

In [14]:

```
num=int(input("Enter any number="))
if num > 1:
    for i in range(2,num):
        if (num % i)==0:
            print(num,"is not a prime number")
            break
    else:
        print(num,"is a prime number")
else:
    print(num,"is not a prime number")
```

```
Enter any number=37
37 is a prime number
```

In [ ]: