

Task 2:-

1.What is a for loop in Python, and when would you typically use it?

A for loop in Python is used to repeat a block of code a specific number of times. It is commonly used to iterate over a sequence like a list, string, tuple, or range.

syntax:-for variable in sequence:

```
In [ ]: Example:-
```

```
In [8]: fruits=["apple","mango"]
        for fruit in fruits:
            print(fruit)
```

```
apple
mango
```

2.Explain the syntax of a basic for loop in Python.

syntax:-for variable in sequence:

3.What is an iterable? Give a few examples of built-in iterables in Python that are commonly used with for loops.

```
In [32]: number=[1,2,3,4,5,6,7,8]
        for num in number:
            print(num)
```

```
1
2
3
4
5
6
7
8
```

```
In [34]: name=["seeta","geeta","vidya","shree"]
        for names in name:
            print("Hellow",names)
```

```
Hellow seeta
Hellow geeta
Hellow vidya
Hellow shree
```

```
In [24]: alpha=["a","b","c","d"]
        for alphabate in alpha:
            print(alphabate)
```

a
b
c
d

```
In [27]: for i in range(6):  
         print(i)
```

0
1
2
3
4
5

```
In [35]: name="BHAGYASHREE"  
         for letter in name:  
             print(letter)
```

B
H
A
G
Y
A
S
H
R
E
E

4.How can you iterate through the characters of a string using a for loop?

```
In [36]: name="python"  
         for char in name:  
             print(char)
```

p
y
t
h
o
n

5.What is the purpose of the range() function when used with a for loop? Give a simple example.

```
In [37]: for i in range(6):  
         print(i)
```

0
1
2
3
4
5

```
In [44]: for i in range(4,40,4):  
         print(i)
```

4
8
12
16
20
24
28
32
36

6.Can you have a for loop inside another for loop? If so, what is this called?

ans:- This is called a nested loop

7.What is a while loop in Python, and when would you typically use it?

ans:- A while loop is used to repeat a block of code as long as a condition is true. use:- Unlike a for loop (which runs a set number of times), a while loop continues until a condition becomes false.

8.Explain the syntax of a basic while loop in Python. What is the condition?

syntax:- while condition:

If the condition is True, the code inside the loop runs. If the condition becomes False, the loop stops.

9.What is an infinite loop? How can you accidentally create one with a while loop, and how can you prevent it?

An infinite loop is a loop that never stops running — it goes on forever unless you force it to stop.

How to prevent an infinite loop? Make sure the condition will become False Update the variable inside the loop