

DAY-08

September 11

LOOPS:

Loops in python are used to execute a block of code repeatedly until a certain condition is met.

Types of loops in python:

1. For loop
2. While loop
3. Nested loop

majorly it is only two types of loops for and while.

Nested loops can be further divided into 4 sub types:

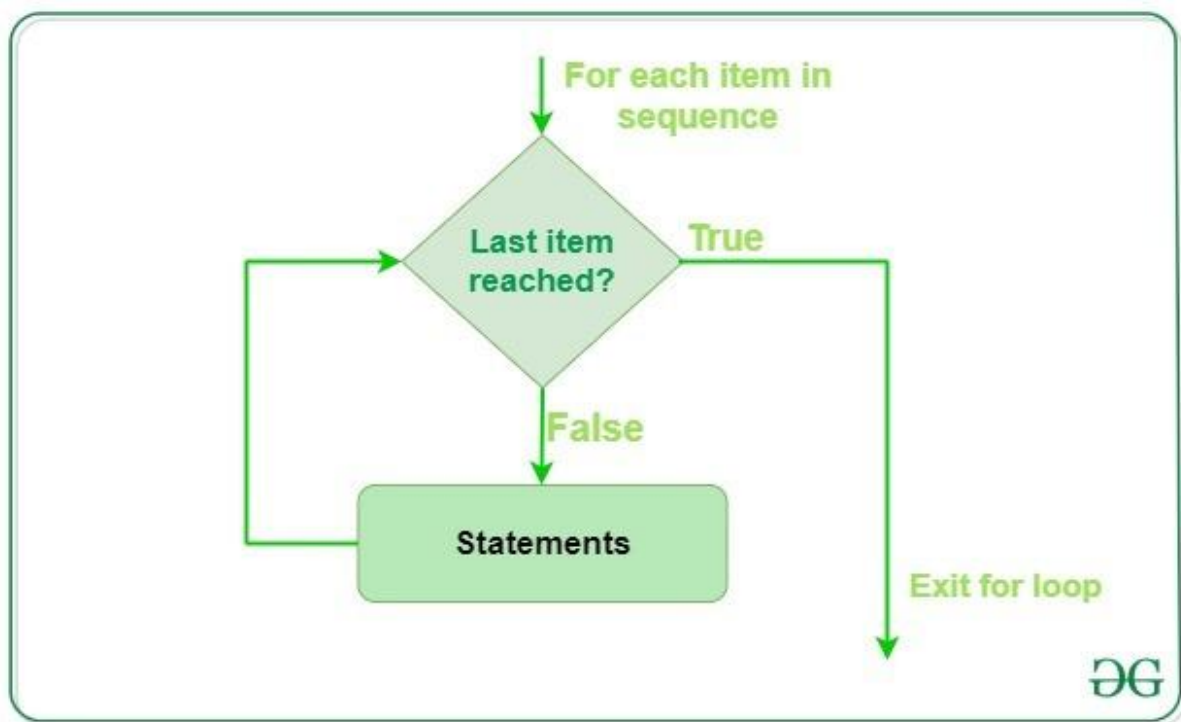
1. * for loop inside for loop
2. * for loop inside while loop
3. * while loop inside for loop
4. * while loop inside while loop

1. For loop:

In for loop we have two types

1. for loop with sequence(string,list,tuple,dict,set)
 2. for loop with range
- For loop allows you to apply the same operation to every item within loop.

- Using For Loop avoid the need of manually managing the index.
- For loop can iterate over any iterable object, such as dictionary, list or any custom iterators.



1. for loop with sequence

To print the name in character wise

```
name = "Indu"
```

```
print(name)
```

Indu

Using loop:

```
for i in name: # i is iterative variable
```

```
    print(i)
```

I

n

d

u

Numbers are not considered as sequences. All the sequence data has a position.

example:

priyanka - sequence

12345 - not a sequence

to print position with character

enumerate is a function used to print position and character of the given variable.

output is a tuple consisting the position followed by character stored in the position.

```
for i in enumerate(name):
```

```
    print(i)
```

```
(0, 'I')
```

```
(1, 'n')
```

```
(2, 'd')
```

```
(3, 'u')
```

```
fruit = ['apple','mango','grape','pineapple']
```

```
print(fruit)
```

```
['apple', 'mango', 'grape', 'pineapple']
```

```
for i in fruit:
```

```
    print(i)
```

```
apple
```

```
mango
```

```
grape
```

```
pineapple
```

In any other programming language we have three stages for range:

initialization

condition

increment/decrement

In python:

```
range(start value,stop value,step size)
```

step size +ve incrementation

step size -ve decrementation

2.for loop with range

for i in range(1,11,1):

 print(i)

1

2

3

4

5

6

7

8

9

10

range(1,11,1)

(i=1;i<11;i+1)

i = 1,2,3,4,5,6,7,8,9,10

range(1,10,1)

(i=1;i<10;i+1)

i = 1,2,3,4,5,6,7,8,9

to repeat a statement for 20 times

for i in range(1,21,1):

```
print("Indu")
```

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

Indu

```
for i in range(20):
```

```
    print(i)
```

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

In range

default start value is 0

default step size is 1

If we are mentioning only one value in range then it will be considered as stop value.

we can skip both start and step values, but when u want to mention any one of them the other thing should be used compulsorily.

to print position and character using range function

```
name = "Indu"
```

```
for i in range(0,4,1):#in case of not knowing the length we can pass len(name)  
in that place
```

```
    print(i,name[i])
```

```
0 I
```

```
1 n
```

```
2 d
```

```
3 u
```

with length function

```
name = "Indu priya"
```

```
for i in range(0,len(name),1):
```

```
    print(i,name[i])
```

```
0 I
```

```
1 n
```

```
2 d
```

```
3 u
```

```
4
```

```
5 p
```

```
6 r
```


7 i

8 y

9 a

Write a program to print even numbers from 1 to 20

for i in range(2,21,2):

print(i)

2

4

6

8

10

12

14

16

18

20

Write a program to print 1 to 10 in the format

1 = odd number

2 = even number

10 = even number

```
for i in range(1,11,1):  
    if(i%2 == 0):  
        print(i, "=", "Even number")  
    else:  
        print(i, "=", "Odd number")
```

1 = Odd number

2 = Even number

3 = Odd number

4 = Even number

5 = Odd number

6 = Even number

7 = Odd number

8 = Even number

9 = Odd number

10 = Even number