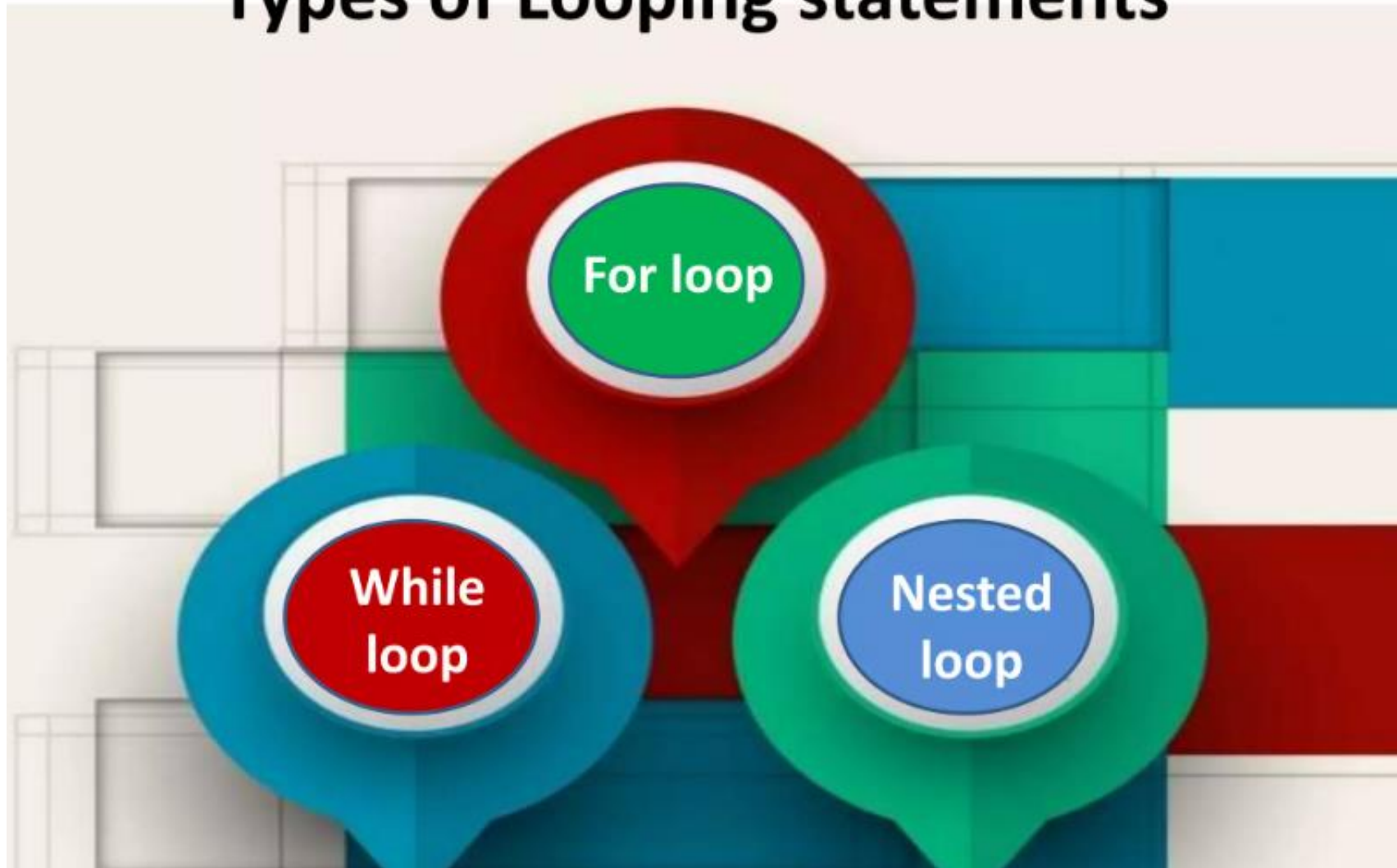


Looping statements

A loop statement allows us to execute a statement or group of statements multiple times.

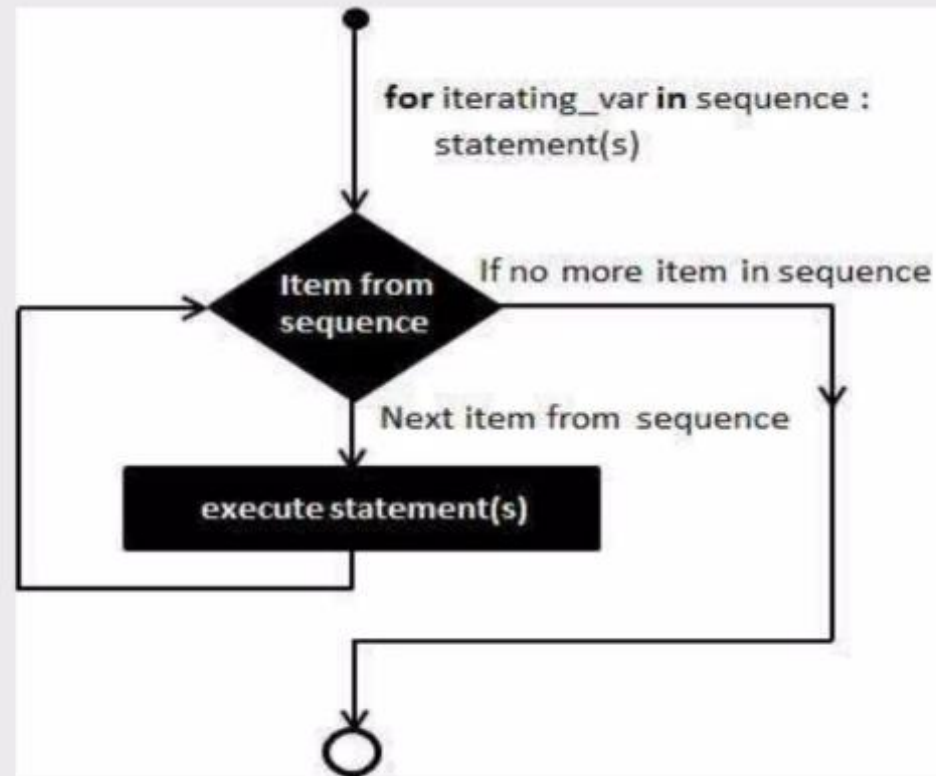
Types of Looping statements



For Loop

The for loop in python is used to iterate the statements or part of the program several times. It is frequently used to traverse the data structures like list, tuple, or dictionary.

Flowchart



Syntax

```
for iterating_var in sequence:  
    statements
```

**Write a
program to
print 1 to 10
series**

Example

i=1

**For i in range(0,11):
Print(i)**

To print multiplication table

```
i=0  
n=int(input("enter no"))  
for i in range(0,11):  
    print("%d X %d = %d" %  
          (n,i,n*i))
```

Output

```
enter no 6  
6 X 0 = 0  
6 X 1 = 6  
6 X 2 = 12  
6 X 3 = 18  
6 X 4 = 24  
6 X 5 = 30  
6 X 6 = 36  
6 X 7 = 42  
6 X 8 = 48  
6 X 9 = 54  
6 X 10 = 60
```

Example

```
str = "Python"  
for i in str:  
    print(i)
```

Program to Iterating string using for loop

Output

P
Y
T
H
O
N

Program to iterate through a list using indexing

Output

I go to Bhopal
I go to Indore
I go to Gwalior
I go to Ujjain
I go to Sagar

Example

```
city = ['Bhopal', 'Indore', 'Gwalior',  
        'Ujjain', 'Sagar']  
# iterate over the list using index  
for i in range(len(city)):  
    print("I go to", city[i])
```

LOOP CONTROL STATEMENTS

Loop control statements change execution from its normal sequence. There are 3 types -

break
statement

continue
statement

pass
statement

```
# Break
for x in range(6):
    if x==4:
        break
    print(x)
```



```
0
1
2
3
```

```
# Continue
for y in "Abhay":
    if y=='h':
        continue
    print(y)
```



```
A
b
a
y
```

```
# Pass
mylist = [1,2,5,8,6,3]
for c in mylist:
    pass
```



```
PS D:\Rough> python
PS D:\Rough> 
```

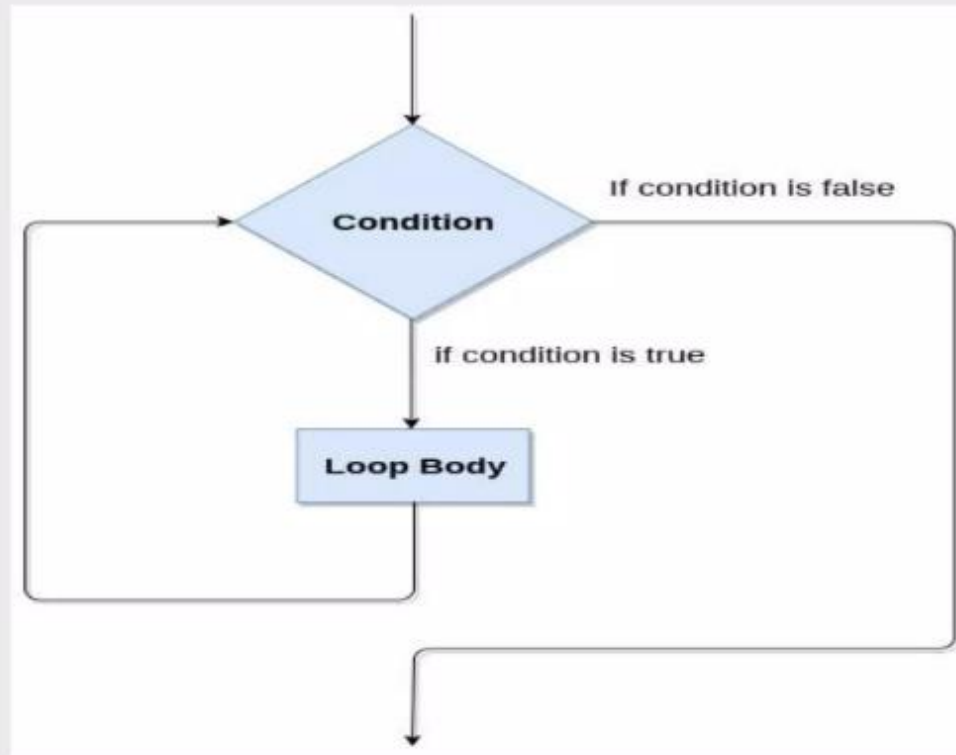
While loop

Repeats a statement or group of statements while a given condition is TRUE. It tests the condition before executing the loop body.

syntax

```
while (  
test_expression):  
    Body of while
```

Flow chart



Example

```
i = 1  
while i < 6:  
    print(i)  
    i += 1
```

Program to print 1 to 5 series

Output

1
2
3
4
5

Program to print list in reverse order

Example

```
a=['student1', 'student2',  
  'student3']  
while a:  
  (a.pop(-1))
```

Output

```
Student3  
Student2  
Student1
```

Using if Statement with While Loop

Example

```
n=10  
while n > 0:  
    n -= 1;  
    if True: print(n)
```

Output

```
10  
9  
8  
7  
6  
5  
4  
3  
2  
1
```


Using else Statement with While Loop

Python supports to have an else statement associated with a loop statement.

If the else statement is used with a while loop, the else statement is executed when the condition becomes false.

Program to print series with else state

Example

```
count = 0
while count < 5:
    print count, " is
less than 5"
    count = count + 1
else:
    print count, " is
not less than 5"
```

Output

```
0 is less than 5
1 is less than 5
2 is less than 5
3 is less than 5
4 is less than 5
5 is not less than 5
```

Find Even odd no

```
number = 2
while number < 10 :
    # Find the mod of 2
    if number%2 == 0:

        print("The number
"+str(number)+" is even")
    else:

        print("The number
"+str(number)+" is odd")

    # Increment `number` by 1
    number = number+1
```

Output

The number 2 is even

The number 3 is odd

The number 4 is even

The number 5 is odd

The number 6 is even

The number 7 is odd

The number 8 is even

The number 9 is odd

Nested loop

You can use one or more loop inside any another while, for or do..while loop.

Example

```
i = 2
print("prime no")
while(i < 15):
    j = 2
    while(j <= (i/j)):
        if not(i%j): break
        j = j + 1
    if (j > i/j) : print(i)
    i = i + 1
```

prime no

2
3
5
7
11
13

**Program to
print given
pattern**

Output

```
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5
```

Example



```
while(i<=5):
    j=5
    while(j>=i):
        print(j, end=' ')
        j-=1
    i+=1
    print()
```

Example

```
rows = int(input("Enter the rows:"))

# Outer loop will print number of rows
for i in range(0,rows+1):
    # Inner loop will print number of Asterisks
    for j in range(i):
        print("*",end = " ")
    print()
```

**program to
print given
below
pattern**

```
*
**
***
****
*****
```

Program to print given pattern

```
rows = int(input("Enter the  
rows"))  
for i in range(0,rows+1):  
    for j in range(i):  
        print(i,end = "  
print()
```

```
1  
22  
333  
4444  
55555
```