

Loop

- Loops in Python are used to repeat actions efficiently.

```
In [3]: print('data science')
        print('data science')
        print('data science')
        print('data science')
        print('data science')
```

```
data science
data science
data science
data science
data science
```

- There are two types in loop
- 1] while loop-->It is used for sequence(dtype, string,dict)
- 2] for loop:-->based on condition

while Loop

```
In [7]: i = 0      #initialization

        while i <= 5: # condition
            print('data science')
            i = i +1  #increment
```

```
data science
data science
data science
data science
data science
data science
```

```
In [11]: i = 5     #initialization

        while i >= 1: # condition
            print('data science', i)
            i = i - 1  #incremnet
```

```
data science 5
data science 4
data science 3
data science 2
data science 1
```

```
In [17]: i = 1

        while i <= 5:
            print('data science', i)
            i = i+1
```

```
data science 1  
data science 2  
data science 3  
data science 4  
data science 5
```

```
In [19]: # nested while loop  
i = 1  
while i <= 5:  
    print('Data science') #when we mention the end the new line is not create  
    j = 1  
    while j <= 4:  
        print('technology')  
        j = j+1  
    i = i +1  
    print()
```

```
Data science  
technology  
technology  
technology  
technology
```

```
Data science  
technology  
technology  
technology  
technology
```

```
Data science  
technology  
technology  
technology  
technology
```

```
Data science  
technology  
technology  
technology  
technology
```

```
Data science  
technology  
technology  
technology  
technology
```

```
In [25]: # from above output which we got is very lengthy but how to make them one line Le  
i = 1  
while i <= 5:  
    print('data science', end=" ")  
    j = 1  
    while j <= 4:  
        print('technology', end = " ")  
        j = j+1  
    i = i + 1  
    print()
```

```
data science technology technology technology technology
data science technology technology technology technology
data science technology technology technology technology
data science technology technology technology technology
data science technology technology technology technology
```

In [1]: *# Lets used while loop using some number*

```
i = 1
while i <= 4:
    j = 0
    while j <= 3:
        print(i*j, end=" ")
        j += 1
    print()
    i += 1
```

```
0 1 2 3
0 2 4 6
0 3 6 9
0 4 8 12
```

For Loop

- break
- continue
- pass

In [6]:

```
name = 'nit'
for i in name:
    print(i)
```

```
n
i
t
```

In [8]:

```
name1 = [1, 3.5, 'hello']
for i in name1:
    print(i)
```

```
1
3.5
hello
```

In [10]:

```
for i in [1,7,4.7,'hi']:
    print(i)
```

```
1
7
4.7
hi
```

In [12]:

```
for i in range(5):
    print(i)
```

```
0
1
2
3
4
```

```
In [14]: for i in range(1,10,3):  
         print(i)
```

1
4
7

```
In [20]: for i in range(1, 51):  
         if i%5 != 0:  
             print(i)
```

1
2
3
4
6
7
8
9
11
12
13
14
16
17
18
19
21
22
23
24
26
27
28
29
31
32
33
34
36
37
38
39
41
42
43
44
46
47
48
49

```
In [22]: for i in range(1,51):  
         if i%5 == 0:  
             print(i)
```

```
5
10
15
20
25
30
35
40
45
50
```

```
In [24]: for i in range(1,11):
        print(i)
```

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

```
In [29]: for i in enumerate(name):
        print(i)
```

```
(0, 'n')
(1, 'i')
(2, 't')
```

```
In [33]: # break :- It should exits or break out the Loop
        for i in range(1,11):
            if i == 5:
                break
            print(i)
```

```
1
2
3
4
```

```
In [36]: for i in range(1,11):
        if i == 7:
            break
        print(i)
```

```
1
2
3
4
5
6
```

```
In [40]: # continue-->skip only given value and print all other value
        for i in range(1,11):
            if i == 7:
                continue
            print(i)
```

1
2
3
4
5
6
8
9
10

```
In [42]: for i in range(1,11):  
        if i == 5:  
            continue  
        print('hello',i)
```

hello 1
hello 2
hello 3
hello 4
hello 6
hello 7
hello 8
hello 9
hello 10

```
In [46]: for i in range(1,11):
```

```
Cell In[46], line 1  
    for i in range(1,11):  
        ^  
SyntaxError: incomplete input
```

```
In [52]: # pass  
        for i in range(1,11):  
            pass
```

```
In [62]: for i in range(1,51):  
        if i%3 == 0:  
            print(i)  
        print('end')
```

3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
end

```
In [64]: for i in range(1,50):  
         if i%3 == 0:  
             continue  
         print(i)  
         print('end')
```

1
2
4
5
7
8
10
11
13
14
16
17
19
20
22
23
25
26
28
29
31
32
34
35
37
38
40
41
43
44
46
47
49
end

- WAP which is not divisible by 3 or 5

```
In [80]: for i in range(1,51):  
         if i%3 == 0 or i%5==0:  
             continue  
         print(i)  
         print('end')
```

```
1
2
4
7
8
11
13
14
16
17
19
22
23
26
28
29
31
32
34
37
38
41
43
44
46
47
49
end
```

```
In [76]: for i in range(1,50):
        if i%3 ==0 or i%5 == 0: #which is divisible by 3 or 5
            print(i)
        print('end')
```

```
3
5
6
9
10
12
15
18
20
21
24
25
27
30
33
35
36
39
40
42
45
48
end
```

```
In [82]: for i in range(1,50):
        if i%3 == 0 and i%5 == 0:
```



```
        continue
    print(i)
print('end')
```

1
2
3
4
5
6
7
8
9
10
11
12
13
14
16
17
18
19
20
21
22
23
24
25
26
27
28
29
31
32
33
34
35
36
37
38
39
40
41
42
43
44
46
47
48
49
end

```
In [84]: for i in range(1,50):
        if i%2 == 0:
            pass
        else:
            print(i)
print('bye')
```

```

1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
41
43
45
47
49
bye

```

```

In [91]: print('# # # #')
         print('# # # #')
         print('# # # #')
         print('# # # #')

```

```

# # # #
# # # #
# # # #
# # # #

```

```

In [99]: for j in range(4):
         print('#',end=" ")

```

```

# # # # #

```

```

In [103... for j in range(4):
           print('#', end=" ")

           for j in range(4):
             print('#', end=" ")

```

```

# # # # # # # #

```

```

In [105... for j in range(4):
           print('#', end=" ")
           print()

           for j in range(4):
             print('#', end=" ")

```

```

# # # #
# # # #

```

In [107...

```
for i in range(4):  
    print('#', end=" ")  
    print()  
  
for j in range(4):  
    print('#', end=" ")  
    print()  
  
for j in range(4):  
    print('#', end=" ")  
    print()  
  
for i in range(4):  
    print('#', end=" " )
```

```
# # # #  
# # # #  
# # # #  
# # # #
```

In [109...

```
for i in range(4):  
    for j in range(4):  
        print('#', end=" ")  
    print()
```

```
# # # #  
# # # #  
# # # #  
# # # #
```