

LOOPS -- in programming world some time we keep on repeating , may be you want to repeat 5 statement so one way is copy & paste multiple times or other way is

if you want to print the datascience 1000 times then what you will you cant copy for 1000 times , if you want to print 1000 times then you cant do manually . that is the reason why we need to apply loop -> 2 type of loops -- While loop & For loop

```
In [ ]: 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
```

```
In [ ]: i = 1          # initializing

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

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

```
In [ ]: i = 5          # initializing

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

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

```
In [ ]: i = 1          # initializing
        while i<=5:    # condition
            print('data science : ', i)
            i = i + 1  # increment
```

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

```
In [ ]: i = 5          # initializing
        while i>=1:    # condition
            print('data science : ',i)
            i = i - 1  # decrement
```

```

data science : 5
data science : 4
data science : 3
data science : 2
data science : 1

```

can we use multiple while loop || nested while loop to understand nested while indepth
understand you can use pycharm debug with f8 option

```

In [ ]: i = 1

while i<=5:
    print('Data science')
    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 [ ]: i = 1

while i<=5:
    print('data science', end= " ") # when we apply end then new line will not c
    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 [ ]: # Lets use while Loop some numbers
i = 1

while i<=2:
    j = 0
    while j<=2:
        print(i*j, end=" ")
        j = j+1
    i = i+1
    print()
```

```
0 1 2
0 2 4
```

```
In [ ]: i = 1

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

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

normally while loop it work with iteration or certaion some condition but for loop it will work with sequence (list, string,int)

```
In [2]: name = 'nit'

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

```
n
i
t
```

```
In [3]: name1 = [1,3.5,'hallo'] #i want print the value individually

for i in name1:
    print(i)
```

```
1
3.5
hallo
```

```
In [4]: for i in [2, 3, 7.8, 'hi']:
        print(i)
```

2
3
7.8
hi

```
In [5]: for i in range(5):  
        print(i)
```

0
1
2
3
4

```
In [6]: for i in range(2,5):  
        print(i)
```

2
3
4

```
In [7]: for i in range(1,10,3):  
        print(i)
```

1
4
7

```
In [8]: # print the value which is divisible by 5
```

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

5
10
15
20
25
30
35
40
45
50

```
In [9]: # print the value which is divisible by 5 i dont want that value
```

```
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 [1]: print('hello')
```

hello

```
In [2]: for i in range(1,11):  
        print(i)
```

1
2
3
4
5
6
7
8
9
10

i dont want 11 number i want only 5 number for the range of 1 to 10

```
In [6]: for i in range(1,10):  
        if i==6:  
            break  
        print(i)
```

1
2
3
4
5

in continue loop wont be terminate & exclud the assign number it give you entire output

```
In [9]: for i in range(1,11):  
        if i==3:  
            continue  
        print('hello',i)
```

hello 1
hello 2
hello 4
hello 5
hello 6
hello 7
hello 8
hello 9
hello 10

PASS Statement - pass the code & it wont go (code give you the error)

```
In [10]: for i in range(1,11):
```

```
Cell In[10], line 1  
    for i in range(1,11):  
        ^  
_IncompleteInputError: incomplete input
```

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

you need to print the number from 1 to 50 but dont print the number which is divisible by 3 or 5

```
In [12]: for i in range(1,51):  
        if i%3==0:  
            print(i)
```

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

```
In [13]: for i in range(1,51):  
         if i%3==0:  
             continue  
         print(i)
```

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
50

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

```
        continue
    print(i)    ## it will skip all the value which is divisible by 3 or 5
```

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

```
In [15]: for i in range(1,20):
          if i%2==0:
              continue
          print(i)
          print('End')
```

1
3
5
7
9
11
13
15
17
19
End

In []: