

LOOPS

1. While loop

```
In [4]: i=5
        while i<7:
            print(i)
            i=i+1
```

5
6

```
In [5]: print('datascience')
        print('datascience')
        print('datascience')
        print('datascience')
```

datascience
datascience
datascience
datascience

```
In [10]: i = 1                                #initializing
        while i <= 5:                          # condition
            print('data science:',i)
            i = i+1                            # incremenet
```

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

```
In [14]: 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 [18]: 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 [19]: 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
```

```
In [ ]: can we use multiple while loop || nested while loop
        to understand nested while indepth understand you can use pycharm debug with f8
```

```
In [3]: i = 1
        while i<= 5:
            print('data science') #when we mention end then new line will not create
            j = 1
            while j<=4:
                print('technology')
                j = j+1

            i = i+1
            print()

        # the output which we got is very lengty but how to make them one line lets ref
```

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 [4]: i = 1
while i<=5:
    print(' datascience', end = "") # when we mention end then new line will not
    j = 1
    while j<=4:
        print(' technology', end="")
        j = j + 1

    i = i + 1
    print()
```

datascience technology technology technology technology
datascience technology technology technology technology
datascience technology technology technology technology
datascience technology technology technology technology
datascience technology technology technology technology

```
In [9]: # Lets use while Loop usig some numbers
i=1
while i <= 2:
    j=0
    while j <= 2:
        print(i*j, end="")
        j += 1
    print()
    i += 1
```

012
024

```
In [10]: #lets use while loop usig some numbers
i = 1

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

0 1 2
0 2 4

```
In [11]: # Lets use while loop usig some numbers
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

```
In [ ]: FOR LOOP -
normally while loop it work with iteration or certaion some condition but for lo
```

```
In [12]: name = 'nit'
for i in name:
    print(i)
```

n
i
t

```
In [13]: name1 = [1,3.5,'hallo'] #i want print the value individualy

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

1
3.5
hallo

```
In [14]: for i in [2,3,7.8,'hi']:
    print(i)
```

2
3
7.8
hi

```
In [15]: range(5)
```

Out[15]: range(0, 5)

```
In [18]: for i in range(0,5):  
         print(5)
```

5
5
5
5
5

```
In [19]: for i in range(5):  
         print(i)
```

0
1
2
3
4

```
In [20]: for i in range(2,5):  
         print(i)
```

2
3
4

```
In [21]: for i in range(1,10,3):print(i)
```

1
4
7

```
In [22]: #print the value which is divisible by 5
```

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

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

```
In [23]: # 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 [24]: # 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 [ ]: # LETS DISCUSS ABOUT 3 KEYWORDS -- BREAK || CONTINUE || PASS
# BREAK STATEMNT - if you apply break statment in a loop then it will end the Lo
# Pass = skips block of code( function, class etc)
# Continue= skips 1 step/iteration during loop
# Break= jumps out of the function/loop
```

```
In [25]: x = int(input('how many chacolates you want:?''))
```

```
i = 1
while i<=x:
    print('choclet')
    i += 1
```

choclet
choclet
choclet
choclet
choclet
choclet
choclet
choclet
choclet
choclet

```
In [ ]: #If the user says i need 10 choclet but vending machine dont have 10 choclade &
# We have 3 choice now (eiter stop the transaction by you or you can give only
# vendor machine display the result as we are out of the stock
#Now Lets try in the code
```

```
In [26]: ava = 5 # the machine has only 5 choclet
x = int(input('How many choclets you want:?''))

i = 1
while i<=x:
    print('choclet')
    i += 1

# if you check the user wants 10 choclets but availabe choclet is 5 but we got
# in this code we just declare but we dint apply any condition to it
```

choclet
choclet
choclet
choclet
choclet
choclet

```
In [33]: available_choclet = 5 # the machine has only 10 candis

x = int(input('How many choclets user want:?''))
i = 1
while i<=x:
    if i>available_choclet:
        break
    print('choclet')
    i += 1

# we stop the execution but which code execut
# break is statement | means jump out of the

print('bye for now')
```

```
choclet
choclet
choclet
choclet
choclet
bye for now
```

```
In [34]: available_choclet = 5 # the machine has only 10 candies

x = int(input('How many chocolates you want:?'))

i = 1
while i<=x:

    if i>available_choclet: # we stop the execution but which code execution not
        print('out of stock')
        break # break is statement / means jump out of the loop
    print('choclet')
    i += 1

print('bye for now')
```

```
choclet
choclet
bye for now
```

```
In [35]: for i in range(1,11):
        print(i)
```

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

```
In [36]: # i dont want 11 number i want only 5 number for the range of 1 to 10

for i in range(1,11):
    if i == 6:
        break
    print(i) #be terminate & exclue the assign number it give yo
```

```
1
2
3
4
5
```

```
In [37]: for i in range(1,11):
        if i == 3:
            continue
        print(i)
```



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

```
In [40]: for i in range(1,11):
         if i == 6:
             continue
         print('hello :',i)    # statement - pass the code & it wont go ( code give y
```

```
hello : 1
hello : 2
hello : 3
hello : 4
hello : 5
hello : 7
hello : 8
hello : 9
hello : 10
```

```
In [41]: for i in range(1,11):
```

```
Cell In[41], line 1
    for i in range(1,11):
    ^
SyntaxError: incomplete input
```

```
In [42]: for i in range(1,11):
         pass
```

```
In [43]: ## you need to print the number from 1 to 50 but dont print the number which is
```

```
In [44]: 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 [45]: `for i in range(1,51):`

```
    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
50
end

```
In [46]: 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 [48]: 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 [50]:

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

```
for i in range(1,50):  
    if i%3 == 0 or i%5 == 0:  
        continue  
    print(i)  
print('end')  
# when you apply and you wont get the value which is divisible by both 3 & 5 (15
```

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 [52]: *# i don't want to print the values which are even numbers that means print only*

```
for i in range(1,51):  
    if (i%2 == 0):  
        #print('even')  
        continue  
    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 [ ]: # PRINTING PATTERN IN PYTHON
```

```
In [53]: print('# # # #')
          print('# # # #')
          print('# # # #')
          print('# # # #')
```


#

```
In [54]: for i in range(1,5):
          i = i+1
          print('# # # #')
```


#

```
In [55]: for j in range(4):
          print('# # # #')
```


#

```
In [56]: for j in range(4):
          print('#', end = " ")
```

#

```
In [57]: for j in range(4):
          print('#', end=" ")

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

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

```
In [60]: for j in range(4):
          print('#', end="")

          print()

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

          print()

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

          print()

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

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

```
In [61]: for i in range(4):
          for j in range(4):
              print('#', end=" ")
          print()
          # pease use debug mode in pycharm
```

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

```
In [62]: for i in range(4):
          for j in range(i+1):
              print('#', end = " ")
          print()
```

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

```
In [63]: for i in range(1,5):
          print("# "*i)
```

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

```
In [64]: for i in range(1,5):
         for j in range(4):
             if i>j:
                 print("#",end=" ")
         print()
```

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

```
In [65]: list(range(5))
```

```
Out[65]: [0, 1, 2, 3, 4]
```

```
In [66]: for i in range(4):
         for j in range(i):
             print('#', end=" ")
         print()
```

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

```
In [67]: for i in range(4):
         for j in range(i+1):
             print('#', end=" ")
         print()
```

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

```
In [68]: for i in range(4):
         for j in range(4-i):
             print('#', end=" ")
         print()
```

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

```
In [ ]:
```