Loops

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Loops : While & For

While

```
[1]: #while Loop
     a=2
     while(a>0):
             print(a)
             a-=1 #Decrement of value
     print('Loop Ended')
```

```
2
1
Loop Ended
```

```
[2]: # Exit condition is false at the start
     x = 0 #flase
     while x:
         print(x)
         x -= 1
```

```
[3]: # Infinte loop with while statement
     # while True:
     #     print('Press Ctrl+C to stop me!')
     print()
```

```
[4]: #single-line while Loop
     a=3
     while a>0 : print(a) ; a-=1
```

```
3
2
1
```

0.0.1 Nested While

```
[5]: #Printing Star Pattern
     i=6
     while(i>0): #outer loop
         j=6
         while(j>i): #inner loop
             print("*",end=' ')
             j-=1
         i-=1
         print()
```

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

0.0.2 While - Else :

```
[6]: a=3
     while(a>0):
         print(a)
         a-=1
     else:
         print("Reached 0")
```

```
3
2
1
Reached 0
```

```
[7]: #If the loop terminates prematurely with break,
     # the else clause won't be executed.
     x = 6
     while x:
         print(x)
         x -= 1
         if x == 3:
             break
     else:
         print('Done!')
     # Prints 6 5 4
```

```
6
5
4
```

For

```python
[8]: #For loop
     #Numeric range :
     print("Iterating over a Numeric Range : ")
     for n in (0, 1, 2, 3, 4):
         print(n)
     print()
```

```
Iterating over a Numeric Range :
0
1
2
3
4
```

```python
[9]: #over a list
     print("Iterating over a list: ")
     for a in [1,2,3]:
         print(a)
     print()
```

```
Iterating over a list:
1
2
3
```

```python
[10]: #over a list
      print("Iterating over a list: ")
      colors = ["Red","Green","White","Black"]
      for a in colors:
          print(a)
      print()
```

```
Iterating over a list:
Red
Green
White
Black
```

```python
[11]: #over a set
      print("Iterating over a set : ")
      for i in {2,3,3,4}:
          print(i)
      print()
```

```
Iterating over a set :
2
```

3

```
3
4
```

[12]:
```python
#over a string
print("Iterating over a String: ")
for i in 'wisdom':
    print(i)
```

```
Iterating over a String:
w
i
s
d
o
m
```

0.0.3 Range

[13]:
```python
#Range
a=range(10)
print(a)
print(type(a))
print(list(a))
```

```
range(0, 10)
<class 'range'>
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

[14]:
```python
# range(stop) - One argument

print(list(range(20)))

# range(start,stop) - Two arguments

print(list(range(20,40)))

# range(start,stop,step) - Three arguments

print(list(range(20,40,3)))

#step can be negetive
print(list(range(20,10,-2)))
```

```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19]
[20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39]
[20, 23, 26, 29, 32, 35, 38]
[20, 18, 16, 14, 12]
```

```
[15]: #Iterating on numeric range with range():
      for x in range(5,13,2):
          print(x)
      print()
```

```
5
7
9
11
```

```
[16]: #Iterating on indices of a list
      list=['Romanian','Spanish','Gujarati']
      for i in range(len(list)): #3- 0,1,2
              print(list[i])
```

```
Romanian
Spanish
Gujarati
```

0.0.4   Nested For

```
[17]: # Print the below statement 3 times
      for number in range(3) :
          print("------------------------------------------")
          print("I am outer loop iteration "+str(number))
          # Inner loop
          for another_number in range(5):
              print("**************************")
              print("I am inner loop iteration "+str(another_number))
```

```
------------------------------------------
I am outer loop iteration 0
**************************
I am inner loop iteration 0
**************************
I am inner loop iteration 1
**************************
I am inner loop iteration 2
**************************
I am inner loop iteration 3
**************************
I am inner loop iteration 4
------------------------------------------
I am outer loop iteration 1
**************************
I am inner loop iteration 0
**************************
I am inner loop iteration 1
```

```
**************************
I am inner loop iteration 2
**************************
I am inner loop iteration 3
**************************
I am inner loop iteration 4
------------------------------------------
I am outer loop iteration 2
**************************
I am inner loop iteration 0
**************************
I am inner loop iteration 1
**************************
I am inner loop iteration 2
**************************
I am inner loop iteration 3
**************************
I am inner loop iteration 4
```

[18]:
```python
#An example to show a for loop inside a while loop

travelling = input("yes or no : ")
travelling = travelling.lower()
while travelling == "yes":
    num = int(input("number of people"))
    for num in range( 1 , num+1):
        name = input("Name : ")
        age = input("Age : ")
        gender = input("Gender : ")
        print("Details of %d Passenger : "%num)
        print(name)
        print(age)
        print(gender)
    travelling = input("oops missed someone ? ")
    travelling = travelling.lower()
```

```
yes or no : yes
number of people2
Name : Nitheesh
Age : 26
Gender : M
Details of 1 Passenger :
Nitheesh
26
M
Name : Sai Nitheesh Reddy
Age : 27
Gender : M
```

```
Details of 2 Passenger :
Sai Nitheesh Reddy
27
M
oops missed someone ? NO
```

0.0.5 For-Else

```
[19]: for i in range(10):
          print(i)
      else:
          print("Reached else")
```

```
0
1
2
3
4
5
6
7
8
9
Reached else
```

```
[20]: #Break
      for i in range(10):
          print(i)
          if(i==7): break
      else:
          print("Reached else")
      print('Following Statement')
```

```
0
1
2
3
4
5
6
7
Following Statement
```

```
[21]: #Guess the outpt
      list1 = [1,2,3,4,5]
      list2 = [6,7,8,9,5]
      for i in list1:
          if i in list2:
              print('Overlapping')
```

```python
    else:
        print('not overlapping')
```

```
not overlapping
not overlapping
not overlapping
not overlapping
Overlapping
```

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