

## While loop

- If you want to apply unlimited iterations then we choose while loop
- Any loop we required 3 things
  - Initial point or start point
  - Condition to stop
  - Increment or decrement
- In for loop we are using all these 3 in a single line
- In while Loop we will use all these 3 in 3 lines

```
In [ ]: # initial point
        # While <condition>:
        #     <statements>
        #     <increment or decrement>
```

```
In [1]: for i in range(1,6):
        print(i,end=' ')

        # i=1
        # when i reaches 5 then should stop
        # i=i+1
```

1 2 3 4 5

```
In [ ]: i=1
        while <condition>:
            print(i,end=' ')
            i=i+1

        # Condition anything that should be True
        # Then you will go inside the while loop
        # And execute

        i=1
        i<=6
        i<2
        i<3
        i<4
```

```
In [2]: # Case-1:
        i=1 # Start point
        while i<3: # Condition
            print(i,end=' ')
            i=i+1 # Increment or decrement

        # step=1 : i=1 while 1<3 True print(1) i=1+1=2
        # step-2: i=2 while 2<3 True print(2) i=1+2=3
        # ste-3: i=3 while 3<3 False
```

1 2

```
In [3]: i=1
while(i<6):
    print(i,end=' ')
    i=i+1
```

1 2 3 4 5

### Infinite loop

- whenever infinite loop occurs
- apply the condition and then apply the break

```
In [ ]: i=1
while i!=0:
    print(i,end=' ')
    i=i+1
# step-1
```

```
In [4]: i=1
while i!=0:
    print(i,end=' ')
    i=i+1
    if i==10:
        break
```

1 2 3 4 5 6 7 8 9

```
In [ ]: i=1
while i<20:
    print(i)
    i=i/2
# i=1 1<20 T print(1) 1=1/2
```

### True

- When we want to use infinite iterations will use True
- If we want to stop the loop, inside we will apply a condition and break

```
In [5]: i=1
while True:
    print(i,end=' ')
    i=i+1
    if i==10:
        break
```

1 2 3 4 5 6 7 8 9

```
In [ ]: # i=1
# while i!=0:
#     print(i,end=' ')
#     i=i+1
#     if i==10:
#         break
```

```
In [9]: #wap to print -10 to -1
# using for loop and while loop
```

```
# for i in range(-10,0):
#     print(i,end=' ')

i=-10
while i<0:
    print(i,end=' ')
    i=i+1
```

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

```
In [ ]: #wap to print -1 to -10
# using for loop and while loop
for i in range(-1,-10,-1):
    print(i,end=' ')

i=-1
while i<-10:
    print(i,end=' ')
    i=i-1
```

```
In [10]: #wap to print 10 to 1
# using for loop and while loop
i=-1
while i>=-10:
    print(i,end=' ')
    i=i-1
```

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

```
In [11]: #wap to print 10 to 1
# using for loop and while loop
for i in range(10,0,-1):
    print(i,end=' ')

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

```
In [12]: i=10
while i>=1:
    print(i,end=' ')
    i=i-1
```

10 9 8 7 6 5 4 3 2 1

```
In [ ]: # For Loop assignment
# All for loop class room qns should apply while answer

# wap ask the user print the even or odd values between 11 to 21
for i in range(11,22):
    if i%2==0:
        print(f'{i} is an even number')
    else:
        print(f'{i} is an odd number')
```

```
In [13]: i=11
while i<=22:
    if i%2==0:
        print(f'{i} is an even number')
    else:
```

```
print(f'{i} is an odd number')  
i=i+1
```

```
11 is an odd number  
12 is an even number  
13 is an odd number  
14 is an even number  
15 is an odd number  
16 is an even number  
17 is an odd number  
18 is an even number  
19 is an odd number  
20 is an even number  
21 is an odd number  
22 is an even number
```

In [ ]: