

## Python Loops

In computer programming, loops are used to repeat a block of code.

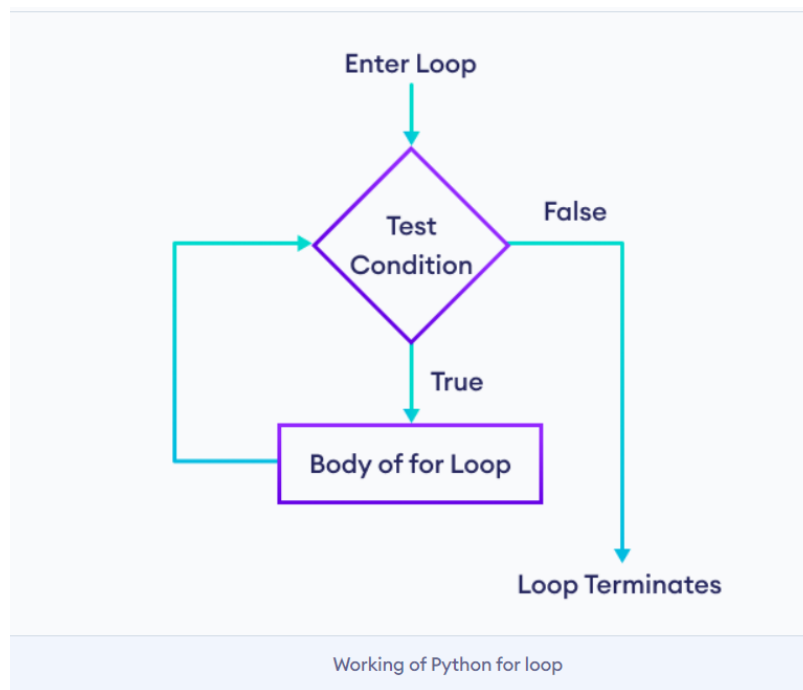
For example, if we want to show a message 100 times, then we can use a loop. It's just a simple example; you can achieve much more with loops.

There are 2 types of loops in Python:

- for loop
- while loop

### **1. Python 'for' loop**

In Python, a for loop is used to iterate over sequences such as lists, tuples, string, etc.,



#### Example 1

```
for x in 'Python':  
    print(x)
```

### Example 2

```
# use of range() to define a range of values
values = range(4)

# iterate from i = 0 to i = 3
for i in values:
    print(i)
```

### Example 3

```
languages = ['Swift', 'Python', 'Go', 'JavaScript']

# run a loop for each item of the list
for language in languages:
    print(language)
```

### Example 4

```
digits = [0, 1, 5]

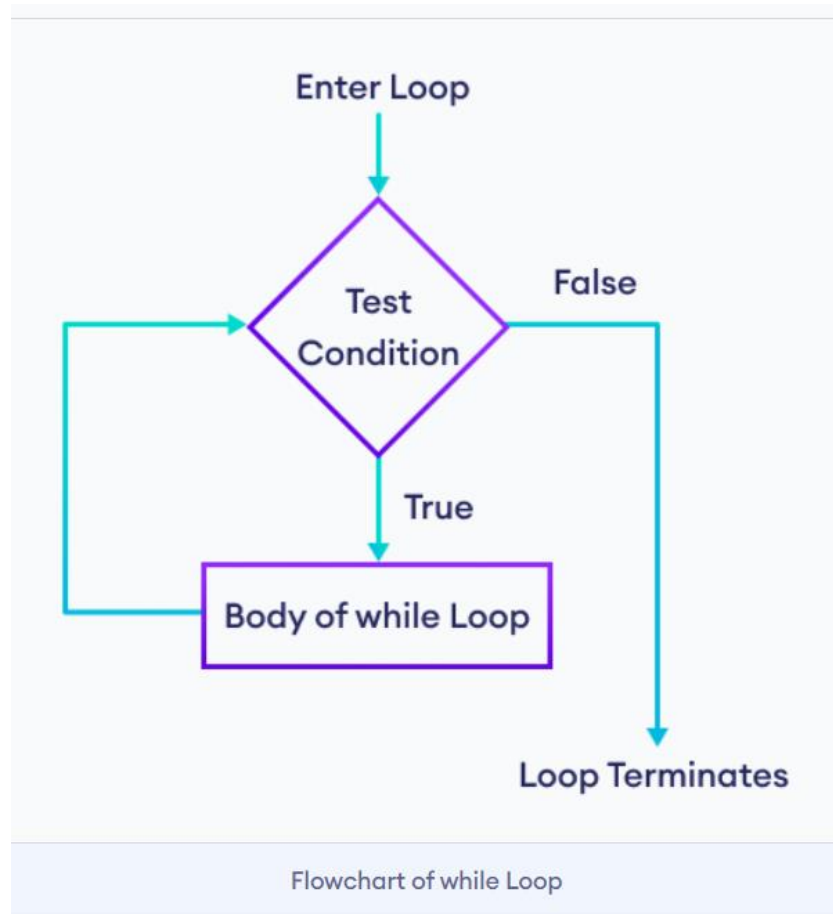
for i in digits:
    print(i)
else:
    print("No items left.")
```

## **2. Python 'While' Loop**

Python while loop is used to run a block code until a certain condition is met,

Here,

- A while loop evaluates the condition.
- If the condition evaluates to True, the code inside the while loop is executed.
- Condition is evaluated again.
- This process continues until the condition is False.
- When condition evaluates to False, the loop stops.



### Example 1

```
# program to display numbers from 1 to 5

# initialize the variable
i = 1
n = 5

# while loop from i = 1 to 5
while i <= n:
    print(i)
    i = i + 1
```

### Example 2

```
# program to calculate the sum of numbers
# until the user enters zero

total = 0

number = int(input('Enter a number: '))

# add numbers until number is zero
while number != 0:
    total += number    # total = total + number

    # take integer input again
    number = int(input('Enter a number: '))

print('total =', total)
```

### Example 3

```
age = 32

# the test condition is always True
while age > 18:
    print('You can vote')
```

#### Example 4

```
counter = 0

while counter < 3:
    # loop ends because of break
    # the else part is not executed
    if counter == 1:
        break

    print('Inside loop')
    counter = counter + 1
else:
    print('Inside else')
```