

# Chapter 07 Loops

---

## Python Notes by Wahab

---

### Python Loops

---

In Python, loops are used to repeatedly execute a block of code as long as a certain condition is met. There are two main types of loops in Python: `for` loops and `while` loops.

#### `for` Loops

A `for` loop is used for iterating over a sequence (such as a list, tuple, dictionary, set, or string).

#### Syntax:

```
for item in sequence:
    # Code block to be executed
```

#### Example

```
fruits = ["apple", "banana", "cherry"]
for fruit in fruits:
    print(fruit)
```

#### `range()` Function with `for` Loop:

The `range()` function generates a sequence of numbers. It can be used with `for` loops to iterate over a specific range.

#### Example

```
for i in range(5):
    print(i)
```

#### OUTPUT

```
0
1
2
3
4
```

#### Using `else` with `for` Loop:

An `else` block can be used with `for` loops. It runs after the loop completes all its iterations.

## Example

```
for i in range(3):  
    print(i)  
else:  
    print("Loop completed")
```

## while Loops

A while loop repeats a block of code as long as a specified condition is true.

### Syntax:

Copy code

```
while condition:  
    # Code block to be executed
```

### Example

```
i = 1  
while i < 5:  
    print(i)  
    i += 1
```

**NOTE:** you can also use else statment with loop just like for loop.

## break and continue Statements

### **break** Statement:

The break statement is used to exit the loop prematurely when a certain condition is met.

### Example

```
for i in range(5):  
    if i == 3:  
        break    # this will print 0, 1, 2 only and skip the reaming one.  
    print(i)
```

### **continue** Statement:

The continue statement skips the current iteration and moves to the next iteration of the loop.

### Example

```
for i in range(5):  
    if i == 3:  
        continue    #this will print all number except 3.  
    print(i)
```

## `pass` Statement

The `pass` statement is a null operation that is used when a statement is syntactically required but no action is needed.

### Example

```
for i in range(5):  
    if i == 3:  
        pass # Placeholder for future code  
    print(i)
```