

LOOPS

For loop:-

A for loop is used for iterating over a sequence (that is either a list, a tuple, a dictionary, a set or a string).

- This is less like the for keyword in other programming language, and works more like an iterator method as found in other object oriented programming languages.

Ex:- # print each fruit in a fruit list
fruits = ["apple", "banana", "cherry"]
for x in fruits:
 print(x)

Ex:- # Looping through a string
for x in "banana":
 print(x)

⇒ Break:- With the break statement we can stop the loop before it has looped through all the items.

Ex:- fruits = ["apple", "banana", "cherry"]
for x in fruits:
 print(x)
 if x == "banana":
 break.

⇒ Continue:- It can stop the current iteration of the loop, and continue with the next.

Ex:- fruits = ["apple", "banana", "cherry"]
for x in fruits:
 if x == "banana":
 continue
 print(x)

The range() function:-

The range function returns a sequence of numbers, starting from 0 by default increments by 1 (by default), and ends at a specified number.

Examples:-

1. `for x in range(6):`
 `print(x)` \rightarrow end number

 O/P: 0, 1, 2, 3, 4, 5

Example-2:-

`for x in range(2, 6):`
 `print(x)` \downarrow \rightarrow end.
 start

Example-3:-

`for x in range(3, 30, 2):`
 `print(x)` \downarrow \downarrow \downarrow
 start end Increment.

Nested Loops:-

- A nested loop is a loop inside a loop.
- The inner loop will be executed one time for each iteration of the "outer loop".

Example:-

`adj = ["red", "big", "tasty"]`

`fruits = ["apple", "banana", "cherry"]`

`for x in adj:`

`for y in fruits:`

`print(x, y)`

While loop:-

While loop is used to execute a block of statements repeatedly until a given condition is satisfied. When the condition becomes false, the line immediately after the loop in the program is executed.

Syntax:-

```
while Expression:  
    Statement(s)
```

Example:-

```
count = 0  
while (count < 3):  
    count = count + 1  
    print("Hello")
```

Example:-

```
for i in range(1, 6, 1): # 1 2 3 4 5  
    for j in range(1, 11, 1): # 1 2 3 4 5 6 7 8 9 10  
        print(i, "x", j, "=", i*j)
```

Formatted String:-

```
name = "Abhi"  
print("hello {x}") # hello Abhi
```

↓
formatted string