

Python for Loop

Anoop S Babu

Faculty Associate

Dept. of Computer Science & Engineering

bsanoop@am.amrita.edu

Python for Loop

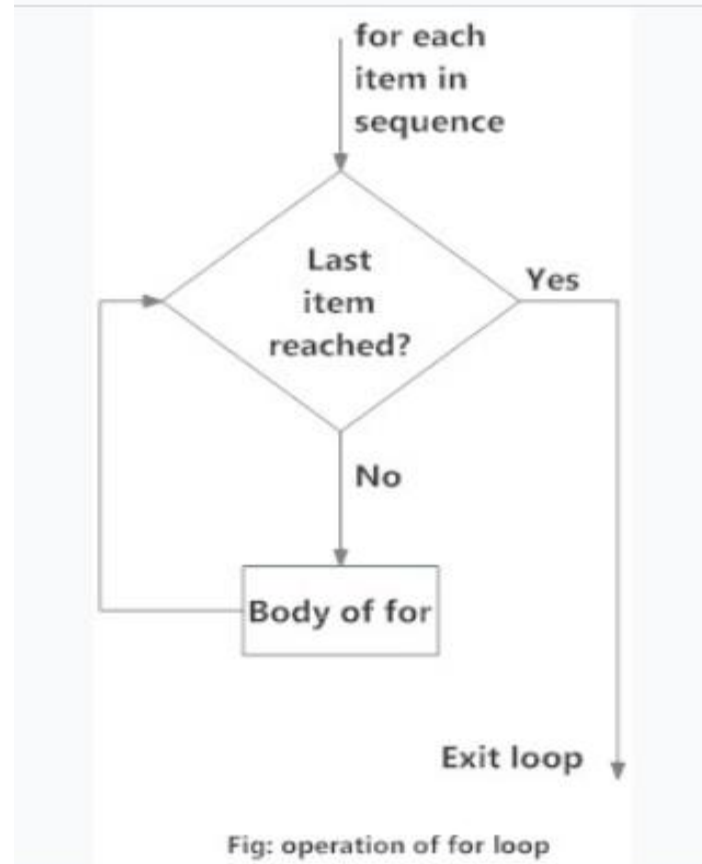
- for loop is used to **iterate over a sequence** (list, tuple, string) or other iterable objects.

Syntax

```
for item in sequence:  
    Body of for
```

- Here, **item** is the variable that takes the **value of the item inside the sequence** on each iteration.
- Loop continues until we reach the **last item in the sequence**.

Flowchart of for Loop



Flowchart of for Loop in Python

Example: Python for Loop

```
# Program to find the sum of all numbers stored in a list

numbers = [1,2,3,4,5,6,7] # List of numbers
sum = 0
# iterate over the list
for value in numbers:
    sum = sum + value
print("The sum is", sum)
```

Output

```
The sum is 28
```

for loop with else

- A for loop can have an **optional else block**.
- The else part is executed if the **items in the sequence used in for loop exhausts**.
- The **break** keyword can be used to stop a for loop. In such cases, the **else part is ignored**.

Example

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

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

Output

```
0
1
5
No items left.
```

Example 2: for...else with break

```
# program to display student's marks from record

studentName = 'Anoop'

markList = {'Devika': 90, 'Arun': 55, 'Rohith': 77}

for student in markList:
    if student == studentName:
        print(markList[student])
        break
    else:
        print('No entry with that name found.')
```

- Here, else block will run only when the **break keyword was not executed.**

Output

```
No entry with that name found.
```

range() function

- **range()** function is used to generate a sequence of numbers.
 - **range(10)** will generate numbers from 0 to 9 (10 numbers).
- We can also define the start, stop and step size as

```
range(start, stop, step_size)
```

- **step_size defaults to 1** if not provided.

Example

```
print(range(10))  
print(list(range(10)))  
print(list(range(2, 8)))  
print(list(range(2, 20, 3)))
```

Output

```
range(0, 10)  
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]  
[2, 3, 4, 5, 6, 7]  
[2, 5, 8, 11, 14, 17]
```

Using range() function in for loop

- We can use the range() function in for loops to iterate through a sequence of numbers.

Example

```
for count in range(1,6):  
    print(count)
```

Output

```
1  
2  
3  
4  
5
```


Using range() function in for loop

- **range()** function can be combined with the **len()** function to iterate through a sequence using indexing.

Example

```
languages = ["Malayalam", "English", "Hindi", "Tamil"]  
  
for i in range(len(languages)):  
    print("I know", languages[i])
```

Output

```
I know Malayalam  
I know English  
I know Hindi  
I know Tamil
```