



Loops in Python

PYTHON PROGRAMMING COURSES

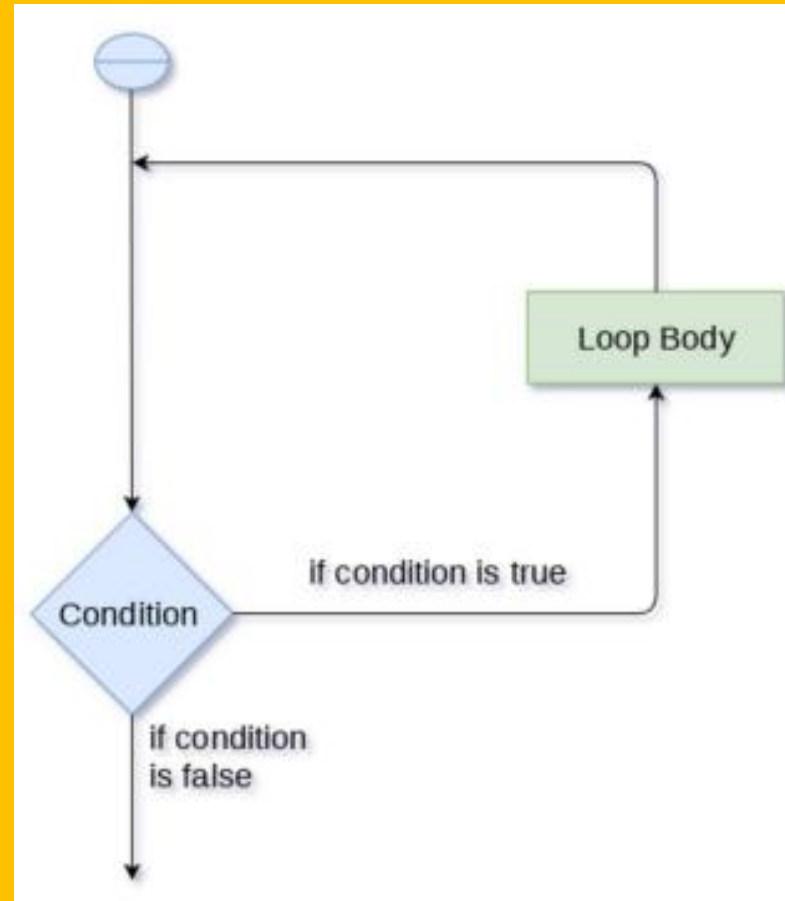
Including Python Compiler -Latvian

What is a Loop?

- A loop is an instruction that repeats multiple times as long as some condition is met.
- When the condition becomes false, the loop ends and the program control is passed to the statement following the loop



Working of a Loop statement.



Why We Use Loops in Python?

- The looping simplifies the complex problems into the easy ones
- E.g. Amal needs to print the first 10 natural numbers.

Then, instead of using the print statement 10 times, he can print inside a loop which runs up to 10 iterations.

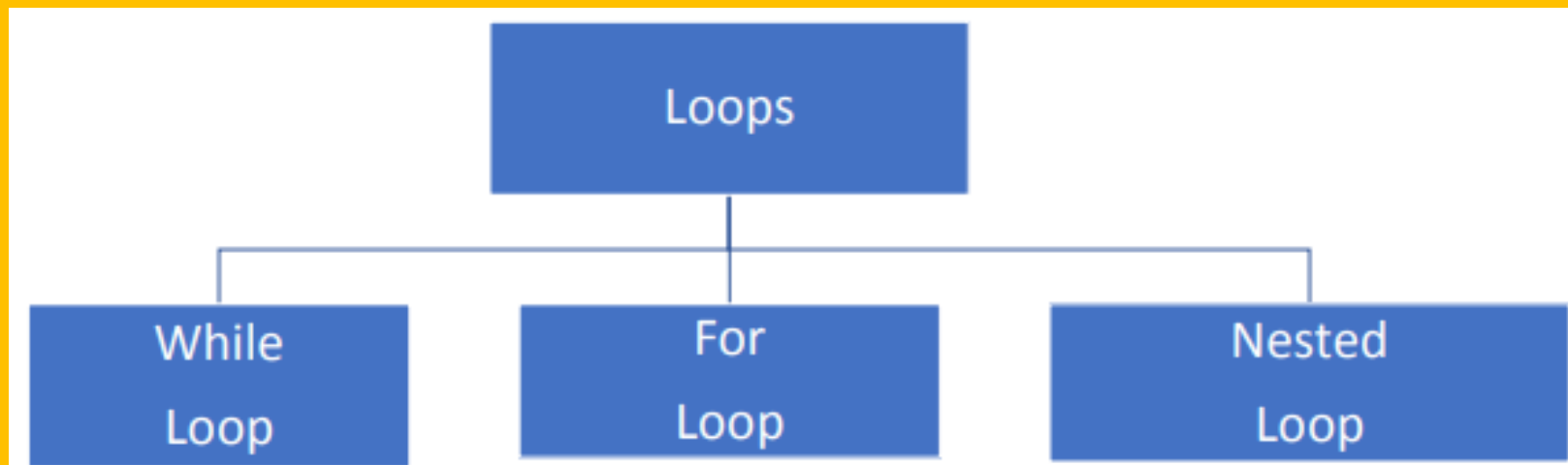


Advantages of Using Loops in Python

- It provides code re-usability.
- Using loops, no need to write the same code again and again.
- Using loops, we can traverse over the elements of data structures (array or linked lists).



Loop Statements in Python



While Loop

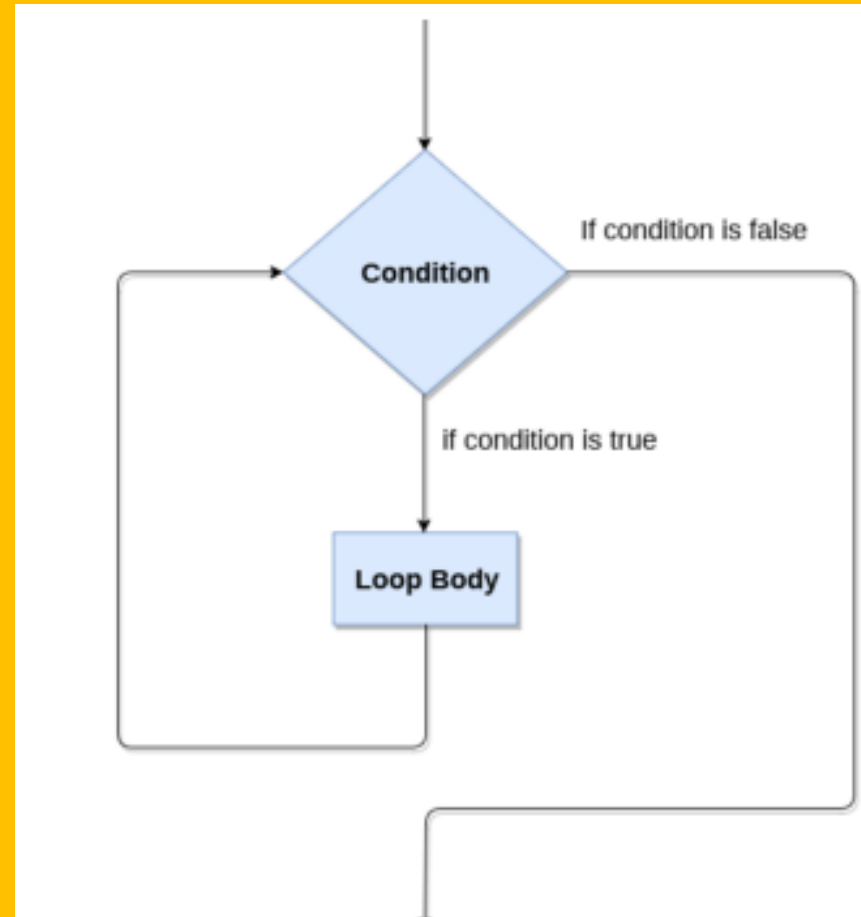
- The syntax of the while loop is:

```
While expression :  
    statement(s)
```

- At first expression is evaluated. If expression is true then the statement(s) block is executed repeatedly until the expression becomes false.
- Here the expression must return either true or false value.



Working of a While Loop statement



Examples for While Loop in Python

- Example - 1: Print Hello World 10 Times

```
Count=0  
While (count<10):  
    print("Hello World")  
    count=count + 1
```



```
Hello World  
Hello World  
Hello World  
Hello World  
Hello World  
Hello World  
Hello World  
Hello World  
Hello World  
Hello World
```



Examples for While Loop in Python

- Example - 2: Print numbers from 0 to 10

```
Count=0  
While (count<=10):  
    print(count)  
    count=count + 1
```



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



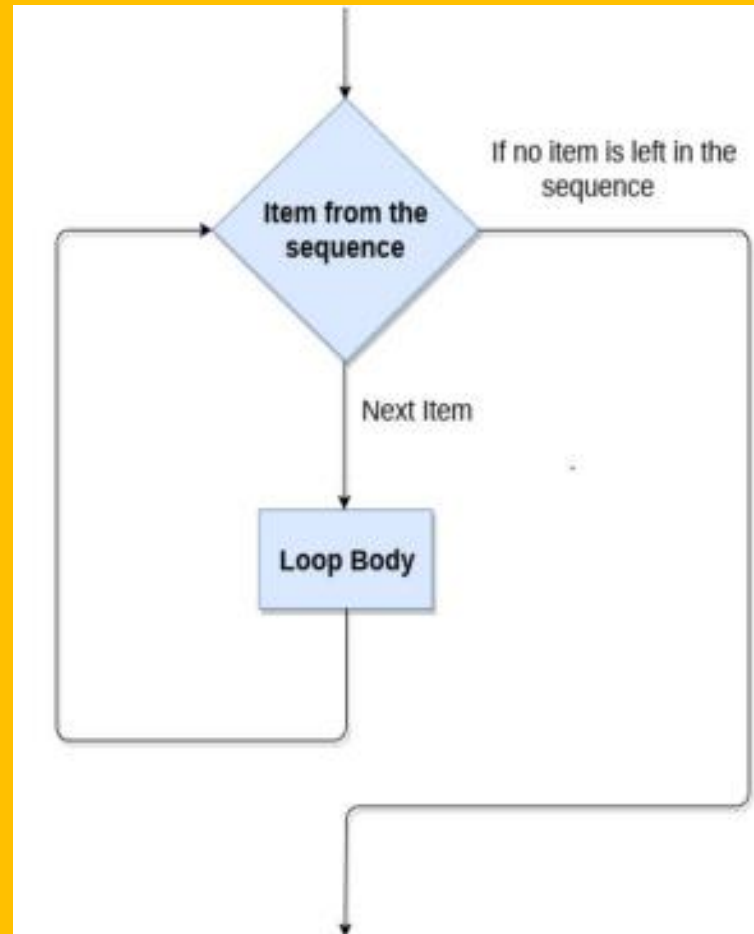
For Loop

- For loop is used to iterate over a sequence, which could be a list, tuple or string.
- The syntax of the for loop is:

```
For iterating_var in sequence:  
    statement(s)
```



Working of a For Loop statement



Examples for, For Loop in Python

- Example - 1: Print Numbers from 0 to 10

```
For counter in range (11):  
    print(counter)
```



```
0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10
```



Examples for, For Loop in Python

- Example - 2: Print Numbers in range of 0 to 9

```
For counter in range (0,9):  
    print(counter)
```



```
0  
1  
2  
3  
4  
5  
6  
7  
8
```



Nested Loops in Python

- Python programming language allows to use one loop inside another loop.
- Syntax:-

While Loop	For Loop
While expression: while expression: statement(s) statement(s)	For iterating_var in sequence: for iterating_var in sequence: statements(s) statement(s)



Lesson Summary

- What is a Loop?
- Loop Statements in Python
- For Loop
- While Loop
- Nested Loops in Python



Thank You

