Control Flow (Conditionals and Loops)

Python programming language provides the following types of loops to handle looping requirements.

- While Loop
- For Loop
- Nested Loops
- Loop Control

1.While Loop:-

Until a specified criterion is true, a block of statements will be continuously executed in a Python while loop. And the line in the program that follows the loop is run when the condition changes to false.

Syntax of While Loop:-

while expression:

statement(s)

In Python, all the statements indented by the same number of character spaces after a programming construct are considered to be part of a single block of code. Python uses indentation as its method of grouping statements.

Example for While Loop:-

```
count = 0
while (count < 3):
   count = count+1</pre>
```

print("Hello Geek")

Output:-

Hello Geek

Hello Geek

Hello Geek

2.For Loop

In Python, there is no C style for loop, i.e., for (i=0; i<n; i++). There is a "for in" loop which is similar to for each loop in other languages.

Syntax of Python for Loop:-

```
for iterator_var in sequence:
```

statements(s)

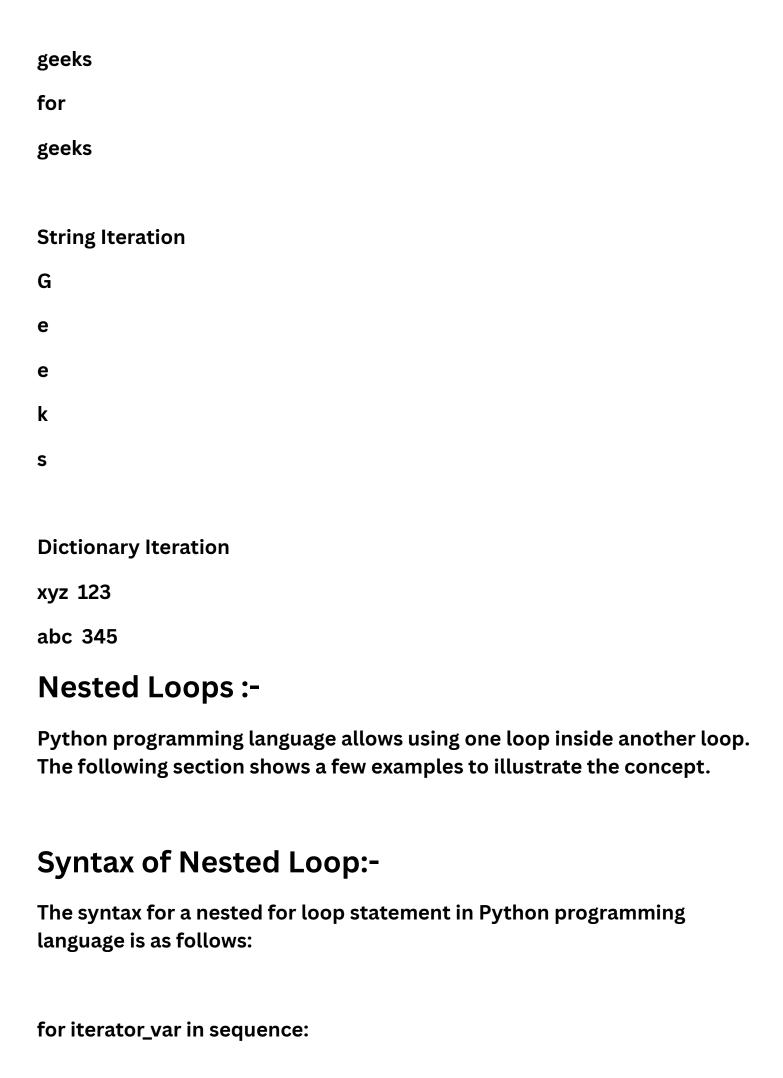
Example For loop:-

```
print("List Iteration")
l = ["geeks", "for", "geeks"]
for i in l:
    print(i)

# Iterating over a tuple (immutable)
print("\nTuple Iteration")
t = ("geeks", "for", "geeks")
```

```
for i in t:
  print(i)
# Iterating over a String
print("\nString Iteration")
s = "Geeks"
for i in s:
  print(i)
# Iterating over dictionary
print("\nDictionary Iteration")
d = dict()
d['xyz'] = 123
d['abc'] = 345
for i in d:
  print("%s %d" %(i, d[i]))
Output:-
List Iteration
geeks
for
geeks
```

Tuple Iteration



```
for iterator_var in sequence:
    statements(s)
    statements(s)
Example For Nested Loop:-
# Running outer loop from 2 to 3
for i in range(2, 4):
  # Printing inside the outer loop
  # Running inner loop from 1 to 10
  for j in range(1, 11):
    # Printing inside the inner loop
    print(i, "*", j, "=", i*j)
  # Printing inside the outer loop
  print()
Output:-
2 * 1 = 2
2 * 2 = 4
2 * 3 = 6
2 * 4 = 8
2 * 5 = 10
```

$$3 * 1 = 3$$

Nested while Loop