Practical No. 2

Aim: - Write a program in python to demonstrate execution of loops.

Theory:-

There are two primitive loops in python,

- While loop
- For loop

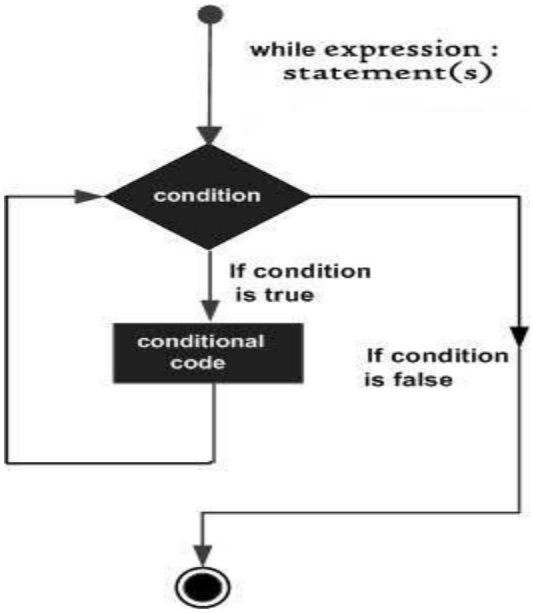
While loop – It is used to execute a block of statements repeatedly until a given condition is satisfied. And when the condition becomes false, the line immediately after the loop in the program is executed. While loop falls under the category of indefinite iteration. It means that the number of times the loop is executed isn't specified explicitly in advance.

Syntax:

while expression:

statement(s)

Flow Diagram:



Flow in while loop

Algorithm to print numbers from 1 to 10 using while loop:

Step 1: Start

Initialize variable i to 1, i=1

Step 2: Check if the value of i is less than or equal to 10. While i<=10 then go to step 3 otherwise go to Step 5

Step 3: print i

Step 4: Increment i by 1

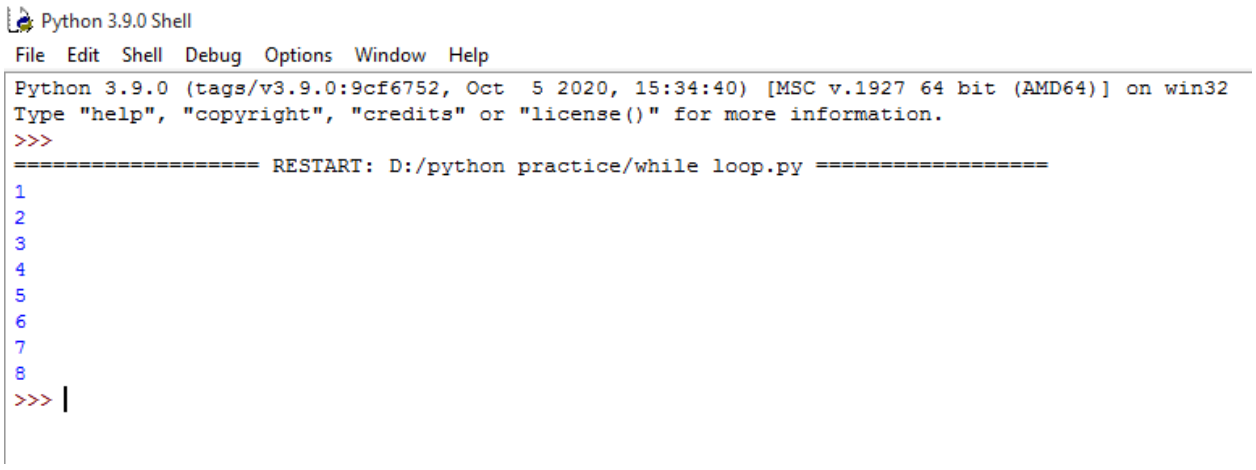
i=i+1

Step 5: Stop

Program:

```
i = 1
while i <= 8:
  print(i)
  i += 1
```

Output:



For Loop: It has the ability to iterate over the items of any sequence, such as a list or a string.

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

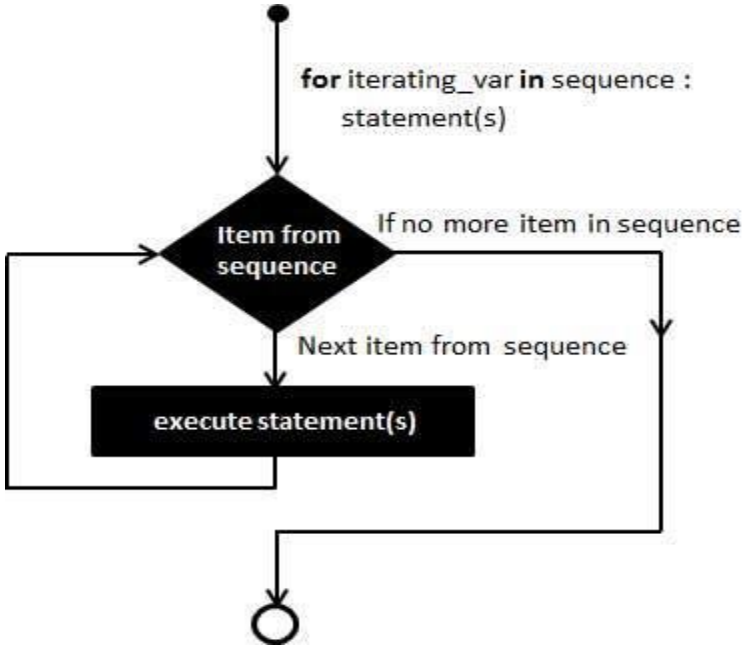
This is less like the for keyword in other programming languages, and works more like an iterator method as found in other object-orientated programming languages. With the for loop we can execute a set of statements, once for each item in a list, tuples, set.

Syntax

for iterating_var in sequence:

statements(s)

Flow Diagram:

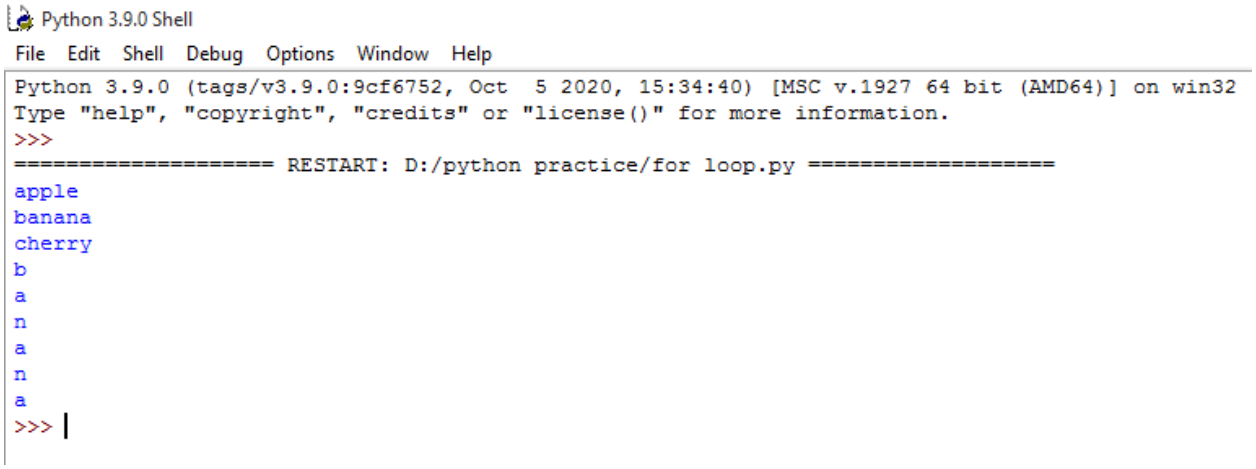


Program:

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

for x in "banana":
  print(x)
```

Output:



Result: The practical has been successfully studied