Content 7

**Loop Statements**

Sometimes we want to repeat a set of statements in our program. For instance: Print 1 to 1000

Loops make it easy for a programmer to tell the computer, which set of instructions to repeat, and how!

##### **Types of loops in Python**

Primarily there are two types of loops in Python

1. While loop
2. For loop

We will look into these one by one!

**While loop**

The syntax of a while loop looks like this:

''' while condition:

#Body of the loop '''

* The block keeps executing until the condition is true/false

In while loops, the condition is checked first. If it evaluates to true, the body of the loop is executed, otherwise not!

If the loop is entered, the process of condition check and execution is continued until the condition becomes false.

**Quick Quiz:**Write a program to print 1 to 50 using a while loop.

**An Example:**

i = 0

while i<5:

print(“Harry”)

i = i+1

(Above program will print Harry 5 times)

**Note:**if the condition never becomes false, the loop keeps getting executed.

**Quick Quiz:**Write a program to print the content of a list using while loops.

##### **For loop**

A for loop is used to iterate through a sequence like list, tuple or string (iterables)

The syntax of a for loop looks like this:

l = [1, 7, 8]

for item in l:

print(item)

(Above program will print 1, 7 and 8)

**Code By using for Loop:**

# This programm can only say that given number is prime or not

print("programm can only say that given number is prime or not")

num = int(input("Enter a number: "))

prime = True

for i in range(1, num):

    if(num % i == 0):

        print("This is not a prime number...  ")

        break

else:

    print("This is a Prime number...")

# This programm can print prime number upto given digit

print("\n\nThis programm can print prime number upto given digit")

num = int(input("Enter a number: "))

for i in range(1, num):

    for j in range(2, i):

        if(i % j == 0):

            break

    else:

        print(i)

**Output:**

This programm can print prime number upto given digit

Enter a number: 10

1

2

3

5

7

##### **Range function in Python**

The range function in python is used to generate a sequence of numbers.

We can also specify the start, stop and step-size as follows:

            range(start, stop, step\_size)

* step size is usually not used with range()

**An example demonstrating range() function**

for i in range(0, 7): #range(7) can also be used

print(i) #prints 0 to 6

##### **For loop with else**

An optional else can be used with a for loop if the code is to be executed when the loop exhausts.

Example:

l = [1, 7, 8]

for item in l:

print(item)

else:

print(“Done”) #This is printed when the loop exhausts!

**Output:**

1

7

8

Done

fruits = ["Banana", "Watermelon", "Grapes", "Mango", "Pappya"]

print("By Using while Loop")

i = 0

while i < len(fruits):

    print(fruits[i])

    i = i+1

print("\n\nBy Using For Loop")

for items in fruits:

    print(items)

# Range in for

print("\n\nUsing the range in for Loop")

for i in range(8):  # it will write upto 7

    print(i)

print("\n\nWe can also use as.....")

for i in range(3, 6):  # it will print 3 to 5

    print(i)

print("\n\nWe can also use Range as.....")

for i in range(2, 8, 2):  # it will go to 8 but skips every 2nd value

    print(i)

# using else statement with for

print("\n\n Using Else with for")

for i in range(5):

    print(i)

else:

    print("The Loops gets over...")

**Output:**

By Using while Loop

Banana

Watermelon

Grapes

Mango

Pappya

By Using For Loop

Banana

Watermelon

Grapes

Mango

Pappya

Using the range in for Loop

0

1

2

3

4

5

6

7

We can also use as.....

3

4

5

We can also use Range as.....

2

4

6

Using Else with for

0

1

2

3

4

The Loops gets over...

##### **The break statement**

‘break’ is used to come out of the loop when encountered. It instructs the program to – Exit the loop now

Example:

for i in range(0, 80):

print(i) #This will print 0, 1, 2 and 3

if i == 3:

break

##### **Code for Break Statement:**

# use of break statements in loop

print("\n\nUsing the Break statement in Loops.....")

for i in range(10):

    print(i)

    if i == 5:

        print("Got with 5 So breaking the Loop... ")

        break

**Output:**

Using the Break statement in Loops.....

0

1

2

3

4

5

Got with 5 So breaking the Loop...

##### **The continue statement**

‘continue’ is used to stop the current iteration of the loop and continue with the next one. It instructs the program to “skip this iteration”.

Example:

for i in range(4):

print(“printing”)

if i == 2: #if i is 2, the iteration is skipped

continue

print(i)

**Code For Cotinue statement:**

# Use of Continue statements in Loops

print("\n\nUsing the Continue statement in Loops.....")

for i in range(10):

    if i == 5:

        print("value becomes 5,so it got skipped only..")

        continue

    print(i)

**Output:**

**Using the Continue statement in Loops.....**

**0**

**1**

**2**

**3**

**4**

**value becomes 5,so it got skipped only..**

**6**

**7**

**8**

**9**

**pass statement**

pass is a null statement in python. It instructs to “Do nothing”.

Example:

l = [1, 7, 8]

for item in l:

pass #without pass, the program will throw an error

**Code for Pass:**

# using pass statements in Loops

print("\n\nUsing Pass statements....")

i=4

if i>0:

    print(i)

    pass    #meaning of pass is do nothing

print("The Pass statement is above.")

**Output:**

Using Pass statements....

4

The Pass statement is above.