Control Structures

for Loop

In [1]:

```python
#simple for loop
list = [1,2,3,4,5]
for i in list:
    print(i)
```

```
1
2
3
4
5
```

In [2]:

```python
# infinite while loop
#x = 1
#while True:
    #print("To infinity and beyond! We're getting close, on %d now!" % (x))
   # x += 1
```

In [3]:

```python
# for loop with range
r=range(0,10,4)      #for(i=0;i<10;i=i+4)
for i in r:
    print(i)
```

```
0
4
8
```

In [4]:

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

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

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

In [5]:

```python
# for loop with string
s="hello"
for i in s:
    print(i)
```

```
h
e
l
l
o
```

```
# nested for loop
#for x in range(1, 11):
 #   for y in range(1, 11):
  #      print(x,"*",y,"=",x*y)

# x=1, y=1, o/p=1*1=1
# x=1, y=10, o/p=1*10=10
#x=2, y=1, p/p: 2 * 1=2
```

Q-> Program to find the sum of all numbers stored in a list.

In [7]:

```
numbers = [1,2,3,4,5,6,7,8,9,10]
sum=0
for i in numbers:
    sum = sum + i
print("The value of sum is", sum)
```

The value of sum is 55

Q-> Program to iterate through a list using indexing

In [8]:

```
music = ['pop', 'rock', 'jazz']
#3
for i in range(len(music)):

    print("I like:",music[i])
```

I like: pop
I like: rock
I like: jazz

In [9]:

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

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

0
1
5
No items left.

while loop

Q-> Program to add natural numbers upto sum = 1+2+3+...+n. Take value of n from user.

In [10]:

```
n = int(input("Enter value of n"))
```

Enter value of n10

In [11]:

```
print(type(n))
```

```
<class 'int'>
```

```
sum=0
i=1
while i <= n:
    sum = sum + i
    i=i+1
print("The sum is: %d" % sum)
```

```
The sum is: 55
```

```
#negative range
for i in range(10,0,-2):
    print(i)
```

```
10
8
6
4
2
```

break and continue

```
for letter in 'Python':
    if(letter=='h'):
        continue
    print("Current Letter:", letter)
```

```
Current Letter: P
Current Letter: y
Current Letter: t
Current Letter: o
Current Letter: n
```

```
if 5<4:
    pass

else:
    print("hello")
```

```
hello
```

Q->Write a python code to demonstrate calculator functionality.

```
num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))
print(num1,"+",num2,"=", (num1 + num2))
print(num1,"-",num2,"=", (num1 - num2))
print(num1,"*",num2,"=", (num1 * num2))
print(num1,"/",num2,"=", (num1 / num2))
```

```
Enter first number: 5
Enter second number: 7
5 + 7 = 12
5 - 7 = -2
5 * 7 = 35
```

```
5 / 7 = 0.7142857142857143
```

Q->Write a Python Program for factorial:

In [62]:

```python
num=5
factorial=1
if num< 0:
    print("Sorry, factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
    for i in range(1,num+1):
        factorial = factorial*i

    print("The factorial of",num,"is",factorial)
```

```
The factorial of 5 is 120
```

In [18]:

```python
# 1 * 2 * 3 * 4 *5
```