Loops:-

loops in python are used to execute a block of code repeatedly until a certain condition is met.

*> Python mainly provides a two loops:
1) for loop ⎤
2) while loop ⎦
3) nested loop

* for loop inside for loop
* for loop inside while loop
* while loop inside while loop
* while loop inside for loop

for loop :

iteration (one after another step by step).

1) for loop with sequence

Syntax:

```
for variable in sequence variable:
    Statements
```

→ Ittirative variable

```
for i in sub:    # i is
    Print(i)        Ittirative
                    variable
```

Character by character.

```
p = 0
y = 1
t = 2
h = 3
o = 4
n = 5.
```

2) for loop with range() function

```
for variable in range()
    Statements
```

```
colours = ['black','white','red','yellow','orange']
Print(colours)
['black','white','red','yellow','orange']
for i in colours
    Print(i)   black
```

Sub = "Python"

Sub[0]	Sub[1]
'p'	'y'

Write a program to print both position and value.

→ function

for i in enumerate (Sub):
    Print (i)   └→ it will give both Position and value.

(0, 'p')
(1, 'y')
(2, 't')
(3, 'h')
(4, 'o')
(5, 'n').

Standard words used in loops.

    Intalization
    Condition
    Incrementation / decrementation

for in range (start value, stop value, step size)

* we have default start value is 0.

* we have default step size is 1.

for loop with range :-

        range (1, 11, 1)

        (i=1; i<11; i+1)

        i = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

```
for i in range (1,11,1):
    Print(i)
```

```
for i in range (5):
    # i = 0,1,2,3,4
    Print(i)
    Print("good morning")
```

```
0
GM
1
GM
2
GM
3
GM
4
GM
```

Program :-

```
Sub = 'Python'    (5,-1,-1): opp Print   →Decrement
for i in range (0,6,1) →Increment
    Print ( i, Sub[i])
```

```
0  P
1  y
2  t
3  h
4  o
5  n
```

write a program to print even numbers from 1 to 20

```
for i in range (2,21,2):
    Print (i)
```

```
i = 2
i = 20    (1, 21, 2): numbers
i = 4
i = 4+2
i = 6
```

2
4
6
8
10
12
14
16
18
20

---

1 to 10

```
for i in range (1,11,1):
    if (i%2==0):
        Print (i, "= even number")
    else:
        Print (i, "= odd number")
```

1 = odd number
2 = even number
⋮
9 = odd number
10 = even number