

Loops

A loop is a control structure used in programming to repeat a block code until a specified condition is satisfied.

Types of Loops.

1) for loop

used when number of iterations is known in advance

Syntax:

for variable in range (start, end, step):

code block

while loop

- used when number of iterations is not known in advance and execution depends on a condition.

Syntax:

while (Condition):

code block

Nested Loops

A loop inside another loop. These are useful for tasks involving multiple levels of repetition

o) for loop inside for loop

Syntax:

```
for i in range(3):
    for j in range(2):
        print(i, j)
```

for var_a in range():

for var_b in range():

statement of inner loop

statement of outer loop

while loop inside while loop

i = 0

while i < 3:

j = 0

while j < 2:

print(i, j)

j = j + 1

i = i + 1

Syntax:

initialisation of inner loop

while (condition of outer loop):

initialisation of outer loop

while (condition of inner loop):

statement of inner loop

inc/dec of inner loop

statement of outer loop

inc/dec of outer loop

for loop

* for loop with sequence

for variable in seq_name
statement

* for loop with range

range (Start Value, Stop Value, Step size)

↓

Var < Stop Value

default Start Value is 0

Step size is 1