**Loops**

**Loops:** Loops are used to repeatedly execute a block of code.

🡪Python primarily has two types of loops: for loops and while loops.

**1.for loop:**

* It allows you to execute a block of code repeatedly for each item in the sequence.

Ex: word="hello"  
 for char in word:  
 print(char)

o/p: h

e

l

l

o

**Using range () function in for loop:**

* The range () function generates a sequence of numbers. It is commonly used with for loops for repetitive tasks.

**Syntax of range ()**

* range(stop) → Starts from 0 and goes up to stop-1.
* range (start, stop) → Starts from start and goes up to stop-1.
* range (start, stop, step) → Starts from start, increments by step, and stops before stop.

Ex1: for i in range(6):  
 print(i) #print numbers from 0 to 5

Ex2: for i in range(2,7):

print(i) #print numbers from 2 to 6

Ex3: for i in range(10,0,-1):  
 print(i) #print numbers from 10 to 1(step -1)

**2.while loop:**

* It allows you to repeatedly execute a block of code as long as a condition is True. The condition is evaluated before each iteration, and if it becomes False, the loop stops.

Ex: count=1

while count<=5

print(count)

count+=1

o/p: 1

2

3

4

5

**Conditional Handling and Control Statements**

**If Condition:**

If is used to decide whether a certain statement or block or statements will be executed or not i.e if a certain condition is true then a block of statement is executed otherwise not.

**Syntax:** if condition:

               statement 1

               statement 2

               statement 3

**If else condition:**

If the condition is false, in if-else text expression true if block will get execute otherwise else part will get execute.

**Syntax:** if text expression:

                body of if

                else:

                body of else

**Elif ladder:**

The test expression is false in the case of it, then only it moves to the el-if statement otherwise body of if block will get executed, if in case all the text expression get failed then by default else part will get execute.

Syntax: if test expression:

              body of if

               elif test expression:

               body of elif

               else:

               body of else

**Nested if:**

Writing if inside of other if statements. If the condition is true inside we will test other condition also.

Syntax: if condition:

              if condition:

              statements

              else:

              statements

              else:

              if condition:

              statements:

              else:

              statements:

**Break statement:**

**Break**: break statement is used to terminate the loop before the ending the sequence, it brings control out of the loop.

Syntax: for i in range(1,10):

              if condition:

                break

              Statement

**Continue statement:**

The break statement is used inside loops to skip the rest of the current iteration and proceed to the next iteration of the loop

Syntax: for i in range(1,6):

              if condition:

             continue

              statement