**Que 1 : Introduction to for and while loops.**

1. for Loop

Used when you want to repeat a block of code a specific number of times or iterate over a sequence (like list, string, range).

Syntax:

for variable in sequence:

# code block

2. while Loop

Used when you want to repeat a block of code as long as a condition is true.

Syntax:

while condition:

# code block

**Que 2 : How loops work in Python.**

How Loops Work in Python

Loops in Python let you run a block of code multiple times, instead of writing it repeatedly. This makes programs shorter, faster, and easier to manage.

Two Main Loops in Python:

1. for loop – Runs for a fixed number of times or over a sequence.
2. while loop – Runs as long as a condition is true.

for Loop: (Counted Loop)

Used when: You know how many times you want to repeat something.

Example:

for i in range(3):

print("Hello", i)

**Output:**

Hello 0

Hello 1

Hello 2

How it works:

* range(3) gives [0, 1, 2]
* Each time, i takes the next number, and the loop runs

while Loop: (Conditional Loop)

Used when: You don’t know how many times to repeat — only as long as the condition is true.

Example:

count = 1

while count <= 3:

print("Count is", count)

count += 1

**Output:**

Count is 1

Count is 2

Count is 3

How it works:

* It checks if count <= 3
* If true, it runs the code
* Updates count until the condition is false

Infinite Loop Warning:

A loop must change something inside (like count += 1), or it will run forever.

Loop Control Keywords:

* break – Stop the loop completely.
* continue – Skip the rest of the loop and go to the next cycle.

Summary Table:

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| **Keyword** | **What It Does** |
| for | Repeats for known items/times |
| while | Repeats while a condition is true |
| break | Stops the loop immediately |
| continue | Skips current loop cycle, continues next |

**Que 3 : Using loops with collections (lists, tuples, etc.).**

**Example with list:**

fruits = [“apple” , “Banana” , “cherry” ]

for fruit in fruits:

print(fruit)

**Example with tuple:**

numbers = (10 , 20 , 30)

for num in number:

print(num)

**Example with string:**

name = “krishna”

for letter in name:

print(letter)

**Using while loop with a list:**

col = [“Red” , “Pink” , “Black” ]

I = 0

while I < len(col):

print(col[I])

I += 1