**Que 1 : Iterating over a list using loops.**

**1. Using a for loop (most common and cleanest way):**

fruits = ['apple', 'banana', 'cherry']

for fruit in fruits:

print(fruit)

**Explanation:**

* fruit is a variable that takes each element of the list one by one.
* fruits is the list.
* The loop runs 3 times for 3 items.

**2. Using for loop with index (range + len):**

fruits = ['apple', 'banana', 'cherry']

for i in range(len(fruits)):

print(fruits[i])

**Explanation:**

* range(len(fruits)) creates a sequence: 0, 1, 2
* fruits[i] accesses the element at that index.

**3. Using a while loop:**

fruits = ['apple', 'banana', 'cherry']

i = 0

while i < len(fruits):

print(fruits[i])

i += 1

**Explanation:**

* i starts at 0.
* The loop runs while i is less than the length of the list.
* i += 1 increases i each time to avoid infinite loop.

**4. Using enumerate() (get value + index):**

fruits = ['apple', 'banana', 'cherry']

for index, fruit in enumerate(fruits):

print(index, fruit)

**Explanation:**

* enumerate() returns both index and value.
* Useful when you need position + element.

**Que 2 : Sorting and reversing a list using sort(), sorted(), and reverse().**

Example : numbers = [4, 2, 9, 1, 5]

1. sort() – Sorts the list **in-place** (changes the original list)

numbers.sort()

print(numbers)

Output : [1, 2, 4, 5, 9]

2. sorted() – Returns a **new sorted list** (original list remains same)

numbers = [4, 2, 9, 1, 5]

new\_list = sorted(numbers)

print(new\_list)

print(numbers)

Output : [1, 2, 4, 5, 9] # new sorted list

[4, 2, 9, 1, 5] # original list is unchanged

3. reverse() – Reverses the list **as it is** (not sorted)

numbers = [4, 2, 9, 1, 5]

numbers.reverse()

print(numbers)

Output : [5, 1, 9, 2, 4]

**Que 3 : Basic list manipulations: addition, deletion, updating, and slicing.**

Example : fruits = ['apple', 'banana', 'cherry']

**1. Addition (Add items)**

➤ append() – adds to the end

fruits.append('orange')

print(fruits)

Output : ['apple', 'banana', 'cherry', 'orange']

➤ insert() – adds at a specific position

fruits.insert(1, 'grape') # insert at index 1

print(fruits)

Output : ['apple', 'grape', 'banana', ‘cherry']

**2. Deletion (Remove items)**

➤ remove() – removes by value

fruits.remove('banana')

print(fruits)

* pop() – removes by index

fruits.pop(2)

print(fruits)

* del – delete by index

del fruits[0]

print(fruits)

* clear() – removes all items

fruits.clear()

print(fruits)

3. **Updating (Change values)**

fruits = ['apple', 'banana', 'cherry']

fruits[1] = 'grape' # change banana to grape

print(fruits)

Output : ['apple', 'grape', 'cherry']

4. **Slicing (Access part of the list)**

fruits = ['apple', 'banana', 'cherry', 'orange', 'kiwi']

print(fruits[1:4])

Output : ['banana', 'cherry', 'orange']