**Que 1 : Understanding how to create and access elements in a list.**

**1. Creating a List**

A list is created by placing elements inside square brackets [], separated by commas.

# Creating a list of fruits

fruits = ["apple", "banana", "mango"]

Here, fruits is a list containing 3 elements:

* "apple" is at index 0
* "banana" is at index 1
* "mango" is at index 2

**2. Accessing Elements in a List**

You can access list elements using index numbers. Python indexing starts at 0.

print(fruits[0]) # Output: apple

print(fruits[2]) # Output: mango

**3. Negative Indexing**

Python also allows negative indexing, which starts from the end of the list.

print(fruits[-1]) # Output: mango (last element)

print(fruits[-2]) # Output: banana (second last)

**4. Accessing a Range (Slicing)**

You can access a range of items using slicing:

print(fruits[0:2]) # Output: ['apple', 'banana']

Explanation:

* 0:2 means start at index 0 and go up to, but not including index 2.

**5. Modifying Elements**

Lists are mutable, meaning you can change elements:

fruits[1] = "orange"

print(fruits) # Output: ['apple', 'orange', 'mango']

**6. Adding Elements**

Append adds to the end:  
  
fruits.append("grape")

* Insert adds at a specific index:  
    
    
  fruits.insert(1, "cherry") # adds at index 1

**7. Removing Elements**

* Remove by value:  
    
  fruits.remove("apple")
* Remove by index:  
    
  del fruits[0]

**Que 2 : Indexing in lists (positive and negative indexing).**  
  
What is Indexing?

Indexing means referring to an element by its position in the list.

In Python:

* Indexing starts from 0 for the **first element**.
* You can also count **backwards** using **negative indexing**.

**Positive Indexing (Left to Right)**

**Ex: fruits = ["apple", "banana", "cherry", "mango"]**

|  |  |
| --- | --- |
| **Index** | **Element** |
| 0 | "apple" |
| 1 | "banana" |
| 2 | "cherry" |
| 3 | "mango" |

Code:

print(fruits[0]) # apple

print(fruits[2]) # cherry

**Negative Indexing (Right to Left)**

**Ex : fruits = ["apple", "banana", "cherry", "mango"]**

|  |  |
| --- | --- |
| **Negative Index** | **Element** |
| -1 | "mango" |
| -2 | "cherry" |
| -3 | "banana" |
| -4 | "apple" |

Code :

print(fruits[-1]) # mango (last item)

print(fruits[-3]) # banana

**Que 3 : Slicing a list: accessing a range of elements.**

**What is List Slicing?**

**Slicing** allows you to get **a part of the list** (a sublist) by using:

Python code :

list\_name[start : end]

**Important Rule:**

* **Start index** is **included**.
* **End index** is **excluded** (goes *up to but not including* this index).

**Example**:

fruits = ["apple", "banana", "cherry", "mango", "grape"]

print(fruits[1:4]) # Output: ['banana', 'cherry', 'mango']

print(fruits[:3]) # ['apple', 'banana', 'cherry'] → from start to index 2

print(fruits[2:]) # ['cherry', 'mango', 'grape'] → from index 2 to end

print(fruits[:]) # Entire list

print(fruits[-3:-1]) # ['cherry', ‘mango'] # negative index

print(fruits[0:5:2]) # ['apple', 'cherry', ‘grape']