Python List Fundamentals for Beginners

A **List** in Python is a collection of items that are ordered, mutable (can be changed), and allow duplicate values. Lists are one of the most commonly used data structures in Python. Lists are defined using square brackets **[]**.

1. Creating a List

Lists can be created using square brackets or the list() constructor.

Examples:
my_list = [1, 2, 3, 4, 5]
fruits = ["apple", "banana", "cherry"]
mixed_list = [10, "Python", 3.14, True]

2. Accessing List Elements

You can access list elements using indexes. Indexing starts from 0.
Examples:
fruits[0] → "apple"
fruits[-1] → "cherry" (last element)

3. List Slicing

Slicing allows you to get a part of the list.
Example:
fruits[1:3] → ['banana', 'cherry']

4. Modifying Lists

Lists are mutable — elements can be changed.
Example:
fruits[1] = "mango"
Now fruits = ['apple', 'mango', 'cherry']

5. Common List Methods

1 **append(x)** - Adds an element to the end of the list

2 **insert(i, x)** - Inserts element x at position i

3 **remove(x)** - Removes the first occurrence of x

4 **pop(i)** - Removes element at index i (default last)

5 **clear()** - Removes all elements from the list

6 **index(x)** - Returns index of the first occurrence of x

7 **count(x)** - Counts occurrences of x in the list

8 **sort()** - Sorts the list in ascending order

9 **reverse()** - Reverses the order of elements

10 **copy()** - Returns a shallow copy of the list

11 **extend(iterable)** - Adds elements from another list or iterable

6. Looping through a List

You can iterate through list elements using a for loop.
Example:
for fruit in fruits:
    print(fruit)

7. List Comprehension

List comprehensions provide a concise way to create lists.
Example:
squares = [x**2 for x in range(5)]
Output → [0, 1, 4, 9, 16]

8. Practice Programs

1   Create a list of 5 numbers and print their sum.

2   Write a program to find the largest number in a list.

3   Write a program to count even and odd numbers in a list.

4   Create a list of squares using list comprehension.

5   Write a program to remove duplicates from a list.