🕐 Hour 2 – Lists & Tuples (Python)

1️⃣ Lists in Python

🔹 What is a List?

A **list** is an **ordered**, **mutable** (changeable) collection of items.

🔹 **Features of Lists**

- Written using **square brackets [ ]**
- Can store **different data types**
- Allows **duplicate values**
- Index starts from **0**

🔹 Example

```
marks = [85, 90, 78, 92]
```

🔹 Accessing List Elements

```
print(marks[0])   # 85
print(marks[-1])  # 92
```

🔹 **List Operations**

Add Elements

```
marks.append(95)
```

Insert Element

```
marks.insert(1, 88)
```

Remove Elements

```
marks.remove(78)
marks.pop()
```

Change Value

```
marks[0] = 80
```

- Common List Functions

Function	Use
`append()`	Add element
`insert()`	Add at index
`remove()`	Remove element
`pop()`	Remove last
`len()`	Length
`sort()`	Sort list
`reverse()`	Reverse list

- Example Program

```
numbers = [10, 20, 30]
numbers.append(40)
print(numbers)
```

2 Tuples in Python

- What is a Tuple?

A **tuple** is an **ordered**, **immutable** (unchangeable) collection.

- Features of Tuples

Written using **parentheses ( )**

Faster than lists

Cannot modify elements

- Example

```
days = ("Monday", "Tuesday", "Wednesday")
```

- Access Tuple Elements

```
print(days[1])    # Tuesday
```

- Tuple Functions

Function	Use
`len()`	Length
`count()`	Count value
`index()`	Find index

- Difference Between List and Tuple

List	Tuple
Mutable	Immutable
`[ ]`	`( )`
Slower	Faster
More memory	Less memory