data types: These are core parts of Python

**🟦 1. List**

**What is it?**

A **list** is an ordered collection of items. You can:

* Change (modify) items
* Add new items
* Remove items

**Example:**

my\_list = ["apple", "banana", "cherry"]

print(my\_list[1]) # Output: banana

my\_list[1] = "orange" # Change banana to orange

print(my\_list) # Output: ['apple', 'orange', 'cherry']

**🟨 2. Tuple**

**What is it?**

A **tuple** is also an ordered collection of items — like a list — **but it cannot be changed** after creation. It is **immutable**.

**Example:**

my\_tuple = ("apple", "banana")

# my\_tuple[1] = "orange" ❌ This will cause an error!

new\_tuple = (my\_tuple[0], "orange")

print(new\_tuple) # Output: ('apple', 'orange'**)**

**🟩 3. Set**

**What is it?**

A **set** is an **unordered** collection of **unique** items. It doesn’t support duplicates or indexing.

**Key Features:**

* No order: you can't say my\_set[0]
* No duplicates
* You can add or remove items

**Example:**

my\_set = {"apple", "banana"}

my\_set.add("cherry")

my\_set.remove("banana")

print(my\_set) # Output: {'apple', 'cherry'}

**🟥 4. Dictionary**

**What is it?**

A **dictionary** is a collection of **key-value pairs**. You look up values using keys (not index numbers).

**Example:**

my\_dict = {"name": "Alice", "age": 25}

print(my\_dict["name"]) # Output: Alice

my\_dict["age"] = 26 # Change age

**🧠 Summary Cheat Sheet**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type** | **Ordered?** | **Mutable?** | **Allows Duplicates?** | **Indexed?** | **Example** |
| **List** | ✅ Yes | ✅ Yes | ✅ Yes | ✅ Yes | ["a", "b", "c"] |
| **Tuple** | ✅ Yes | ❌ No | ✅ Yes | ✅ Yes | ("a", "b", "c") |
| **Set** | ❌ No | ✅ Yes | ❌ No | ❌ No | {"a", "b", "c"} |
| **Dictionary** | ❌ No | ✅ Yes | ❌ Keys must be unique | ❌ No | {"key1": "value1"} |