**Lesson 3: Data Structures**

**🔹 Introduction**

In this lesson, we’ll explore Python’s built-in data structures — the tools that let you store, organize, and manipulate data efficiently. These are essential building blocks for every Python developer.

By the end of this lesson, you’ll:

* Understand different types of data structures in Python.
* Learn how and when to use lists, tuples, sets, and dictionaries.
* Practice examples that use each structure.

**🔹 1. Lists – Ordered, Mutable Collections**

Lists are ordered collections that can hold items of different types. They are mutable, meaning you can change their content.

✅ Use lists when:

* You need to store items in a specific order.
* You want to modify (add/remove) elements later.

**🔹 2. Tuples – Ordered, Immutable Collections**

Tuples are like lists but immutable — once created, they cannot be changed.

✅ Use tuples when:

* You want a fixed set of values (e.g., coordinates, RGB colors).
* You want data to be protected from accidental changes.

**🔹 3. Sets – Unordered, Unique Collections**

Sets are unordered collections that only store unique elements.

✅ Use sets when:

* You need to eliminate duplicates.
* You need fast membership testing (x in my\_set).

**🔹 4. Dictionaries – Key-Value Pairs**

Dictionaries store data in pairs: keys and values. They are like mini-databases.

✅ Use dictionaries when:

* You want to associate keys with values.
* You need quick access to data using keys.

**🔹 Outro**

Great job! 🎉 In this lesson, you learned about:

* Lists – for ordered and changeable items
* Tuples – for fixed collections
* Sets – for unique items
* Dictionaries – for key-value pairs

These data structures are the foundation of writing real-world Python programs. You’ll keep using them in every app you build.