Python Data Structures: Strings, Lists, Tuples, Dictionaries

STRING:

A string in Python is a sequence of characters enclosed in single, double, or triple quotes. Strings are immutable, meaning they cannot be changed after creation. They support slicing, indexing, and a wide range of built-in methods like .upper(), .lower(), .replace(), etc.

LIST:

Lists are ordered, mutable collections of items (of any data type). They are defined using square brackets []. Lists support indexing, slicing, and a rich set of methods like .append(), .remove(), .sort(), etc.

TUPLE:

Tuples are ordered, immutable collections. They are defined using parentheses (). Once created, their elements cannot be modified, making them more memory efficient and safer to use for fixed data.

DICTIONARY:

Dictionaries are unordered, mutable collections of key-value pairs. Defined using curly braces {}, they allow fast lookups by key. Keys must be unique and immutable. Methods like .get(), .keys(), .values(), and .items() are commonly used.