CHAPTER-03: Built-In Data Structures, Functions & Files in Python

Python provides a rich set of built-in data structures and sequence types that form the foundation for data manipulation and analysis tasks. Mastering the use of these core data structures is a critical part of becoming a proficient Python programmer.

TUPLES

Tuples are fixed-length, immutable sequences of Python objects. Once a tuple is created, its contents cannot be changed. Tuples are defined using parentheses to enclose a comma-separated sequence of values [1]. Tuples can also be created without the parentheses by simply separating values with commas. Any sequence or iterator can be converted to a tuple using the `tuple () ` function.

LISTS

Lists are mutable, ordered sequences of Python objects. Elements in a list can be accessed and modified using indexing with square brackets. Lists can be created from any iterable using the `list () ` function.

DICTIONARIES

Dictionaries are unordered collections of key-value pairs. They provide fast lookup of values based on unique keys. Keys in a dictionary must be unique, but values can be duplicated. Dictionaries can be created using curly braces ` {} ` or the `dict () ` function.

SETS

Sets are unordered collections of unique elements. They are useful for performing set-like operations such as union, intersection, and membership testing.

SEQUENCE FUNCTIONS

Python provides a number of built-in functions for working with sequences, such as `len()`, `min()`, `max()`, `sum()`, and `sorted()` .

COMPREHENSIONS

List, set, and dictionary comprehensions provide concise syntax for creating new sequences based on iterating over an existing sequence.