

Dictionaries

Key-Value Pairs

Overview

- In this part we will introduce the new data type, dictionary. A dictionary is a collection of associated key-value pairs. We can access any value in a dictionary by specifying the key associated with it. We will learn how to
 - Define a dictionary
 - Access values associated with specific keys within a dictionary.
 - Add, remove, or alter key value pairs within a dictionary
 - Dynamically build a dictionary
 - Loop through the keys of, the values of, or the keys and values of the dictionary
 - Use the set() function to remove repeated values from the list
 - Create complicated nested dictionaries and lists.
 - From the collection's library, use a Counter to determine the number of occurrences of each element in a list

Data Types

- Strings: A collection of characters
- Integers: Whole numbers
- Float: Decimal numbers
- Lists: A mutable collection
- Tuples: An immutable collection
- Ranges: A sequence of integers
- Booleans: A True or False Value
- Dictionaries: A collection of associated key-value pairs

Control Structures

- If
- For loops
- if Statements
- if/else Statements
- if/elif/else Statements
- break
- pass
- continue

Operators

Assignment Operators

- = Assignment
- += Compound Assignment
- -= Compound Assignment
- + Concatenation (strings)

Algebraic Operators

- + Addition
- - Subtraction
- * Multiplication
- / Division
- ** Exponentiation
- // Absolute Division

Logical Operators

Logical Operators

- and
- or
- not

Membership Operators

- in
- not in

Comparison Operators

- == Equal to
- != Not Equal to
- < Less Than
- > Greater Than
- <= Less Than or Equal
- >= Greater Than or Equal

Built in Functions

- `print()`
- `type()`
- `str()`
- `int()`
- `float()`
- `input()`
- `round()`
- `sorted()`
- `len()`
- `range()`
- `list()`
- `min()`
- `max()`
- `sum()`
- `zip()`
- `bin()`
- `hex()`

Methods

Strings

- `.upper()`
- `.lower()`
- `.title()`
- `.strip()`
- `.count()`
- `.join()`
- `.startswith()`
- `.replace()`

Lists

- `.append()`
- `.insert()`
- `.pop()`
- `.remove()`
- `.sort()`
- `.reverse()`
- `.copy()`
- `.index()`

Dictionaries

- `.items()`
- `.keys()`
- `.values()`
- `.most_common()`

External Libraries

- math
- datetime
- cmath
- random
- collections

Challenges (Assignments)

- Treasure App
- Admin database program
- Yes or No Issue Polling App
- Frequency Analysis App
- Code Breaker App