Dictionaries

Key-value pairs

Unit Overview

- In this unit we will introduce a new data type; the 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 a dictionary.
    - Use the set() function to remove repeated values from a list.
    - Create complicated nested dictionaries and lists.
    - From the collections library, use a Counter to determine the number of occurrences of each element in a list.

Data Types

- Strings: A series of characters
- Integers: Whole numbers
- Floats: 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 Flow

- 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 (ints and floats)
- - Subtraction
- * Multiplication
- / Division
- ** Exponentiation

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()
- set()

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

Challenge Problems

- Thesaurus App
- Admin Database Program
- Yes or No Issue Polling App
- Frequency Analysis App
- Code Breaker App