

# Dictionaries and Frequency Tables



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## Syntax

- Creating a dictionary:

```
# First way
dictionary = {'key_1': 1, 'key_2': 2}

# Second way
dictionary = {}
dictionary['key_1'] = 1
dictionary['key_2'] = 2
```

- Retrieving individual dictionary values:

```
dictionary = {'key_1': 100, 'key_2': 200}
dictionary['key_1'] # Outputs 100
dictionary['key_2'] # Outputs 200
```

- Checking whether a certain value exist in the dictionary as a key:

```
dictionary = {'key_1': 100, 'key_2': 200}
'key_1' in dictionary # Outputs True
'key_5' in dictionary # Outputs False
100 in dictionary # Outputs False
```

- Updating dictionary values:

```
dictionary = {'key_1': 100, 'key_2': 200}
dictionary['key_1'] += 600 # This will change the value to 700
```

- Creating a frequency table for the unique values in a column of a data set:

```
frequency_table = {}
for row in a_data_set:
    a_data_point = row[5]
    if a_data_point in frequency_table:
        frequency_table[a_data_point] += 1
    else:
        frequency_table[a_data_point] = 1
```

## Concepts

- The index of a dictionary value is called a **key**. In `'4+': 4433`, the dictionary key is `'4+'`, and the dictionary value is `4433`. As a whole, `'4+': 4433` is a **key-value pair**.
- Dictionary values can be of any data type: strings, integers, floats, Booleans, lists, and even dictionaries. Dictionary keys can be of almost any data type we've learned so far, excepting lists and dictionaries. If we use lists or dictionaries as dictionary keys, the computer raises an error.
- We can check whether a certain value exist in the dictionary as a key using an the `in` operator. An `in` expression always returns a Boolean value.
- The number of times a unique value occurs is also called **frequency**. Tables that map unique values to their frequencies are called **frequency tables**.
- When we iterate over a dictionary with a `for` loop, the looping is done by default over the dictionary keys.

## Resources

- [Dictionaries in Python](#)



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