Dictionaries and Sets

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Dictionaries

- A dictionary is similar to a list, in that it is a collection of items.
- Unlike lists, the order of the items doesn't matter.
- Dictionary elements are not identified by offset indicing as seen in lists (0,1,2..).
- Instead, in dictionaries, the items are key-value pairs and they are uniquely identified by the keys as they are unique.
- The keys are usually of String type, but they can be any immutable type in Python as integers, Booleans, floats and Tuples.
- Dictionaries are perfectly mutable.

Creating a Dictionary

```
>>>empty_dict = {}
>>>empty_dict
{}
# Creating a dictionary with key-value pairs.
>>>capitals={'New York':'Albany',
'California':'Sacramento'}
>>>capitals
{'California': 'Sacramento', 'New York': 'Albany'}
```

Converting other Sequences into Dictionaries

```
# A list of two-item tuples:
>>>my_tuple = [ ('a', 'b'), ('c', 'd'), ('e', 'f')
>>>my_dict = dict(my_tuple)
{'a': 'b', 'c': 'd', 'e': 'f'}

# A list of two-item lists:
>>>my_list = ( ['a', 'b'], ['c', 'd'], ['e', 'f'] )
>>>my_dict = dict(my_list)
{'c': 'd', 'a': 'b', 'e': 'f'}
```

Continued..

```
# A list of two-character strings:
>>>my_str_list = [ 'ab', 'cd', 'ef' ]
>>>my_dict = dict(my_str_list)
>>>my_dict
{'a': 'b', 'c': 'd', 'e': 'f'}

# A tuple of two-character strings:
>>>my_str_tuple = ( 'ab', 'cd', 'ef' )
>>>my_dict = dict(my_str_tuple)
>>>my_dict
{'a': 'b', 'c': 'd', 'e': 'f'}
```

Operations in Dictionaries

- Adding and modifying key-value pairs.
- Combine Dictionaries with Update().
- Deleting items.
- Deleting all items using clear().
- Membership test.
- Fetching items from the dictionary.
- Assigning using assignment sign and by copying.

Sets in Python

- Sets are similar to lists, but only the items are unique. No duplication is allowed.
- A set can be created as follows: set() or by using the curly braces with one or more comma-separated values.
- Sets are unordered just like Dictionaries.
- An empty pair of curly braces will only create a dictionary and not a set.
- The Python interpreter prints an empty set as set() and not as .

Summary

- We learned two important sequence data structures in Python, the Set and Dictionary type.
- We learned the different capabilities they provide and how they differ from Lists and Tuples.