DICTIONARY OPERATIONS

An Introduction to Computer Science

Let's learn about Dictionary Operations.

Dictionary Operations

- Membership testing
- Changing dictionary state
- Iteration

Dictionaries, like lists and strings, have several useful built-in operations we can use. Altough there are many more, we will learn about membership testing, changing dictionary state, and iteration.

Membership Test

```
>>> pets = {"Klaus": "dog",
            "Pumpkin": "cat",
            "Wrex": "hamster"}

>>> "Klaus" in pets
True
>>> "Spot" in pets
False
>>> "dog" in pets
False
```

Dictionaries, like lists or strings, are sequences.
They can possess any number of key-value pairs.
You can test if a specific key is in a dictionary using the in operator, the same way you would test for lists or strings.

Changing Dictionary State

```
>>> person = {"age": 23,
              "name": "Ellie Cayford",
              "married?": False}
```

Before

```
>>> person["married?"] = True
>>> person["name"] = "Ellie Bart"
>>> person["age"] = 1 + person["age"]
```

Updates

```
>>> person
{"married?": True,
 "name": "Ellie Bart",
 "age": 24}
```

After

Dictionaries, like lists, are mutable.
Therefore, we can freely change the value associated with a key.
Visually, it's just like changing the value associated with a variable, just with the square brackets and key after the dictionary.
In this example, we update each key with a new value.

Iteration

```
for a_key in a_dict:
    pass
```

Each key one at a time

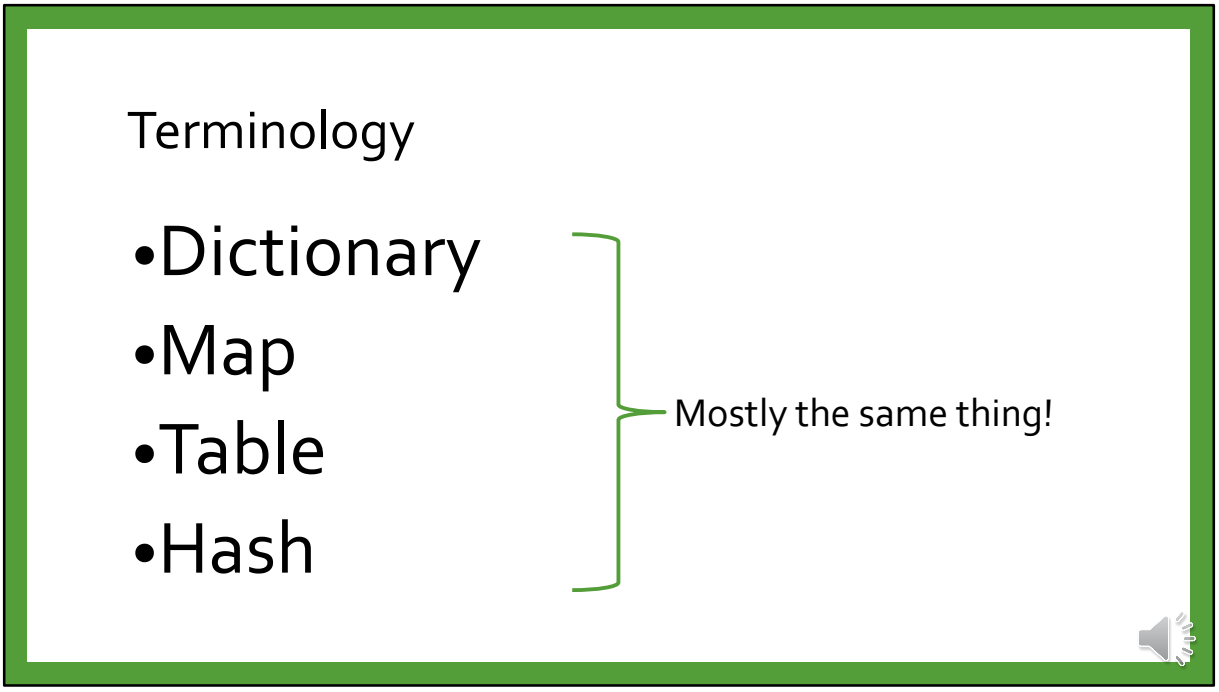
```
for a_value in a_dict.values():
    pass
```

Each value one at a time

```
for a_key, a_value in a_dict.items():
    pass
```

Each key and value together at a time

Dictionaries are a sequence of key/value pairs.
Therefore, you can iterate through them like a list.
However, there are three different ways to iterate through them:
Through their keys, their values, or their keys and values at the same time.
Notice how this last approach gives us the key and value at the same time!



A final minor note about dictionaries: dictionaries are also sometimes known as maps, tables, or hashes.
Although there are subtle differences in this terminology, the idea is still roughly the same each time.