Dictionaries

- same as a "hash table" in other languages
- similar to a list, but uses word or phrases as the index value, known as a "key"
- dictionaries differ from lists, in that they are not guaranteed to maintain their order

```
my_dict = {}
my_dict = {"first": 1, "second": 2, ...}
my_dict["first"]
```

Dictionary Functions

len(my_dict) - returns the number of elements

my_dict.keys() - returns a list of keys

my_dict.values() - return a list of values

my_dict.items() - returns a list of both keys and values

my_dict.get(key, default) - returns a single item, if found, otherwise returns a default

my_dict.pop(key, default) - returns and removes a single item, if found, else default

del my_dict["key"] - deletes an item

my_dict.popitem() - removes a random key

Slicing

```
str = "Hello World"

world = str[6:]

hello = str[0:5] # the 5 is one past the 'o'

lo = str[3:5]

d = str[-1:-4:-1] # reverse order!
```

String Functions

str.isalpha() - returns True if all alphabetic
str.isdigit() - returns True if all numbers
str.isalnum() - True if both letters & numbers
str.isupper() - True if all uppercase letters
str.islower() - True if all lowercase letters
str.upper() - returns a new string all uppers
str.lower() - return a new string all lowers

str.find("hello") - returns a starting index

str.strip() - removes surrounding whitespace

str.split(",") - returns a list of split values

Enumerate

- provides both the index and the value while looping a string or list

```
for i, v in enumerate(str):
    print(f"idx={i}, value={v}")
```