Python Dictionary

Creating a Dictionary:

```
my_dict = {"key1": "value1", "key2": "value2", "key3": "value3"}    # Creating a dictionary with key-value pairs
```

Accessing Values:

```
my_dict = {"name": "Alice", "age": 25, "city": "New York"}
print(my_dict["name"])                  # Accessing the value for a specific key: "Alice"
```

Updating/Adding Elements:

```
my_dict = {"name": "Alice", "age": 25}
my_dict["city"] = "New York"              # Adding a new key-value pair
my_dict["age"] = 26                       # Updating the value for an existing key
```

Removing Elements:

```
my_dict = {"name": "Alice", "age": 25, "city": "New York"}
del my_dict["age"]                        # Removing a key-value pair using the 'del' keyword
my_dict.pop("city")                       # Removing a key-value pair using the 'pop' method
```

Dictionary Length:

```
my_dict = {"name": "Alice", "age": 25, "city": "New York"}
length = len(my_dict)                     # Getting the number of key-value pairs in the dictionary
```

Dictionary Keys:

```
my_dict = {"name": "Alice", "age": 25, "city": "New York"}
keys = my_dict.keys()                     # Getting a list-like view of the dictionary keys
```

Dictionary Values:

```
my_dict = {"name": "Alice", "age": 25, "city": "New York"}
values = my_dict.values()                 # Getting a list-like view of the dictionary values
```

Dictionary Items:

```
my_dict = {"name": "Alice", "age": 25, "city": "New York"}
items = my_dict.items()                    # Getting a list-like view of the dictionary key-value pairs
```

Dictionary Membership Testing:

```
my_dict = {"name": "Alice", "age": 25, "city": "New York"}
exists = "age" in my_dict                  # Checking if a key exists in the dictionary
```

Dictionary Copying:

```
my_dict = {"name": "Alice", "age": 25}
new_dict = my_dict.copy()                  # Creating a shallow copy of the dictionary
```

Merging Dictionaries:

```
dict1 = {"name": "Alice", "age": 25}
dict2 = {"city": "New York", "country": "USA"}
merged_dict = {**dict1, **dict2}           # Merging two dictionaries into a new dictionary (Python 3.5+)
```

Clearing a Dictionary:

```
my_dict = {"name": "Alice", "age": 25, "city": "New York"}
my_dict.clear()                            # Removing all key-value pairs from the dictionary
```

Dictionary Update:

```
dict1 = {"name": "Alice", "age": 25}
dict2 = {"city": "New York", "country": "USA"}
dict1.update(dict2)                        # Updating dict1 with the key-value pairs from dict2
```

Dictionary Comprehension:

```
numbers = [1, 2, 3, 4, 5]
square_dict = {x: x ** 2 for x in numbers}    # Creating a new dictionary with the square of each element in numbers using dictionary comprehension
```

Checking if a Dictionary is Empty:

```
my_dict = {}
```

```
is_empty = len(my_dict) == 0                # Checking if the dictionary is empty
```

Nested Dictionaries:

```
person = {
    "name": "Alice",
    "age": 25,
    "address": {
        "street": "123 Main St",
        "city": "New York",
        "state": "NY"
    }
}
street = person["address"]["street"]          # Accessing values in nested dictionaries
```