Dictionaries

Chapter 05a

What is a {Dictionary}

- Similar to a list, used **{key:value}** pairs.
- Items in dictionaries are **unordered**.

Dictionaries – Key-Value Pairs

EXAMPLES:

personalInfo = {“Name”:”Molly”, “Age”:18}

myCombo= {12345: ‘Luggage Combination’, 42: ‘The Answer’}

phonebook = {“Savannah”:”476-3321”, “Nate”:”351-7743”}

1st Item are **Keys**
2nd Item are **Values**

Create and Print a Dictionary

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
print(thisDictionary)
```

Dictionaries – Multi-line

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
print(thisDictionary)
```

Accessing Elements – use keys enclosed in [brackets]

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
x = thisDictionary["model"]
print(x)
```

OUTPUT: Mustang

Accessing Elements – use keys enclosed in [brackets]

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
```

OUTPUT: Mustang

```
print(thisDictionary[“model”])
```

Changing Elements – use assignment operator =

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
```

thisDictionary["year"] = 2018

for Loop Through a Dictionary – key

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
for key in thisDictionary:
  print(key)
```

Prints all key names in the Dictionary one by one

OUTPUT

brand
model
year

for Loop Through a Dictionary - values

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
for key in thisDictionary:
  print(thisDictionary[key])
```

Prints all values in the Dictionary one by one

OUTPUT

Ford
Mustang
1964

for Loop Through a Dictionary – key/values

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
for key in thisDictionary:
  print(key, thisDictionary[key])
```

Prints all key/values in the Dictionary one by one

OUTPUT

brand Ford
model Mustang
year 1964

Check If Exists – in keyword

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
if "model" in thisDictionary:
  print("Yes, 'model' is one of the keys in the thisDictionary dictionary")
```

Adding element to Dictionary – use new index key

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
```

thisDictionary[“color”] = “red”

```
print(thisDictionary)
```

Delete Element in Dictionary – use pop( ) method

```
#removes an item with a specified key
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}

thisDictionary.pop(“model” )
 print(thisDictionary)
```

Delete Element in Dictionary – use del keyword

```
#del keyword removes the item with the specified key name
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}

del thisDictionary[“model”]
 print(thisDictionary)
```

Delete entire Dictionary

```
#del keyword removes the item with the specified key name
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}

del thisDictionary
 print(thisDictionary)
```

Dictionary Methods

clear( )
copy( )
get( )
items( )
keys( )
pop( )
update( )
values( )

Built-in Functions with Dictionary

len( )
sorted( )

Dictionary Length – len( ) Function

```
thisDictionary = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
print(len(thisDictionary))
```

OUTPUT: 3

Sort a Dictionary by Keys

```
colorDictionary = {'red':'#FF0000',
        'green':'#008000',
        'black':'#000000',
        'white':'#FFFFFF'}

for key in sorted(colorDictionary):
        print(key, colorDictionary[key])
```

Test Yourself With Exercises – Python Exercises

- In the W3Schools Tutorial, complete Exercises