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CHAPTER 7

Dictionary

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AGENDA

- Dictionaries
- Dictionary Methods:
  - keys()
  - values()
  - items()

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Dictionaries

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Dictionary as a Data Type

- Dictionary is a Data Type, representing Key-Value Pair
- Each Dictionary is a group of “Keys” and “Values”
- You can use it to represent a **physical concept** in the real world

```
car = {
    "brand": "Toyota",
    "model": "Prius",
    "color": "white",
    "maxspeed": "250"
}

print(car)
```

How to access the value of a dictionary?

```
dictName["propertyName"]
```

```
car = {
    "brand": "Toyota",
    "model": "Prius",
    "color": "white",
    "maxspeed": "250"
}

print(car["brand"])
```


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Anything could be a Property in Dictionary

```
car = {
    "brand": "Toyota",
    "model": "Prius",
    "color": "white",
    "maxspeed": "250",
    "pastOwners": ["Peter", "Mary", "Tom"]
}

# in-class exercise: How to retrieve the last owner of the car?
```

Anything could be a Property in Dictionary

```
car = {
    "brand": "Toyota",
    "model": "Prius",
    "color": "white",
    "maxspeed": "250",
    "pastOwners": ["Peter", "Mary", "Tom"]
}

# in-class exercise: How to retrieve the last owner of the car?
allPastOwners = car["pastOwners"]
print(allPastOwners[len(allPastOwners) - 1])
```

Dictionary Methods

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Three Methods

keys():

to get all the keys from Dictionary

values():

to get all the values from Dictionary

items():

to get all key-value pair from Dictionary

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Dictionary Method 1 - keys()

keys()

```
1  car = {
2      "brand": "Toyota",
3      "model": "Prius",
4      "color": "white",
5      "maxspeed": "250"
6  }
7
8  print(car.keys())
```

Results:

```
dict_keys(['brand', 'model', 'color', 'maxspeed'])
```


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Looping through the Dictionary with keys()

```
car = {
    "brand": "Toyota",
    "model": "Prius",
    "color": "white",
    "maxspeed": "250"
}

for k in car.keys():
    print("Key: " + k + ", Value: " + car[k])
```

Results:

```
Key: brand, Value: Toyota
Key: model, Value: Prius
Key: color, Value: white
Key: maxspeed, Value: 250
```

Dictionary Method 2 - values()

values()

```
car = {
    "brand": "Toyota",
    "model": "Prius",
    "color": "white",
    "maxspeed": "250"
}

print(car.values())
```

Results:

```
dict_values(['Toyota', 'Prius', 'white', '250'])
```


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Dictionary Method 3 - items()

items()

Results:

```
car = {
    "brand": "Toyota",
    "model": "Prius",
    "color": "white",
    "maxspeed": "250"
}

print(car.items())
```

```
dict_items([('brand', 'Toyota'), ('model', 'Prius'), ('color', '
white'), ('maxspeed', '250')])
```


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items()

```
car = {
    "brand": "Toyota",
    "model": "Prius",
    "color": "white",
    "maxspeed": "250"
}

for k, v in car.items():
    print("Key: " + k + " ,Value: " + v)
```

Results:

```
Key: brand ,Value: Toyota
Key: model ,Value: Prius
Key: color ,Value: white
Key: maxspeed ,Value: 250
```


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