

Dictionaries

Python basics

Kunal Khurana

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Table of contents

Learning outcomes	2
printing specific values from a dictionary	2
adding key value pairs to dictionaries	3
modifying values in dictonaries	3
removing key-value pairs	3
choosing the value based on key pair	3
Remark*- consider using get method to obtain the value of the non assigned value pair	4
Looping through dictionary	4
Using keys method...	5
Looping with keys method in a particular* method	6
Adding keys values with update method()	6
Using set method to evit repetition	6
Nesting - for multiple dictionaries	7
Using for loop to print all the dictionaries together	7
Nesting a list inside a dictionary	7
Nesting a dictionary inside a dictionary and looping	8

Learning outcomes

A dictionary in Python is a collection of key-value pairs. 1. looping through a dictionary 2. work with information stored in a dictionary 3. access and modify individual elements in a dictionary 4. nest multiple dictionaries in a list, nest lists in a dictionary, and nest a dictionary inside a dictionary

printing specific values from a dictionary

```
d_0= {'colour' : 'verte', 'point' : 5}

access = d_0['point'] #square brackets to access values
print(f"You have earned {access} points!")
```

You have earned 5 points!

adding key value pairs to dictionaries

```
d_0['tout va bien'] = 0
d_0['oui, ça va'] = 1
print(d_0)
```

```
{'tout va bien': 0, 'oui, ça va': 1}
```

modifying values in dictionaries

```
d_0 = {'colour' : 'green'}    #curly brackets
print(f"The new colour is {d_0['colour']}")
```

The new colour is green.

```
d_0 = {'colour' : 'marron'}
print(f"The changed colour is {d_0['colour']}") #square brackets for accessing specific
```

The changed colour is marron.

removing key-value pairs

```
print(d_0)
```

```
{'tout va bien': 0, 'oui, ça va': 1}
```

```
print(d_0)
```

```
{'tout va bien': 0, 'oui, ça va': 1}
```

choosing the value based on key pair

```
favorite_language = {  
    'kunal': 'français',  
    'ritika' : 'espagneol',  
    'kartik' : 'russe',  
    'vaibhav' : 'almande'  
}  
  
language = favorite_language['kunal'].title()  
print(f"Kunal's favorite lanuage is {language}.")
```

Kunal's favorite lanuage is Français.

Remark*- consider using get method to obtain the value of the non assigned value pair

Looping through dictionary

```
user_0 = {'dob' : 'nov 1995',  
          'birth_place' : 'gugaron',  
          'education' : 'masters',  
          'children' : '2',  
          }  
  
for key, value in user_0.items():  
    print(f"\nKey: {key}")  
  
    print(f"Value: {value}")
```

Key: dob

Value: nov 1995

Key: birth_place

Value: gugaron

Key: education

Value: masters

Key: children

Value: 2

```
print(d_0)
```

```
{'tout va bien': 0, 'oui, ça va': 1}
```

Using keys() method for looping

```
favorite_language
for name in favorite_language.keys():
    print(name.title())
```

Kunal
Ritika
Kartik
Vaibhav

```
for language in favorite_language.values():
    print(language.title())
```

Français
Espagneol
Russe
Almande

Using keys method...

```
if 'raghav' not in favorite_language.keys():
    print("Raghav, please take your poll!")
```

Raghav, please take your poll!

Looping with keys method in a particular* method

```
for name in sorted(favorite_language.keys()):  
    print(f"{name.title()}, thank you for taking the poll!")
```

Kartik, thank you for taking the poll!
Kunal, thank you for taking the poll!
Ritika, thank you for taking the poll!
Vaibhav, thank you for taking the poll!

Adding keys values with update method()

```
favorite_language.update({'vaisahli' : 'français'})  
favorite_language
```

```
{'kunal': 'français',  
 'ritika': 'espagneol',  
 'kartik': 'russe',  
 'vaibhav': 'almande',  
 'vaisahli': 'français'}
```

Using set method to evit repetition

```
for language in set(favorite_language.values()):  
    print(language.title())
```

Russe
Almande
Espagneol
Français

Nesting - for multiple dictionaries

```
print(user_0)
print(d_0)
print(favorite_language)
```

```
{'dob': 'nov 1995', 'birth_place': 'gugaron', 'education': 'masters', 'children': '2'}
{'tout va bien': 0, 'oui, ça va': 1}
{'kunal': 'français', 'ritika': 'espagneol', 'kartik': 'russe', 'vaibhav': 'almande', 'vaisal'}
```

Using for loop to print all the dictionaries together

```
combined = [user_0, d_0, favorite_language]

for tout in combined:
    print(tout)
```

```
{'dob': 'nov 1995', 'birth_place': 'gugaron', 'education': 'masters', 'children': '2'}
{'tout va bien': 0, 'oui, ça va': 1}
{'kunal': 'français', 'ritika': 'espagneol', 'kartik': 'russe', 'vaibhav': 'almande', 'vaisal'}
```

Nesting a list inside a dictionary

```
programming_languages = {'kunal' : ['python', 'latex', 'html', 'java'],
                          'john' : ['html', 'c', 'C++'],
                          'gofi' : ['java', 'python', 'R', 'html']}

for name, languages in programming_languages.items(): #use items to iterate thorough dict
    print(f"\n{name.title()}s favorite languages are:")
    for language in languages:
        print(f"\t{language.title()}")
```

Kunal's favorite languages are:

```
Python
Latex
Html
Java
```

John's favorite languages are:

Html
C
C++

Gofi's favorite languages are:

Java
Python
R
Html

Nesting a dictionary inside a dictionary and looping

```
users = {  
    'kkhurana' : {  
        'first' : 'kunal',  
        'last' : 'khurana',  
        'location': 'montréal',  
    },  
  
    'asharma' : {  
        'first': 'anita',  
        'last': 'sharma',  
        'location': 'sudbery'  
    },  
  
    'jarora' : {  
        'first' : 'jatin',  
        'last' : 'arora',  
        'location' : 'perth'  
    },  
}
```

users

```
{'kkhurana': {'first': 'kunal', 'last': 'khurana', 'location': 'montréal'},  
'asharma': {'first': 'anita', 'last': 'sharma', 'location': 'sudbery'},  
'jarora': {'first': 'jatin', 'last': 'arora', 'location': 'perth'}}
```



```
for username, user_info in users.items():
    print(f"\nUsername: {username}")
    full_name = f"{user_info['first']} {user_info['last']}"
    location = user_info['location']

    print(f"\tFull name: {full_name.title()}")
    print(f"\tLocation: {location.title()}")
```

```
Username: kkhurana
    Full name: Kunal Khurana
    Location: Montréal
```

```
Username: asharma
    Full name: Anita Sharma
    Location: Sudbery
```

```
Username: jarora
    Full name: Jatin Arora
    Location: Perth
```