

# Dictionaries

Python basics

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## 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
```