Dictionaries

Python basics

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2023-10-06

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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 dicitonaries

```
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() mehtod 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'}}
```

```python
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
```