字典：key-value，元素的顺序是未知的

例：程序dictionary\_test/dictionary\_test1.py

alien\_0 = {'color': 'green', 'points': 5}  
print(alien\_0)  
print(alien\_0['color'])  
print(alien\_0['points'])  
print()  
  
# 键的唯一性  
alien\_1 = {'color': 'green', 'points': 5, 'color': 'red'}  
  
# 输出为：{'color': 'red', 'points': 5}  
print(alien\_1)  
  
# 添加key-value  
# 类似C++中的map  
# 如果key不存在就添加  
# 如果key存在就修改其值  
alien\_1['x\_position'] = 0  
alien\_1['y\_position'] = 25  
alien\_1['points'] = 6  
print(alien\_1)  
print()  
  
# 判断键是否存在  
print(alien\_0.\_\_contains\_\_('color'))  
print()  
  
# 使用字典时，通常先创建一个空字典  
alien\_2 = {}  
alien\_2['x\_position'] = 0  
alien\_2['y\_position'] = 25  
alien\_2['speed'] = 'medium'  
  
if alien\_2['speed'] == 'slow':  
 x\_increment = 1  
elif alien\_2['speed'] == 'medium':  
 x\_increment = 2  
else:  
 x\_increment = 3  
  
alien\_2['x\_position'] = alien\_2['x\_position'] + x\_increment  
print('new x\_position:' + str(alien\_2['x\_position']))  
print()  
  
# 删除key-value  
del alien\_2['speed']  
alien\_2.pop('x\_position')  
print(alien\_2)  
print()  
  
favorite\_languages = {  
 'jen': 'python',  
 'sarah': 'c',  
 'phil': 'ruby'  
}  
  
print(favorite\_languages)

输出为：

{'color': 'green', 'points': 5}

green

5

{'color': 'red', 'points': 5}

{'color': 'red', 'points': 6, 'x\_position': 0, 'y\_position': 25}

True

new x\_position:2

{'y\_position': 25}

{'jen': 'python', 'sarah': 'c', 'phil': 'ruby'}

遍历字典：

例：程序dictionary\_test/dictionary\_test2.py

users = {  
 'username': 'efermi',  
 'first': 'enrico',  
 'last': 'fermi'  
}  
  
# 遍历所有key-value  
for key, value in users.items():  
 print('\nKey: ' + key)  
 print('value: ' + value)  
  
# 遍历所有的keys  
favorite\_languages = {  
 'jen': 'python',  
 'sarah': 'c',  
 'phil': 'ruby',  
 'jam': 'python'  
}  
  
for name in favorite\_languages.keys():  
 print(name)  
print()  
  
# 遍历所有的values  
for language in favorite\_languages.values():  
 print(language)  
print()  
  
# 提取独一无二的value  
for language1 in set(favorite\_languages.values()):  
 print(language1)

输出为：

Key: username

value: efermi

Key: first

value: enrico

Key: last

value: fermi

jen

sarah

phil

jam

python

c

ruby

python

ruby

python

c

字典与列表的嵌套：

例：程序dictionary\_test/dictionary\_test3.py

# 列表中存储字典  
aliens = []  
  
# 创建多个元素  
for number in range(0, 10):  
 new\_alien = {'color': 'green', 'points': 5, 'speed': 'slow'}  
 aliens.append(new\_alien)  
  
# 批量修改  
for alien in aliens[0:3]:  
 if alien['color'] == 'green':  
 alien['color'] = 'yellow'  
 alien['points'] = 10  
 alien['speed'] = 'medium'  
  
for alien in aliens[0:5]:  
 print(alien)  
print()  
  
# 字典中存储列表  
pizza = {  
 'crust': 'thick',  
 'toppings': ['mushrooms', 'extra cheese']  
}  
  
print("You ordered a " + pizza['crust'] + ' with the following toppings:')  
for topping in pizza['toppings']:  
 print('\t' + topping)  
print()  
  
favorite\_languages = {  
 'jen': ['python', 'ruby'],  
 'sarah': ['c'],  
 'edward': ['ruby', 'go'],  
 'phil': ['python', 'haskell']  
}  
  
for name, languages in favorite\_languages.items():  
 print(name.title() + "'s favorite languages are:")  
 for language in languages:  
 print('\t' + language.title())  
  
# 在字典中存储字典  
users = {  
 'aeinstein': {  
 'first': 'albert',  
 'last': 'einstein',  
 'location': 'princeton'  
 },  
 'mcurie': {  
 'first': 'marie',  
 'last': 'curie',  
 'location': 'paris'  
 }  
}  
  
for username, user\_info in users.items():  
 print("\nUsername: " + username)  
 full\_name = user\_info['first'] + " " + user\_info['last']  
 location = user\_info['location']  
 print('full name: ' + full\_name.title())  
 print('location: ' + location)

输出为：

{'color': 'yellow', 'points': 10, 'speed': 'medium'}

{'color': 'yellow', 'points': 10, 'speed': 'medium'}

{'color': 'yellow', 'points': 10, 'speed': 'medium'}

{'color': 'green', 'points': 5, 'speed': 'slow'}

{'color': 'green', 'points': 5, 'speed': 'slow'}

You ordered a thick with the following toppings:

mushrooms

extra cheese

Jen's favorite languages are:

Python

Ruby

Sarah's favorite languages are:

C

Edward's favorite languages are:

Ruby

Go

Phil's favorite languages are:

Python

Haskell

Username: aeinstein

full name: Albert Einstein

location: princeton

Username: mcurie

full name: Marie Curie

location: paris