Dictionaries in Python

Dictionary in Python, aka $std::map$ in C++.
Key and Value

```
dictionary = {"cat": "chat", "dog": "chien", "horse": "cheval"}
phone_numbers = {'boss': 5551234567, 'Suzy': 22657854310}
empty_dictionary = {}

print(dictionary) # {'cat': 'chat', 'dog': 'chien', 'horse': 'cheval'}
print(phone_numbers) # {'boss': 5551234567, 'Suzy': 22657854310}
print(empty_dictionary) # {}
print(dictionary['cat']) # chat
```

Dictionaries in Python are not sorted.

```
dictionary = {"dog": "chien", "cat": "chat", "horse": "cheval"}

print(dictionary) # {'dog': 'chien', 'cat': 'chat', 'horse': 'cheval'}
```

How to get them sorted by the keys?

```
dictionary = {"dog": "chien", "cat": "chat", "horse": "cheval"}

for key in dictionary.keys():
    print(key, "->", dictionary[key])
# dog -> chien
# cat -> chat
# horse -> cheval

for key in sorted(dictionary.keys()):
    print(key, "->", dictionary[key])
# cat -> chat
# dog -> chien
# horse -> cheval
```

Iterating the items() gives you both the Key and the Value

```
dictionary = {"cat": "chat", "dog": "chien", "horse": "cheval"}

for english, french in dictionary.items():
    print(english, "->", french)
# cat -> chat
# dog -> chien
# horse -> cheval
```

Iterating the values() gives only the Value

```
dictionary = {"cat": "chat", "dog": "chien", "horse": "cheval"}

for french in dictionary.values():
    print(french)
```

```
# chat
# chien
# cheval
```

Modifying a value by its Key

```
dictionary = {"cat": "chat", "dog": "chien", "horse": "cheval"}

dictionary['cat'] = 'minou'
print(dictionary) # {'cat': 'minou', 'dog': 'chien', 'horse': 'cheval'}
```

Adding a new key

```
dictionary = {"cat": "chat", "dog": "chien", "horse": "cheval"}

dictionary['swan'] = 'cygne'
print(dictionary) # {'cat': 'chat', 'dog': 'chien', 'horse': 'cheval',
'swan': 'cygne'}
```

Deleting an element by its key

```
dictionary = {"cat": "chat", "dog": "chien", "horse": "cheval"}

del dictionary['dog']
print(dictionary) # {'cat': 'chat', 'horse': 'cheval'}
```

Popping the last element out of the dictionary (before Python 3.6.7, this pops a random element)

```
dictionary = {"cat": "chat", "dog": "chien", "horse": "cheval"}

dictionary.popitem()
print(dictionary) # {'cat': 'chat', 'dog': 'chien'}
```

In and not in

```
pol_eng_dictionary = {
    "zamek": "castle",
    "woda": "water",
    "gleba": "soil"
}

if "zamek" in pol_eng_dictionary:
    print("Yes") # triggered
else:
    print("No")
```

Copying a dictionary

```
from copy import copy


pol_eng_dictionary = {
```

```
    "zamek": "castle",
    "woda": "water",
    "gleba": "soil"
    }

copy_dictionary = pol_eng_dictionary.copy()
print(copy_dictionary) # {'zamek': 'castle', 'woda': 'water', 'gleba':
'soil'}
```