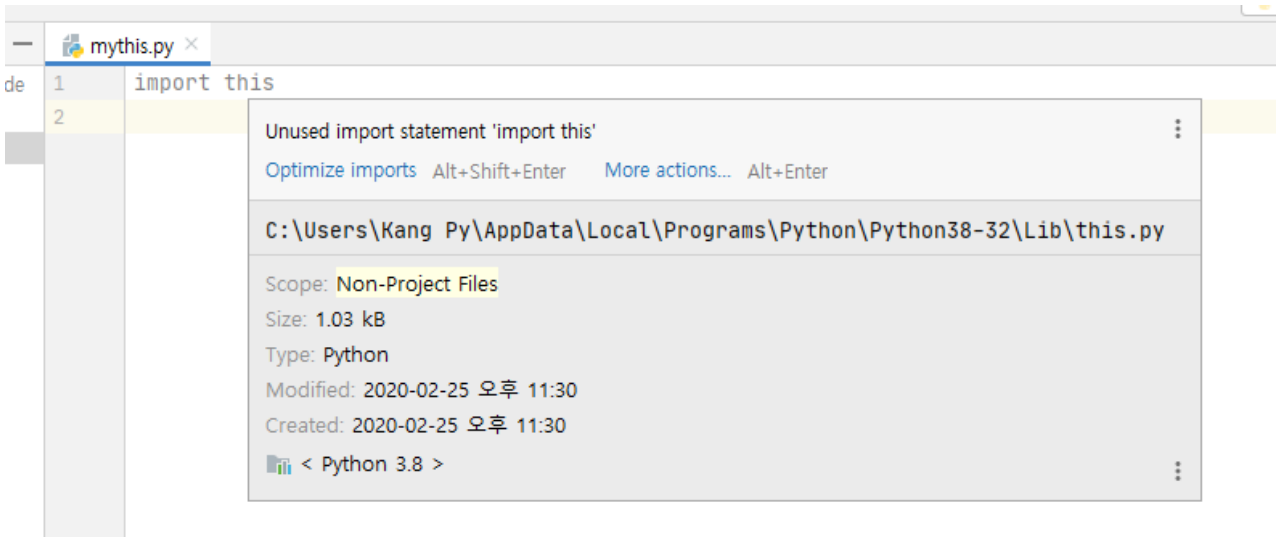
파이썬의 특징: 스트링, 리스트, 딕셔너리, 컴프리헨션

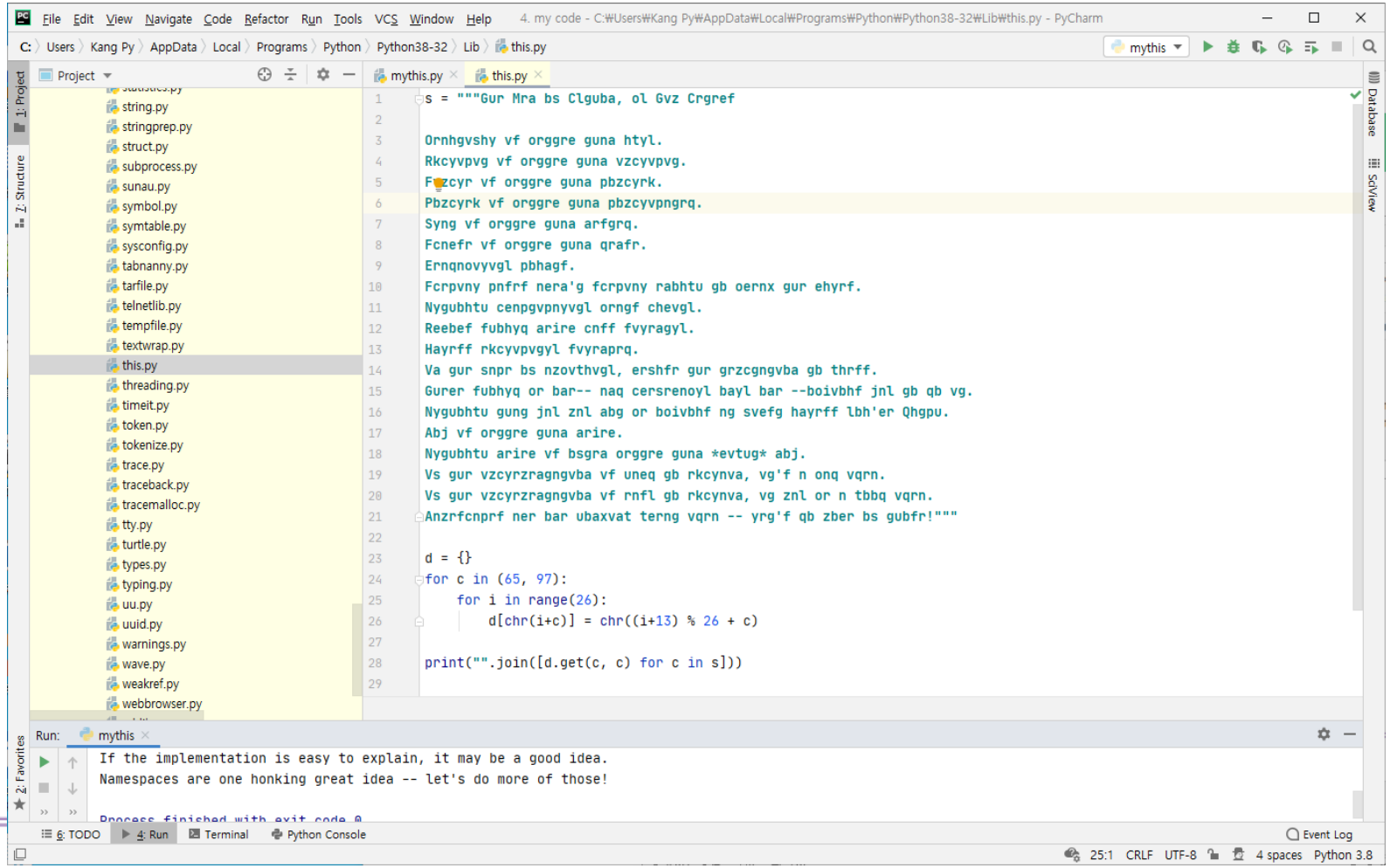
import this

- 실행



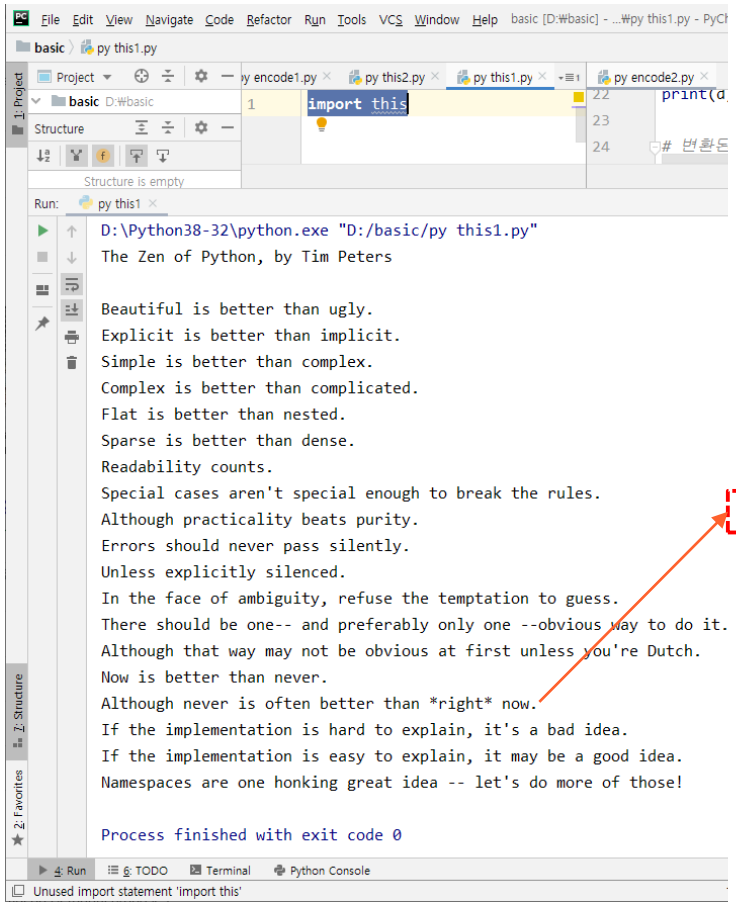
파일 this.py

- **파일**
  - C:₩Users₩사용자₩AppData₩Local₩Programs₩Python₩Python38-32₩Lib₩this.py



import this

- 파이썬 철학




```
s = """Gur Mra bs Clguba, ol Gvz Crgref

Ornhgvshy vf orggre guna htyl.
Rkcyvpvg vf orggre guna vzcyvpvg.
Fvzcyr vf orggre guna pbzcyrk.
Pbzcyrk vf orggre guna pbzcyvpngrq.
Syng vf orggre guna arfgrq.
Fcnefr vf orggre guna qrafr.
Ernqnovyvgl pbhagf.
Fcrpvny pnfrf nera'g fcrpvny rabhtu gb oernx gur ehyrf.
Nygubhtu cenpgvpnyvgl orngf chevgl.
Reebef fubhyq arire cnff fvyragyl.
Hayrff rkcyvpvgyl fvyraprq.
Va gur snpr bs nzovthvgl, ershfr gur grzcgngvba gb thrff.
Gurer fubhyq or bar-- naq cersrenoyl bayl bar --boivbhf jnl gb qb vg.
Nygubhtu gung jnl znl abg or boivbhf ng svefg hayrff lbh'er Qhgpu.
Abj vf orggre guna arire.
Nygubhtu arire vf bsgra orggre guna *evtug* abj.
Vs gur vzcyrzragngvba vf uneq gb rkcynva, vg'f n onq vqrn.
Vs gur vzcyrzragngvba vf rnfl gb rkcynva, vg znl or n tbbq vqrn.
Anzrfcnprf ner bar ubaxvat terng vqrn -- yrg'f qb zber bs gubfr!"""

d = {}
for c in (65, 97):
    for i in range(26):
        d[chr(i+c)] = chr((i+13) % 26 + c)

print("".join([d.get(c, c) for c in s]))

type(d)
```

문자열 str.join()

- **s.join(<iterable>)**
  - 반복 가능한 문자열을 연결
  - 문자열 s를 이터러블의 항목 사이에 붙인 문자열 반환

```
print('a,b,c'.split(','))

print('this is my string'.split())

s = "this is my string"
print(s.split(maxsplit=1))

print('a' + 'b' + 'c')
print('do' * 2)

strings = ['do', 're', 'mi']
print(','.join(strings))

print('->'.join('string'))

print(''.join(['p', 'y', 't', 'h', 'o', 'n']))
print(', '.join(['foo', 'bar', 'baz', 'qux']))

print(list('corge'))
print(':'.join(list('corge')))
print(':'.join('corge'))

print('---'.join(['foo', str(23), 'bar']))
```

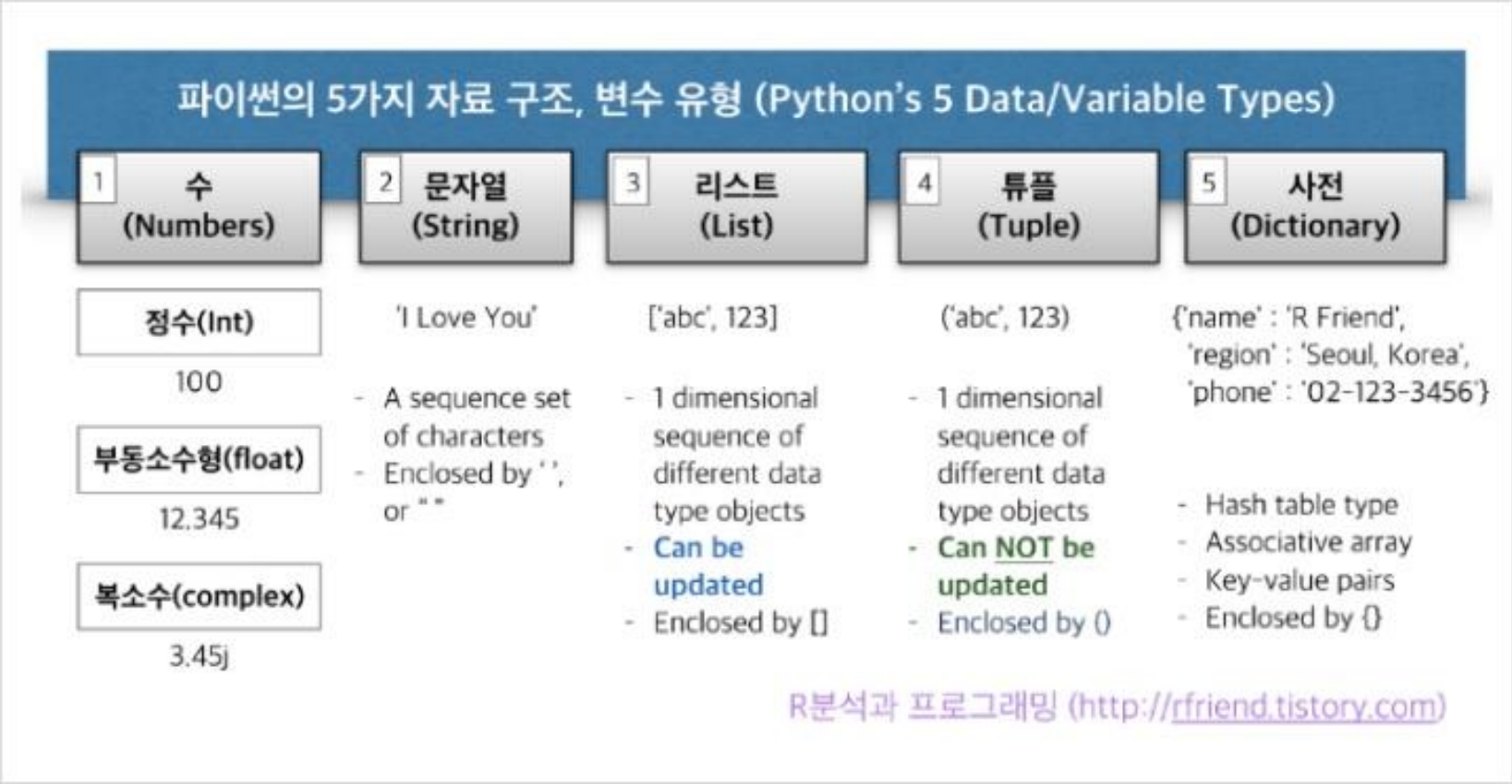
문자열, 컴프리헨션

- 문자열
  - join()
- 리스트
- 컴프리헨션

```
D:₩Python38-32₩python.exe "D:/basic/py encode1.py"
Programming is an Art!
Uwtlwfrrnsl%nx%fs%Fwy&
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q',
'r', 's', 't', 'u', 'v', 'w', 'x', 'y', 'z']
['U', 'w', 't', 'l', 'w', 'f', 'r', 'r', 'n', 's', 'l', '%', 'n', 'x', '%', 'f', 's',
'%', 'F', 'w', 'y', '&']
python
python
p-y-t-h-o-n
Uwtlwfrrnsl%nx%fs%Fwy&
Uwtlwfrrnsl%nx%fs%Fwy&
Programming is an Art!

Process finished with exit code 0
```

```python
s = 'Programming is an Art!'
print(s)

# 문자에 각각 5를 더하여 문자열을 출력
key = 5
for c in s:
    print(chr(ord(c) + key), end='')
print()

# 컴프리헨션 이해
print([i for i in range(10)])
print([chr(i) for i in range(ord('a'), ord('a') + 26)])

# 문자에 각각 5를 더한 문자 리스트를 출력
t = [chr(ord(c) + key) for c in s]
print(t)

# 문자열 str.join() 함수 이해
print(''.join('python'))
print(''.join(list('python')))
print('-'.join(list('python')))

# 문자에 각각 5를 더한 문자열 출력
e = '';
e = e.join([chr(ord(c) + key) for c in s])
print(e)

# 문자에 각각 5를 더한 문자열을 한 줄에 출력
print(''.join([chr(ord(c) + key) for c in s]))

e = '';
e = e.join([chr(ord(c) + key) for c in s])

# 비뀐 문자열을 다시 반대로 문자에 각각 5를 뺀 문자열을 한 줄에 출력
key = -key
print(''.join([chr(ord(c) + key) for c in e]))
```

파이썬 주요 자료


파이썬의 5가지 자료 구조, 변수 유형 (Python's 5 Data/Variable Types)
1 수 (Numbers)
2 문자열 (String)
3 리스트 (List)
4 튜플 (Tuple)
5 사전 (Dictionary)
정수(Int)
100
부동소수형(float)
12.345
복소수(complex)
3.45j
'I Love You'
- A sequence set of characters
- Enclosed by ' ', or " "
['abc', 123]
- 1 dimensional sequence of different data type objects
- Can be updated
- Enclosed by []
('abc', 123)
- 1 dimensional sequence of different data type objects
- Can NOT be updated
- Enclosed by ()
{'name' : 'R Friend', 'region' : 'Seoul, Korea', 'phone' : '02-123-3456'}
- Hash table type
- Associative array
- Key-value pairs
- Enclosed by {}
R분석과 프로그래밍 (http://rfriend.tistory.com)

딕셔너리 생성

The bracket method

```
data = {
      "beer_data": beers,
      "brewery_data": breweries
}
```

Key Value

The dict( ) method, option 1

```
data2 = dict(
      beer_data=beers,
      brewery_data=breweries
)
```

Key Value

The dict( ) method, option 2

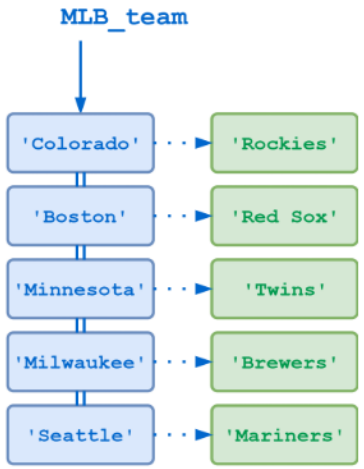
```
tuple_list = [
("brewery_data", breweries),
("beer_data", beers)
]
```

Key Value

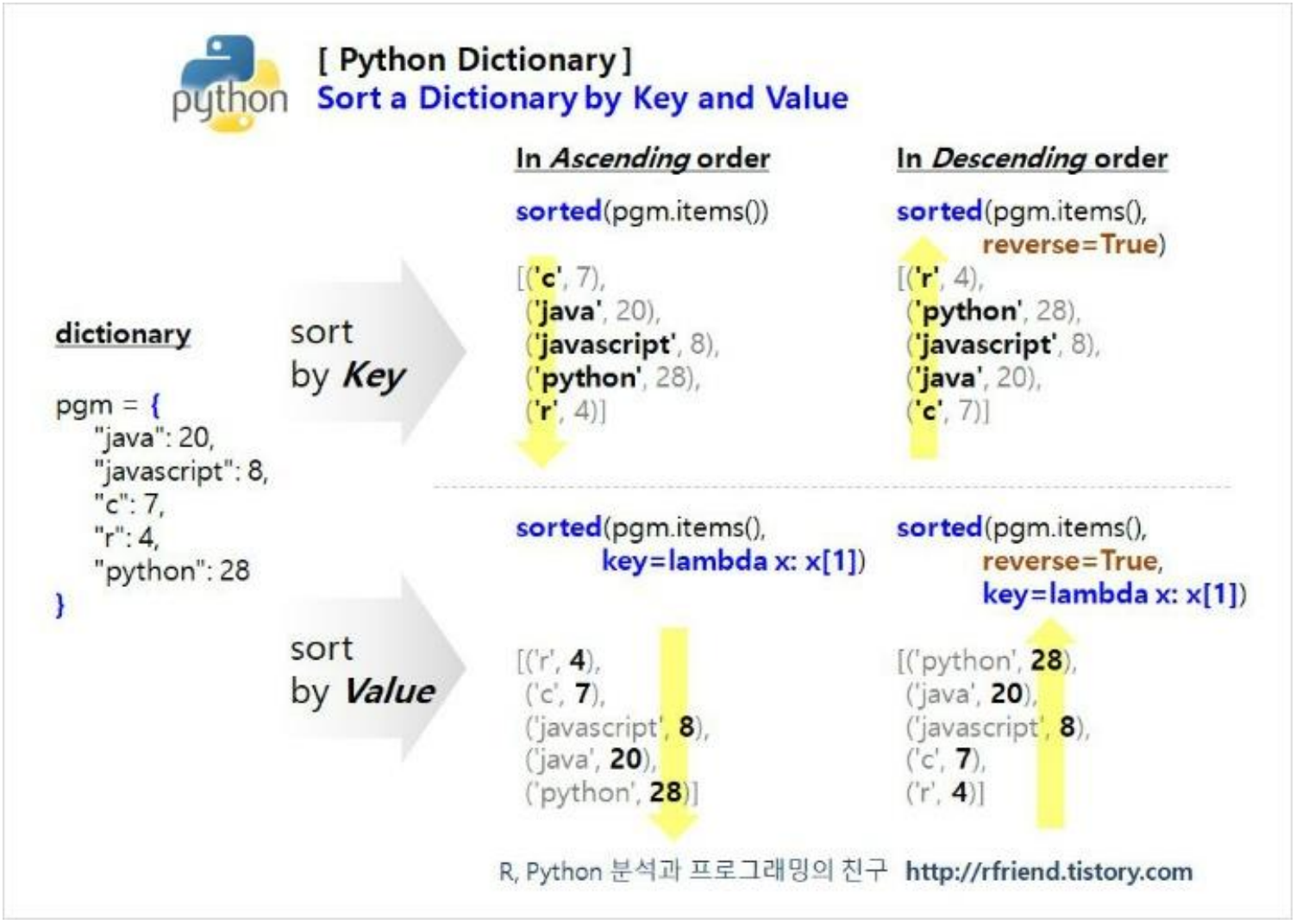
```
data3 = dict(tuple_list)
```

Python >>>

```
>>> MLB_team = {
...     'Colorado' : 'Rockies',
...     'Boston'   : 'Red Sox',
...     'Minnesota': 'Twins',
...     'Milwaukee': 'Brewers',
...     'Seattle'  : 'Mariners'
... }
```



Dictionary Mapping Location to MLB Team


[Python Dictionary]
Sort a Dictionary by Key and Value
dictionary
pgm = {
"java": 20,
"javascript": 8,
"c": 7,
"r": 4,
"python": 28
}
sort by Key
sort by Value
In Ascending order
sorted(pgm.items())
[('c', 7),
('java', 20),
('javascript', 8),
('python', 28),
('r', 4)]
In Descending order
sorted(pgm.items(), reverse=True)
[('r', 4),
('python', 28),
('javascript', 8),
('java', 20),
('c', 7)]
sorted(pgm.items(), key=lambda x: x[1])
[('r', 4),
('c', 7),
('javascript', 8),
('java', 20),
('python', 28)]
sorted(pgm.items(), reverse=True, key=lambda x: x[1])
[('python', 28),
('java', 20),
('javascript', 8),
('c', 7),
('r', 4)]
R, Python 분석과 프로그래밍의 친구 http://rfriend.tistory.com

딕셔너리를 통한 인코딩

- **리스트 딕셔너리**
  - 원소 쉽게 생성

```
D:₩Python38-32₩python.exe "D:/basic/py encode2.py"
Programming is Art!
{0: '1', 1: '2', 2: '3', 3: '4', 4: '5', 5: '6', 6: '7', 7: '8', 8: '9', 9: '10'}
{'A': 'A', 'B': 'B', 'C': 'C', 'D': 'D', 'E': 'E', 'F': 'F', 'G': 'G', 'H': 'H',
'I': 'I', 'J': 'J', 'K': 'K', 'L': 'L', 'M': 'M', 'N': 'N', 'O': 'O', 'P': 'P', 'Q':
'Q', 'R': 'R', 'S': 'S', 'T': 'T', 'U': 'U', 'V': 'V', 'W': 'W', 'X': 'X', 'Y':
'Y', 'Z': 'Z'}
{'A': 'D', 'B': 'E', 'C': 'F', 'D': 'G', 'E': 'H', 'F': 'I', 'G': 'J', 'H': 'K', 'I':
'L', 'J': 'M', 'K': 'N', 'L': 'O', 'M': 'P', 'N': 'Q', 'O': 'R', 'P': 'S', 'Q':
'T', 'R': 'U', 'S': 'V', 'T': 'W', 'U': 'X', 'V': 'Y', 'W': 'Z', 'X': 'A', 'Y':
'B', 'Z': 'C', 'a': 'd', 'b': 'e', 'c': 'f', 'd': 'g', 'e': 'h', 'f': 'i', 'g': 'j', 'h':
'k', 'i': 'l', 'j': 'm', 'k': 'n', 'l': 'o', 'm': 'p', 'n': 'q', 'o': 'r', 'p': 's', 'q':
't', 'r': 'u', 's': 'v', 't': 'w', 'u': 'x', 'v': 'y', 'w': 'z', 'x': 'a', 'y': 'b', 'z':
'c'}
Surjudpplqj lv Duw!
Surjudpplqj lv Duw!
Programming is Art!

Process finished with exit code 0
```

```python
s = 'Programming is Art!'
print(s)

# 딕셔너리 이해
d = {}
for i in range(10):  # 알파벳 인코딩 딕셔너리 생성
  d[i] = str(i+1)
print(d)

d = {}
for i in range(ord('A'), ord('A') + 26):  # 알파벳 인코딩 딕셔너리 생성
  d[chr(i)] = chr(i)
print(d)

# 인코딩을 위한 키, 값의 딕셔너리 생성
key = 3
d = {} # 딕셔너리 만들기
for c in (65, 97): # 알파벳 A, a에서 부터 시작하여
  for i in range(26): # 알파벳 인코딩 딕셔너리 생성
    d[chr(i+c)] = chr((i + key) % 26 + c)

print(d)

# 변환된 인코딩 문자열을 출력
# d.get(c, c): 키 c가 있으면 값, 없으면(알파벳이 아니면) 값은 동일한 c
print("".join([d.get(c, c) for c in s]))

# 인코딩 문자열을 e에 저장
e = '';
e = e.join([d.get(c, c) for c in s])
print(e)

# 다시 인코딩된 문자열을 원래의 문자열로 다시 변환하기 위한 딕셔너리 생성
key = -key
d = {} # 딕셔너리 만들기
for c in (65, 97): # 알파벳 A, a에서 부터 시작하여
  for i in range(26): # 알파벳 인코딩 딕셔너리 생성
    d[chr(i+c)] = chr((i + key) % 26 + c)

# 변환된 인코딩 문자열을 출력
print("".join([d.get(c, c) for c in e]))
```

표준 모듈 this.py의 이해

```
s = """Gur Mra bs Clguba, ol Gvz Crgref

Ornhgvshy vf orggre guna htyl.
Rkcyvpvg vf orggre guna vzcyvpvg.
Fvzcyr vf orggre guna pbzcyrk.
Pbzcyrk vf orggre guna pbzcyvpngrq.
Syng vf orggre guna arfgrq.
Fcnefr vf orggre guna qrafr.
Ernqnovyvgl pbhagf.
Fcrpvny pnfrf nera'g fcrpvny rabhtu gb oernx gur ubhfr.
Nygubhtu cenpgvpnyvgl orngf chevgl.
Reebef fubhyq arire cnff fvyragyl.
Hayrff rkcyvpvgyl fvyraprq.
Va gur snpr bs nzovthvgl, ershfr gur grzcgngvba gb thrff.
Gurer fubhyq or bar-- naq cersrenoyl bayl bar --boivbhf jnl gb qb vg.
Nygubhtu gung jnl znl abg or boivbhf ng svefg hayrff lbh'er Qhgpu.
Abj vf orggre guna arire.
Nygubhtu arire vf bsgra orggre guna *evtug* abj.
Vs gur vzcyrzragngvba vf uneq gb rkcynva, vg'f n onq vqrn.
Vs gur vzcyrzragngvba vf rnfl gb rkcynva, vg znl or n tbbq vqrn.
Anzrfcnprf ner bar ubaxvat terng vqrn -- yrg'f qb zber bs gubfr!"""

d = {}
for c in (65, 97):
    for i in range(26):
        d[chr(i+c)] = chr((i+13) % 26 + c)

print("".join([d.get(c, c) for c in s]))

type(d)
```

```
D:₩Python38-32₩python.exe "D:/basic/py this1.py"
The Zen of Python, by Tim Peters

Beautiful is better than ugly.
Explicit is better than implicit.
Simple is better than complex.
Complex is better than complicated.
Flat is better than nested.
Sparse is better than dense.
Readability counts.
Special cases aren't special enough to break the rules.
Although practicality beats purity.
Errors should never pass silently.
Unless explicitly silenced.
In the face of ambiguity, refuse the temptation to guess.
There should be one-- and preferably only one --obvious way to do it.
Although that way may not be obvious at first unless you're Dutch.
Now is better than never.
Although never is often better than *right* now.
If the implementation is hard to explain, it's a bad idea.
If the implementation is easy to explain, it may be a good idea.
Namespaces are one honking great idea -- let's do more of those!

Process finished with exit code 0
```

소스 pybasic.py 이해

```
# import this
s = """The Zen of Python, by Tim Peters

Beautiful is better than ugly.
Explicit is better than implicit.
Simple is better than complex.
Complex is better than complicated.
Flat is better than nested.
Sparse is better than dense.
Readability counts.
Special cases aren't special enough to break the rules.
Although practicality beats purity.
Errors should never pass silently.
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Although never is often better than *right* now.
If the implementation is hard to explain, it's a bad idea.
If the implementation is easy to explain, it may be a good idea.
Namespaces are one honking great idea -- let's do more of those!"""

d = {}
for c in (65, 97):
    for i in range(26):
        d[chr(i+c)] = chr((i-13) % 26 + c)

print("".join([d.get(c, c) for c in s]))
```

```
D:₩Python38-32₩python.exe D:/basic/pybasic.py
Gur Mra bs Clguba, ol Gvz Crgref

Ornhgvshy vf orggre guna htyl.
Rkcyvpvg vf orggre guna vzcyvpvg.
Fvzcyr vf orggre guna pbzcyrk.
Pbzcyrk vf orggre guna pbzcyvpngrq.
Syng vf orggre guna arfgrq.
Fcnefr vf orggre guna qrafr.
Ernqnovyvgl pbhagf.
Fcrpvny pnfrf nera'g fcrpvny rabhtu gb oernx gur ehyrf.
Nygubhtu cenpgvpnyvgl orngf chevgl.
Reebef fubhyq arire cnff fvyragyl.
Hayrff rkcyvpvgyl fvyraprq.
Va gur snpr bs nzovthvgl, ershfr gur grzcgngvba gb thrff.
Gurer fubhyq or bar-- naq cersrenoyl bayl bar --boivbhf jnl gb qb vg.
Nygubhtu gung jnl znl abg or boivbhf ng svefg hayrff lbh'er Qhgpu.
Abj vf orggre guna arire.
Nygubhtu arire vf bsgra orggre guna *evtug* abj.
Vs gur vzcyrzragngvba vf uneq gb rkcynva, vg'f n onq vqrn.
Vs gur vzcyrzragngvba vf rnfl gb rkcynva, vg znl or n tbbq vqrn.
Anzrfcnprf ner bar ubaxvat terng vqrn -- yrg'f qb zber bs gubfr!

Process finished with exit code 0
```