파이썬 입문

한국폴리텍대학

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for문과 dict


```
for key in data:
    print(key)

for key in data.keys():
    print(key)

for value in data.values():
    print(value)
```

```
for key, value in data.items():
    print(f'{key}, {value})
```

형변환 (Casting)

```
list(tuple(list(data)))
int(str(int(float(data))))
set(data)
tuple(data)
data = dict(list[3][0])
list(tuple[2][3])
str(data)
int(data)
float(3)    # 3.0
int(3.0)    # 3
str(3)      # '3'
hex(12)     # '0xa'
oct(10)     # '0o12'
bin(10)     # '0b1010'
```

연습

단위 계단 함수 (Unit Step Function) # 활성화 함수(activation function)

입력이 0보다 크면 1, 같거나 작으면 0

```
def unit_step_func (x):
        if x >= 0:
                return 1
        else:
                return 0

y = unit_step_func(2.5)
print(y)
```

내포(內包)

Comprehension (list, dict, set)

 # list comprehension

```
data1 = [i for i in range(10)]          -->  [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]

data2 = list(i for i in range(10))      -->  [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
data3 = [i for i in range(20) if i % 3 == 0]     -->  [0, 3, 6, 9, 12, 15, 18]
```

```
data4 = [i * j for j in range(5) for i in range(2)]     -->  [0, 0, 0, 1, 0, 2, 0, 3, 0, 4]
```

내포(內包)

Comprehension (list, dict, set, tuple)

```
data1 = [i * j for j in range(2, 10) for i in range(1, 10)]        # 구구단

data1 = [i * j for j in range(2, 10)
               for i in range(1, 10)]


data2 = [i for i in range(20) if i % 2 == 0 if i % 3 == 0]     # [0, 6, 12, 18]
                    if I % 2 == 0 and if i % 3 == 0       # SyntaxError
                    if I % 2 == 0 or if i % 3 == 0        # SyntaxError
                    if I % 2 == 0 or i % 3 == 0           # [0, 2, 3, 4, 6 ... ]
                    if I % 2 == 0 and i % 3 == 0          # [0, 6, 12, 18]
```

내포(內包)

Comprehension (list, dict, set, tuple)

```
data1 = [[ i + j for i in range(2) ] for j in range(5)]          # 2차원 list

data2 =  {str(i) : i for i in range(5)}     # dictionary comprehension

data3 =  {i for i in range(5)}              # set comprehension

data4 =  tuple(i for i in range(5))         # tuple comprehension

data4 =  (i for i in range(5))              # generator expression

         print(next(data4, 100))  # 0
         print(next(data4, 100))  # 1
         print(next(data4, 100))  # 2

      print(type(data4))  # class 'generator'
```

클래스 super()

```
class person1:
        def __init__(self, name, job):
                self.name = name
                self.age = age

class person2:
        def __init__(self, addr):
                self.addr = addr

class student(person1, person2):
        def __init__(self, name, job, gender):
                super().__init__(name, job)                    # person1     <--  (python 3 가능)
                #super(student, self).__init__(name, job)                    <--  (python 2, 3 모두 가능)
                #super(person2, self).__init__(name, job)
                #person2.__init__(self, addr)
                #person1.__init__(self, name, job)
                self.gender = gender
```

list

```
data = []

data.append(10)
data.append(20)
data.append(30)
data.clear()

data = []

data[0] = 10      # error
data[1] = 20      # error
data[2] = 30      # error
```

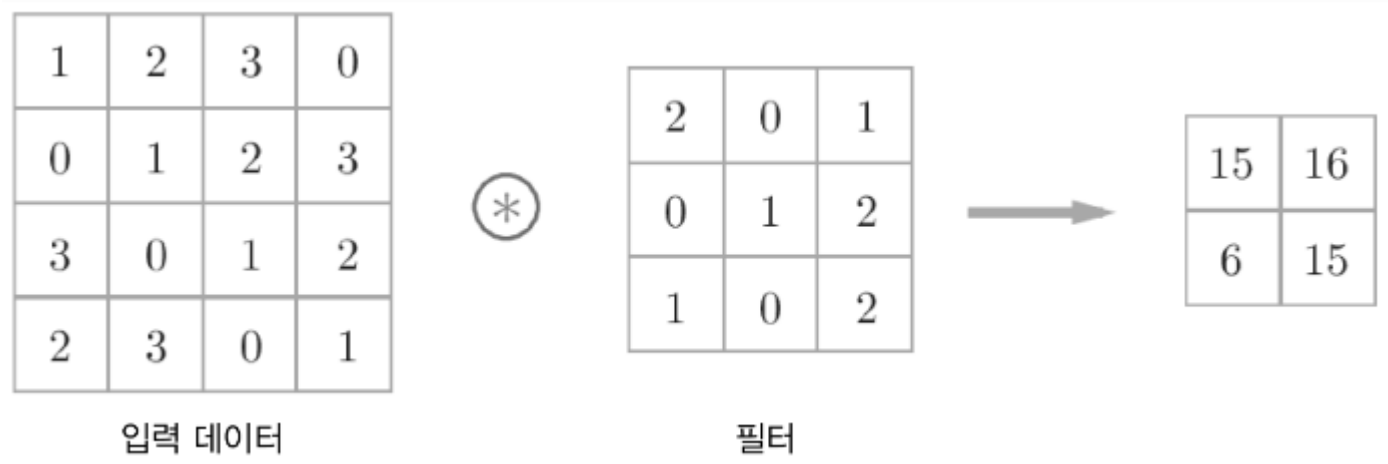
```
data = [0, 0, 0]

data.append(10)   # [0, 0, 0, 10]
data.append(20)   # [0, 0, 0, 10, 20]
data.append(30)   # [0, 0, 0, 10, 20, 30]
data.clear()      # []

data = [0, 0, 0]

data[0] = 10      # [10, 0, 0]
data[1] = 20      # [10, 20, 0]
data[2] = 30      # [10, 20, 30]
```

2차원 합성곱 계산 (convolution)



pip

사용법
pip install 패키지명

1. 파이썬 패키지를 설치하고 관리하는 패키지 매니저 (package manager)
2. python 3.4 (버전) 이후부터는 내장되어 있음. 따로 설치할 필요 없음
3. pip : 파이썬 2 (버전) / pip3 : 파이썬 3 (버전) 이상 / pip3.xx : 파이썬 3.xx (버전)

pip

사용법
pip install matplotlib

어디에 설치되었는지 확인할 수 있음.
현재 사용중인 파이썬 위치와 같아야 함