Ch11. lists

List

A list is a data structure that holds an ordered collection of items i.e. you can store a *sequence* of items in a list.

v = [item1, item2, item3, ...]

List

```
a = [ ]

b = [1, 2, 3]

c = ['송강호', '김혜수', '유해진', '정우성', '박보검']

d = ['My', 'age', 'is', 30, 19]

e = [['My', 'age', 'is'], 30, 19]
```

Indexing of list

```
>>> a = [1, 2, 3]
>>> a
[1, 2, 3]
>>> a[0]
1
>>> a[0] + a[2]
4
>>> a[-1]
3
```

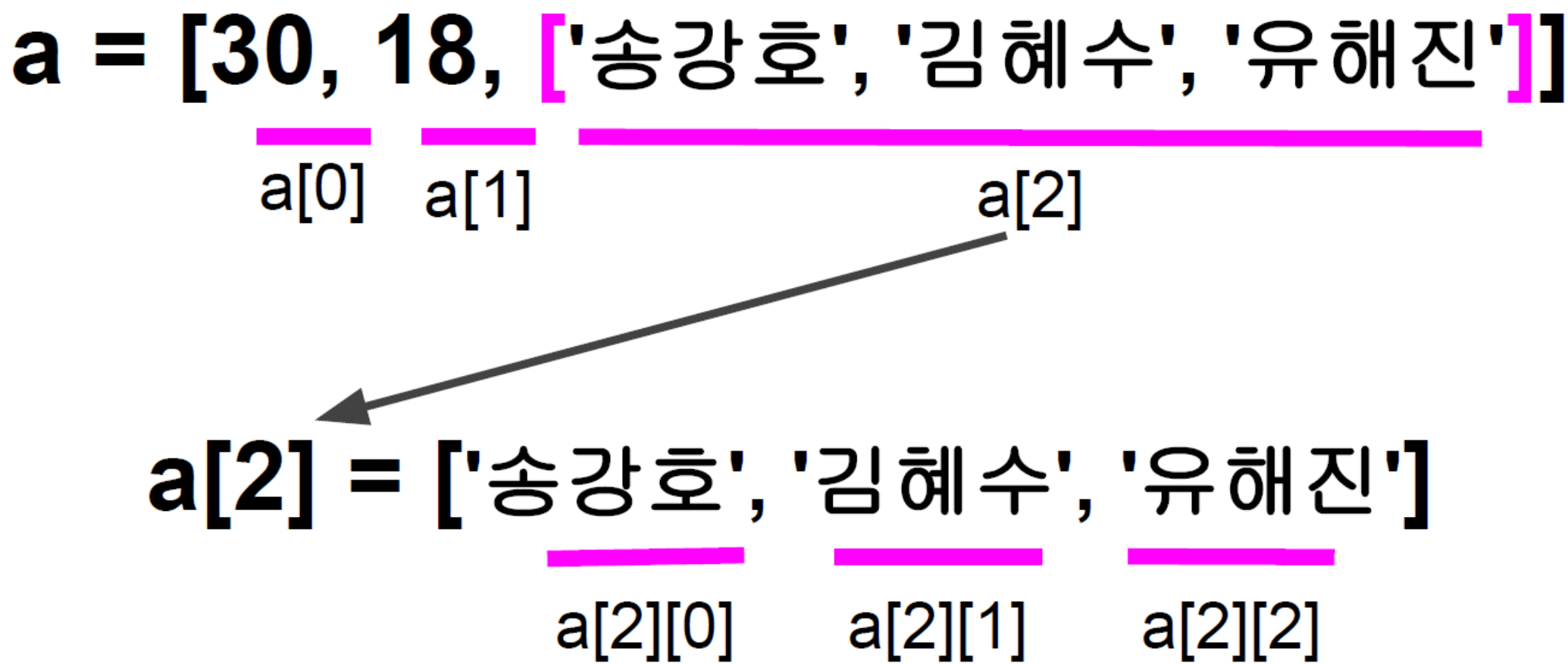
Indexing of list

```
>>> a = [30, 18, ['송강호', '김혜수', '유해진']]
>>> a[2]
['송강호', '김혜수', '유해진']
>>> a[-1]
['송강호', '김혜수', '유해진']
```

How to index '김혜수' ?

```
>>> a[2][1]
'김혜수'
```

Indexing of list



Indexing of list

```
>>> a[2][1]
'김혜수'
```

How to index '김' ?

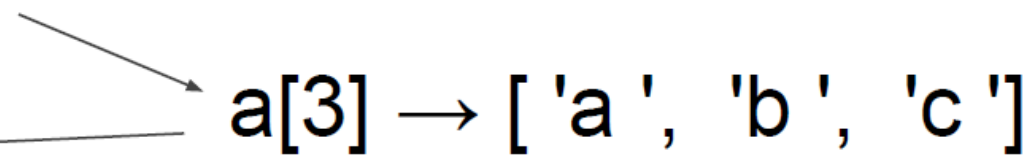
```
>>> a[2][1][0]
'김'
```

Slicing of list

```
>>> a = [9, 8, 7, 6, 5]
>>> a[0:2]
[9, 8]
>>> a[:2]
[9, 8]
>>> a[2:]
[7, 6, 5]
```

Slicing of list

```
>>> a = [9, 8, 7, [ 'a ',  'b ',  'c '], 6, 5]
>>> a[2:5]
[7, [ 'a ',  'b ',  'c '], 6]
>>> a[2:5][1]
[ 'a ',  'b ',  'c ']
>>> a[3][:2]
[ 'a ',  'b ']
```



List operators

Concatenate

Repeat

Concatenate list

```
>>> a = [1, 2, 3]
>>> b = [4, 5, 6]
>>> a+b
[1, 2, 3, 4, 5, 6]
```

Concatenate list

```
>>> a = ['My', 'age', 'is', 30, 18]
```

>>> a[0]+a[3] → Concatenate 'My' (**String**) & 30 (**Number**)

```
Traceback (most recent call last):
        File "<pyshell#83>", line 1, in <module>
            a[0]+a[3]
TypeError: Can't convert 'int' object to str implicitly
```

Concatenate list

```
>>> a = ['My', 'age', 'is', 30, 18]
>>> a[0]+str(a[3])
'My30'
```

str() function converts number(integer or floating point) to string.

Repeat list

```
>>> a = [1, 2, 3]
>>> a*3
[1, 2, 3, 1, 2, 3, 1, 2, 3]
```

Modify an item of list

```
>>> a = ['유재석', '박명수', '정준하', '정형돈', '노홍철', '하하']
>>> a[3] = '양세형'
>>> a
['유재석', '박명수', '정준하', '양세형', '노홍철', '하하']
>>> a[3:5] = ['조세호', '길', '전진']
>>> a
['유재석', '박명수', '정준하', '조세호', '길', '전진', '하하']
```

Remove items from list

```
>>> a = ['유재석', '박명수', '정준하', '정형돈', '노홍철', '하하']
>>> a[3:5] = []
>>> a
['유재석', '박명수', '정준하', '하하']
>>> a = ['유재석', '박명수', '정준하', '정형돈', '노홍철', '하하']
>>> a.remove('정형돈')
>>> a.remove('노홍철')
>>> a
['유재석', '박명수', '정준하', '하하']
```

List functions

```
a = [1, 2, 3]
```

`a.append(4)`	Append an item. (Append 4 at the end of list)
`a.sort()`	Sort items.
`a.reverse()`	Show the items in the reverse order.
`a.index(3)`	Find the index of first 3 in string. Error if not found.
`a.insert(1, 4)`	Insert 4 at the index 1.
`a.remove(3)`	Remove first item with value 3.
`a.pop()`	Return last item and delete it from list.
`a.count(2)`	Count the number of occurrence of 2 in list.
`a.extend([4, 5, 6])`	Add the list to a.

Assignment7

- Deadline : November 25th
- Upload to portal – Assignment – "Assignment7"
- Upload File Name : assignment7_student ID_name.py (python file) **&** **Capture result photos**
  - ex : assignment7_2017200966_조수필.py
- If you complete the assignment in class, ask the assistant for confirmation.