KEY_Lesson06_2D_Lists

September 17, 2019

1   2D Lists

Remember: - Lists can be used to group different values together - it's just a collection of things.
- You can make a list in Python by putting different things in a box of brackets [] separated by commas:

Guess what? You can also make *lists of lists*!! These are called 2D lists in Python.

You can make a 2D list like this:

```python
[1]: # list number 1
     fruit = ['apple', 'banana', 'grape', 'mango']

     # list number 2
     veggies = ['lettuce','carrot','cucumber','beet']

     # create 2D list
     food = [fruit, veggies]

     # print 2D list
     print(food)
```

```
[['apple', 'banana', 'grape', 'mango'], ['lettuce', 'carrot', 'cucumber',
'beet']]
```

What data type is food?

```python
[2]: print(type(food))
```

```
<class 'list'>
```

What is the length of your list?

```python
[3]: # print length of food
     print(len(food))
```

```
2
```

Is this what you expected? Since `food` is a list that contains two list objects, the length of `food` is 2.

```
[4]: # add another list to food with meat
     food.append(['chicken','beef','fish','pork'])

     # print food
     print(food)
```

[['apple', 'banana', 'grape', 'mango'], ['lettuce', 'carrot', 'cucumber', 'beet'], ['chicken', 'beef', 'fish', 'pork']]

What is the length of food now?

```
[5]: print(len(food))
```

3

Make a variable called double_food that contains the food list twice. Print out double_food.

```
[6]: # create double_food that contains food twice
     double_food = food + food

     # print double_food
     print(double_food)
```

[['apple', 'banana', 'grape', 'mango'], ['lettuce', 'carrot', 'cucumber', 'beet'], ['chicken', 'beef', 'fish', 'pork'], ['apple', 'banana', 'grape', 'mango'], ['lettuce', 'carrot', 'cucumber', 'beet'], ['chicken', 'beef', 'fish', 'pork']]

What is the length of double_food? Is this what you expected?

```
[7]: print(len(double_food))
```

6

You can also make 2D lists without assigning variables first:

```
[8]: # create a 2D list of numbers
     numbers = [[1,2,3,4],[1,2,3],[1,2]]

     # print 2D list of numbers
     print(numbers)
```

[[1, 2, 3, 4], [1, 2, 3], [1, 2]]

What is the length of numbers?

```
[9]: # print length of numbers
     print(len(numbers))
```

3

What happens if you add the food and numbers together?

```
[10]: print(food + numbers)
```

[['apple', 'banana', 'grape', 'mango'], ['lettuce', 'carrot', 'cucumber', 'beet'], ['chicken', 'beef', 'fish', 'pork'], [1, 2, 3, 4], [1, 2, 3], [1, 2]]

Nice job! You just learned how to make 2D lists in Python!