Numpy

- description : numpy
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Numpy

Google_Colab

```python
1  import numpy as np
```

```python
1  data = [[1,2,3],[4,5,6],[7,8,9]]
2
3  for i in range(len(data)):
4      for j in range(len(data[0])):
5          data[i][j] *= 2
6  data
```

```
[[2, 4, 6], [8, 10, 12], [14, 16, 18]]
```

```python
1  # data = [[1,2,3],[4,5,6],[7,8,9]]
2  for i in range(len(data)):
3      for j in range(len(data[0])):
4          data[i][j] *= 2
5  data+data
6  # 더해지지 않고 이어 붙여진다.
```

```
[[4, 8, 12],
 [16, 20, 24],
 [28, 32, 36],
 [4, 8, 12],
 [16, 20, 24],
 [28, 32, 36]]
```

```python
1  data = [[1,2,3],[4,5,6],[7,8,9]]
2  dataTwo = [[1,1,1],[2,2,2],[3,3,3]]
3
4  # 행렬과 스칼라의 곱
5  for i in range(len(data)):
6      for j in range(len(data[0])):
7          data[i][j] *= 2
8  print(data)
9
10 # 행렬끼리 덧셈
11 for i in range(len(data)):
12     for j in range(len(data[0])):
13         data[i][j] += dataTwo[i][j]
14
15 print(data)
```

```
[[2, 4, 6], [8, 10, 12], [14, 16, 18]]
[[3, 5, 7], [10, 12, 14], [17, 19, 21]]
```

```python
1  # data = [[1,2,3],[4,5,6],[7,8,9]]
2  # dataTwo = [[1,1,1],[2,2,2],[3,3,3]]
3
4  # array 선언
5  a = np.array(data)
6  b = np.array(dataTwo)
7
8  print(a)
9  print()
10 print(b)
11
12
```

```
[[ 3  5  7]
 [10 12 14]
 [17 19 21]]

[[1 1 1]
 [2 2 2]
 [3 3 3]]
```

```python
1  # a
2  # [[ 1,  2,  3],
3  #  [ 4,  5,  6],
4  #  [ 7,  8,  9]]
5  a * 2
```

```
array([[ 6, 10, 14],
       [20, 24, 28],
       [34, 38, 42]])
```

```python
1  # a
2  # [[ 1,  2,  3],
3  #  [ 4,  5,  6],
4  #  [ 7,  8,  9]]
5
6  a + a
```

```
array([[ 6, 10, 14],
       [20, 24, 28],
       [34, 38, 42]])
```

```python
1  # a
2  # [[ 1,  2,  3],
3  #  [ 4,  5,  6],
4  #  [ 7,  8,  9]]
5
6  # b
7  # [[ 1,  1,  1],
8  #  [ 2,  2,  2],
9  #  [ 3,  3,  3]]
10 a * b
```

```
array([[ 3,  5,  7],
       [20, 24, 28],
       [51, 57, 63]])
```

```python
1  # a
2  # [[ 1,  2,  3],
3  #  [ 4,  5,  6],
4  #  [ 7,  8,  9]]
5
6  # b
7  # [[ 1,  1,  1],
8  #  [ 2,  2,  2],
9  #  [ 3,  3,  3]]
10 np.dot(a, b)
```

```
array([[ 34,  34,  34],
       [ 76,  76,  76],
       [118, 118, 118]])
```

Tip

, numpy