

# 4강. Numpy



# 1. Numpy

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❖ **Numpy : 수학, 과학 계산을 위한 패키지**



# 1. Numpy

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❖ `import numpy as np`

## 2. array (배열)

❖ array (배열): 여러 값들의 그룹

1	2	3	4
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1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

## 2. array (배열)

1	2	3	4
---	---	---	---

1차원 배열

```
numpy.array([1, 2, 3, 4])
```

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

2차원 배열

```
numpy.array([1, 2, 3, 4],  
            [5, 6, 7, 8],  
            [9, 10, 11, 12],  
            [13, 14, 15, 16]))
```



## 3. ndarray

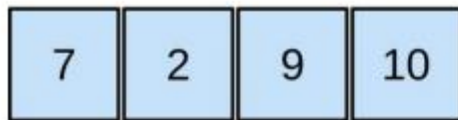
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❖ **ndarray**

❖ **n dimension array**

### 3. ndarray

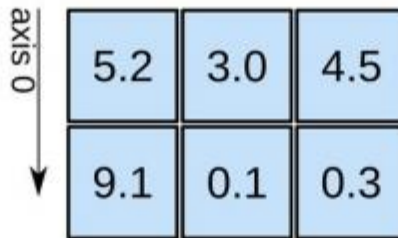
1D array



axis 0 →

shape: (4,)

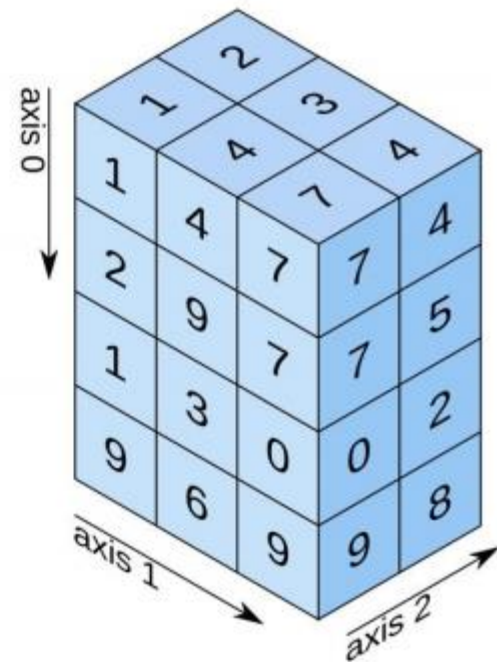
2D array



axis 1 →

shape: (2, 3)

3D array



shape: (4, 3, 2)



## 4. shape

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ndarray에서  
**shape**과 **axis** 개념은 반드시 알고  
넘어가세요





## 4. shape

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shape  
(차원)

## 4. shape

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shape은 차원의 수를 확인

$(3, ) \Rightarrow 3 \times 1$ 의 배열

$(4, 3) \Rightarrow 4 \times 3$ 의 배열

$(2, 5, 3) \Rightarrow 2 \times 5 \times 3$ 의 배열



## 4. shape

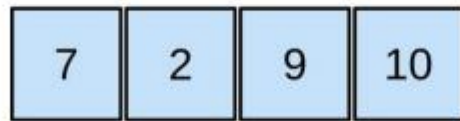
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axis는 기준이 되는  
축

## 5. shape & axis

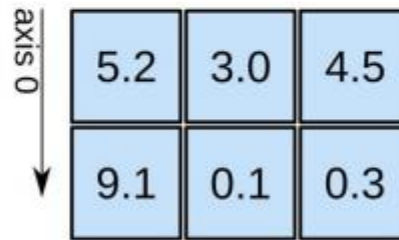
axis는 앞에서부터 0, 1, 2...

1D array



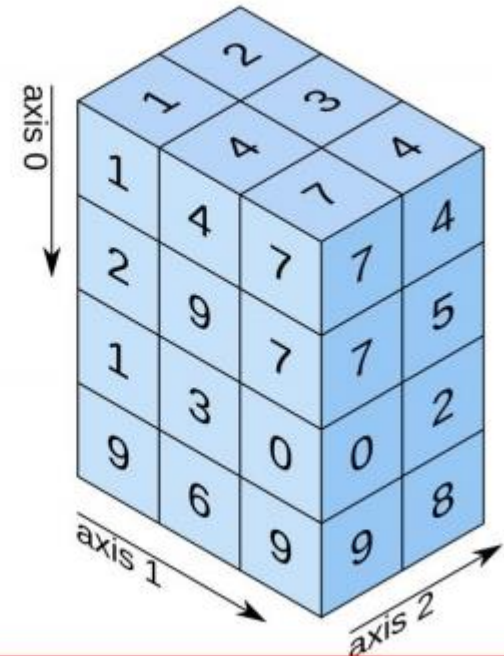
shape: (4,)

2D array



shape: (2, 3)

3D array



shape: (4, 3, 2)