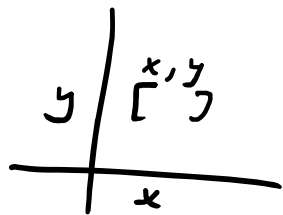


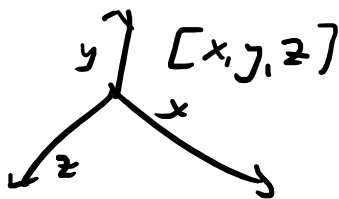
→ DATA

$[ ]$  - Dimension (1-D) ~ Scalar  $[ ]$



- 2-D ~ Arrays

$[ [ ] [ ] [ ] [ ] ]$



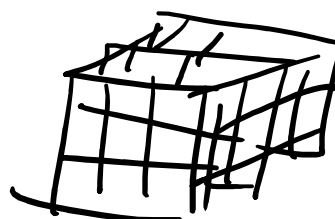
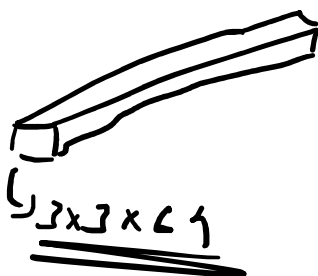
- 3-D ~ Matrices

$[ [ [ ] [ ] [ ] ] [ ] [ ] [ ] ] [ ] [ ] [ ] ]$

	0	1	2
0	(0,0)	(0,1)	(0,2)
1	(1,0)	(1,1)	(1,2)
2	(2,0)	(2,1)	(2,2)

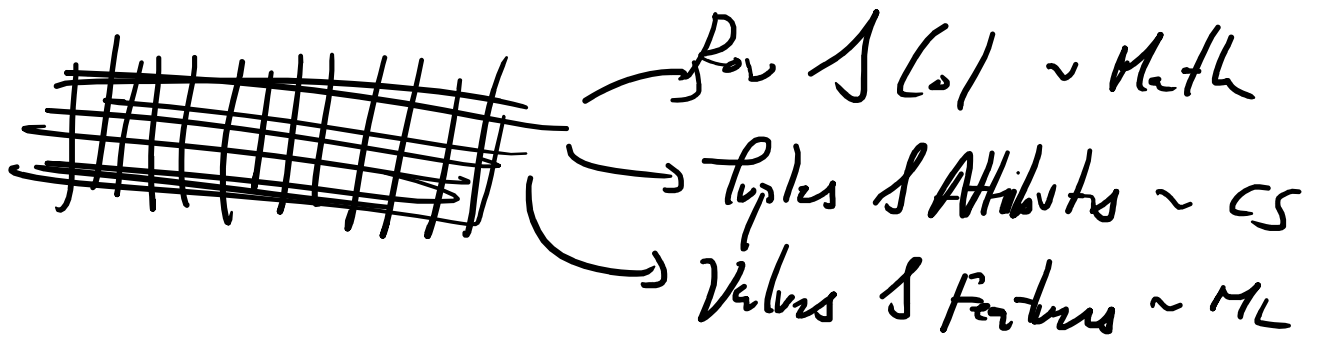


- N-D ~ Tensor



⇒ Structured Data

⇒ Follows RDBMS



⇒ 2 ways to handle Arrays

↳ Pandas

↳ NumPy

⇒ Concent Principle

$$\begin{array}{c} \left[ \right]_{\substack{2 \times 2 \\ m \times n}} \times \left[ \right]_{\substack{2 \times 3 \\ n \times L}} = \underline{\underline{2 \times 3}} \\ = m \times L \end{array}$$

⇒ 2-D  $\left[ \right]_{1 \times 20}$

$$- \quad \rightarrow \quad \begin{matrix} \text{L} \\ \text{[} \end{matrix} \quad \begin{matrix} \text{]} \\ \text{] } \end{matrix} \quad \begin{matrix} \text{1x20} \\ \text{1x20} \end{matrix}$$

$\Rightarrow$  Reshaping Principle

$$\text{[} \quad \text{]} = 7 \times 2$$

$$\swarrow \quad \searrow$$

$$n = 4 \times 2 \quad \checkmark$$

$$\text{[} \quad \text{]} = 7 \times 2$$

$$\text{Reshaped Matrix} = \underline{5 \times 2}$$