

Vectors:

List of numbers

$(1.7, 2.6, 8.9, -\pi)$

$$x = \begin{pmatrix} 1.7 \\ 2.6 \\ 8.9 \\ -\pi \end{pmatrix}$$

# of entries "length" or "dimension"

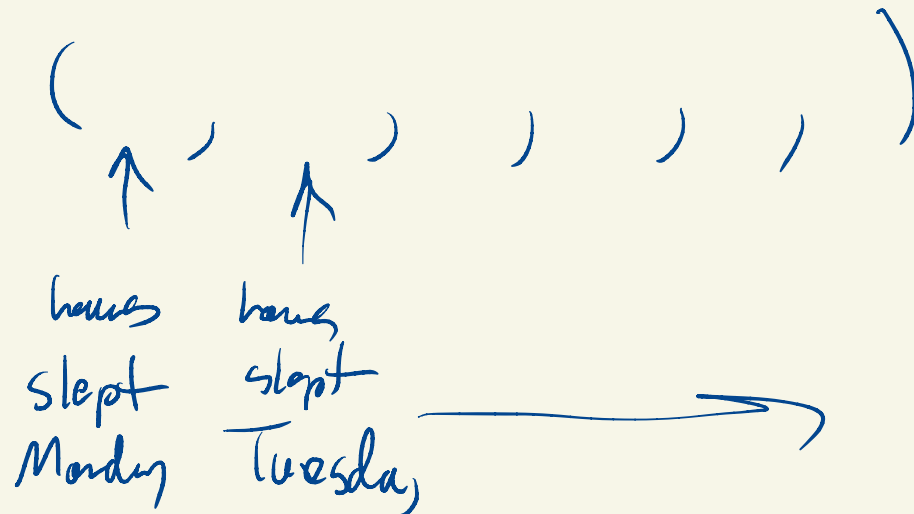
$\mathbb{R}^4$  all vectors of length 4

$\mathbb{R}^1$  regular numbers  $\mathbb{R}$

$$x_3 = 8.9, \quad x_4 = -\pi$$

Examples:

Time series

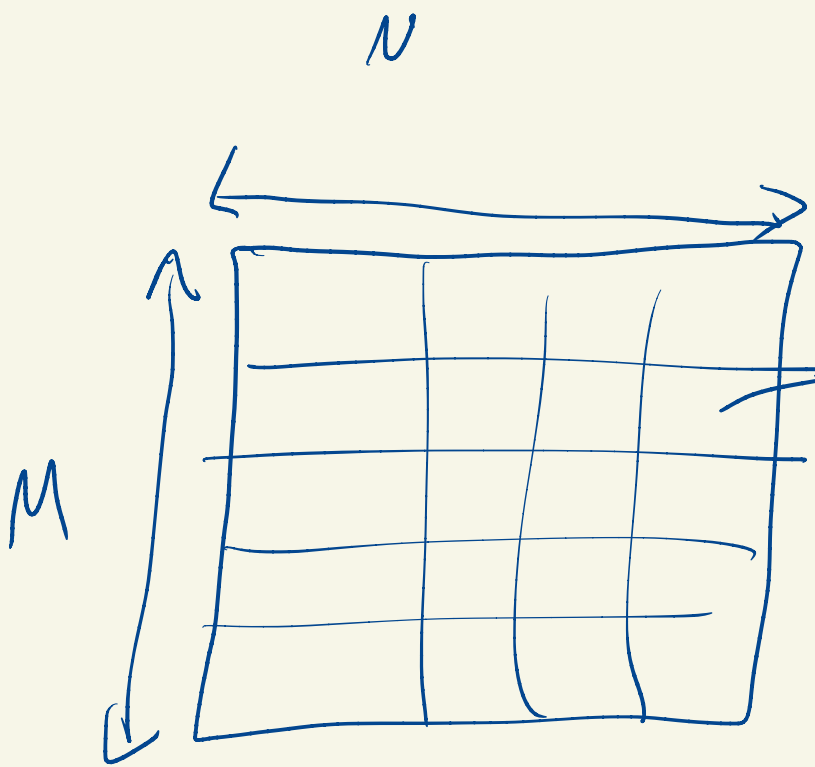


Portfolio

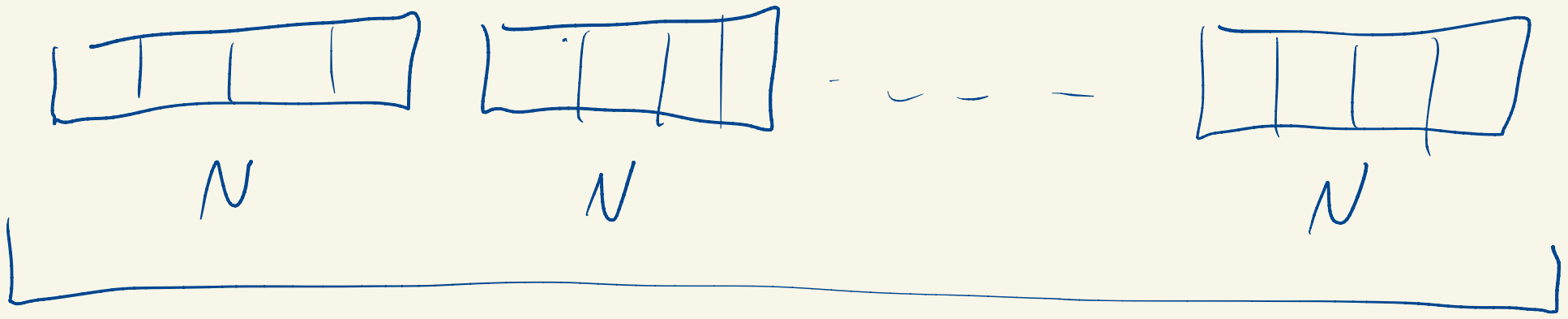
assets

# of shares of	GOOG
# of shares of	AMZN
# - - - -	APPL
# - - - -	MSFT

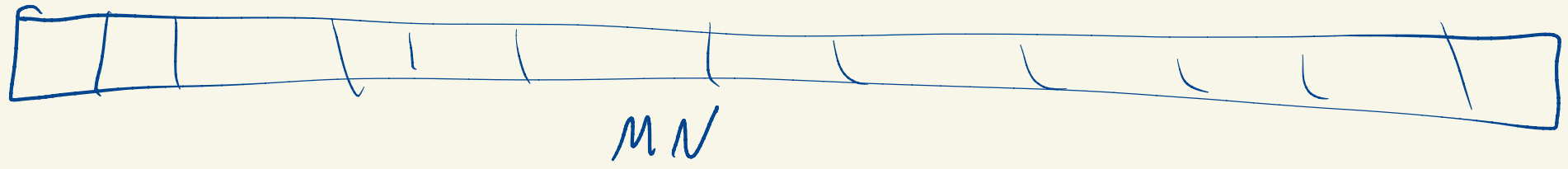
Images



$0 \leq \cdot \leq 1$   
↑                    ↑  
black                white



M



red  
green  
blue

$$\begin{bmatrix} r \\ g \\ b \end{bmatrix}$$

$$\begin{aligned} 0 \leq r \leq 1 \\ \vdots \\ 0 \leq b \leq 1 \end{aligned}$$

$$0 \leq r \leq 255$$