

"Hello Everyone!"

Lists - 2D

lists \rightarrow 1D \rightarrow Dimensions
2D

2D lists

\rightarrow lists in Python are

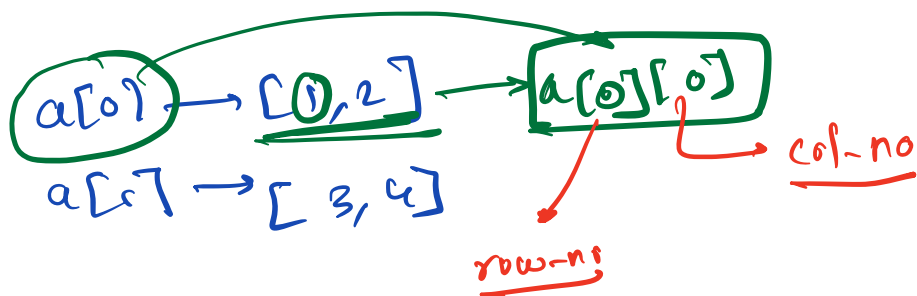
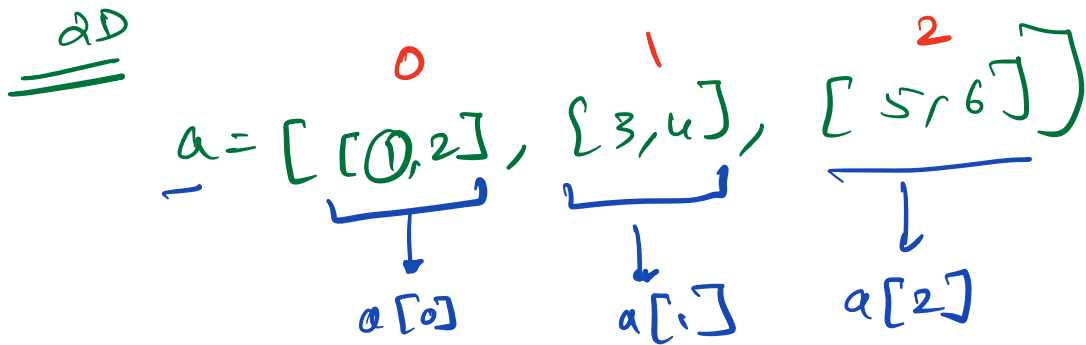
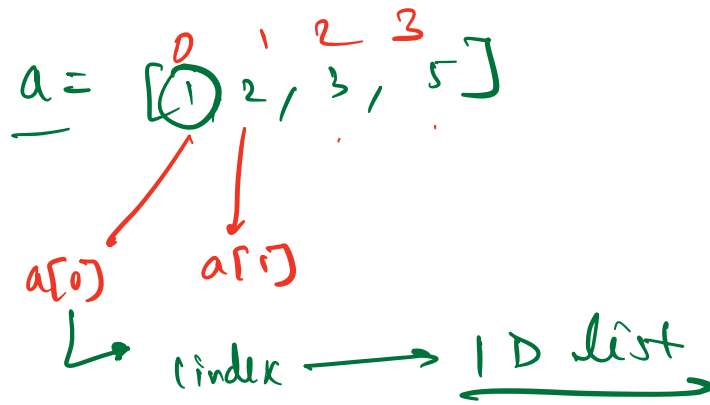
Heterogeneous \leftrightarrow diff datatypes

$a = [4, 3, 7]$

$[]$

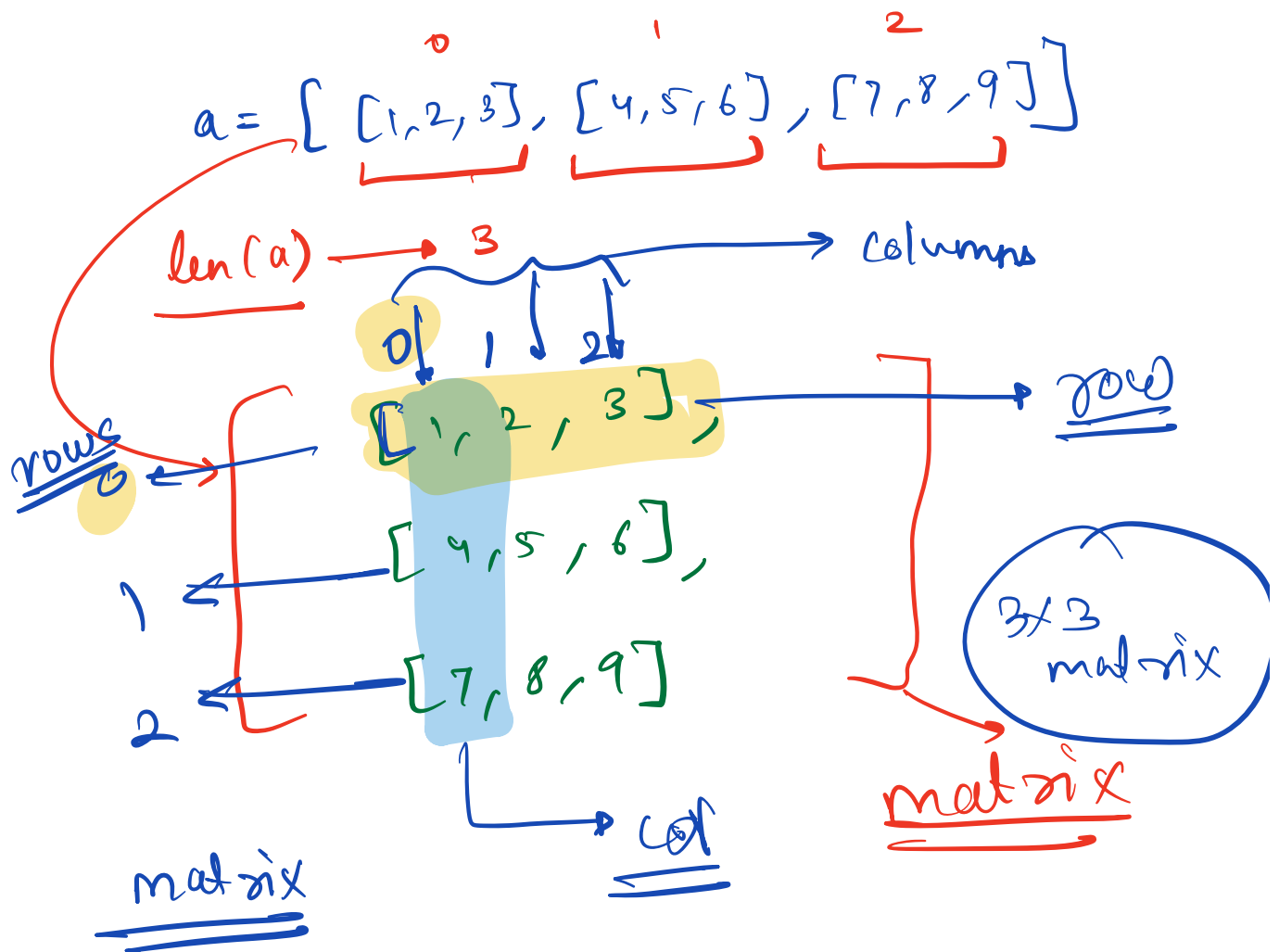
$a = [4, 5, [1, 2, 3]]$

nested list



2D

* Representation of a 2D list



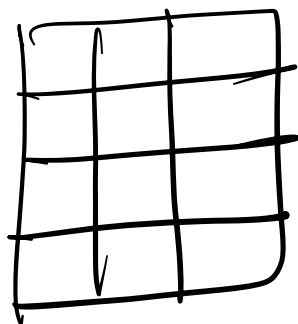
2D lists $\rightarrow a = [[4], [5], [6, 7]]$

row x col

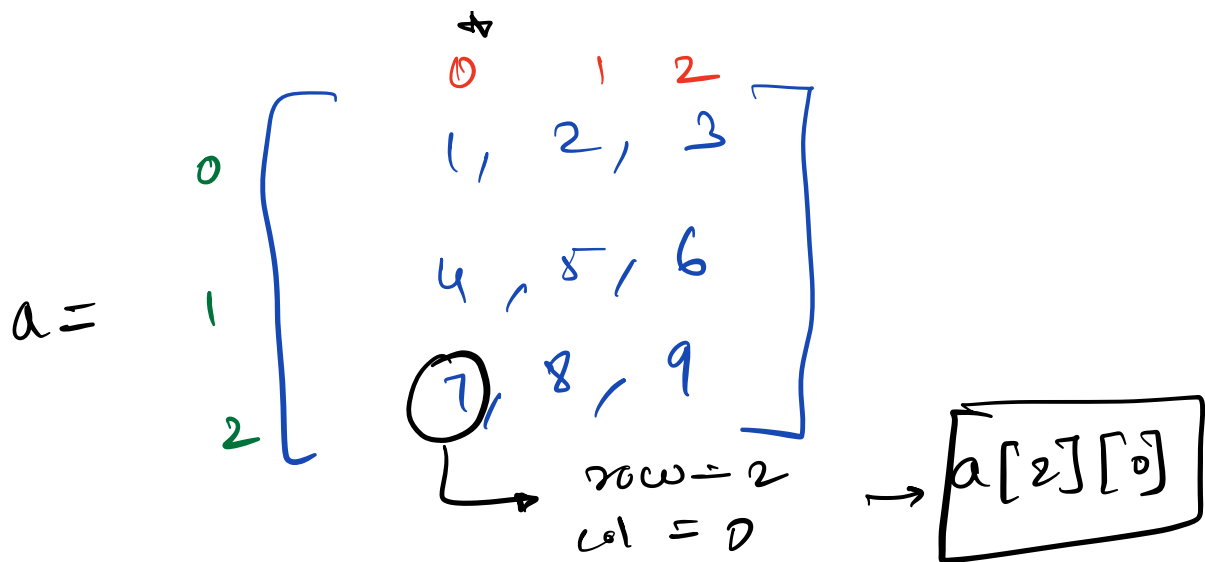
rows $\rightarrow 3$

cols $\rightarrow 3$

matrix



- ① Sudoku
- ② chess board
- ③ Excel sheet



$a[\text{row}][\text{col}]$ \rightarrow accessing a particular element

$a[1][2] \rightarrow$ 6

$a = \begin{bmatrix} \begin{matrix} 0 & 1 & 2 & 3 \\ [1, 2, 3, 4] \end{matrix} \\ \begin{matrix} [5, 6, 7, 8] \end{matrix} \end{bmatrix}$

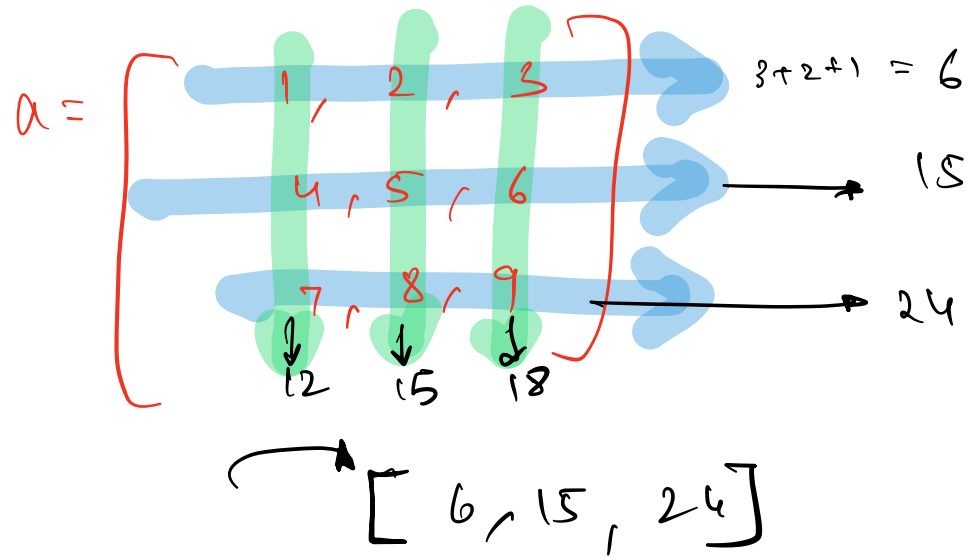
$R \rightarrow 2$
 $C \rightarrow 4$
 2×4 matrix

$a[0] \rightarrow [1, 2, 3, 4]$

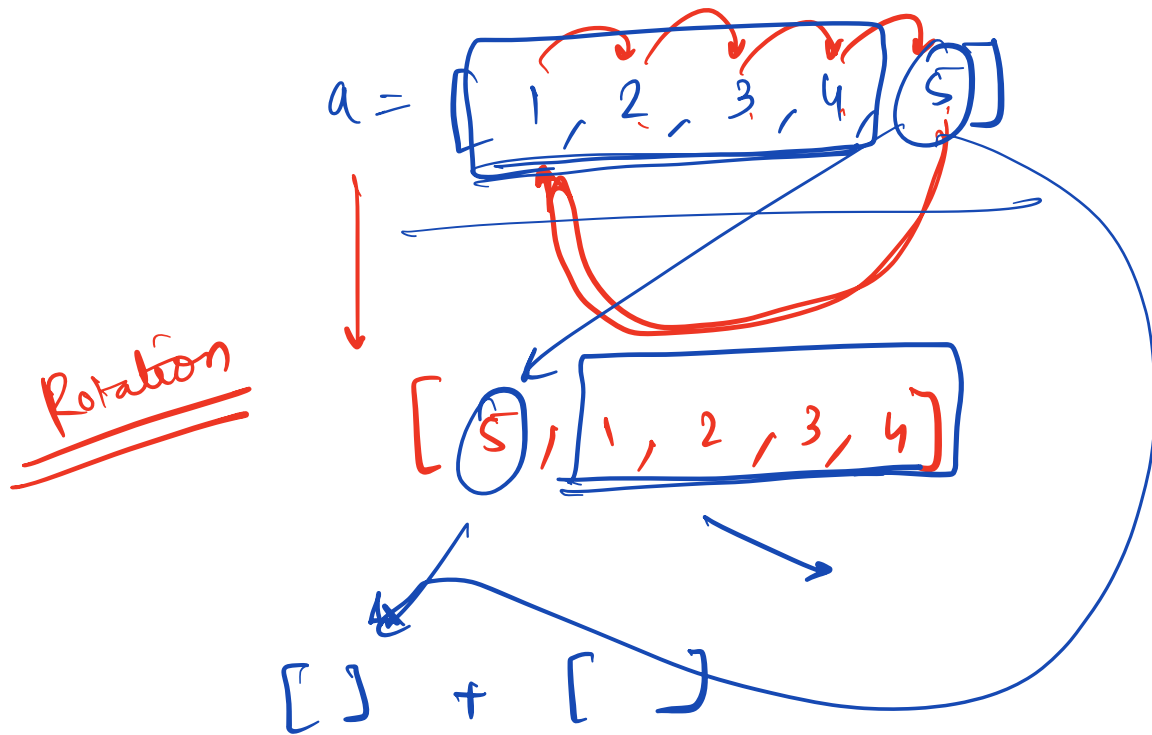
$\text{len}(a) \rightarrow 2 \rightarrow \# \text{ rows}$
 $\text{len}(a[0]) \rightarrow 4 \rightarrow \# \text{ cols}$

$\# \text{ cols} \rightarrow \text{no. of elements in each row.}$

Row-wise / Column-wise sum



Rotate by 1 elem



$$a[-1] + a[:-1]$$

$$a[-1] + a[: \text{len}(a) - 1]$$