

$$\forall a \in \{ \dots \}$$

Substitution

$$M_1 = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

$$M_2 = \begin{bmatrix} 10 & 20 \\ 30 & 40 \end{bmatrix}$$

$$M_1 + M_2 = \begin{bmatrix} 11 & 22 \\ 33 & 44 \end{bmatrix}$$

Row major  
✓

$$M_1 = [ [1, 2], [3, 4] ]$$

$$M_2 = [ [10, 20], [30, 40] ]$$

Column major

$$M_1 = [ [1, 3], [2, 4] ]$$

$$M_2 = [ [10, 30], [20, 40] ]$$

# DICTIONARY

	<u>KEY</u>		<u>VALUE</u>	
Vegetables.	Batata	→	30	Range.
	Kaanda	→	80	
	Bhindi	→	90	
Domain	:		:	
<u>Rate Card</u>	:		:	

<u>Idli Sambar</u>	→	35
<u>Masala Dosa</u>	→	45
:		:

Grocery List	:	:
Batata	→	1kg
Kaanda	→	2kg
Bhindi	→	0.5kg -

Dictionaries allow efficient data retrieval.

`library["Premchand"]`  
`library["Dickens"]` } Both operations take approx. the same time to

execute.

$[ (\text{author}_1, \dots), (\text{author}_2, \dots) \dots ]$  exclude.

$\uparrow$

Average time to assess the books of a author

$O$  length of the library list

How? - Hashing / Hash Table.

# Data Types in our Arsenal

Int

Float

String

Boolean

List

Tuples

Dictionary.

# TUPLES

## ✓ LISTs —

- Sequences of elements.
- Variable length
- ★ Roll number

## TUPLES

- Sequences - elements.
- Fixed length
- Immutable elements

Why tuple?

What can you do with a house,  
with locked doors that you can't  
do with a house without doors?

— NOTHING! ✓

Stealing  
Vandalisation