Day-3 Tensor

A tensor is a mathematical object that generalises scalars, vectors, and matrices to higher dimensions

1) Scalar (0-D Tensor): A single number.

- Example: x=5
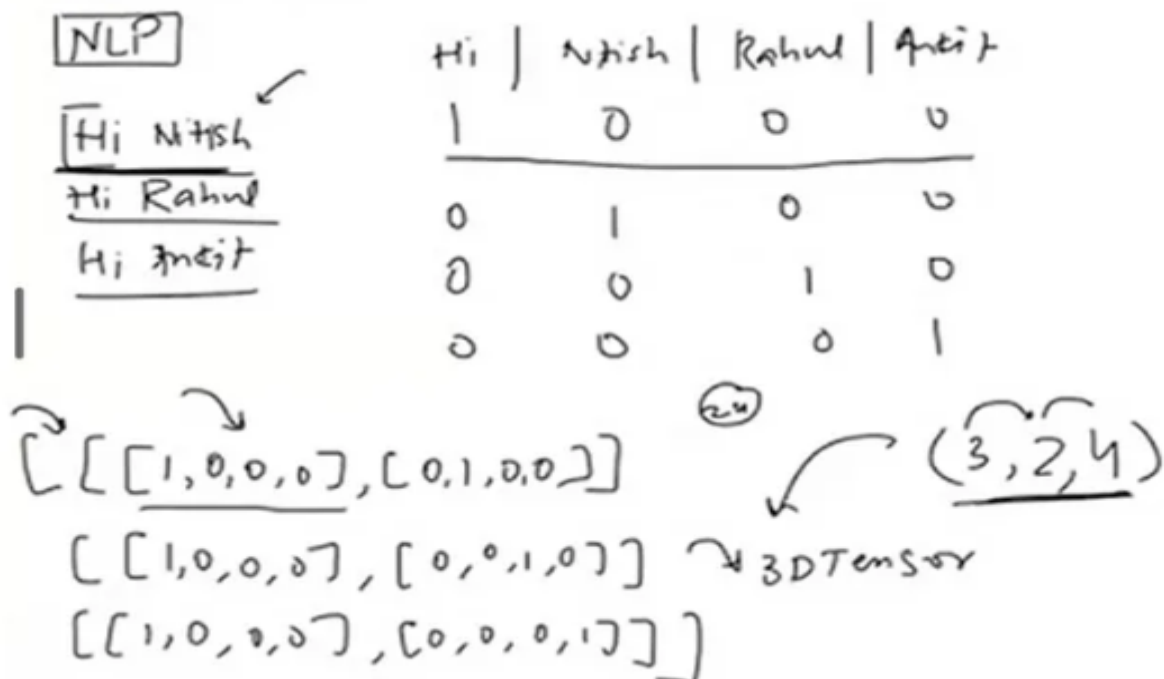
2) Vector (1-D Tensor): An array of numbers.

- Example: v=[1,2,3]

3) Matrix (2-D Tensor): A 2D array of numbers.

- Example: M=[[1 2 3]

      [4 5 6]]

4) 3D tensor: textual data is stored as 3D tensor

Eg. Hi Anuj,
    Hi Amit,
    Hi Ravi

Hi	Anuj	Amit	Ravi
1	0	0	0
0	1	0	0
0	0	1	0
0	0	0	1

Hi Anuj - [[1,0,0,0] , [0,1,0,0,]]
Hi Amit- [[1,0,0,0] , [0,0,1,0,]]
Hi Ravi- [[1,0,0,0] , [0,0,0,1]]

[
** [[1,0,0,0] , [0,1,0,0,]]**
** [[1,0,0,0] , [0,0,1,0,]]**
** [[1,0,0,0] , [0,0,0,1]]**
]

5) 4D tensor:
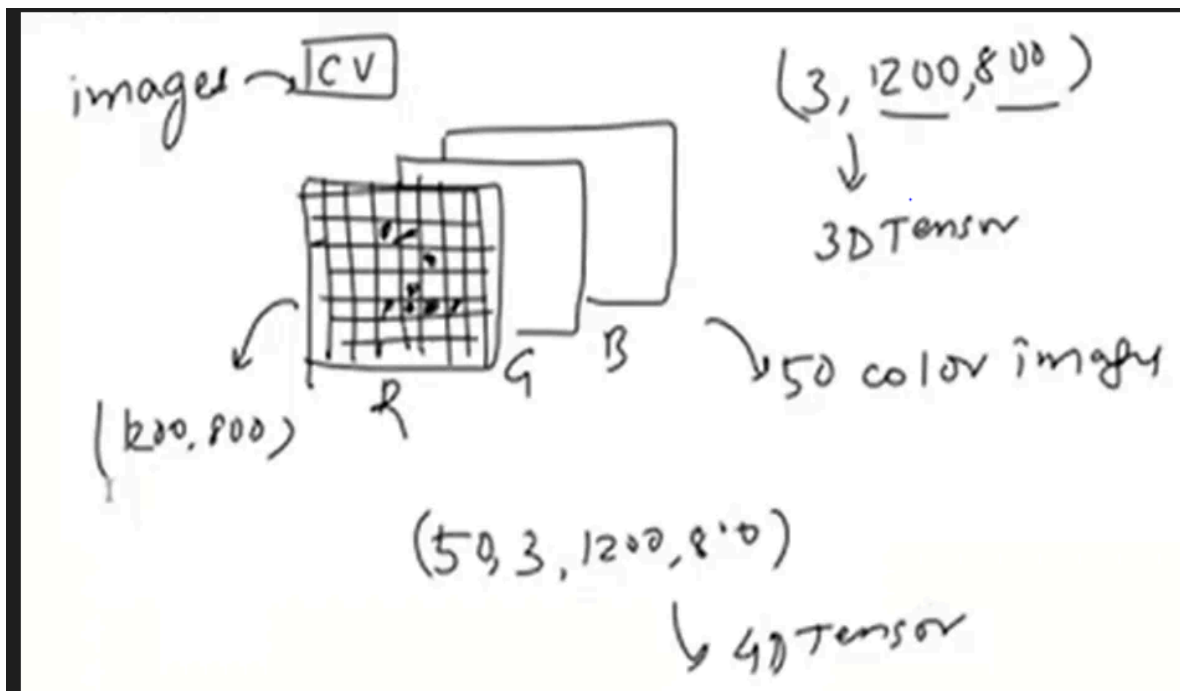
image(50,3,1200,800) → 50 combination of 3D frames,
                       3 frames of 2D(1200,800)

6) 5D tensor:
 Eg. Videos → which is collection of images