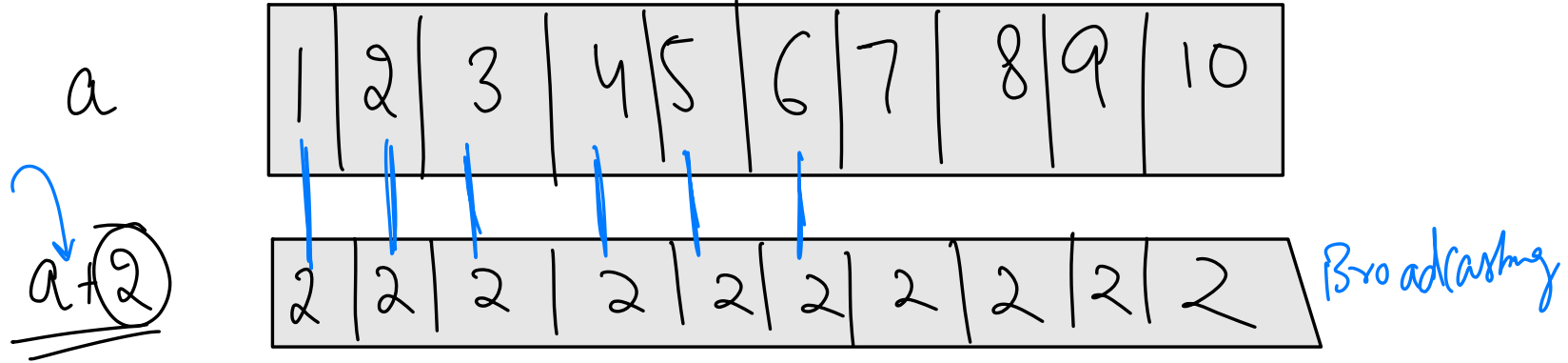


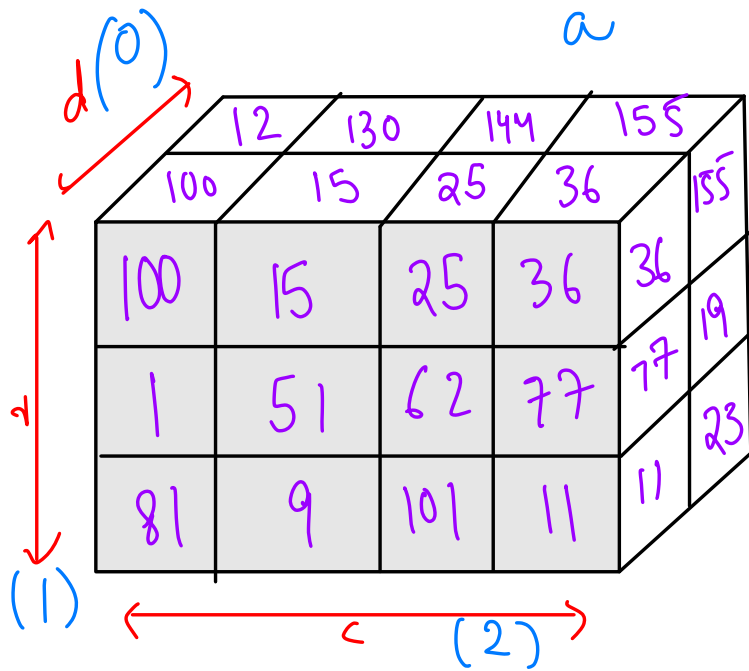
np.add → Vectorization



Vectorization  
Broadcasting

3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	----	----	----

a < 2



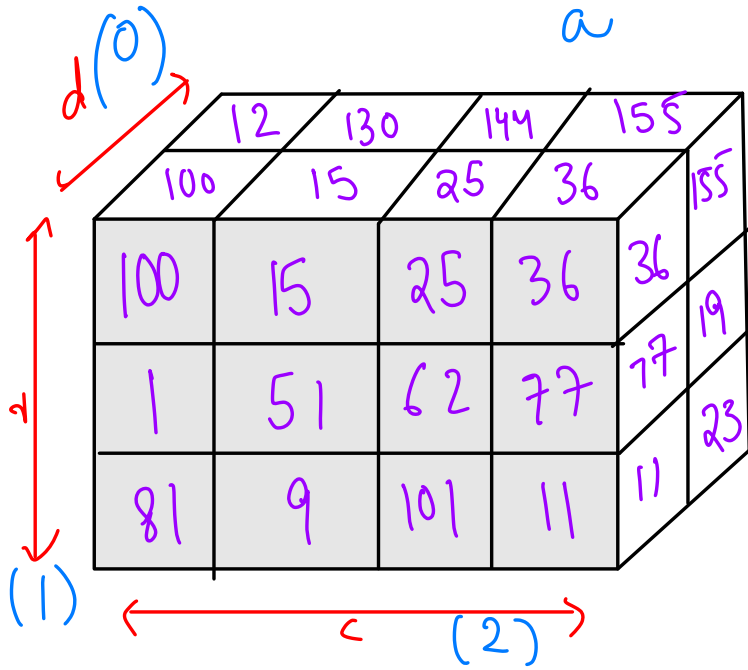
```
array([[[100, 15, 25, 36],
        [ 1, 51, 62, 77],
        [ 81, 9, 101, 11]],
```

```
      [[ 12, 130, 144, 155],
        [196, 17, 8, 19],
        [ 2, 21, 225, 23]])])
```

$$\text{shape} = (2, 3, 4) \\ = (\underline{d}, r, c)$$

$a.\text{max}(\text{axis}=0)$

100	130	144	155
196	51	62	77
81	21	225	23

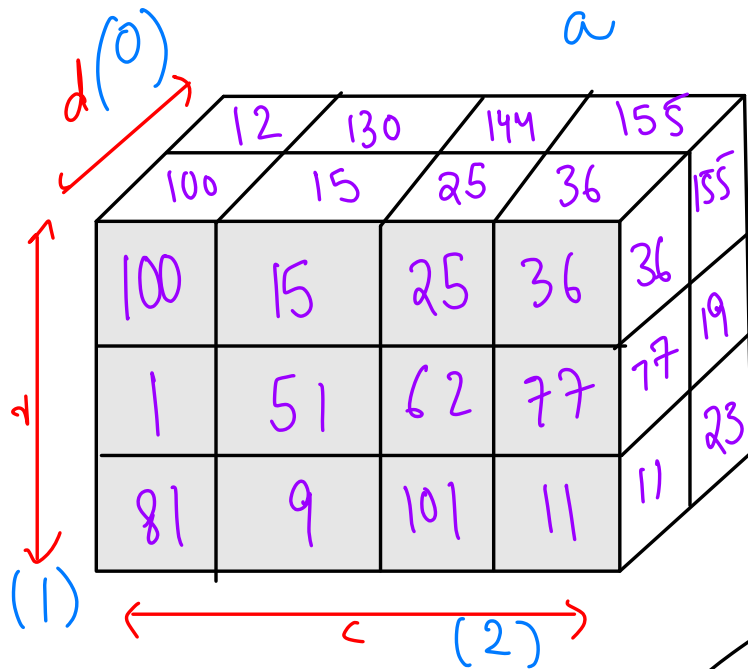


```
array([[[100, 15, 25, 36],
        [ 1, 51, 62, 77],
        [ 81,  9, 101, 11]],

       [[ 12, 130, 144, 155],
        [196, 17,  8, 19],
        [ 2, 21, 225, 23]]])
```

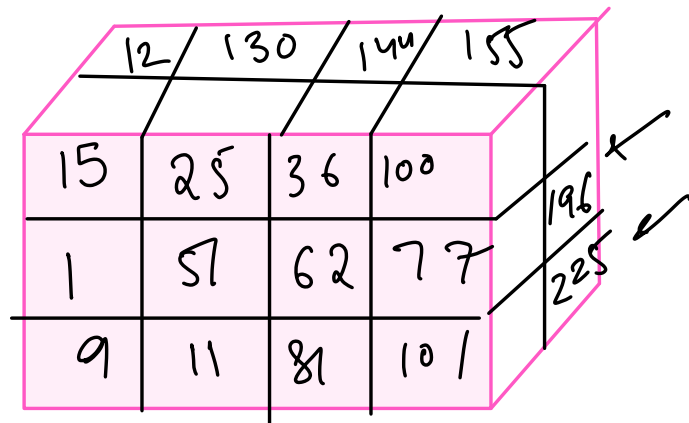
$a.min(axis=1)$

1	9	25	11
2	17	8	19



```
array([[[100, 15, 25, 36],
        [ 1, 51, 62, 77],
        [ 81,  9, 101, 11]],
       [[12, 130, 144, 155],
        [196, 17,  8, 19],
        [ 2, 21, 225, 23]]])
```

$np.sort(a, axis=2)$



```
array([[[15, 25, 36, 100],
        [ 1, 51, 62, 77],
        [ 9, 11, 81, 101]],
       [[12, 130, 144, 155],
        [ 8, 17, 19, 196],
        [ 2, 21, 225, 225]])
```

$[12, 130, 144, 155]$   
 $[8, 17, 19, 196]$   
 $[2, 21, 225, 225]$

Poll results!

**can we extend the class till 11:15**

35 responses from 35 users

