

## Binary in 2D array

\* Sorted rows & cols wise:-

|    |    |    |    |
|----|----|----|----|
| 10 | 20 | 30 | 40 |
| 15 | 25 | 32 | 45 |
| 28 | 28 | 36 | 49 |
| 33 | 35 | 39 | 50 |

If target = 36

Start searching col wise

colEnd = mat.length - 1

① If colEnd > target

⇓  
return col--;

⇒ Because any el. below colEnd will be greater than target

② If colEnd < target

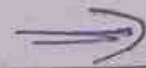
⇓  
return row++;

⇒ Because El before it will be lesser than target too.

③ Else ⇒ return colEnd ⇒ i.e. the target is at index

① target = 36, colEnd = 40  $\Rightarrow$  colEnd > target

|    |    |                 |    |
|----|----|-----------------|----|
| 10 | 20 | 30              | 40 |
| 15 | 25 | 32              | 45 |
| 28 | 28 | 36 <sup>t</sup> | 49 |
| 33 | 35 | 38              | 50 |



|    |    |                 |
|----|----|-----------------|
| 10 | 20 | 30              |
| 15 | 25 | 32              |
| 28 | 28 | 36 <sup>t</sup> |
| 33 | 35 | 38              |

$\Rightarrow$  ② colEnd < target

$\Downarrow$   
row ++;



|    |    |    |
|----|----|----|
| 28 | 28 | 36 |
| 33 | 35 | 38 |



|    |    |    |
|----|----|----|
| 15 | 25 | 32 |
| 28 | 28 | 36 |
| 33 | 35 | 38 |

$\rightarrow$  row ++

colEnd == target, i.e., else case  $\Rightarrow$  return colEnd ka index