HASHING

NEED!!

→ To find how many times a no. repeats in an array.

→ Possible solution- [1, 2, 1, 3, 2]

1 - 2
3 - 1
4 - 0
2 - 2
10 - 0

↳ Here you will take the number and compare with every number in array for a given number

∴ O(5 numbers x (n)) ← no of element in array

O(very large x very large)

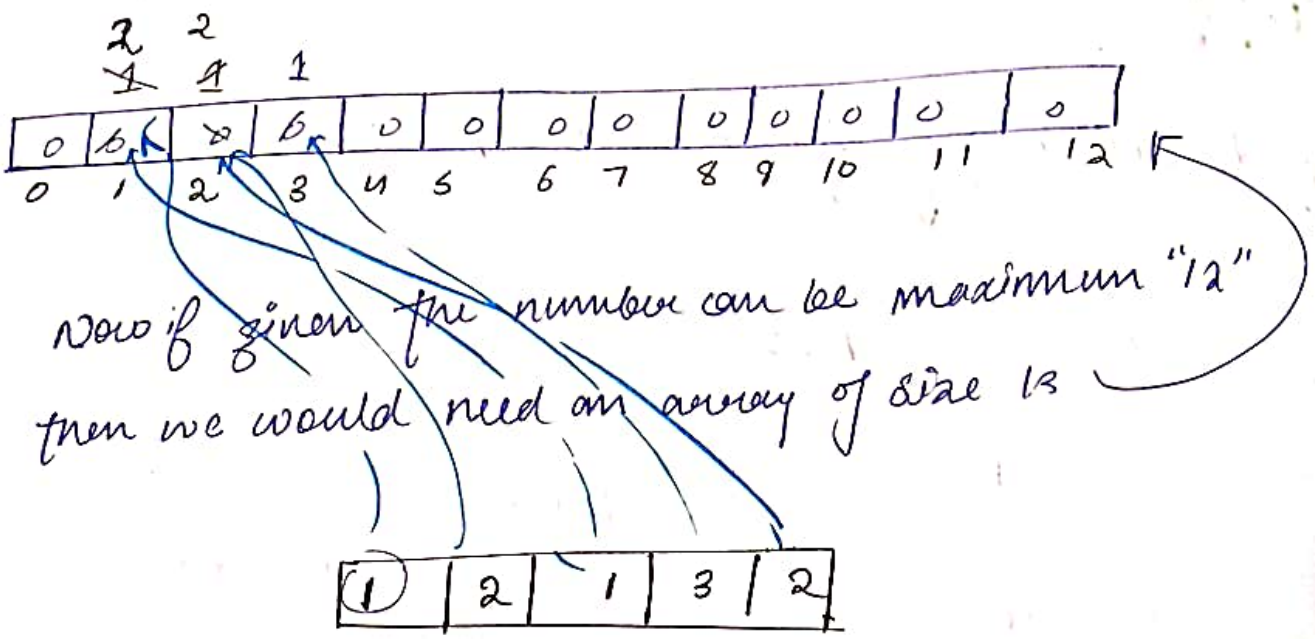
$O(10^5 \times 10^8)$

$O(10^{13})$ ← which is lot

∴ in these scenarios hashing can be used

HASHING –

But if we make an hash array



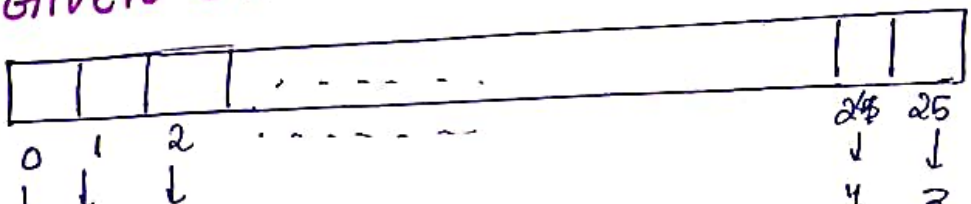
Now if given the number can be maximum "12" then we would need an array of size 13

Now whenever a number will come we will use that no as index for hash array and increase its count

∴ we will only loop once in array and store its frequency in hash array.

(But the array (hash) can be of limited size only)

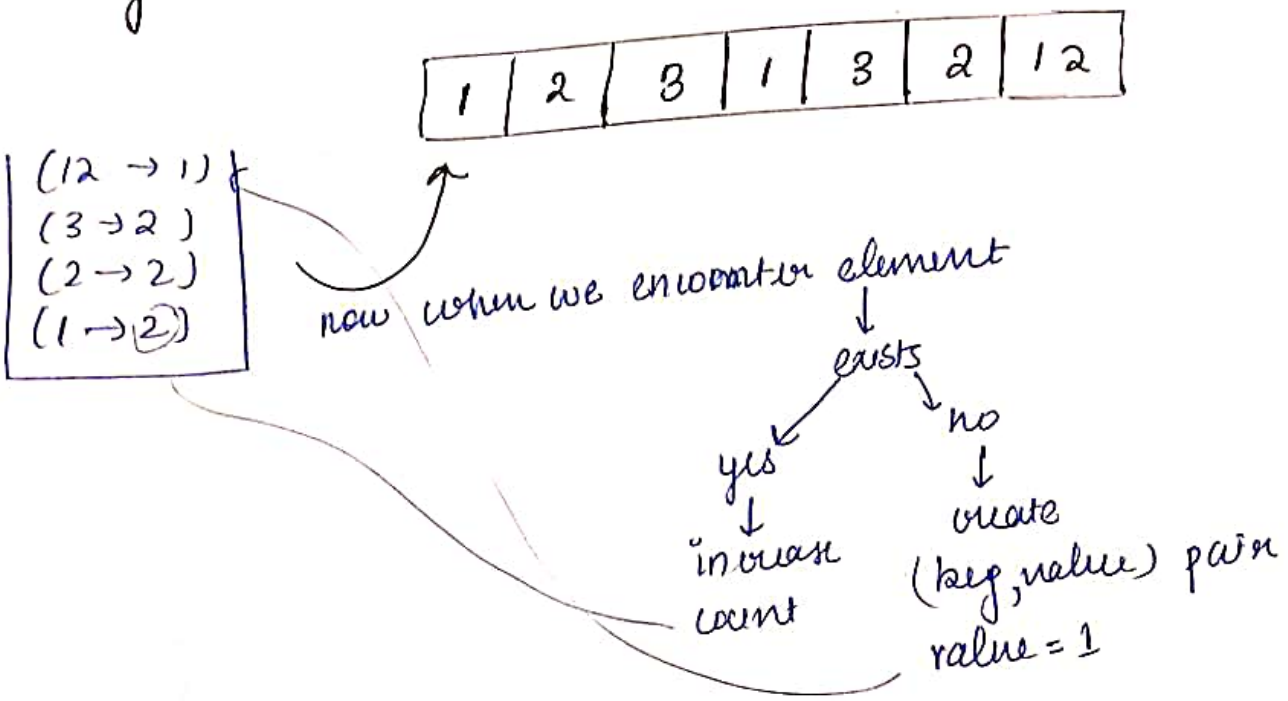
WHEN GIVEN CHAR



↳ index = 'a' - (char in array);

we can use directly 256 as array size as in ASCII chars stores from [0 - 255]

MAP is the solution of problem of limited size of hash array



∴ only storing elements which are in the actual array.

// map stores keys in sorted order.

COMPLEXITY → time