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Day-2

Eg:- [1,2,3,1] **Contains duplicate**

i) Brute force :-

Eg1:- [1,2,3,1]

i=1 Y=2,3,1

(Yes)

Eg: [1,2,3,4,2]

i=1 y=2,3,4,2 (No)

i=2 Y=3,4,2 (Yes)

Time complexity :- O(n2) (nested loop)

Space complexity :- O(1)

condition :- arr[i]== arr[j]

↓

return true

ii) Sorting :- [1,2,3,1]

↓ Sort

Eg1:- [1,1,2,3]

i=1, j=1 (comparing)

Yes

Eg2:- [1,1,1,2,3,5,3]

i=1, j=1

↓ Sort

[1,1,1,2,3,3,5]

Yes

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condition :- loop start from 1 (2nd index / arr[1])

arr[i] == arr[i-1]

↓

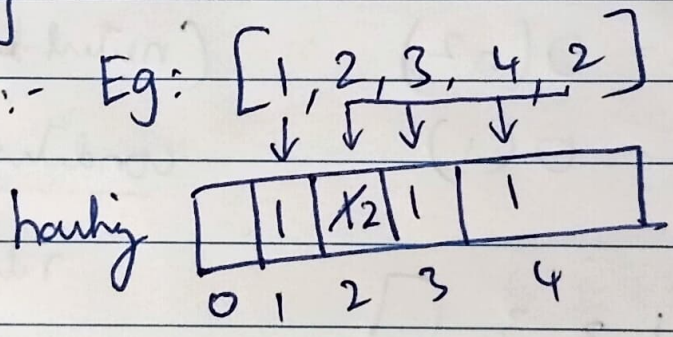
true else → false

Time complexity : nlogn

Space complexity :- O(1).

3. hashing :-

logic :- Eg: [1, 2, 3, 4, 2]



Count the number if the no. is more than one it has duplicate.

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* Create a hash map & init with zeros
* Iterate through each number in array
* Check no. already in ~~map~~ hashmap

⇓ how?

condition :- hashmap[num] > 0 ⟶ true (duplicate exist)

* mark No in hashmp with 1

* If No duplicate found, exit & return false

Time complexity : O(n)
Space complexity : O(n)