L-19 ∴ Binary Search ∴ leetcode - (2)

Experiment : Date

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→ Q:→ arr[] = 2, 2, 4, 4, 8, 12, 16

Find the first Occurance of 4

0 1 2 3 4 5 6

[2, 2, 4] 4, 8, 12, 16

mid = [1] mid → [3]

Then you will rewrite maybe. [ans = 3]

[ans = 2].

→ Q-> arr[] = 2, 2, 2, 4, 4, 4, 4, 16, 18.

Count all occurance of target.

0 1 2 3 4 5 6 7 8

2, 2, 2, 4, 4, 4, 4, 16, 18.

ans -> [3, 6] => Both are inclusive.

To calculate inner range

= UL - LL + 1

= Upper Limit + Lower Limit + 1.

→ Q-> Find floor of a Number.

-> 6.5, 6, 6.8.

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(•) Floor → Greatest value equal to or greater than target.

(•) Ceiling → Smallest value equal to or greater than target.

arr[] = 2, 3, 5, 7, 7, 11, 16.

→ Find floor of 8.

Floor → [2, 3, 5, 7, (7)]

7 is the largest value which is smaller than 8.

→ Find Ceiling of value 8.

[(11), 16]

11 is the largest value after 8.

→ 0 1 2 3 4 5 6 7
2, 2, 4, 4, 6, 7, 11, 16
S E

Target 8.

mid < 3.

Conditions :

① Target = arr[mid] → return arr[mid]

② Target < arr[mid]

③ Target > arr[mid]

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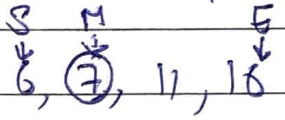
③ In that case target > arr[mid]

start = mid + 1;

now the mid is 7 in array-



Note :

Any small element from 8 can be my answer.

ans = arr[mid].

↳ This can be my possible answer.

④ target < arr[mid]

end = mid - 1;