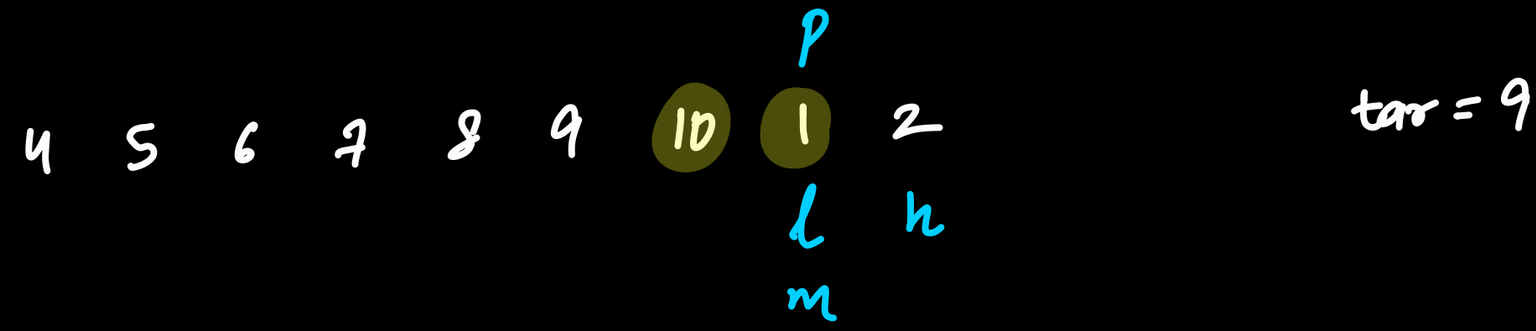
Ques: Search and element in sorted and rotated array



Method-1 · Finding Pivot Idx & then apply B.S. 2 times

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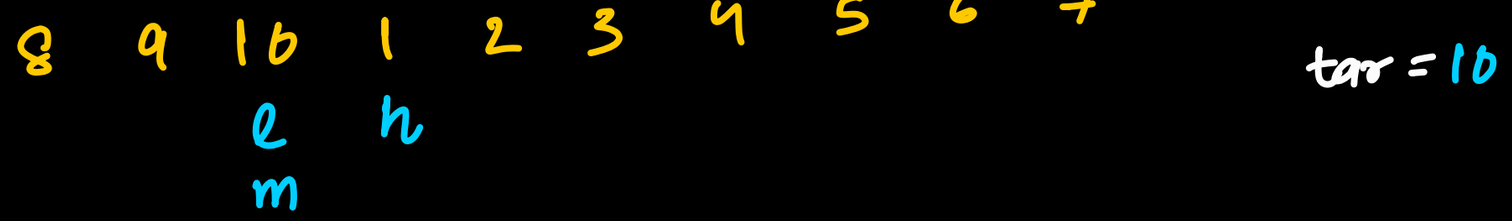


```
if ( left half is sorted ){ //lo to mid is sorted
|   if ( l ≤ tar < m )  hi = mid - 1
|   else  lo = mid + 1
}
else { right half is sorted (m to h is sorted)
|   if( m < tar ≤ hi)  lo = mid + 1
|   else hi = mid - 1
}
```

Intuition

find a sorted half

rows = 4 , col = 5

Ques: Search in a sorted matrix

T.C. = O(log(mn))

	0	1	2	3	4
0	1	6	12	27	32
1	38	41	47	49	55
2	67	68	75	76	81
3	84	89	91	92	98

tar = 49

midRow = mid / col

midCol = mid % col

9 % 5 = 9 - 5 * (9/5)

a % b = a - b * (a/b)

lo hi m

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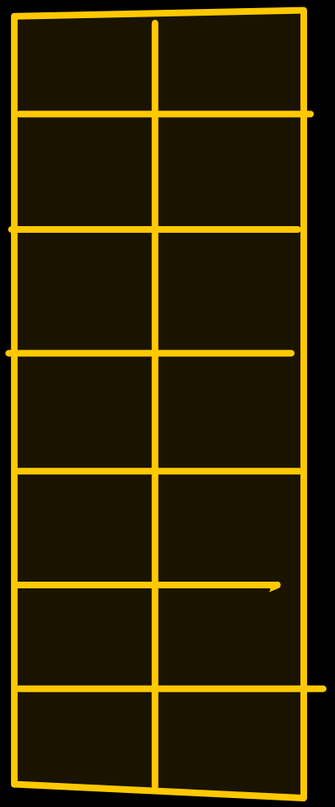
↓

2,3

Ques: Search in a sorted matrix



→ 0 (0,0)
1 (0,1)
2 (0,2)
3 (0,3)
4 (0,4)
5 (1,0)
6 (1,1)
. (1,2)
.
.

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Ques: Kth missing positive number in a sorted array

Ex-1 arr = { 1, 2, 5, 7, 8 } K = 2 ans = 4

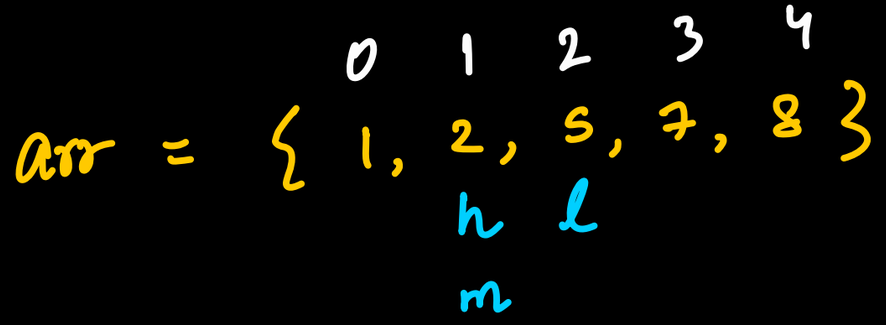
Ex-2 arr = { 3, 5, 6, 7, 8, 11 } K = 2 ans = 2

Ex-3 arr = { 1, 2, 3, 4 } K = 3 ans = 7

h l

m

Ques: Kth missing positive number in a sorted array



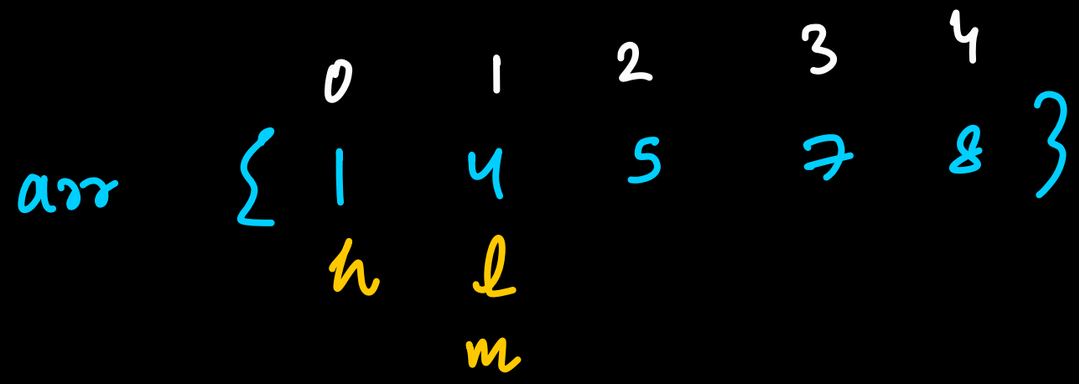
correctNo = mid + 1

missing = arr[mid] − correctNo

if (missing ≥ K) left

if (missing < K) right

Ques: Kth missing positive number in a sorted array



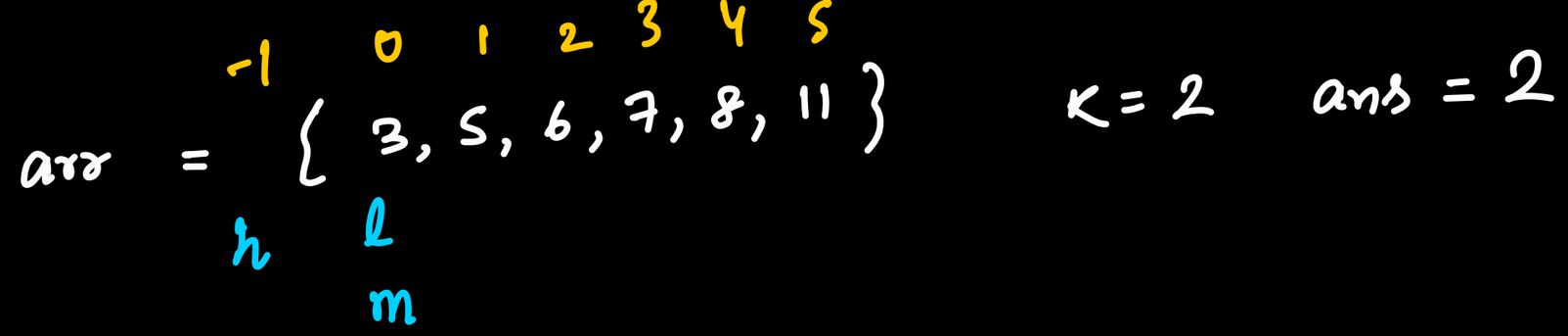
return lo + K

hi + 1 + K

>= left

< right

Ques: Kth missing positive number in a sorted array



return (lo + K);

or

hi + 1 + K

THANKYOU

Cuties