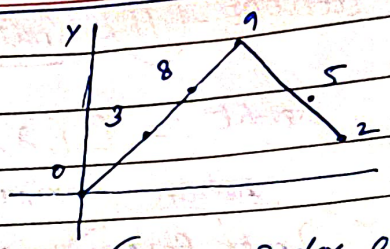
LEETCODE - (852) Peak Index in Mountain Array

arr = [0, 3, 8, (9), 5, 2]
inc → Peak ← dec



(1) For inc. elements : A[i-1] < A[i]
For peak element : A[p-1] < A[p] > A[p+1]
For dec. element : A[i] > A[i+1]

Return Index of peak element

(2) peak element can't be first & last element of the Array.
(as Array is supposed to be a mountain Array).

↓

Pseudocode :-

(st = 1 ; end = n-2) ✓
and not
(st=0, end = n-1)

while (st <= end)
(1) mid = s + (e-s)/2
(2) A[mid-1] < A[mid] > A[mid+1]
↳ Return mid
(3) if (A[mid-1] < A[mid]) // inc. → mid in left
So, Search in Right → st = mid+1.
else if (A[mid] > A[mid+1]) // dec. → mid in right
So, search in left → end = mid-1.

mid
(mid-1) < mid → left (inc.) → Search RIGHT i.e st=mid+1
mid > (mid → Right (dec.) → Search LEFT i.e. end=mid-