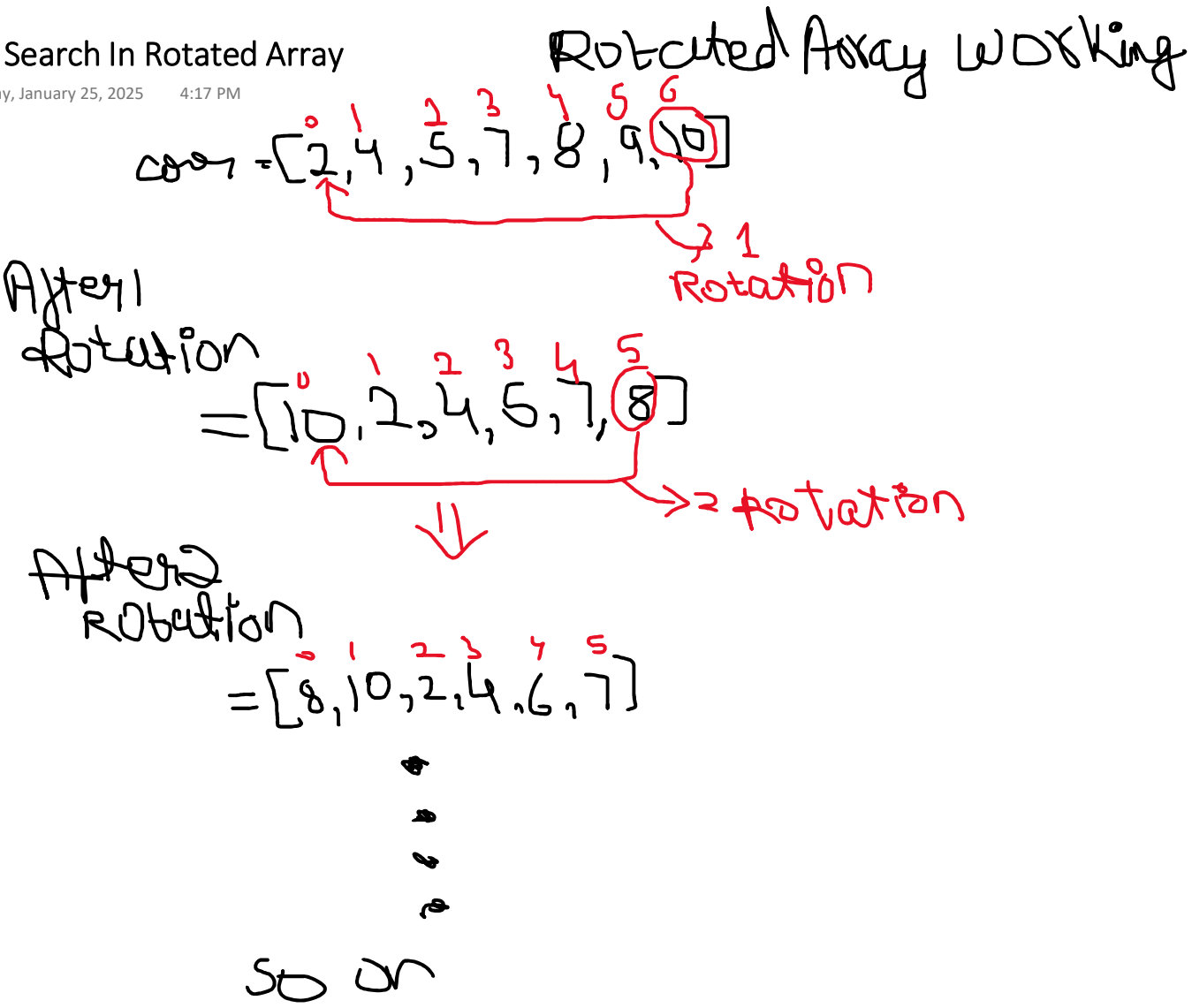
Q.8 Search In Rotated Array

Saturday, January 25, 2025 4:17 PM

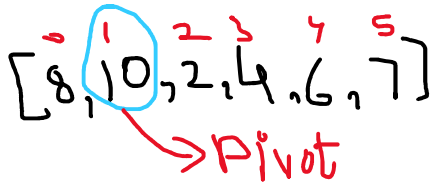


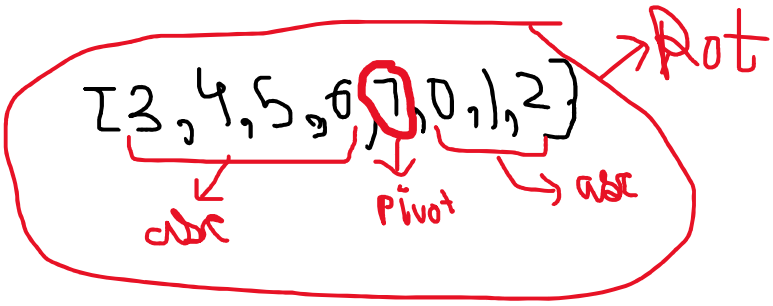
Working of question

Approaches:-

① Find the pivot in the array.

Pivot means when the next element is ascending.



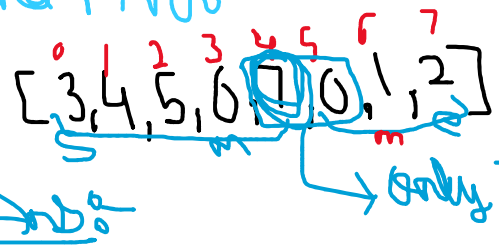


(2) After finding Pivot Point apply BS

(3) search in first half ⇒ Simple BS [0, Pivot]

(4) Otherwise, Search in second half [pivot+1, end]

9. Find Pivot



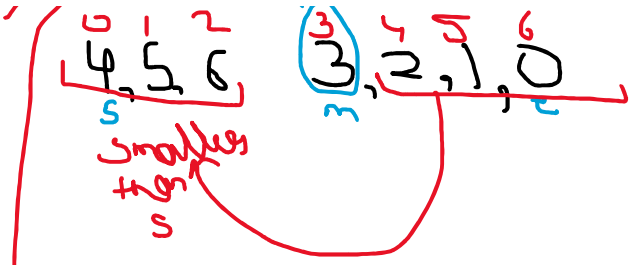
when Ans?

→ when you find that mid > mid+1 element i.e - Pivot // Case 1

Suppose

Case 2 ⇒ if mid element < (mid − 1)
i.e also my ans = m−1

Case 3 ⇒ start ≥ mid



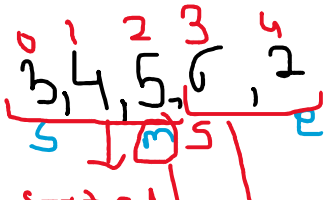
→ In this case, all elements from mid will be < start

Hence, we can ignore all mid right side element;

Since, we are looking for peak, i.e largest element

e = mid+1 //ignore

Case 4 ⇒ start ≤ mid



→ s = m+1

If this was pivot it wouldn't been returned in case 1 & 2

so we known this is not pivots

Hence proved, that binary search

Hence proved, that bigger numbers lies ahead

Hence, ignore mid & put s=mid+1