Vartul's DSA Array Problems Summary

1. Find Largest Element

Logic: Iterate once, keep max

Code Hint: max_val = max(arr)

2. Second Largest

Logic: Track first and second max

Code Hint: for num in arr: update max1, max2

3. Check Sorted

Logic: Loop and compare i vs i+1

Code Hint: any(arr[i] > arr[i+1])

4. Remove Duplicates from Sorted

Logic: Two pointers, overwrite

Code Hint: while i < n: if arr[i] != arr[j]

5. Move Zeroes

Logic: Two pointers, swap non-zero

Code Hint: for num in arr: if num!=0: arr[pos]=num

6. Left Rotate by 1

Logic: Store first, shift left

Code Hint: arr = arr[1:] + [arr[0]]

7. Left Rotate by D

Logic: Slicing

Code Hint: arr = arr[d:] + arr[:d]

8. Leaders in Array

Logic: Traverse from end, keep max

Code Hint: if arr[i] > max: leaders.append

9. Max Consecutive 1s

Logic: Count streaks of 1s

Code Hint: if num==1: curr+=1

10. Longest Subarray with Sum K (Pos)

Logic: Sliding window

Code Hint: while sum>k: l+=1

11. Longest Subarray with Sum K

Logic: Hashmap of prefixSum:index

Code Hint: if preSum-k in map

12. Number Appears Once

Logic: XOR all elements

Code Hint: res ^= num

13. Max Consecutive Sum (Kadane)

Logic: Local+Global Max

Code Hint: max_here = max(arr[i], max_here+arr[i])

14. Subarray Sum Equals K

Logic: PrefixSum + Hashmap

Code Hint: if preSum-k in map

15. Merge Intervals

Logic: Sort & Merge

Code Hint: if curr[0] <= prev[1]: merge

16. Insert Interval

Logic: Merge insert into sorted pos

Code Hint: binary insert then merge

17. Sort Colors (DNF)

Logic: 3 pointer Dutch Flag

Code Hint: low, mid, high pointer logic

18. Best Time Buy/Sell Stock

Logic: Track min, max profit

Code Hint: profit = max(profit, price - min_price)

19. Maximum Subarray (Kadane)

Logic: Same as 13

Code Hint: Same

20. Rotate Array by K

Logic: Reverse method

Code Hint: rev(0,n-k), rev(n-k,n), rev(0,n)

21. Max LCM of Triplet

Logic: Try last 5 combos

Code Hint: LCM(a,b,c)

22. Longest Subarray with Sum (Pos)

Logic: Sliding Window

Code Hint: sum > k: l += 1

23. Minimum Difference in Partition

Logic: Prefix/Suffix sum

Code Hint: min = min(sum1 - sum2)

24. Subarray Sum Equals K

Logic: PrefixSum + Hashmap

Code Hint: if preSum-k in map

25. Dutch National Flag

Logic: 3 pointer

Code Hint: if arr[mid] == 0: swap low

26. Merge Overlapping Intervals

Logic: Sort then Merge

Code Hint: same as 15

27. Insert Interval

Logic: Same as 16

Code Hint: binary insert + merge

28. 3Sum

Logic: Two pointer + sorting

Code Hint: for i in range: two sum on rest

29. 4Sum

Logic: Fix two, then two sum

Code Hint: for i,j in range: two sum

30. Count Subarrays with XOR K

Logic: Prefix XOR + Hashmap

Code Hint: if xor^k in freq: count += freq