ARRAY QUESTIONS ROADMAP (SORTED BY DIFFICULTY + PATTERNS)

EASY LEVEL (1–30)

Basic Array Operations

1. Print array elements — Basic
2. Reverse an array — Two-pointer
3. Find max/min in an array — Linear scan
4. Second largest element — Linear scan
5. Check if the array is sorted — Linear check
6. Remove duplicates from sorted array — Two-pointer
7. Move all zeros to end — Two-pointer
8. Left rotate array by 1 — Simulation
9. Left rotate array by D — Reverse method
10. Linear search — Linear scan
11. Binary search — Binary search
12. Sorting (Bubble/Selection/Insertion)

Classic Easy Problems

13. Find missing number — Math/XOR
14. Maximum consecutive 1s — Linear
15. Number appearing once — XOR
16. Sort 0s,1s,2s — Dutch National Flag
17. Majority element (>n/2) — Boyer-Moore
18. Prefix sum array — Prefix
19. Pivot / Equilibrium index — Prefix
20. Square of sorted array — Two-pointer
21. Pair sum — Two-pointer
22. Palindrome array — Two-pointer
23. First/Last occurrence — Binary search
24. Peak element — Binary search
25. Search in rotated sorted array — Binary search
26. Sqrt using binary search — Binary search

27. Leaders in array — Reverse scan

28. Union of arrays — Two-pointer

29. Max product subarray (easy) — Linear

30. Search in 2D matrix — Binary search

MEDIUM LEVEL (31–75)

Sliding Window

31. Max sum subarray (K) — Sliding window

32. Longest substring without repeat — Sliding window

33. First negative in window (K) — Sliding window

34. Count anagrams — Sliding window+freq

35. Longest substring with K distinct — Sliding window

36. Smallest subarray > K — Sliding window

37. Max consecutive 1s (variant) — Sliding window

Two-Pointer & Hashing

38. Two-sum — Hash map

39. 3-sum — Two-pointer

40. 4-sum — Two-pointer

41. Container with most water — Two-pointer

42. Rearrange positive/negative — Two-pointer

43. Longest consecutive sequence — Hashing

44. Count distinct in window — Hashing

45. First repeating element — Hashing

Subarray Sum / Prefix

46. Longest subarray sum K (positive) — Sliding window

47. Longest subarray sum K (negatives) — Prefix+map

48. Count subarrays sum=K — Prefix

49. Subarrays divisible by K — Prefix+modulo

50. Subarrays with XOR=K — Prefix xor

51. Largest subarray with 0 sum — Prefix

Binary Search on Answer

52. Allocate books — BS on answer
53. Painters partition — BS on answer
54. Kth smallest/largest — Heap/quickselect

Matrix Level 1

55. Set matrix zeros
56. Rotate matrix 90°
57. Spiral print

Intervals

58. Merge intervals — Sorting
59. Meeting rooms — Heap
60. Max j-i distance — Two-pointer
61. Merge two sorted arrays (no extra space) — Gap method
62. Next permutation — Two-pointer

Kadane & Variants

63. Kadane max subarray
64. Print actual max subarray
65. Minimum subarray sum
66. Circular subarray

Misc

67. Rotate array by K
68. Trapping rain water — Two-pointer
69. Meeting rooms II — Heap
70. Stock buy/sell (single) — Greedy
71. Stock buy/sell (multiple) — Greedy
72. Count inversions — Merge sort
73. Find repeating + missing — Math/XOR
74. Pascal's triangle
75. Matrix spiral traversal

HARD LEVEL (76–100)

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76. Minimum window substring — Sliding window
77. Largest rectangle in binary matrix — Stack
78. Longest subarray divisible by K — Prefix map
79. Longest subarray sum K (optimized) — Prefix map
80. Maximum product subarray (full) — DP
81. Count inversions optimized — Merge sort
82. Reverse pairs — Merge sort
83. 4-sum optimized
84. Kth largest (quickselect)
85. Allocate books (hard cases)
86. Meeting rooms (advanced)

Matrix Advanced

87. Search in matrix II — Staircase
88. Rotate matrix 90° inplace
89. Set matrix zeros (O(1) space)

DP

90. LIS — DP + binary search

Interval Hard

91. Activity selection variants
92. Employee free time

Other Hard

93. XOR subarrays (hard)
94. Stock buy/sell (cooldown)
95. Stock buy/sell (transaction fee)
96. Distinct elements window (hard)
97. Max j–i (hard)
98. 4-sum (strict no-dup)
99. Longest consecutive seq O(n)

100. Max rectangle in binary matrix