

Amazon SDE I Interview: Array Concepts Cheat Sheet

Two Pointers

Used for sorted arrays or comparing elements from both ends. Patterns include left/right pointer and slow/fast pointer.

Example: Two Sum II, Remove Duplicates from Sorted Array.

Sliding Window

Efficient for subarray problems. Patterns include fixed and dynamic window.

Example: Maximum Average Subarray I, Longest Substring Without Repeating Characters.

Prefix Sum

Used for range queries and cumulative calculations.

Example: Subarray Sum Equals K, Range Sum Query - Immutable.

Kadane's Algorithm

For problems asking maximum sum of subarray.

Example: Maximum Subarray.

Sorting & Binary Search

Useful in optimized searching and kth problems.

Example: Kth Largest Element, Find First and Last Position.

Hashing & Frequency Maps

Quick lookups and element frequency tracking.

Example: Two Sum, Group Anagrams.

In-place Array Manipulation

Solving array problems without extra space.

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Example: Move Zeroes, Rotate Array.

Greedy Techniques

Optimal solutions by making locally best choices.

Example: Jump Game, Gas Station.