NVIDIA-Style DSA Cheat Sheet

Arrays & Strings

Problem	Time Complexity	Space Complexity	Notes
Longest subarray sum ≤ k (sliding window)	O(n)	O(1)	Sliding window
Search in 2D matrix (sorted rows & cols)	O(m+n)	O(1)	Start from top-right or bottom-left

Linked List

Problem	Time Complexity	Space Complexity	Notes
Detect cycle and return start (Floyd's)	O(n)	O(1)	Slow/fast pointers
LRU Cache (HashMap + DLL)	O(1) get/put	O(capacity)	HashMap + Doubly Linked List

Stacks & Queues

Problem	Time Complexity	Space Complexity	Notes
Median Finder (2 heaps)	Insert: O(log n), Get: O(1)	O(n)	Max-heap + Min-heap

Trees & Graphs

Problem	Time Complexity	Space Complexity	Notes
Vertical Order Traversal	O(n log n)	O(n)	Map insertions
Dijkstra's Algorithm	O((V+E) log V)	O(V+E)	Priority queue (min-heap)
Largest Island in Grid	O(m*n)	O(m*n)	DFS recursion or Union-Find

Dynamic Programming

Problem	Time Complexity	Space Complexity	Notes
Edit Distance	O(m*n)	O(m*n) → O(min(m,n))	DP table
Climbing Stairs	O(n)	O(1)	Fib-like recurrence

Performance / NVIDIA-Specific

Problem	Time Complexity	Space Complexity	Notes
Top K Frequent Elements	O(n log k)	O(n)	Min-heap or bucket sort
Sparse Matrix Multiplication	Worst: O(m*n*p), Optimized ~#non-zeros	O(m*p)	Skip zeros