Greedy Patterns Cheat Sheet

Interval Scheduling / Activity Selection

Goal: Maximize number of non-overlapping intervals

Approach: Sort by end time, pick if start >= last end

Examples: N Meetings in One Room, Leetcode 435: Non-overlapping Intervals

Job Sequencing with Deadlines

Goal: Maximize profit under deadlines

Approach: Sort by profit descending, place in latest free slot

Examples: Job Sequencing Problem, Leetcode 630: Course Schedule III

Fractional Greedy / Knapsack

Goal: Maximize value within a capacity

Approach: Sort by value/weight, take greedily

Examples: Fractional Knapsack, Leetcode 1353: Max Events Attended

Minimum Number of Covering Elements

Goal: Cover intervals with minimal choices

Approach: Sort by end/start, greedily choose

Examples: Leetcode 452: Arrows to Burst Balloons, Leetcode 1024: Video Stitching

Minimum Cost Merge (Huffman-style)

Goal: Minimize cost to merge all

Approach: Use min-heap, combine smallest first

Examples: Huffman Coding, Leetcode 1167: Minimum Cost to Connect Sticks

Greedy with Stack (Monotonic)

Goal: Maintain monotonic structure (increasing/decreasing)

Approach: Use stack to track next greater/smaller

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Examples: Leetcode 402: Remove K Digits, Leetcode 738: Monotone Increasing Digits

Circular Route Feasibility

Goal: Complete the route with resources

Approach: Track running gain/loss, reset at min

Examples: Leetcode 134: Gas Station, Leetcode 122: Stock Buy & Sell II

Local vs Global Optimality

Goal: Make decisions based on local minimum/maximum

Approach: Prove greedy works or compare with brute-force

Examples: Leetcode 860: Lemonade Change, Leetcode 406: Queue Reconstruction by Height