Binary Tree

Binary Search Tree

Revision this weekend

**DFS, BFS, LCA, Validity, Delete a node, insert a node, construct a tree, get the forest.**

Graphs:

**BFS, DFS, Shortest Path, Topo : Sort in DAG, Disjoint sets**

| **Day** | **Focus Area** | **Topics** | **Key Patterns** |
| --- | --- | --- | --- |
| Day 1 | Recursion Deep Dive | Base case, recursive case, dry runs | Function call stack |
| Day 2 | Arrays | Prefix sums, 2-pointer, partitioning | Problem patterns |
| Day 3 | Strings | Anagrams, Palindromes, Substrings | HashMap + Sliding Window |
| Day 4 | HashMap + Set | Frequency maps, unique pairs | Avoid brute force |
| Day 5 | Sliding Window Basics | Fixed vs. Variable window | Substrings, max/min |
| Day 6 | Mixed Practice | 6–8 problems on all above | Time-space tradeoffs |
| Day 7 | Review + Revisit | Redo 2–3 wrong problems | Build mental flowcharts |

**🔹 Week 2: Recursion Applications & Data Structures**

| **Day** | **Focus Area** | **Topics** | **Key Patterns** |
| --- | --- | --- | --- |
| Day 8 | Backtracking | Subsets, Permutations, N-Queens | Choice + Explore + Backtrack |
| Day 9 | Binary Trees Basics | DFS, BFS, traversal logic | Inorder, Postorder mental models |
| Day 10 | Binary Trees Advanced | Diameter, LCA, Path Sum | Recursive depth logic |
| Day 11 | Linked Lists | Reverse, Detect cycles, Merge | Two pointers, recursion |
| Day 12 | Stack & Queue | Monotonic stack, LRU cache | Stack trace, real apps |
| Day 13 | Practice Mix | Trees, LLs, Backtracking | 6–8 solid problems |
| Day 14 | Review + Explain | Teach-back + Mindmaps | Visualize recursion paths |

**Week 3: Advanced Patterns + Interview Readiness**

| **Day** | **Focus Area** | **Topics** | **Key Patterns** |
| --- | --- | --- | --- |
| Day 15 | Graph Basics | DFS, BFS, Matrix as Graph | Visited set, queue logic |
| Day 16 | Graph Advanced | Topo Sort, Cycle Detect | Directed/Undirected graphs |
| Day 17 | Greedy | Intervals, Scheduling, Jump Game | Local optimal → Global |
| Day 18 | Dynamic Programming I | Fibonacci, Knapsack | Memoization + Tabulation |
| Day 19 | Dynamic Programming II | Subsets, Partition, Strings | State transition diagram |
| Day 20 | Mock Interview Day | 2 medium + 1 hard in 60 mins | Evaluate + Reflect |
| Day 21 | Weak Spot Review + Mindmap | Missed concepts + summary notes | Confidence check ✔️ |

Arrays:

Two pointers, prefix sum, sliding window, hashing, stack, queue, linked list, identify cycle, heaps.

Binary Search

Greedy Algos ,

Intervals

Dynamic Programming:

1D

2D

Knapsack

\* BST:  
1. [**https://leetcode.com/problems/two-sum-iv-input-is-a-bst/description/?envType=problem-list-v2&envId=p29br5j7**](https://leetcode.com/problems/two-sum-iv-input-is-a-bst/description/?envType=problem-list-v2&envId=p29br5j7)  
2. [**https://leetcode.com/problems/maximum-sum-bst-in-binary-tree/description/?envType=problem-list-v2&envId=p29br5j7**](https://leetcode.com/problems/maximum-sum-bst-in-binary-tree/description/?envType=problem-list-v2&envId=p29br5j7)  
3. [**https://leetcode.com/problems/validate-binary-search-tree/description/?envType=problem-list-v2&envId=p29br5j7**](https://leetcode.com/problems/validate-binary-search-tree/description/?envType=problem-list-v2&envId=p29br5j7)  
4. [**https://leetcode.com/problems/balance-a-binary-search-tree/description/?envType=problem-list-v2&envId=p29br5j7**](https://leetcode.com/problems/balance-a-binary-search-tree/description/?envType=problem-list-v2&envId=p29br5j7)  
5. [**https://leetcode.com/problems/convert-sorted-array-to-binary-search-tree/description/?envType=problem-list-v2&envId=p29br5j7**](https://leetcode.com/problems/convert-sorted-array-to-binary-search-tree/description/?envType=problem-list-v2&envId=p29br5j7)

\* TopoSort:  
1. [**https://leetcode.com/problems/find-all-possible-recipes-from-given-supplies/description/?envType=problem-list-v2&envId=r6jksi43**](https://leetcode.com/problems/find-all-possible-recipes-from-given-supplies/description/?envType=problem-list-v2&envId=r6jksi43)  
2. [**https://leetcode.com/problems/keys-and-rooms/description/?envType=problem-list-v2&envId=r6jksi43**](https://leetcode.com/problems/keys-and-rooms/description/?envType=problem-list-v2&envId=r6jksi43)  
3. [**https://leetcode.com/problems/course-schedule-iv/description/?envType=problem-list-v2&envId=r6jksi43**](https://leetcode.com/problems/course-schedule-iv/description/?envType=problem-list-v2&envId=r6jksi43)  
4. [**https://leetcode.com/problems/all-ancestors-of-a-node-in-a-directed-acyclic-graph/description/?envType=problem-list-v2&envId=r6jksi43**](https://leetcode.com/problems/all-ancestors-of-a-node-in-a-directed-acyclic-graph/description/?envType=problem-list-v2&envId=r6jksi43)

\* Backtracking:  
1. [**https://leetcode.com/problems/generate-parentheses/description/?envType=problem-list-v2&envId=rlflhd5s**](https://leetcode.com/problems/generate-parentheses/description/?envType=problem-list-v2&envId=rlflhd5s)  
2. [**https://leetcode.com/problems/letter-combinations-of-a-phone-number/description/?envType=problem-list-v2&envId=rlflhd5s**](https://leetcode.com/problems/letter-combinations-of-a-phone-number/description/?envType=problem-list-v2&envId=rlflhd5s)  
3. [**https://leetcode.com/problems/word-search/description/?envType=problem-list-v2&envId=rlflhd5s**](https://leetcode.com/problems/word-search/description/?envType=problem-list-v2&envId=rlflhd5s)  
4. [**https://leetcode.com/problems/partition-to-k-equal-sum-subsets/description/?envType=problem-list-v2&envId=rlflhd5s**](https://leetcode.com/problems/partition-to-k-equal-sum-subsets/description/?envType=problem-list-v2&envId=rlflhd5s)  
5. [**https://leetcode.com/problems/sudoku-solver/description/?envType=problem-list-v2&envId=rlflhd5s**](https://leetcode.com/problems/sudoku-solver/description/?envType=problem-list-v2&envId=rlflhd5s)  
6. [**https://leetcode.com/problems/n-queens/description/?envType=problem-list-v2&envId=rlflhd5s**](https://leetcode.com/problems/n-queens/description/?envType=problem-list-v2&envId=rlflhd5s)

\* 2D Matrix:  
1. [**https://leetcode.com/problems/set-matrix-zeroes/description/?envType=problem-list-v2&envId=r6j3w4fg**](https://leetcode.com/problems/set-matrix-zeroes/description/?envType=problem-list-v2&envId=r6j3w4fg)  
2. [**https://leetcode.com/problems/detect-cycles-in-2d-grid/description/?envType=problem-list-v2&envId=r6j3w4fg**](https://leetcode.com/problems/detect-cycles-in-2d-grid/description/?envType=problem-list-v2&envId=r6j3w4fg)  
3. [**https://leetcode.com/problems/search-a-2d-matrix/description/?envType=problem-list-v2&envId=r6j3w4fg**](https://leetcode.com/problems/search-a-2d-matrix/description/?envType=problem-list-v2&envId=r6j3w4fg)  
4. [**https://leetcode.com/problems/largest-plus-sign/description/?envType=problem-list-v2&envId=r6j3w4fg**](https://leetcode.com/problems/largest-plus-sign/description/?envType=problem-list-v2&envId=r6j3w4fg)  
5. [**https://leetcode.com/problems/find-the-safest-path-in-a-grid/description/?envType=problem-list-v2&envId=r6j3w4fg**](https://leetcode.com/problems/find-the-safest-path-in-a-grid/description/?envType=problem-list-v2&envId=r6j3w4fg)  
6. [**https://leetcode.com/problems/dungeon-game/description/**](https://leetcode.com/problems/dungeon-game/description/)  
7. [**https://leetcode.com/problems/longest-increasing-path-in-a-matrix/description/?envType=problem-list-v2&envId=r6j3w4fg**](https://leetcode.com/problems/longest-increasing-path-in-a-matrix/description/?envType=problem-list-v2&envId=r6j3w4fg)

\* Island Problem:  
1. [**https://leetcode.com/problems/pacific-atlantic-water-flow/description/?envType=problem-list-v2&envId=mmz4v7v6**](https://leetcode.com/problems/pacific-atlantic-water-flow/description/?envType=problem-list-v2&envId=mmz4v7v6)  
2. [**https://leetcode.com/problems/making-a-large-island/description/?envType=problem-list-v2&envId=mmz4v7v6**](https://leetcode.com/problems/making-a-large-island/description/?envType=problem-list-v2&envId=mmz4v7v6)  
3. [**https://leetcode.com/problems/maximum-number-of-fish-in-a-grid/description/?envType=problem-list-v2&envId=mmz4v7v6**](https://leetcode.com/problems/maximum-number-of-fish-in-a-grid/description/?envType=problem-list-v2&envId=mmz4v7v6)  
4. [**https://leetcode.com/problems/number-of-distinct-islands/description/**](https://leetcode.com/problems/number-of-distinct-islands/description/)  
5. [**https://leetcode.com/problems/surrounded-regions/description/?envType=problem-list-v2&envId=mmz4v7v6**](https://leetcode.com/problems/surrounded-regions/description/?envType=problem-list-v2&envId=mmz4v7v6)

\* Stack:  
1. [**https://leetcode.com/problems/132-pattern/description/?envType=problem-list-v2&envId=r6ea4kn3**](https://leetcode.com/problems/132-pattern/description/?envType=problem-list-v2&envId=r6ea4kn3)  
2. [**https://leetcode.com/problems/remove-k-digits/description/?envType=problem-list-v2&envId=r6ea4kn3**](https://leetcode.com/problems/remove-k-digits/description/?envType=problem-list-v2&envId=r6ea4kn3)  
3. [**https://leetcode.com/problems/next-greater-element-ii/description/?envType=problem-list-v2&envId=r6ea4kn3**](https://leetcode.com/problems/next-greater-element-ii/description/?envType=problem-list-v2&envId=r6ea4kn3)  
4. [**https://leetcode.com/problems/daily-temperatures/description/**](https://leetcode.com/problems/daily-temperatures/description/)  
5. [**https://leetcode.com/problems/asteroid-collision/description/?envType=problem-list-v2&envId=r6ea4kn3**](https://leetcode.com/problems/asteroid-collision/description/?envType=problem-list-v2&envId=r6ea4kn3)  
6. [**https://leetcode.com/problems/longest-valid-parentheses/description/?envType=problem-list-v2&envId=r6ea4kn3**](https://leetcode.com/problems/longest-valid-parentheses/description/?envType=problem-list-v2&envId=r6ea4kn3)  
7. [**https://leetcode.com/problems/basic-calculator/description/?envType=problem-list-v2&envId=r6ea4kn3**](https://leetcode.com/problems/basic-calculator/description/?envType=problem-list-v2&envId=r6ea4kn3)

\* Sliding Window:  
1. [**https://leetcode.com/problems/max-consecutive-ones-iii/description/?envType=problem-list-v2&envId=rlyvuone**](https://leetcode.com/problems/max-consecutive-ones-iii/description/?envType=problem-list-v2&envId=rlyvuone)  
2. [**https://leetcode.com/problems/minimum-window-substring/description/?envType=problem-list-v2&envId=rlyvuone**](https://leetcode.com/problems/minimum-window-substring/description/?envType=problem-list-v2&envId=rlyvuone)  
3. [**https://leetcode.com/problems/grumpy-bookstore-owner/description/?envType=problem-list-v2&envId=rlyvuone**](https://leetcode.com/problems/grumpy-bookstore-owner/description/?envType=problem-list-v2&envId=rlyvuone)  
4. [**https://leetcode.com/problems/find-all-anagrams-in-a-string/description/?envType=problem-list-v2&envId=rlyvuone**](https://leetcode.com/problems/find-all-anagrams-in-a-string/description/?envType=problem-list-v2&envId=rlyvuone)  
5. [**https://leetcode.com/problems/count-the-number-of-good-subarrays/description/?envType=problem-list-v2&envId=rlyvuone**](https://leetcode.com/problems/count-the-number-of-good-subarrays/description/?envType=problem-list-v2&envId=rlyvuone)  
6. [**https://leetcode.com/problems/maximum-sum-of-distinct-subarrays-with-length-k/description/?envType=problem-list-v2&envId=rlyvuone**](https://leetcode.com/problems/maximum-sum-of-distinct-subarrays-with-length-k/description/?envType=problem-list-v2&envId=rlyvuone)  
7. [**https://leetcode.com/problems/longest-nice-subarray/?envType=problem-list-v2&envId=rlyvuone**](https://leetcode.com/problems/longest-nice-subarray/?envType=problem-list-v2&envId=rlyvuone)

\* Priority Queue / Dijkstra's:  
1. [**https://leetcode.com/problems/cheapest-flights-within-k-stops/description/?envType=problem-list-v2&envId=rtzk9ac5**](https://leetcode.com/problems/cheapest-flights-within-k-stops/description/?envType=problem-list-v2&envId=rtzk9ac5)  
2. [**https://leetcode.com/problems/ipo/description/?envType=problem-list-v2&envId=rtzk9ac5**](https://leetcode.com/problems/ipo/description/?envType=problem-list-v2&envId=rtzk9ac5)  
3. [**https://leetcode.com/problems/minimum-cost-to-hire-k-workers/?envType=problem-list-v2&envId=rtzk9ac5**](https://leetcode.com/problems/minimum-cost-to-hire-k-workers/?envType=problem-list-v2&envId=rtzk9ac5)  
4. [**https://leetcode.com/problems/furthest-building-you-can-reach/description/?envType=problem-list-v2&envId=rtzk9ac5**](https://leetcode.com/problems/furthest-building-you-can-reach/description/?envType=problem-list-v2&envId=rtzk9ac5)  
5. [**https://leetcode.com/problems/k-closest-points-to-origin/description/?envType=problem-list-v2&envId=rtzk9ac5**](https://leetcode.com/problems/k-closest-points-to-origin/description/?envType=problem-list-v2&envId=rtzk9ac5)  
6. [**https://leetcode.com/problems/construct-string-with-repeat-limit/description/?envType=problem-list-v2&envId=rtzk9ac5**](https://leetcode.com/problems/construct-string-with-repeat-limit/description/?envType=problem-list-v2&envId=rtzk9ac5)  
7. [**https://leetcode.com/problems/find-median-from-data-stream/description/?envType=problem-list-v2&envId=rtzk9ac5**](https://leetcode.com/problems/find-median-from-data-stream/description/?envType=problem-list-v2&envId=rtzk9ac5)

\* Binary Search:  
1. [**https://leetcode.com/problems/house-robber-iv/description/?envType=problem-list-v2&envId=ruht77nh**](https://leetcode.com/problems/house-robber-iv/description/?envType=problem-list-v2&envId=ruht77nh)  
2. [**https://leetcode.com/problems/minimum-number-of-days-to-make-m-bouquets/description/?envType=problem-list-v2&envId=ruht77nh**](https://leetcode.com/problems/minimum-number-of-days-to-make-m-bouquets/description/?envType=problem-list-v2&envId=ruht77nh)  
3. [**https://leetcode.com/problems/maximum-profit-in-job-scheduling/description/?envType=problem-list-v2&envId=ruht77nh**](https://leetcode.com/problems/maximum-profit-in-job-scheduling/description/?envType=problem-list-v2&envId=ruht77nh)  
4. [**https://leetcode.com/problems/maximum-tastiness-of-candy-basket/description/?envType=problem-list-v2&envId=ruht77nh**](https://leetcode.com/problems/maximum-tastiness-of-candy-basket/description/?envType=problem-list-v2&envId=ruht77nh)  
5. [**https://leetcode.com/problems/single-element-in-a-sorted-array/description/?envType=problem-list-v2&envId=ruht77nh**](https://leetcode.com/problems/single-element-in-a-sorted-array/description/?envType=problem-list-v2&envId=ruht77nh)  
6. [**https://leetcode.com/problems/minimum-speed-to-arrive-on-time/description/?envType=problem-list-v2&envId=ruht77nh**](https://leetcode.com/problems/minimum-speed-to-arrive-on-time/description/?envType=problem-list-v2&envId=ruht77nh)  
7. [**https://leetcode.com/problems/find-right-interval/description/?envType=problem-list-v2&envId=ruht77nh**](https://leetcode.com/problems/find-right-interval/description/?envType=problem-list-v2&envId=ruht77nh)

✅ Dynamic Programming Patterns: [**https://lnkd.in/gVNgiDWH**](https://lnkd.in/gVNgiDWH)  
  
 ✅ Tree Patterns: [**https://lnkd.in/gYB7zUX6**](https://lnkd.in/gYB7zUX6)  
  
✅ Graph Patterns: [**https://lnkd.in/geZGw4Vt**](https://lnkd.in/geZGw4Vt)  
  
✅ Substring Problem Patterns: [**https://lnkd.in/gt23kRen**](https://lnkd.in/gt23kRen)  
  
✅ Backtracking Problem Pattern: [**https://lnkd.in/gk6JqQD4**](https://lnkd.in/gk6JqQD4)  
  
✅Two Pointers Patterns: [**https://lnkd.in/gfea3T9v**](https://lnkd.in/gfea3T9v)  
  
✅ Binary Search Patterns: [**https://lnkd.in/gHhq5MrR**](https://lnkd.in/gHhq5MrR)  
  
✅ Cloning Problems Patterns: [**https://lnkd.in/gJWqTDV8**](https://lnkd.in/gJWqTDV8)  
  
✅ Bit Manipulation Pattern: [**https://lnkd.in/gE6cdc-g**](https://lnkd.in/gE6cdc-g)  
  
✅ Heap Patterns: [**https://lnkd.in/gugVTJsT**](https://lnkd.in/gugVTJsT)  
  
✅ Sliding Window Patterns: [**https://lnkd.in/gb5NeskQ**](https://lnkd.in/gb5NeskQ)

0/1 Knapsack

[Partition Equal Subset Sum](https://leetcode.com/problems/partition-equal-subset-sum/)

[Target Sum](https://leetcode.com/problems/target-sum/)

[Last Stone Weight II](https://leetcode.com/problems/last-stone-weight-ii/)

Unbounded Knapsack

[Climbing Stairs](https://leetcode.com/problems/climbing-stairs/)

[Coin Change](https://leetcode.com/problems/coin-change/)

[Coin Change II](https://leetcode.com/problems/coin-change-ii/)

Longest Common Subsequence (LCS)

[Is Subsequence](https://leetcode.com/problems/is-subsequence/)

[Longest Common Subsequence](https://leetcode.com/problems/longest-common-subsequence/)

[Edit Distance](https://leetcode.com/problems/edit-distance/)

Longest Increasing Subsequence (LIS)

[Length of Longest Fibonacci Subsequence](https://leetcode.com/problems/length-of-longest-fibonacci-subsequence/)

[Longest Increasing Subsequence](https://leetcode.com/problems/longest-increasing-subsequence/)

[Longest Increasing Path in a Matrix](https://leetcode.com/problems/longest-increasing-path-in-a-matrix/)

Matrix Chain Multiplication (MCM)

[Unique Binary Search Trees](https://leetcode.com/problems/unique-binary-search-trees/)

[Burst Balloons](https://leetcode.com/problems/burst-balloons/)

[Minimum Cost to Cut a Stick](https://leetcode.com/problems/minimum-cost-to-cut-a-stick/)

Path in Matrix/Grid

[Unique Paths](https://leetcode.com/problems/unique-paths/)

[Minimum Path Sum](https://leetcode.com/problems/minimum-path-sum/)

[Cherry Pickup](https://leetcode.com/problems/cherry-pickup/)

Partition/Divide and Conquer

[Palindrome Partitioning](https://leetcode.com/problems/palindrome-partitioning/)

[Palindrome Partitioning II](https://leetcode.com/problems/palindrome-partitioning-ii/)

[Check if There is a Valid Partition For The Array](https://leetcode.com/problems/check-if-there-is-a-valid-partition-for-the-array/)

DP on Trees/Graphs

[Diameter of Binary Tree](https://leetcode.com/problems/diameter-of-binary-tree/)

[Binary Tree Cameras](https://leetcode.com/problems/binary-tree-cameras/)

[Minimum Cost to Connect All Points](https://leetcode.com/problems/min-cost-to-connect-all-points/)

Digit DP

[Counting Numbers with Repeated Digits](https://leetcode.com/problems/count-numbers-with-repeated-digits/)

[Numbers At Most N Given Digit Set](https://leetcode.com/problems/numbers-at-most-n-given-digit-set/)

[Count Numbers with Unique Digits](https://leetcode.com/problems/count-numbers-with-unique-digits/)

Bitmask DP

[Number of Subsets](https://leetcode.com/problems/subsets/)

(Adaptable to bitmask DP)

[Fair Distribution of Cookies](https://leetcode.com/problems/fair-distribution-of-cookies/)

[Minimum Number of Work Sessions to Finish the Tasks](https://leetcode.com/problems/minimum-number-of-work-sessions-to-finish-the-tasks/)