150 Questions: Data structures

Solve and understand these questions, make notes, watch solutions, and have fun. Don’t just solve them to get a job, but to learn something new! These are mostly internship-level questions (easy-medium), but will help you in general with problem solving!

## Arrays

Easy

* <https://leetcode.com/problems/roman-to-integer/>
* <https://leetcode.com/problems/valid-parentheses/>
* <https://leetcode.com/problems/remove-duplicates-from-sorted-array/>
* <https://leetcode.com/problems/remove-element/>
* <https://leetcode.com/problems/best-time-to-buy-and-sell-stock/>
* <https://leetcode.com/problems/best-time-to-buy-and-sell-stock-ii/>
* <https://leetcode.com/problems/intersection-of-two-arrays-ii/>
* <https://leetcode.com/problems/single-number/>
* <https://leetcode.com/problems/contains-duplicate/>
* <https://leetcode.com/problems/plus-one/>
* <https://leetcode.com/problems/move-zeroes/>
* <https://leetcode.com/problems/rotate-image/>

Medium

* <https://leetcode.com/problems/3sum/> Done
* <https://leetcode.com/problems/4sum/>
* <https://leetcode.com/problems/find-first-and-last-position-of-element-in-sorted-array/> Done
* <https://leetcode.com/problems/group-anagrams/> Done
* <https://leetcode.com/problems/reduce-array-size-to-the-half/> Done
* <https://leetcode.com/problems/merge-intervals/> Done

## Linked list

Easy

* <https://leetcode.com/problems/delete-node-in-a-linked-list/>
* <https://leetcode.com/problems/remove-nth-node-from-end-of-list/>
* <https://leetcode.com/problems/merge-two-sorted-lists/>
* <https://leetcode.com/problems/palindrome-linked-list/>
* <https://leetcode.com/problems/linked-list-cycle/>

Medium

* <https://leetcode.com/problems/intersection-of-two-linked-lists/>
* <https://leetcode.com/problems/remove-linked-list-elements/>
* <https://leetcode.com/problems/middle-of-the-linked-list/>
* <https://leetcode.com/problems/merge-k-sorted-lists/>

## Binary search

Easy

* <https://leetcode.com/problems/binary-search/>
* <https://leetcode.com/problems/intersection-of-two-arrays/>
* <https://leetcode.com/problems/first-bad-version/>
* <https://leetcode.com/problems/arranging-coins/>
* <https://leetcode.com/problems/search-insert-position/>

Medium

* <https://leetcode.com/problems/search-in-rotated-sorted-array/> Done
* <https://leetcode.com/problems/find-first-and-last-position-of-element-in-sorted-array/> Done
* <https://leetcode.com/problems/kth-smallest-element-in-a-bst/>
* <https://leetcode.com/problems/find-peak-element/>
* <https://leetcode.com/problems/split-array-largest-sum/>

## Sliding window

Read

* [Leetcode Pattern 2 | Sliding Windows for Strings | by csgator | Leetcode Patterns](https://medium.com/leetcode-patterns/leetcode-pattern-2-sliding-windows-for-strings-e19af105316b)

Easy/Medium

* <https://leetcode.com/problems/longest-substring-without-repeating-characters/>
* <https://leetcode.com/problems/find-all-anagrams-in-a-string/description/>
* <https://leetcode.com/problems/minimum-window-substring/description/>
* <https://leetcode.com/problems/count-number-of-nice-subarrays/>
* <https://leetcode.com/problems/fruit-into-baskets/>

## 2 pointers

* <https://leetcode.com/problems/intersection-of-two-arrays/>
* <https://leetcode.com/problems/maximum-ascending-subarray-sum/>
* <https://leetcode.com/problems/backspace-string-compare/>
* <https://leetcode.com/problems/long-pressed-name/>
* <https://leetcode.com/problems/fruit-into-baskets/>
* <https://leetcode.com/problems/max-consecutive-ones-iii/>
* <https://leetcode.com/problems/container-with-most-water/>

## Stacks, Queues

* Easy
* <https://leetcode.com/problems/valid-parentheses/>
* <https://leetcode.com/problems/implement-queue-using-stacks/>
* <https://leetcode.com/problems/min-stack/>
* Medium
* <https://leetcode.com/problems/design-circular-queue/>
* <https://leetcode.com/problems/decode-string/>
* <https://leetcode.com/problems/open-the-lock/>
* <https://leetcode.com/problems/daily-temperatures/>
* <https://leetcode.com/problems/minimum-add-to-make-parentheses-valid/>

## BFS, DFS

Read

* [Leetcode Pattern 1 | BFS + DFS == 25% of the problems — part 1](https://medium.com/leetcode-patterns/leetcode-pattern-1-bfs-dfs-25-of-the-problems-part-1-519450a84353)
* [Leetcode Pattern 1 | DFS + BFS == 25% of the problems — part 2](https://medium.com/leetcode-patterns/leetcode-pattern-2-dfs-bfs-25-of-the-problems-part-2-a5b269597f52)

Questions

* <https://leetcode.com/problems/flood-fill/>
* <https://leetcode.com/problems/binary-tree-preorder-traversal/>
* <https://leetcode.com/problems/number-of-islands/>
* <https://leetcode.com/problems/walls-and-gates/>
* <https://leetcode.com/problems/max-area-of-island/>
* [https://leetcode.com/problems/number-of-provinces/](https://leetcode.com/problems/number-of-provinces/description/)
* <https://leetcode.com/problems/perfect-squares/>
* <https://leetcode.com/problems/course-schedule/>
* <https://www.geeksforgeeks.org/detect-cycle-undirected-graph/>
* <https://leetcode.com/problems/word-ladder/>
* <https://leetcode.com/problems/01-matrix/>
* <https://leetcode.com/problems/rotting-oranges/>
* <https://leetcode.com/problems/perfect-squares/>
* <https://leetcode.com/problems/all-paths-from-source-to-target/>
* <https://leetcode.com/problems/number-of-closed-islands/>

## Recursion

Easy

* [509. Fibonacci Number](https://leetcode.com/problems/fibonacci-number/)
* [Reverse String](https://leetcode.com/problems/reverse-string/)
* [24. Swap Nodes in Pairs](https://leetcode.com/problems/swap-nodes-in-pairs/)
* [206. Reverse Linked List](https://leetcode.com/problems/reverse-linked-list/)
* [Leetcode #700 Search in a Binary Search Tree](https://leetcode.com/problems/search-in-a-binary-search-tree/)
* [70. Climbing Stairs](https://leetcode.com/problems/climbing-stairs/)
* [Leetcode #50 Pow(x, n)](https://leetcode.com/problems/powx-n/)

## Backtracking

Read

* [Leetcode Pattern 3 | Backtracking | by csgator | Leetcode Patterns](https://medium.com/leetcode-patterns/leetcode-pattern-3-backtracking-5d9e5a03dc26)
* [A general approach to backtracking questions in Java (Subsets, Permutations, Combination Sum, Palindrome Partitioning)](https://leetcode.com/problems/subsets/discuss/27281/a-general-approach-to-backtracking-questions-in-java-subsets-permutations-combination-sum-palindrome-partitioning)

Easy

* [Word Search](https://leetcode.com/problems/word-search/)
* [Leetcode #78 Subsets](https://leetcode.com/problems/subsets/)
* [90. Subsets II](https://leetcode.com/problems/subsets-ii/)
* [Letter Case Permutation](https://leetcode.com/problems/letter-case-permutation/)

Medium

* [39. Combination Sum](https://leetcode.com/problems/combination-sum/)
* [17. Letter Combinations of a Phone Number](https://leetcode.com/problems/letter-combinations-of-a-phone-number/)
* [Combinations](https://leetcode.com/problems/combinations/)
* [Leetcode : Combination Sum II](https://leetcode.com/problems/combination-sum-ii/)
* [216. Combination Sum III](https://leetcode.com/problems/combination-sum-iii/)
* [Combination Sum IV](https://leetcode.com/problems/combination-sum-iv/)
* [46. Permutations](https://leetcode.com/problems/permutations/)
* [47. Permutations II](https://leetcode.com/problems/permutations-ii/)
* [31. Next Permutation](https://leetcode.com/problems/next-permutation/)
* [51. N-Queens](https://leetcode.com/problems/n-queens/description/)

## Trees

Read

* [Leetcode Pattern 0 | Iterative traversals on Trees | by csgator | Leetcode Patterns](https://medium.com/leetcode-patterns/leetcode-pattern-0-iterative-traversals-on-trees-d373568eb0ec)

Easy

* <https://leetcode.com/problems/binary-tree-preorder-traversal/>
* <https://leetcode.com/problems/binary-tree-inorder-traversal/>
* <https://leetcode.com/problems/binary-tree-postorder-traversal/>
* <https://leetcode.com/problems/validate-binary-search-tree/>
* <https://leetcode.com/problems/minimum-distance-between-bst-nodes/>
* <https://leetcode.com/problems/symmetric-tree/>
* <https://leetcode.com/problems/same-tree/>
* <https://leetcode.com/problems/path-sum/>
* <https://leetcode.com/problems/maximum-depth-of-binary-tree/>
* <https://leetcode.com/problems/convert-sorted-array-to-binary-search-tree/>
* Medium
* <https://leetcode.com/problems/validate-binary-search-tree/>
* <https://leetcode.com/problems/binary-search-tree-iterator/>
* <https://leetcode.com/problems/unique-binary-search-trees/>
* <https://leetcode.com/problems/serialize-and-deserialize-bst/>
* <https://leetcode.com/problems/binary-tree-right-side-view/>
* <https://leetcode.com/problems/binary-tree-level-order-traversal/>
* <https://leetcode.com/problems/binary-tree-level-order-traversal-ii/>
* <https://leetcode.com/problems/binary-tree-zigzag-level-order-traversal/>

## Dynamic programming

Easy

* <https://leetcode.com/problems/maximum-subarray/>
* <https://leetcode.com/problems/fibonacci-number/>
* <https://leetcode.com/problems/climbing-stairs/>
* <https://leetcode.com/problems/min-cost-climbing-stairs/>
* <https://leetcode.com/problems/n-th-tribonacci-number/>

Medium

* <https://leetcode.com/problems/coin-change/>
* <https://leetcode.com/problems/minimum-falling-path-sum/>
* <https://leetcode.com/problems/minimum-cost-for-tickets/>
* <https://leetcode.com/problems/2-keys-keyboard/>
* <https://leetcode.com/problems/maximum-product-subarray/>
* <https://leetcode.com/problems/triangle/>
* <https://leetcode.com/problems/ones-and-zeroes/>
* <https://leetcode.com/problems/longest-arithmetic-subsequence/>
* <https://leetcode.com/problems/partition-equal-subset-sum/>
* <https://leetcode.com/problems/house-robber/>
* <https://leetcode.com/problems/decode-ways/>
* <https://leetcode.com/problems/word-break/>
* <https://leetcode.com/problems/edit-distance/>
* <https://leetcode.com/problems/longest-increasing-subsequence/>

## Graphs

Easy

* <https://leetcode.com/problems/employee-importance/>
* <https://leetcode.com/problems/find-the-town-judge/>

Medium

* <https://leetcode.com/problems/course-schedule-ii/>
* <https://leetcode.com/problems/redundant-connection/>
* <https://leetcode.com/problems/surrounded-regions/>
* <https://leetcode.com/problems/accounts-merge/>
* <https://leetcode.com/problems/network-delay-time/>
* <https://leetcode.com/problems/is-graph-bipartite/>
* <https://leetcode.com/problems/find-eventual-safe-states/>
* <https://leetcode.com/problems/keys-and-rooms/>
* <https://leetcode.com/problems/possible-bipartition/>
* <https://leetcode.com/problems/most-stones-removed-with-same-row-or-column/>
* <https://leetcode.com/problems/rotting-oranges/>
* <https://leetcode.com/problems/number-of-operations-to-make-network-connected/>

## Additional questions

* <https://leetcode.com/problems/longest-common-prefix/>
* <https://leetcode.com/problems/implement-trie-prefix-tree/>

## Random

* <https://leetcode.com/explore/>

## Videos

Some long videos, to revise or study in one long stretch!

* [Data Structures Easy to Advanced Course - Full Tutorial from a Google Engineer](https://www.youtube.com/watch?v=RBSGKlAvoiM&ab_channel=freeCodeCamp.org)
* [Introduction to Data Structures & Algorithms | Course Details & Prerequisites](https://www.youtube.com/watch?v=XCyuHSJS7XE&list=PLIY8eNdw5tW_zX3OCzX7NJ8bL1p6pWfgG&ab_channel=SimpleSnippets)
* [Algorithms Course - Graph Theory Tutorial from a Google Engineer](https://youtu.be/09_LlHjoEiY)