

InterviewBit Problems: A Structured Study Guide

This guide organizes the provided problem list into logical categories, making it easier to tackle your preparation topic by topic. Problems are sorted by difficulty within each section.

☐ = A highly popular or frequently asked question, a must-do for this topic.

Tier 1: The Absolute Fundamentals

Start here. These topics are the building blocks for almost everything else.

1. Arrays

The most fundamental data structure. Master manipulation, searching, and sorting.

Very Easy

- Pick from both sides!
- Even Product!
- Positive Negative
- Diagonal Flip
- Greater than All
- Chips Factory

Easy

- **Max Sum Contiguous Subarray** ☐
- **Add One To Number** ☐
- **Set Matrix Zeros** ☐
- Pascal Triangle
- Kth Row of Pascal's Triangle
- Find Duplicate in Array
- Spiral Order Matrix I
- Spiral Order Matrix II
- Min Steps in Infinite Grid
- Noble Integer
- Flip
- **Wave Array** ☐
- Max Non Negative SubArray

- Anti Diagonals
- Balance Array
- Max Min
- Perfect Peak of Array
- Leaders in an array
- Sort array with squares!
- Pythagorean Triplets

Medium

- **First Missing Integer** □
- **Rotate Matrix** □
- **Next Permutation** □
- Merge Intervals
- Repeat and Missing Number Array
- Largest Number
- N/3 Repeat Number
- Maximum Consecutive Gap
- Max Distance
- Hotel Bookings Possible
- Find Permutation
- Maximum Absolute Difference
- Maximum Unsorted Subarray
- Triplets with Sum between given range
- Partitions
- Move Zeroes
- Make equal elements Array
- Segregate 0s and 1s in an array
- Array Sum
- Occurrence of Each Number
- Maximum Sum Triplet
- Maximum Sum Square SubMatrix
- Maximum Area of Triangle!

Hard

- Large Factorial

2. Strings

Manipulation, parsing, and pattern matching are key skills.

Very Easy

- **Reverse the String** □
- Check Palindrome

- String Inversion
- Palindromic Words
- Valid Password
- Maximum Substring

Easy

- **Palindrome String** ☐
- Length of Last Word
- Longest Common Prefix
- Count And Say
- Add Binary Strings
- Amazing Subarrays
- Convert to Palindrome
- Vowel and Consonant Substrings!
- Remove Consecutive Characters
- Minimum Paratheses!
- Character Frequencies

Medium

- **Implement StrStr** ☐
- **Atoi** ☐
- **Longest Palindromic Substring** ☐
- Zigzag String
- Multiply Strings
- Valid Ip Addresses
- Compare Version Numbers
- Pretty Json
- Integer To Roman
- Roman To Integer
- Minimum Characters required to make a String Palindromic
- Bulls and Cows
- Salutes

Hard

- **Justified Text** ☐
- Stringoholics
- Compact Scientific Notation

3. Math

Covers number theory, combinatorics, and general mathematical logic.

Very Easy

- FizzBuzz
- Total Moves For Bishop!
- Armstrong Number
- Leap Year
- Lowest Common Multiple (LCM)
- Which Season?
- Socks Pair
- Product of Digits
- Number of Sundays
- Odd Even Rule
- Round Table

Easy

- **Palindrome Integer** ☐
- Excel Column Number
- Reverse integer
- Verify Prime
- Binary Representation
- Excel Column Title
- Prime Numbers
- All Factors
- Prime Sum
- Rearrange Array
- Highest Product
- Is Rectangle?
- Step by Step
- Distribute in Circle!
- Digital Root

Medium

- **Trailing Zeros in Factorial** ☐
- **Grid Unique Paths** ☐
- Power Of Two Integers
- Greatest Common Divisor
- Sorted Permutation Rank
- Largest Coprime Divisor
- Sum of pairwise Hamming Distance
- Next Similar Number
- K-th Permutation
- Divisible by 60
- Addition without Summation

Hard

- **Sorted Permutation Rank with Repeats** ☐
- Find Nth Fibonacci
- Next Smallest Palindrome!
- Powerful Divisors

4. Hashing

Essential for optimizing search and lookup operations.

Easy

- **2 Sum** ☐
- **Longest Substring Without Repeat** ☐
- **Longest Consecutive Sequence** ☐
- Colorful Number
- Check Palindrome!
- First Repeating element

Medium

- **4 Sum** ☐
- **Window String** ☐
- Anagrams
- Copy List
- Valid Sudoku
- Largest Continuous Sequence Zero Sum
- Diffk II
- Fraction
- Points on the Straight Line
- Equal
- Pairs With Given Xor
- An Increment Problem
- Subarray with given XOR
- Two out of Three
- Subarray with B odd numbers
- Longest Subarray Length
- Subarray with equal occurrences!

Hard

- **Substring Concatenation** ☐

Tier 2: Core Data Structures & Algorithms

Once fundamentals are solid, move to these classic topics.

5. Linked Lists

Focus on pointer manipulation, cycles, and list restructuring.

Easy

- **Merge Two Sorted Lists** ☐
- **Remove Duplicates from Sorted List** ☐
- **Remove Nth Node from List End** ☐
- **Reverse Linked List** ☐
- Swap List Nodes in pairs
- Intersection of Linked Lists
- Reverse Link List Recursion
- Sort Binary Linked List
- Kth Node From Middle

Medium

- **List Cycle** ☐
- Reorder List
- Add Two Numbers as Lists
- Rotate List
- Sort List
- Remove Duplicates from Sorted List II
- Reverse Link List II
- Partition List
- Insertion Sort List
- Palindrome List
- K reverse linked list
- Even Reverse
- Reverse Alternate K Nodes

Hard

- (Many hard list problems are combined with other concepts like DP or sorting)

6. Stacks & Queues

LIFO and FIFO logic. Often used for expression evaluation, traversals, and finding nearest elements.

Easy

- **Generate all Parentheses** ☐
- Evaluate Expression
- Reverse String
- Redundant Braces

- Nearest Smaller Element
- Balanced Parantheses!
- Ticket Counter

Medium

- **Min Stack** ☐
- **Sliding Window Maximum** ☐
- Simplify Directory Path
- First non-repeating character in a stream of characters
- Hotel Service

Hard

- **Largest Rectangle in Histogram** ☐
- **Rain Water Trapped** ☐

7. Two Pointers

An efficient technique for problems involving sorted arrays or searching for pairs.

Easy

- **Remove Duplicates from Sorted Array** ☐
- Intersection Of Sorted Arrays
- Pair With Given Difference

Medium

- **3 Sum** ☐
- **Container With Most Water** ☐
- Sort by Color
- Merge Two Sorted Lists II
- Remove Element from Array
- Remove Duplicates from Sorted Array II
- Array 3 Pointers
- Diffk
- Max Continuous Series of 1s
- Counting Subarrays!
- Minimize the absolute difference
- Subarrays with distinct integers!
- Maximum Ones After Modification
- Palindrome Numbers

8. Binary Search

For searching in sorted/monotonic search spaces.

Easy

- Sorted Insert Position
- **Square Root of Integer** ☐
- Implement Power Function
- Count Element Occurrence
- Rotated Array
- Search in Bitonic Array!
- Smaller or equal elements

Medium

- **Search for a Range** ☐
- **Rotated Sorted Array Search** ☐
- Matrix Search
- **Allocate Books** ☐
- Painter's Partition Problem
- Matrix Median
- WoodCutting Made Easy!
- Capacity To Ship Packages Within B Days
- Find a peak element

Hard

- **Median of Array** ☐

9. Bit Manipulation

Low-level operations. Key for optimization and specific problem types.

Easy

- **Number of 1 Bits** ☐
- **Single Number** ☐
- Trailing Zeroes
- Swap Bits

Medium

- **Single Number II** ☐
- **Divide Integers** ☐
- Reverse Bits
- Different Bits Sum Pairwise
- Min XOR value
- XOR-ing the Subarrays!

Hard

- **Count Total Set Bits** ☐
 - Palindromic Binary Representation
-

Tier 3: Advanced Algorithmic Paradigms

These require a deeper understanding of recursion and problem decomposition.

10. Greedy Algorithms

Making the locally optimal choice at each step.

Easy

- **Majority Element** ☐
- Bulbs
- Highest Product
- Assign Mice to Holes
- Largest Permutation

Medium

- **Gas Station** ☐
- **Distribute Candy** ☐
- Seats
- **Meeting rooms** ☐
- Disjoint Intervals

Hard

- (No hard greedy problems listed in this set)

11. Backtracking

Exploring all possibilities recursively and pruning paths.

Easy

- Reverse Link List Recursion

Medium

- **Subsets II** ☐
- **Permutations** ☐
- Combinations

- Combination Sum
- Palindrome Partitioning
- Generate all Parentheses II
- Letter Phone
- Combination Sum II
- Gray Code
- All Unique Permutations
- Kth Permutation Sequence
- Maximal String

Hard

- **NQueens** ☐
- **Sudoku** ☐

12. Trees (Binary, BST, etc.)

Hierarchical data. Traversal, construction, and property validation are common themes.

Easy

- Identical Binary Trees
- **Symmetric Binary Tree** ☐
- Max Depth of Binary Tree
- Balanced Binary Tree
- Inorder Traversal
- Postorder Traversal
- Sorted Array To Balanced BST
- Path Sum
- Level Order
- Valid Binary Search Tree
- Invert the Binary Tree
- Path to Given Node
- Vertical Order traversal of Binary Tree

Medium

- **Construct Binary Tree From Inorder And Preorder** ☐
- Flatten Binary Tree to Linked List
- **Least Common Ancestor** ☐
- ZigZag Level Order Traversal BT
- Sum Root to Leaf Numbers
- Binary Tree From Inorder And Postorder
- Kth Smallest Element In Tree
- Right view of Binary tree
- Valid BST from Preorder

- ... (and many more)

Hard

- **Recover Binary Search Tree** ☐
- **BST Iterator** ☐
- Populate Next Right Pointers Tree
- 2-Sum Binary Tree
- Order of People Heights

13. Heaps & Maps (Priority Queues)

Useful for finding min/max elements efficiently, merging, and scheduling.

Easy

- Profit Maximisation
- K Largest Elements

Medium

- **Merge K sorted arrays!** ☐
- Distinct Numbers in Window
- Magician and Chocolates
- N max pair combinations
- Maximum Sum Combinations
- Connect Ropes

Hard

- **Merge K Sorted Lists** ☐
- **LRU Cache** ☐
- Ways to form Max Heap

Tier 4: The Most Challenging Topics

These are often considered the hardest, requiring significant practice.

14. Dynamic Programming (DP)

The art of solving complex problems by breaking them into a collection of simpler subproblems.

Easy

- **Stairs** ☐
- Best Time to Buy and Sell Stocks I

- Best Time to Buy and Sell Stocks II
- Longest Common Subsequence
- Maximum Path in Triangle

Medium

- **Min Jumps Array** ☐
- **Edit Distance** ☐
- **Longest Increasing Subsequence** ☐
- Max Product Subarray
- Word Break
- Unique Paths in a Grid
- ... (This is the largest category, with over 40 medium problems listed)

Hard

- **Best Time to Buy and Sell Stocks III** ☐
- **Regular Expression Match** ☐
- Scramble String
- Interleaving Strings
- Egg Drop Problem!

15. Graphs

Modeling networks and relationships. Traversal (BFS, DFS), cycle detection, and shortest path are key.

Easy

- Level Order
- Cycle in Undirected Graph
- Cycle in Directed Graph
- Path in Directed Graph
- Region in BinaryMatrix

Medium

- **Clone Graph** ☐
- Black Shapes
- Knight On Chess Board
- Commutable Islands (MST)
- Possibility of finishing all courses (Topological Sort)
- Water Flow
- ... (and many more)

Hard

- **Word Ladder I & II** ☐

- Capture Regions on Board
 - Min Cost Path
-

Tier 5: Specialized & Miscellaneous

16. SQL Programming

- This section contains numerous problems ranging from Easy (e.g., `Town Queries`) to Hard (e.g., `Role Ordering`, `Chess Tournament`). Practice these if you are interviewing for roles that require database knowledge.

17. Puzzles

- These are brain teasers, often with elegant, non-obvious solutions. Examples: `Fastest Horses`, `Eggs and Building`, `Prisoners and Poison`. Good for flexing logical thinking.

18. Time Complexity Analysis

- Problems like `LOOP_CMPL`, `REC_CMPL1`, `Collatz Conjecture` test your understanding of Big-O notation for various code snippets. This is a fundamental skill.