BOSSCODER ACADEMY

# DSA Sheet

By Bosscoder

STRUCTURED. COMPREHENSIVE. RESULTS-DRIVEN.

Ultimate Guide to Mastering DSA

# *Disclaimer*

> **Before you start with the sheet, a quick heads-up 👇**

This sheet is here to help you master DSA the smart way. Every problem is carefully picked from **Leetcode** and **GeeksforGeeks** with guidance from experienced mentors.

But remember, Don’t just skim through solutions.

**Take your time. Think through the problem.**
**Try solving it your way first.**

Only then check out different approaches, that’s how you really grow.

# Why Use This Sheet? —

Here’s why we feel this sheet is right for you

### STRUCTURED LEARNING PATH

Start from the basics and scale up to advanced topics. Each topic flows into the next so you’re never lost or stuck.

1

### PROVEN TRACK RECORD

Over 1000+ learners have used this exact sheet to crack roles at FAANG, Microsoft, and other top-tier companies.

2

### TIME-EFFICIENT & FOCUSED

Every problem here has a purpose. No time-wasters, no duplicates,  just what you need to know.

3

### PATTERN-BASED APPROACH

You won’t just solve problems, you’ll understand how to spot patterns, reuse logic, and approach any unseen question with confidence.

4

# 01 ARRAYS

## 1-D Array

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 01 | Richest Customer Wealth | Link | |
| 02 | Two Sum | Link | |
| 03 | Count Negative Numbers In A Sorted Matrix | Link | |
| 04 | Next Permutation | Link | |
| 05 | Median Of Two Sorted Arrays | Link | |
| 06 | Find Greatest Common Divisor Of Array | Link | |
| 07 | Self Dividing Numbers | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 08 | Inversion Of Array - 1587115620 | Link | |
| 09 | Reverse Pairs | Link | |

## 2-D Array

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 10 | Special Positions In A Binary Matrix | Link | |
| 11 | Transpose Matrix | Link | |
| 12 | 01 Matrix | Link | |
| 13 | Spiral Matrix | Link | |
| 14 | Pascal's Triangle | Link | |

## Prefix Sum

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 15 | Minimum Size Subarray Sum | Link | |
| 16 | Running Sum Of 1d Array | Link | |
| 17 | Range Sum Query 2D Immutable | Link | |

## Kadane's Algorithm

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 18 | Maximum Subarray | Link | |
| 19 | Maximum Sum Circular Subarray | Link | |
| 20 | Longest Turbulent Subarray | Link | |

## Sliding Window (Fixed/Variable Size)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 21 | Contains Duplicate II | Link | |
| 22 | Number Of Sub-Arrays Of Size K And Average .. | Link | |
| 23 | Minimum Size Subarray Sum | Link | |
| 24 | Longest Substring Without Repeating Characters | Link | |
| 25 | Longest Repeating Character Replacement | Link | |

## Two Pointers

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 26 | Container With Most Water | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 27 | Trapping Rain Water | Link | |
| 28 | Two Sum II - Input Array Is Sorted | Link | |
| 29 | K-Diff Pairs In An Array | Link | |
| 30 | Find K Closest Elements | Link | |

# 02 BINARY SEARCH

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 31 | Search In Rotated Sorted Array | Link | |
| 32 | Remove Duplicates from Sorted Array | Link | |
| 33 | Find First And Last Position Of Element In Sorted Array | Link | |
| 34 | Search A 2D Matrix | Link | |
| 35 | Find Peak Element | Link | |
| 36 | Single Element In A Sorted Array | Link | |
| 37 | Preimage Size Of Factorial Zeroes Function | Link | |

# 03 SORTING

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 38 | Check If Two Arrays Are Equal Or Not | Link | |
| 39 | Binary Array Sorting | Link | |
| 40 | Sort Colors | Link | |
| 41 | Kth Largest Element In An Array | Link | |
| 42 | Minimum Absolute Difference | Link | |
| 43 | K Closest Points To Origin | Link | |
| 44 | Max Chunks To Make Sorted | Link | |

# 04 HASHING

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 45 | Contiguous Array | Link | |
| 46 | Longest Consecutive Sequence | Link | |
| 47 | Subarray Sum Equals K | Link | |
| 48 | Valid Anagram | Link | |
| 49 | Valid Sudoku | Link | |
| 50 | Ugly Number II | Link | |
| 51 | Subarray Sum Equals K | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 52 | Max Points On A Line | Link | |
| 53 | Palindrome Pairs | Link | |

# 05 LINKED LISTS

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 54 | Middle Of The Linked List | Link | intuit, amazon, adobe |
| 55 | Maximum Twin Sum Of A Linked List | Link | google, amazon, microsoft |
| 56 | Merge Two Sorted Lists | Link | google, salesforce, meta |
| 57 | Linked List Cycle | Link | adobe, oracle, meta |
| 58 | Reverse Nodes In K-Group | Link | google, amazon, microsoft |
| 59 | Remove Nth Node From End Of List | Link | google, amazon, meta |
| 60 | Linked List Cycle II | Link | microsoft, amazon |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 61 | Delete Node In A Linked List | Link | |
| 62 | Reverse Linked List | Link | |
| 63 | Palindrome Linked List | Link | |
| 64 | Remove Linked List Elements | Link | |
| 65 | Convert Binary Number In A Linked List To Integer | Link | |
| 66 | Remove Duplicates From Sorted List II | Link | |
| 67 | Reverse Linked List II | Link | |
| 68 | Sort List | Link | |

# 06 STACK AND QUEUE

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 69 | Implement Stack Using Queues | Link | |
| 70 | Implement Queue Using Stacks | Link | |
| 71 | Backspace String Compare | Link | |
| 72 | Baseball Game | Link | |
| 73 | Longest Valid Parentheses | Link | |
| 74 | Evaluate Reverse Polish Notation | Link | |
| 75 | Daily Temperatures | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 76 | Largest Rectangle In Histogram | Link | |
| 77 | Min Stack | Link | |
| 78 | Minimum Remove To Make Valid Parentheses | Link | |

# 07 HEAP

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 79 | Find Median From Data Stream | Link | |
| 80 | Merge K Sorted Lists | Link | |
| 81 | Find K Pairs With Smallest Sums | Link | |
| 82 | Meeting Rooms II | Link | |
| 83 | Top K Frequent Elements | Link | |
| 84 | K Closest Points To Origin | Link | |

07

# RECURSION & BACKTRACKING

## Recursion

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 85 | Count Good Numbers | Link | |
| 86 | Permutations | Link | |
| 87 | Permutations II | Link | |
| 88 | Subsets | Link | |
| 89 | Basic Calculator | Link | |
| 90 | Wildcard Matching | Link | |

## Backtracking

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 91 | Combinations | Link | |
| 92 | Combination Sum | Link | |
| 93 | Combination Sum III | Link | |
| 94 | Letter Combinations Of A Phone Number | Link | |
| 95 | Gray Code | Link | |
| 96 | Letter Case Permutation | Link | |
| 97 | N-Queens | Link | |
| 98 | Sudoku Solver | Link | |

# 08 TREES

## Binary Tree

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 99 | Construct Binary Tree From Inorder And Postorder Traversal | Link | |
| 100 | Construct Binary Tree From Preorder And Inorder Traversal | Link | |
| 101 | Path Sum | Link | |
| 102 | Same Tree | Link | |

## Level Order Traversal (BFS)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 103 | Binary Tree Level Order Traversal | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 104 | Invert Binary Tree | Link | |
| 105 | Minimum Cost Tree From Leaf Values | Link | |
| 106 | Binary Tree Zigzag Level Order Traversal | Link | |

## DFS (Recursive & Iterative)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 107 | Maximum Depth Of Binary Tree | Link | |
| 108 | Sum Of Left Leaves | Link | |
| 109 | Binary Tree Right Side View | Link | |
| 110 | Path Sum II | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 111 | Path Sum III | Link | |

## BST

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 112 | Lowest Common Ancestor Of A Binary Search Tree | Link | |
| 113 | Closest Binary Search Tree Value II | Link | |
| 114 | Trim A Binary Search Tree | Link | |
| 115 | Search In A Binary Search Tree | Link | |

# TREES II

## BBST(AVL Tree)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 116 | Queue Reconstruction By Height | Link | |
| 117 | Binary Tree Pruning | Link | |
| 118 | Balance A Binary Search Tree | Link | |
| 119 | Balanced Binary Tree | Link | |

## Trie

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 120 | Implement Trie (Prefix Tree) | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 121 | Design Add And Search Words Data Structure | Link | |
| 122 | Word Search II | Link | |
| 123 | Redundant Connection | Link | |
| 124 | Accounts Merge | Link | |

## Segment Tree (Range Queries)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 125 | Range Sum Query Mutable | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 126 | Longest Increasing Subsequence II | Link | |

# 10 GRAPHS

## BFS & DFS

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 127 | Rotting Oranges | Link | |
| 128 | Word Ladder | Link | |
| 129 | Number Of Provinces | Link | |
| 130 | Number Of Enclaves | Link | |

## Detect Cycle in Undirected/ Directed Graph

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 131 | Detect Cycle In An Undirected Graph | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 132 | Detect Cycle In A Directed Graph | Link | |
| 133 | Course Schedule | Link | |
| 134 | Course Schedule II | Link | |
| 135 | Find Eventual Safe States | Link | |
| 136 | Alien Dictionary | Link | |

## Dijkstra's Algorithm (SSSP)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 137 | Network Delay Time | Link | |
| 138 | Shortest Path In Binary Matrix | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 139 | Path With Minimum Effort | Link | |
| 140 | Cheapest Flights Within K Stops | Link | |

## Prim's & Kruskal's (MST)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 141 | Min Cost To Connect All Points | Link | |
| 142 | Find Critical And Pseudo-Critical Edges In Minimum Spanning Tree | Link | |
| 143 | Connecting Cities With Minimum Cost | Link | |

## Floyd-Warshall (APSP)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 144 | Course Schedule IV | Link | |
| 145 | Find The City With The Smallest Number Of Neighbors At A... | Link | |
| 146 | Number Of Ways To Arrive At Destination | Link | |

10

# GREEDY

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 147 | Non-Overlapping Intervals | Link | |
| 148 | Minimum Platforms | Link | |
| 149 | Maximize Sum Of Array After K Negations | Link | |
| 150 | Assign Mice To Holes | Link | |
| 151 | Maximum Product Of Three Numbers | Link | |
| 152 | Bulb Switcher | Link | |
| 153 | Candy | Link | |
| 154 | Maximum Swap | Link | |

# 10 DYNAMIC PROGRAMMING

## Climbing Stairs

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 155 | Climbing Stairs | Link | |
| 156 | Decode Ways | Link | |
| 157 | Frog Jump | Link | |

## Coin Change (1D DP)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 158 | Coin Change | Link | |
| 159 | Minimum Jumps To Reach Home | Link | |

## Buy and Sell Stock

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 160 | Best Time To Buy And Sell Stock | Link | Morgan Stanley, Samsung, Bolt |
| 161 | Best Time To Buy And Sell Stock II | Link | DE Shaw & Co, Microsoft, J.P.Morgan |
| 162 | Best Time To Buy And Sell Stock III | Link | Phonepe, Meta, Google |
| 163 | Best Time To Buy And Sell Stock IV | Link | Nvidia, Microsoft, Google |
| 164 | Best Time To Buy And Sell Stock With Cooldown | Link | Visa, Meta, Google |
| 165 | Best Time To Buy And Sell Stock With Transaction Fee | Link | Goldman Sachs, Microsoft, Google |

## 0/1 Knapsack

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 166 | Partition Equal Subset Sum | Link | Flipkart, Microsoft, Bolt |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 167 | Ones And Zeroes | Link | |

## Unbounded Knapsack

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 168 | Coin Change II | Link | |
| 169 | Last Stone Weight II | Link | |

## Longest Common Subsequence (LCS)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 170 | Longest Common Subsequence | Link | |
| 171 | Edit Distance | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 172 | Longest Palindromic Subsequence | Link | |
| 173 | Minimum Insertion Steps To Make A String Palindrome | Link | |

## Longest Increasing Subsequence (LIS)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 174 | Longest Increasing Subsequence | Link | |
| 175 | Largest Divisible Subset | Link | |
| 176 | Longest String Chain | Link | |

## Matrix Chain Multiplication (MCM)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 177 | Minimum Cost To Cut A Stick | Link | |
| 178 | Burst Balloons | Link | |
| 179 | Parsing A Boolean Expression | Link | |
| 180 | Palindrome Partitioning II | Link | |

## DP on Grids and Trees

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 181 | Shortest Path Visiting All Nodes | Link | |
| 182 | Unique Paths | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 183 | Unique Paths II | Link | |
| 184 | Minimum Path Sum | Link | |
| 185 | Russian Doll Envelopes | Link | |

# 11 MATH

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 186 | Find Greatest Common Divisor Of Array | Link | |
| 187 | Self Dividing Numbers | Link | |
| 188 | Number Of Good Pairs | Link | |
| 189 | Four Divisors | Link | |
| 190 | Day Of The Week | Link | |
| 191 | Subtract The Product And Sum Of Digits Of An Integer | Link | |
| 192 | Count Of Matches In Tournament | Link | |

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 193 | Max Consecutive Ones | Link | |
| 194 | Rectangle Overlap | Link | |
| 195 | Excel Sheet Column | Link | |
| 196 | Unique Paths | Link | |
| 197 | Rectangle Area | Link | |
| 198 | Check If Array Pairs Are Divisible By K | Link | |
| 199 | Factorial Trailing Zeroes | Link | |
| 200 | Nth Magical Number | Link | |
| 201 | Permutation Sequence | Link | |

# 11 MISCELLANEOUS

## Bit Manipulation Tricks

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 202 | Single Number | Link | |
| 203 | Reverse Bits | Link | |
| 204 | Single Number II | Link | |
| 205 | Number Of 1 Bits | Link | |
| 206 | Factorial Trailing Zeroes | Link | |
| 207 | Binary Number With Alternating Bits | Link | |
| 208 | Number Of Even And Odd Bits | Link | |

## Rabin-Karp (Rolling Hash)

| # | Algorithm | Practice Link | Asked in |
|---|---|---|---|
| 209 | Find The Index Of The First Occurrence In A String | Link | Uber, AMZ, G |
| 210 | Repeated DNA Sequences | Link | G, Bloomberg, G |
| 211 | Longest Duplicate Substring | Link | a, G, Uber |

BOSSCODER ACADEMY

# WHY BOSSCODER?

## 01 STRUCTURED INDUSTRY-VETTED CURRICULUM

Our curriculum covers everything you need to get become a skilled software engineer & get placed.

## 02 1:1 MENTORSHIP SESSIONS

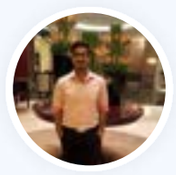
You are assigned a personal mentor currently working in Top product based companies.

## 03 2200+ ALUMNI PLACEMENT

**2200+** Alumni placed at Top Product-based companies.

## 04 24 LPA AVERAGE PACKAGE

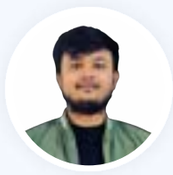
Our Average  Placement Package is **24 LPA** and highest is **98 LPA**



**Niranjan Bagade**
Software Engineer,
British Petroleum

**10 Years**
Experience

| | | |
|---|---|---|
| **NICE**<br>Software Eng. Specialist | Hike<br>**83%** | **British Petroleum**<br>Software Engineer |



**Dheeraj Barik**
Software Engineer 2,
Amazon

**2 Years**
Experience

| | | |
|---|---|---|
| **Infosys**<br>Software Engineer | Hike<br>**550%** | **Amazon**<br>SDE 2 |

**EXPLORE MORE**