

### ### Realistic Expectations for 15 Days

- Foundation Building: Gain a basic understanding of essential data structures and algorithms.
- Problem-Solving Skills: Start developing the ability to approach and solve standard problems.
- Familiarity with Patterns: Recognize common problem-solving patterns used in interviews.
- Practice Basics: Solve a selection of beginner to intermediate problems to reinforce learning.

### ### 15-Day Study Plan for DSA Beginners

#### #### Days 1-2: Introduction and Basics

- Understand the Importance of DSA
  - Why DSA matters in programming and technical interviews.
- Learn Programming Language Fundamentals
  - Choose a language commonly used in interviews (e.g., Python, Java, C++).
  - Ensure you are comfortable with syntax, basic I/O, and control structures.

#### #### Days 3-4: Arrays and Strings

- Concepts to Cover: Arrays, Strings, common problems.
- Practice Problems:
  - LeetCode: Two Sum
  - LeetCode: Reverse String
  - LeetCode: Longest Substring Without Repeating Characters

#### #### Days 5-6: Linked Lists

- Concepts to Cover: Singly and Doubly Linked Lists.
- Practice Problems:

- LeetCode: Reverse Linked List
- LeetCode: Linked List Cycle
- LeetCode: Merge Two Sorted Lists

#### #### Days 7-8: Stacks and Queues

- Concepts to Cover: Basic operations and usage of Stacks and Queues.
- Practice Problems:
  - LeetCode: Valid Parentheses
  - LeetCode: Implement Queue using Stacks
  - LeetCode: LRU Cache

#### #### Days 9-10: Hash Tables

- Concepts to Cover: Hash functions, hash tables, and common problems.
- Practice Problems:
  - LeetCode: Valid Anagram
  - LeetCode: Two Sum
  - LeetCode: Subarray Sum Equals K

#### #### Days 11-12: Trees

- Concepts to Cover: Binary Trees, Binary Search Trees, tree traversal algorithms.
- Practice Problems:
  - LeetCode: Binary Tree Inorder Traversal
  - LeetCode: Validate Binary Search Tree
  - LeetCode: Maximum Depth of Binary Tree

#### #### Days 13-14: Basic Algorithms

- Concepts to Cover: Sorting algorithms (Merge Sort, Quick Sort), Binary Search.

- Practice Problems:
- LeetCode: Binary Search
- LeetCode: Find Minimum in Rotated Sorted Array
- LeetCode: Merge Two Sorted Arrays

#### #### Day 15: Recap and Mock Interview

- Review All Topics
- Identify Weak Areas
- Conduct a Mock Interview: Solve a few problems within a time limit.

#### ### Tips to Maximize Your 15-Day Learning

1. Dedicate Sufficient Time Daily
2. Active Learning: Code by Hand and Explain Your Thinking.
3. Utilize Quality Resources (LeetCode, HackerRank, GeeksforGeeks, etc.).
4. Practice Consistently.
5. Understand, Don't Memorize.
6. Time Management.
7. Stay Healthy.

#### ### Final Thoughts

This 15-day plan provides a solid introduction to DSA. Continue practicing and exploring advanced topics after completing the plan. Good luck on your journey to mastering DSA!