

## **1. Problem Solving on Array**

- Array Basics and Common Operations
- Two-Pointer Techniques
- Sliding Window Approach
- Sorting and Searching in Arrays
- Array Partitioning
- Handling Duplicates in Arrays
- Dynamic Array Problems
- Advanced Array Manipulation

## **2. Problem solving on String**

- String Manipulation
- String Matching Algorithms
- Palindrome Detection
- Anagram Detection
- Substring Search
- Longest Common Substring
- Longest Common Prefix
- Regular Expressions
- String Compression
- String Rotation
- Character Frequency Counting
- String Reversal
- Pattern Matching
- Edit Distance Calculation

## **3. Problem solving on Recursion**

- Introduction to Recursion
- Base Case and Recursive Case
- Recursive Problem Solving Strategies
- Factorial Calculation
- Fibonacci Sequence
- Tower of Hanoi
- Permutations and Combinations
- Depth-First Search (DFS)
- Backtracking Algorithms
- Recursive Tree Traversal
- Divide and Conquer Techniques