

Format:

For each day:

- **Topic**
 - **Content to Know**
 - **Must-Solve Questions**
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WEEK 1: Programming Basics + Arrays

Day 1: Basic Programming Concepts

- **Content to Know:**
 - Loops (for, while)
 - if-else, switch-case
- **Must-Solve Questions:**
 - Print 1 to N
 - Check even or odd
 - Largest of 3 numbers
 - Leap year check

Day 2: Number Logic Problems

- **Content to Know:**
 - Prime number, Palindrome
 - Armstrong, Reverse number
- **Must-Solve Questions:**
 - Prime check
 - Palindrome number
 - Armstrong number
 - Reverse number

Day 3: Math + Patterns

- **Content to Know:**
 - Factorial, GCD, LCM
 - Multiplication tables, sum of digits
- **Must-Solve Questions:**
 - Factorial (loop + recursion)
 - GCD and LCM
 - Sum of digits

Day 4: Arrays - Basics

- Content to Know:
 - Traversing, Inserting, Reversing
- Must-Solve Questions:
 - Find min/max element
 - Reverse array
 - Rotate array by K
 - Check if array is sorted

Day 5: Arrays - Intermediate

- Content to Know:
 - Frequency, Duplicates, Zeroes
- Must-Solve Questions:
 - Move all 0s to end
 - Sort 0s, 1s, 2s
 - Find duplicate/missing number
 - Count frequency of each element

Day 6: Subarrays & Kadane's

- Content to Know:
 - Sum of subarray, max/min product
- Must-Solve Questions:
 - Kadane's Algorithm (max sum)
 - Longest subarray with sum K
 - Maximum product subarray

Day 7: Practice + Quiz Day

- Revise Week 1 concepts and solve 5 mixed array problems
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WEEK 2: Strings, Hashing, Sorting

Day 8: Strings - Basics

- Content to Know:
 - Character arrays, StringBuilder
- Must-Solve Questions:
 - Reverse string
 - Check palindrome
 - Convert case
 - Count vowels/consonants

Day 9: String Operations

- Content to Know:

- Substrings, duplicates, anagram
- Must-Solve Questions:
 - Remove duplicates
 - Anagram check
 - Reverse words in sentence
 - Longest common prefix

Day 10: Hashing - Frequency Based

- Content to Know:
 - HashMap, HashSet, Java Collections
- Must-Solve Questions:
 - Count frequency of each element
 - Majority element ($> n/2$)
 - First non-repeating character

Day 11: Hashing - Set & Pair Problems

- Content to Know:
 - Pair/Triplet with sum, duplicates
- Must-Solve Questions:
 - Pair with given sum
 - Check duplicates using set
 - Subarray with given sum

Day 12: Sorting Algorithms

- Content to Know:
 - Bubble, Selection, Merge, Quick
- Must-Solve Questions:
 - Bubble sort
 - Merge sort
 - Quick sort

Day 13: Sorting – Variants

- Content to Know:
 - Custom sorting, frequency sort
- Must-Solve Questions:
 - Sort 0s, 1s, 2s
 - Sort array of strings
 - Count inversions

Day 14: Mixed Practice Day

- Solve 1 string, 1 sorting, 1 hashing question + revision
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WEEK 3: Linked List, Stack, Queue, Matrix

Day 15: Linked List Basics

- Content to Know:
 - Node structure, insert operations
- Must-Solve Questions:
 - Insert at head/tail
 - Find middle node
 - Delete node (without head)

Day 16: Linked List Applications

- Content to Know:
 - Reverse list, merge, detect loop
- Must-Solve Questions:
 - Reverse linked list
 - Merge two sorted lists
 - Detect loop (Floyd's)

Day 17: Stack

- Content to Know:
 - Push/pop, Java Deque, expression evaluation
- Must-Solve Questions:
 - Valid parentheses
 - Next greater element
 - Infix to postfix

Day 18: Queue

- Content to Know:
 - Queue operations, circular queue
- Must-Solve Questions:
 - Queue using array
 - Queue using 2 stacks
 - Reversing first K elements

Day 19: 2D Matrix Basics

- Content to Know:
 - Traversals, transposes
- Must-Solve Questions:
 - Transpose matrix
 - Rotate matrix 90 degrees
 - Search in row/col-wise sorted matrix

Day 20: Matrix – Advanced

- Content to Know:

- Spiral/diagonal traversal
- Must-Solve Questions:
 - Spiral matrix
 - Set matrix zeroes
 - Diagonal traversal

Day 21: Practice Day

- Pick 1 each: Linked List, Stack, Queue, Matrix
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WEEK 4: Recursion, Bit, Sliding Window, Final Practice

Day 22: Recursion Basics

- Content to Know:
 - Base case, recursive thinking
- Must-Solve Questions:
 - Factorial
 - Fibonacci
 - Sum of digits

Day 23: Backtracking

- Content to Know:
 - Subsequence, permutation
- Must-Solve Questions:
 - Print subsequences
 - Generate permutations
 - Maze path

Day 24: Bit Manipulation

- Content to Know:
 - Bitwise operations in Java
- Must-Solve Questions:
 - Check even/odd using bit
 - Count set bits
 - Find the single number (XOR)

Day 25: Two Pointer & Sliding Window

- Content to Know:
 - Pointer movement, window growth
- Must-Solve Questions:
 - Pair with target sum
 - Longest substring without repeating characters
 - Max sum subarray of size K

Day 26–27: Mock Round 1

- Pick 5 random topics, solve 1 easy + 1 medium each

Day 28–29: Mock Round 2

- Pick 5 new topics, solve 1 medium + 1 hard each

Day 30: Final Revision

- Revise tricky logic, Java syntax, mock 1-hour test
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