## 🧩 ****1. String-Based Questions (Most Common)****

These are asked in almost every interview.

1. Reverse a string without using reverse() method.
2. Check if a string is palindrome.
3. Count vowels and consonants in a string.
4. Find the first non-repeated character in a string.
5. Find the first repeated character in a string.
6. Count frequency of each character in a string.
7. Remove duplicate characters from a string.
8. Check if two strings are anagrams.
9. Find all permutations of a string.
10. Reverse each word in a sentence while maintaining word order.
11. Check if a string contains only digits.
12. Find the longest word in a sentence.
13. Count the number of words in a string.
14. Find occurrence of a substring in a string.
15. Check if one string is a rotation of another.

## 🔢 ****2. Array & Number Questions****

Tests your logic, loops, and algorithmic thinking.

1. Find the largest and smallest number in an array.
2. Find the second largest/second smallest element in an array.
3. Reverse an array in place.
4. Find missing number in array (1 to n).
5. Find duplicate elements in an array.
6. Remove duplicates from an array.
7. Find the sum of all elements in an array.
8. Find all pairs of elements whose sum is equal to a given number.
9. Find the intersection of two arrays.
10. Merge two sorted arrays.
11. Sort an array without using built-in methods.
12. Move all zeros to the end of an array.
13. Rotate an array by k positions.
14. Find subarray with maximum sum (Kadane’s Algorithm).
15. Find missing and repeating numbers in an array.

## 🧮 ****3. Number Logic & Pattern Questions****

Simple but often asked to test problem-solving.

1. Check if a number is prime.
2. Print all prime numbers from 1 to 100.
3. Check if a number is palindrome.
4. Check if a number is Armstrong.
5. Find factorial of a number (using loop & recursion).
6. Generate Fibonacci series up to n terms.
7. Find GCD or HCF of two numbers.
8. Find LCM of two numbers.
9. Count number of digits in a number.
10. Reverse digits of a number.
11. Sum of digits of a number.
12. Find the power of a number (without using Math.pow).
13. Check if a number is perfect number.
14. Find all factors of a number.
15. Convert decimal to binary and binary to decimal.

## 🧠 ****4. Collection & Map-Based Questions****

Important for Java-specific interviews.

1. Count frequency of words in a sentence using HashMap.
2. Sort elements in a HashMap by value.
3. Find duplicate elements in a List.
4. Remove duplicates from a List.
5. Find intersection of two Lists.
6. Convert List to Set and Set to List.
7. Find the first non-repeated element in a List.
8. Sort a List of custom objects using Comparator and Comparable.
9. Group words by their length using Stream API.
10. Use Streams to filter even numbers from a list.

## ⚙️ ****5. Java 8 Stream API & Functional Coding****

Modern interviews expect Stream API knowledge.

1. Find even and odd numbers from a list using Stream.
2. Find maximum and minimum element using Stream.
3. Convert a list of strings to uppercase.
4. Count frequency of each element using Collectors.groupingBy().
5. Remove duplicates using Stream.
6. Find second highest number using Stream.
7. Sum of all elements using Stream reduce().
8. Find average of numbers using Stream.
9. Sort list in descending order using Stream.
10. Partition numbers into even and odd using Stream.

## 🔄 ****6. Recursion & Logic Building****

1. Factorial using recursion.
2. Fibonacci using recursion.
3. Reverse a string using recursion.
4. Sum of digits using recursion.
5. Find nth Fibonacci number.
6. Check palindrome using recursion.
7. Tower of Hanoi problem.
8. Print numbers from n to 1 using recursion.
9. Count occurrences of a character recursively.
10. Find power of number using recursion.

## 🧩 ****7. Pattern Printing (Basic to Intermediate)****

These check your understanding of loops and nested loops.

1. Right triangle star pattern.
2. Inverted triangle star pattern.
3. Pyramid star pattern.
4. Diamond pattern.
5. Number pyramid pattern.
6. Pascal’s triangle.
7. Floyd’s triangle.
8. Butterfly pattern.
9. Hourglass star pattern.
10. Hollow square pattern.

## 🧰 ****8. Miscellaneous / Logical Puzzles****

1. Swap two numbers without using a third variable.
2. Swap two strings without using a third variable.
3. Reverse an integer array without using extra space.
4. Check if two arrays are equal.
5. Convert Roman numeral to integer.
6. ind longest substring without repeating characters.
7. Count occurrences of each word in a file.
8. Find missing letter from an alphabet string.
9. Implement custom sorting logic.
10. Implement your own HashMap logic (for advanced practice).