

## Basics & Control Flow

1. Write a Java program to print **"Hello, World!"**.
2. Write a Java program to take **two numbers as input** and print their **sum, difference, product, and quotient**.
3. Write a Java program to **check whether a given number is even or odd**.
4. Write a Java program to **check whether a given year is a leap year or not**.
5. Write a Java program to **find the largest of three numbers**.
6. Write a Java program to **print the multiplication table of a given number**.
7. Write a Java program to **calculate the sum of the first N natural numbers**.
8. Write a Java program to **calculate the sum of all even numbers between 1 and N**.
9. Write a Java program to **calculate the factorial of a number using loops**.
10. Write a Java program to **generate the Fibonacci series up to N terms**.

## Number-Based Problems

11. Write a Java program to **check whether a number is prime or not**.
12. Write a Java program to **print all prime numbers between 1 and 100**.
13. Write a Java program to **find the GCD and LCM of two numbers**.
14. Write a Java program to **reverse a number** (e.g.,  $123 \rightarrow 321$ ).
15. Write a Java program to **check whether a number is a palindrome** (e.g., 121, 1331).
16. Write a Java program to **check whether a number is an Armstrong number** (e.g.,  $153 = 1^3 + 5^3 + 3^3$ ).
17. Write a Java program to **count the number of digits in a given number**.
18. Write a Java program to **calculate the sum of digits of a number**.
19. Write a Java program to **print the factorial of a number using recursion**.
20. Write a Java program to **print the Fibonacci series using recursion**.

## Arrays & Strings

21. Write a Java program to **find the largest element in an array**.
22. Write a Java program to **sort an array in ascending order**.
23. Write a Java program to **search an element in an array (Linear Search)**.
24. Write a Java program to **calculate the average and percentage of 5 subjects**.
25. Write a Java program to **count the number of vowels and consonants in a string**.
26. Write a Java program to **check whether a string is a palindrome or not**.
27. Write a Java program to **find the length of a string without using `length()` method**.
28. Write a Java program to **reverse a string without using `StringBuilder.reverse()`**.
29. Write a Java program to **sort names in alphabetical order**.

## Some Extra Questions

31. Write a Java program to **swap two numbers without using a third variable**.
32. Write a Java program to **find the second largest element in an array**.
33. Write a Java program to **merge two arrays into a single array**.
34. Write a Java program to **copy one string to another without using String methods like `copyValueOf()`**.
35. Write a Java program to **convert a string to uppercase without using `toUpperCase()`**.
36. Write a Java program to **find the frequency of each element in an array**.
37. Write a Java program to **find the sum of the main diagonal elements of a matrix**.
38. Write a Java program to **transpose a matrix**.
39. Write a Java program to **multiply two matrices**.