

## Section 1: Variables & Operators

1. Write a Java program to declare two integers and print their sum, difference, product, and quotient.
  2. Write a program to swap two numbers:
    - Using a temporary variable
    - Without using a temporary variable
  3. Write a program to calculate simple interest.
  4. Write a program to calculate area and perimeter of a rectangle.
  5. Write a program to convert:
    - Celsius to Fahrenheit
    - Kilometers to Miles
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## Section 2: Conditional Statements (if, if-else, switch)

6. Write a program to check whether a number is positive, negative, or zero.
7. Write a program to check whether a number is even or odd.
8. Write a program to check whether a year is a leap year.
9. Write a program to find the largest of three numbers.
10. Write a program to calculate student grade based on marks:
  - $\geq 90 \rightarrow A$
  - $\geq 75 \rightarrow B$
  - $\geq 60 \rightarrow C$
  - Else  $\rightarrow$  Fail
11. Write a program using switch-case to create a simple calculator.

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### **Section 3: Loops (for, while, do-while)**

12. Print numbers from 1 to 100.
13. Print all even numbers between 1 and 50.
14. Write a program to calculate factorial of a number.
15. Write a program to print the multiplication table of a given number.
16. Write a program to calculate the sum of digits of a number.
17. Write a program to reverse a number.
18. Write a program to check whether a number is a palindrome.
19. Write a program to print Fibonacci series up to n terms.
20. Write a program to check whether a number is prime.

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### **Section 4: Arrays**

21. Write a program to store 5 integers in an array and print them.
22. Write a program to find the sum and average of array elements.
23. Write a program to find the largest and smallest element in an array.
24. Write a program to count even and odd numbers in an array.
25. Write a program to reverse an array.
26. Write a program to search an element using:
  - Linear Search
27. Write a program to sort an array in ascending order.

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### **Section 5: Strings (without classes like StringBuilder)**

28. Write a program to count vowels and consonants in a string.
29. Write a program to reverse a string.
30. Write a program to check whether a string is a palindrome.
31. Write a program to count number of words in a sentence.
32. Write a program to find duplicate characters in a string.

33. Write a program to convert:

- Lowercase to Uppercase
- Uppercase to Lowercase

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**Section 6: Methods (Non-OOP style – static methods)**

34. Write a program with a method to check even or odd.

35. Write a method to find factorial of a number.

36. Write a method to check prime number.

37. Write a method to find maximum of two numbers.

38. Write a method to calculate simple interest.