

Problem 1: Grading System (if-else if-else)

Problem:

Write a Java program that takes a student's marks (integer) as input and prints the corresponding grade based on the following conditions:

- Marks $\geq 90 \rightarrow$ "Grade: A"
- Marks ≥ 80 and $< 90 \rightarrow$ "Grade: B"
- Marks ≥ 70 and $< 80 \rightarrow$ "Grade: C"
- Marks ≥ 60 and $< 70 \rightarrow$ "Grade: D"
- Marks $< 60 \rightarrow$ "Grade: F"

Example:

Input: Enter marks: 85

Output: Grade: B

Problem 2: Odd or Even (if-else)

Problem:

Write a Java program that takes an integer as input and prints whether it is odd or even.

Example:

Input: Enter a number: 7

Output: 7 is Odd

Problem 3: Sum of First N Natural Numbers (for loop)

Problem:

Write a Java program to calculate and print the sum of the first N natural numbers using a `for loop`.

Example:

Input: Enter N: 5

Output: Sum = 15 (1+2+3+4+5)

Problem 4: Multiplication Table (for loop)

Problem:

Write a Java program that takes an integer N as input and prints its multiplication table up to 10 using a `for loop`.

Example:

Input: Enter N: 3

Output:

3 x 1 = 3

3 x 2 = 6

...

3 x 10 = 30

Problem 5: Find First Divisible by 7 (for loop + break)

Problem:

Write a Java program that finds the first number between 1 and 50 that is divisible by 7 using a `for loop` and `break`.

Output:

`First number divisible by 7 is: 7`

Problem 6: Print Odd Numbers (for loop + continue)

Problem:

Write a Java program that prints all odd numbers from 1 to 20 using a `for loop`. Use `continue` to skip even numbers.

Output:

`1 3 5 7 9 11 13 15 17 19`

Problem 7: Find Maximum in an Array (Array + for loop)

Problem:

Write a Java program that takes an array of integers and finds the maximum element.

Example:

Input: `{12, 45, 23, 89, 55}`

Output: `Maximum: 89`

Problem 8: Reverse an Array (Array + for loop)

Problem:

Write a Java program that takes an array of integers and prints it in reverse order.

Example:

Input: `{10, 20, 30, 40, 50}`

Output: `{50, 40, 30, 20, 10}`

Problem 9: Count Even and Odd Numbers in an Array

Problem:

Write a Java program that counts the number of even and odd numbers in an array.

Example:

Input: {10, 15, 22, 33, 40, 55}

Output:

yaml

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Even Count: 3

Odd Count: 3

Problem 10: Check Prime Number (for loop + if-else)**Problem 11:**

Write a Java program to check if a given number is prime. A number is **prime** if it is only divisible by 1 and itself.

Example:

Input: Enter number: 17

Output: 17 is a Prime Number

Problem 11: Right-Angled Triangle (for loop)**Problem:**

Write a Java program to print the following pattern for **N** rows

Problem 12: Pyramid Pattern (for loop)**Problem:**

Write a Java program to print the following pyramid pattern.

Problem 13: Fibonacci Series (for loop)**Problem:**

Write a Java program to print the first **N** Fibonacci numbers.

Problem 14: Factorial Using Recursion

Problem:

Modify Problem 5 to use `recursion` instead of a `for loop`.

Example:

Input: Enter N: 5

Output: Factorial of 5 = 120

Problem 15: Design java class on

- Book
- Bank
- Hospital
- Library

Problem 16: Add and Display Elements in an ArrayList

Problem:

Write a Java program to create an `ArrayList` of integers, add five numbers to it, and then display the list.

Problem 17: Remove Even Numbers from an ArrayList

Problem:

Write a Java program to remove all even numbers from an `ArrayList`.

Example:

java

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Input: [10, 15, 20, 25, 30]

Output: [15, 25]

Problem 18: Check if an Element Exists in an ArrayList

Problem:

Write a Java program to check if a specific element exists in an **ArrayList**.

Example:

java

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Input: [3, 8, 12, 15, 21], Search: 12

Output: 12 exists in the list.

Problem 19: Sort an ArrayList

Problem:

Write a Java program to sort an **ArrayList** of integers in ascending order.

Example:

java

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Input: [42, 12, 89, 33, 5]

Output: [5, 12, 33, 42, 89]

Problem 20: Reverse an ArrayList

Problem:

Write a Java program to reverse the elements of an **ArrayList**.

Example:

java

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Input: [1, 2, 3, 4, 5]

Output: [5, 4, 3, 2, 1]

Problem 21: Add and Display Strings in an ArrayList

Problem:

Write a Java program that creates an `ArrayList<String>`, adds five strings to it, and prints the list.

Example:

java

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Input: ["Apple", "Banana", "Cherry", "Mango", "Orange"]

Output: ArrayList: [Apple, Banana, Cherry, Mango, Orange]

Problem 22: Find the Longest String in an ArrayList

Problem:

Write a Java program to find the longest string in an `ArrayList<String>`.

Example:

java

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Input: ["Cat", "Elephant", "Tiger", "Giraffe"]

Output: Longest String: Elephant

Problem 23: Convert ArrayList to Uppercase

Problem:

Write a Java program that converts all strings in an `ArrayList<String>` to uppercase.

Example:

java

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Input: ["hello", "world", "java"]

Output: ["HELLO", "WORLD", "JAVA"]