Java Programming Problems: Easy Level

Introduction

This document contains 100 easy-level Java programming problems, focusing on core basics including Introduction to Java, variables, data types, operators, input/output, conditional statements, loops, string manipulation, arrays, and methods. Each problem includes a description, input, and output example.

1 Easy Level Problems

Problem 1: Hello World Printer
Description: Write a program to print "Hello, World!" to the console.
Input: None
Output: `Hello, World!`

Problem 2: Variable Declaration
Description: Declare variables of all primitive types (int, double, char, boolean) and print them.
Input: None
Output: `int: 10, double: 3.14, char: A, boolean: true`

Problem 3: Add Two Numbers
Description: Take two integers as input and print their sum.
Input: `5 3`
Output: `Sum: 8`

Problem 4: Area of a Circle
Description: Calculate the area of a circle given its radius.
Input: `4`
Output: `Area: 50.24`

Problem 5: Swap Two Numbers
Description: Swap two integers without using a temporary variable.
Input: `a=10 b=20`
Output: `a=20 b=10`

Problem 6: Even or Odd
Description: Check if a number is even or odd.
Input: `7`
Output: `Odd`

Problem 7: Relational Comparison
Description: Compare two numbers using relational operators and print results.
Input: `5 10`
Output: `5 < 10: true, 5 > 10: false, 5 == 10: false`

Problem 8: Logical Operators
Description: Evaluate logical AND, OR, NOT for two boolean inputs.
Input: `true false`
Output: `AND: false, OR: true, NOT true: false`

Problem 9: Increment Operator
Description: Use ++ operator to increment a number 5 times in a loop.
Input: `10`
Output: `15`

Problem 10: Decrement Operator
Description: Use – operator to decrement a number 3 times.
Input: `8`
Output: `5`

Problem 11: Temperature Converter
Description: Convert Celsius to Fahrenheit.
Input: `25`
Output: `Fahrenheit: 77.0`

Problem 12: Grade Calculator
Description: Assign a grade (A, B, C, D, F) based on a score (0-100).
Input: `85`
Output: `Grade: B`

Problem 13: Day of the Week
Description: Print the day of the week based on a number (1-7) using switch.
Input: `3`
Output: `Wednesday`

Problem 14: Positive or Negative
Description: Check if a number is positive, negative, or zero.
Input: `-5`
Output: `Negative`

Problem 15: Factorial Calculator
Description: Calculate factorial of a number using a for loop.
Input: `5`
Output: `Factorial: 120`

Problem 16: Fibonacci Series
Description: Print first N Fibonacci numbers.
Input: `6`
Output: `0 1 1 2 3 5`

Problem 17: Sum of Digits

Description: Calculate sum of digits of a number.
Input: `123`
Output: `Sum: 6`

Problem 18: Reverse a Number
Description: Reverse a given integer.
Input: `1234`
Output: `4321`

Problem 19: Prime Number Check
Description: Check if a number is prime.
Input: `17`
Output: `Prime`

Problem 20: Multiplication Table
Description: Print multiplication table of a number up to 10.
Input: `4`
Output: `4 8 12 16 20 24 28 32 36 40`

Problem 21: String Length
Description: Print the length of a given string.
Input: `Hello`
Output: `Length: 5`

Problem 22: String Reversal
Description: Reverse a string without built-in methods.
Input: `Java`
Output: `avaJ`

Problem 23: Vowel Counter
Description: Count vowels in a string.
Input: `Hello`
Output: `Vowels: 2`

Problem 24: String to Uppercase
Description: Convert a string to uppercase.
Input: `hello`
Output: `HELLO`

Problem 25: Palindrome String
Description: Check if a string is a palindrome.
Input: `radar`
Output: `Palindrome`

Problem 26: Array Sum
Description: Calculate sum of elements in a 1D array.
Input: `1 2 3 4 5`
Output: `Sum: 15`

Problem 27: Array Maximum
Description: Find maximum element in an array.
Input: `3 7 2 9 4`
Output: `Maximum: 9`

Problem 28: Array Reverse
Description: Reverse elements of a 1D array.
Input: `1 2 3 4`
Output: `4 3 2 1`

Problem 29: Array Even Numbers
Description: Print even numbers in an array.
Input: `1 4 6 3 8`
Output: `4 6 8`

Problem 30: Array Search
Description: Search for an element in an array and return its index.
Input: `Array: 5 2 8 1, Search: 8`
Output: `Index: 2`

Problem 31: Square Method
Description: Write a method to return the square of a number.
Input: `4`
Output: `16`

Problem 32: Rectangle Area
Description: Calculate area of a rectangle using a method.
Input: `length=5 width=3`
Output: `Area: 15`

Problem 33: Check Even Method
Description: Method to check if a number is even.
Input: `6`
Output: `true`

Problem 34: String Concatenation
Description: Concatenate two strings using a method.
Input: `Hello World`
Output: `HelloWorld`

Problem 35: Array Average
Description: Calculate average of array elements.
Input: `2 4 6 8`
Output: `Average: 5.0`

Problem 36: Simple Interest
Description: Calculate simple interest (P*R*T/100).
Input: `principal=1000 rate=5 time=2`
Output: `Interest: 100.0`

Problem 37: Leap Year Check
Description: Check if a year is a leap year.
Input: `2020`
Output: `Leap Year`

Problem 38: Triangle Area
Description: Calculate area of a triangle (0.5*base*height).

Input: `base=4 height=5`
Output: `Area: 10.0`

Problem 39: Power of Number
Description: Calculate power of a number using a loop.
Input: `base=2 power=3`
Output: `8`

Problem 40: GCD Calculator
Description: Find GCD of two numbers using a loop.
Input: `12 18`
Output: `GCD: 6`

Problem 41: LCM Calculator
Description: Find LCM of two numbers using GCD.
Input: `4 6`
Output: `LCM: 12`

Problem 42: Sum of First N Numbers
Description: Calculate sum of first N natural numbers.
Input: `5`
Output: `Sum: 15`

Problem 43: Count Digits
Description: Count number of digits in an integer.
Input: `12345`
Output: `Digits: 5`

Problem 44: Armstrong Number
Description: Check if a number is an Armstrong number.
Input: `153`
Output: `Armstrong Number`

Problem 45: Perfect Number
Description: Check if a number is a perfect number.
Input: `28`
Output: `Perfect Number`

Problem 46: Sum of Squares
Description: Calculate sum of squares of first N numbers.
Input: `3`
Output: `Sum: 14`

Problem 47: ASCII Value
Description: Print ASCII value of a character.
Input: `A`
Output: `ASCII: 65`

Problem 48: Character Type
Description: Check if a character is a letter, digit, or special character.
Input: `#`
Output: `Special Character`

Problem 49: String to Lowercase
Description: Convert a string to lowercase.
Input: `JAVA`
Output: `java`

Problem 50: String Character Count
Description: Count occurrences of a character in a string.
Input: `String: hello, Char: l`
Output: `Count: 2`

Problem 51: String Replace
Description: Replace all occurrences of a character in a string.
Input: `String: cat, Replace: a with o`
Output: `cot`

Problem 52: String First Non-Repeated
Description: Find first non-repeated character in a string.
Input: `swiss`
Output: `w`

Problem 53: Array Minimum
Description: Find minimum element in an array.
Input: `5 2 8 1 9`
Output: `Minimum: 1`

Problem 54: Array Second Largest
Description: Find second largest element in an array.
Input: `3 7 2 9 4`
Output: `Second Largest: 7`

Problem 55: Array Sort
Description: Sort an array in ascending order.
Input: `5 2 8 1 9`
Output: `1 2 5 8 9`

Problem 56: Array Duplicate Count
Description: Count duplicate elements in an array.
Input: `1 2 2 3 1`
Output: `Duplicates: 2`

Problem 57: Array Rotate Left
Description: Rotate array elements left by one position.
Input: `1 2 3 4`
Output: `2 3 4 1`

Problem 58: Array Frequency
Description: Find frequency of each element in an array.
Input: `1 2 2 3`
Output: `1:1, 2:2, 3:1`

Problem 59: Method for Cube
Description: Write a method to return cube of a number.

Input: `3`
Output: `27`

Problem 60: Method for Max
Description: Write a method to find maximum of three numbers.
Input: `4 7 2`
Output: `7`

Problem 61: Method for String Length
Description: Write a method to return length of a string.
Input: `Java`
Output: `4`

Problem 62: Method for Factorial
Description: Write a method to calculate factorial.
Input: `4`
Output: `24`

Problem 63: Method for Prime Check
Description: Write a method to check if a number is prime.
Input: `13`
Output: `true`

Problem 64: Method for Array Sum
Description: Write a method to sum array elements.
Input: `1 2 3`
Output: `6`

Problem 65: Simple Calculator
Description: Create a calculator for basic operations (+, -, *, /).
Input: `10 5 +`
Output: `Result: 15`

Problem 66: Quadratic Roots
Description: Find roots of a quadratic equation.
Input: `a=1 b=-3 c=2`
Output: `Roots: 2.0, 1.0`

Problem 67: Distance Between Points
Description: Calculate distance between two points (x1,y1) and (x2,y2).
Input: `x1=0 y1=0 x2=3 y2=4`
Output: `Distance: 5.0`

Problem 68: Number to Words
Description: Convert a single-digit number to its word form.
Input: `5`
Output: `Five`

Problem 69: Sum of Odd Numbers
Description: Sum odd numbers up to N.
Input: `10`
Output: `Sum: 25`

Problem 70: Sum of Even Numbers
Description: Sum even numbers up to N.
Input: `10`
Output: `Sum:  30`

Problem 71: String Trim
Description: Remove leading/trailing spaces from a string.
Input: `  hello`
Output: `hello`

Problem 72: String Starts With
Description: Check if a string starts with a given prefix.
Input: `String:  hello, Prefix:  he`
Output: `true`

Problem 73: String Ends With
Description: Check if a string ends with a given suffix.
Input: `String:  hello, Suffix:  lo`
Output: `true`

Problem 74: Array Odd Count
Description: Count odd numbers in an array.
Input: `1 2 3 4 5`
Output: `Odd Count:  3`

Problem 75: Array Copy
Description: Copy elements of one array to another.
Input: `1 2 3`
Output: `Copied:  1 2 3`

Problem 76: Method for Min
Description: Write a method to find minimum of three numbers.
Input: `4 2 7`
Output: `2`

Problem 77: Method for GCD
Description: Write a method to find GCD of two numbers.
Input: `12 18`
Output: `6`

Problem 78: Method for LCM
Description: Write a method to find LCM of two numbers.
Input: `4 6`
Output: `12`

Problem 79: Method for Palindrome
Description: Write a method to check if a string is a palindrome.
Input: `madam`
Output: `true`

Problem 80: Method for Array Reverse
Description: Write a method to reverse an array.

Input: `1 2 3`
Output: `3 2 1`

Problem 81: Number Pattern
Description: Print a number pattern (e.g., 1, 12, 123).
Input: `3`
Output: `1\n12\n123`

Problem 82: Star Pattern
Description: Print a triangle of stars.
Input: `3`
Output: `*\n**\n***`

Problem 83: Reverse Star Pattern
Description: Print a reverse triangle of stars.
Input: `3`
Output: `***\n**\n*`

Problem 84: Sum of Array Evens
Description: Sum even numbers in an array.
Input: `1 2 3 4`
Output: `Sum:  6`

Problem 85: Sum of Array Odds
Description: Sum odd numbers in an array.
Input: `1 2 3 4`
Output: `Sum:  4`

Problem 86: String to Char Array
Description: Convert a string to a character array and print it.
Input: `hello`
Output: `h e l l o`

Problem 87: Check Vowel Start
Description: Check if a string starts with a vowel.
Input: `apple`
Output: `true`

Problem 88: Sum of First N Squares
Description: Sum squares of first N numbers.
Input: `3`
Output: `14`

Problem 89: Array Element Swap
Description: Swap two elements in an array at given indices.
Input: `Array:  1 2 3 4, Indices:  1 3`
Output: `1 4 3 2`

Problem 90: String Word Count
Description: Count words in a string.
Input: `Hello World Java`
Output: `Words:  3`

Problem 91: Method for Sum of Digits
Description: Write a method to sum digits of a number.
Input: `123`
Output: `6`

Problem 92: Method for Array Max Index
Description: Find index of maximum element in an array.
Input: `3 7 2 9`
Output: `Index: 3`

Problem 93: Method for String Reverse
Description: Write a method to reverse a string.
Input: `hello`
Output: `olleh`

Problem 94: Check Perfect Square
Description: Check if a number is a perfect square.
Input: `16`
Output: `true`

Problem 95: Sum of Multiples
Description: Sum multiples of 3 or 5 below N.
Input: `10`
Output: `Sum: 23`

Problem 96: String Remove Vowels
Description: Remove all vowels from a string.
Input: `hello`
Output: `hll`

Problem 97: Array Merge
Description: Merge two sorted arrays into one.
Input: `Array1: 1 3 5, Array2: 2 4`
Output: `1 2 3 4 5`

Problem 98: Method for Fibonacci
Description: Write a method to return Nth Fibonacci number.
Input: `5`
Output: `5`

Problem 99: Check Anagram
Description: Check if two strings are anagrams.
Input: `listen silent`
Output: `true`

Problem 100: Array Unique Elements
Description: Print unique elements in an array.
Input: `1 2 2 3 1`
Output: `1 2 3`