

# Computer Science by AP Tutorial

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*Programming class under Aryan Singh*

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### Tip:

You can copy each code block into a separate `.java` file, compile, and run them using a Java IDE or the command line.

[Download Bluej ide to run the programs locally](#) or you can run them online too

# 1. Check if a Number is Even or Odd

```
import java.util.Scanner;

public class EvenOdd {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();

        if (num % 2 == 0) {
            System.out.println(num + " is Even.");
        } else {
            System.out.println(num + " is Odd.");
        }
    }
}
```

This program determines whether an integer entered by the user is even or odd. This is a fundamental programming exercise that introduces conditional statements and the modulus operator.

- The program reads an integer input from the user.
- It uses the modulus operator `%` to check the remainder when the number is divided by 2.
- If the remainder is 0, the number is even; otherwise, it is odd.

## 2. Add, Subtract, Divide, and Multiply Two Numbers

```
import java.util.Scanner;

public class ArithmeticOperations {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter first number: ");
        int a = sc.nextInt();
        System.out.print("Enter second number: ");
        int b = sc.nextInt();

        System.out.println("Addition: " + (a + b));
        System.out.println("Subtraction: " + (a - b));
        System.out.println("Multiplication: " + (a * b));
        if (b != 0) {
            System.out.println("Division: " + ((double)a / b));
        } else {
            System.out.println("Cannot divide by zero.");
        }
    }
}
```

This program performs basic arithmetic operations on two numbers input by the user. It demonstrates how to handle multiple operations and the importance of checking for division by zero.

- The program takes two integers as input.
- It calculates and prints the sum, difference, and product directly.
- For division, it first checks if the divisor is zero to avoid runtime errors.
- If divisor is not zero, it performs floating-point division to show accurate results.

### 3. Compare Three Numbers (Greater Than, Lesser Than)

```
import java.util.Scanner;

public class CompareTwoNumbers {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter first number: ");
        int a = sc.nextInt();
        System.out.print("Enter second number: ");
        int b = sc.nextInt();

        if (a > b) {
            System.out.println(a + " is greater than " + b);
        }
        else if (a > b && a > c) {
            System.out.println(a + " is the greatest.");
        }
        else if (b > a && b > c) {
            System.out.println(b + " is the greatest.");
        }
        else if (c > a && c > b) {
            System.out.println(c + " is the greatest.");
        }
        else {
            System.out.println("All numbers are equal to each other");
        }
    }
}
```

This program compares three integers and reports their relationship (greater, lesser, or equal). It helps practice conditional branching and comparison operators.

- The program reads two integers.
- It uses **if-else** statements to check if the first number is greater than, less than, or equal to the second.
- It then prints the appropriate message accordingly.

## 4. Calculate Age Given Year of Birth (Current Year = 2025)

```
import java.util.Scanner;

public class CalculateAge {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter year of birth: ");
        int yearOfBirth = sc.nextInt();
        int currentYear = 2025;
        int age = currentYear - yearOfBirth;

        if (age >= 0) {
            System.out.println("Your age in 2025 is: " + age);
        } else {
            System.out.println("Invalid year of birth.");
        }
    }
}
```

This program calculates a person's age based on their year of birth, assuming the current year is 2025. It demonstrates basic arithmetic and input validation.

- The program reads the user's year of birth.
- It subtracts the year of birth from 2025 to find the age.
- If the result is negative (invalid input), it notifies the user.
- Otherwise, it prints the calculated age.