Operators

1. Demonstrate all arithmetic operators using two integers

public class ArithmeticOperators {

public static void main(String[] args) {

int a = 15, b = 4;

System.out.println("a + b = " + (a + b));

System.out.println("a - b = " + (a - b));

System.out.println("a \* b = " + (a \* b));

System.out.println("a / b = " + (a / b));

System.out.println("a % b = " + (a % b));

}

}

2. Use relational operators to compare ages

import java.util.Scanner;

public class AgeComparison {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter age of Person A: ");

int ageA = sc.nextInt();

System.out.print("Enter age of Person B: ");

int ageB = sc.nextInt();

System.out.println("A == B: " + (ageA == ageB));

System.out.println("A != B: " + (ageA != ageB));

System.out.println("A > B: " + (ageA > ageB));

System.out.println("A < B: " + (ageA < ageB));

System.out.println("A >= B: " + (ageA >= ageB));

System.out.println("A <= B: " + (ageA <= ageB));

}

}

3. Implement a basic calculator using switch and operators

import java.util.Scanner;

public class BasicCalculator {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter first number: ");

double num1 = sc.nextDouble();

System.out.print("Enter operator (+, -, \*, /, %): ");

char op = sc.next().charAt(0);

System.out.print("Enter second number: ");

double num2 = sc.nextDouble();

switch (op) {

case '+': System.out.println("Result = " + (num1 + num2)); break;

case '-': System.out.println("Result = " + (num1 - num2)); break;

case '\*': System.out.println("Result = " + (num1 \* num2)); break;

case '/':

if (num2 != 0) System.out.println("Result = " + (num1 / num2));

else System.out.println("Cannot divide by zero");

break;

case '%':

if (num2 != 0) System.out.println("Result = " + (num1 % num2));

else System.out.println("Cannot mod by zero");

break;

default: System.out.println("Invalid operator");

}

}

}

4. Use bitwise AND, OR, XOR on two binary values

public class BitwiseBinary {

public static void main(String[] args) {

int a = 0b1100;

int b = 0b1010;

System.out.println("a & b = " + Integer.toBinaryString(a & b));

System.out.println("a | b = " + Integer.toBinaryString(a | b));

System.out.println("a ^ b = " + Integer.toBinaryString(a ^ b));

}

}

5. Demonstrate logical operators with Boolean expressions

public class LogicalOperatorsDemo {

public static void main(String[] args) {

boolean a = true, b = false;

System.out.println("a && b = " + (a && b));

System.out.println("a || b = " + (a || b));

System.out.println("!a = " + (!a));

int age = 20;

boolean hasID = true;

System.out.println("Can enter club: " + (age >= 18 && hasID));

}

}