PRIMITIVE DATA TYPES

1. Declare and initialize primitive types and print their default values

public class PrimitiveDefaults {

byte byteVar;

short shortVar;

int intVar;

long longVar;

float floatVar;

double doubleVar;

char charVar;

boolean booleanVar;

public void printDefaults() {

System.out.println("Default byte: " + byteVar);

System.out.println("Default short: " + shortVar);

System.out.println("Default int: " + intVar);

System.out.println("Default long: " + longVar);

System.out.println("Default float: " + floatVar);

System.out.println("Default double: " + doubleVar);

System.out.println("Default char: [" + charVar + "]");

System.out.println("Default boolean: " + booleanVar);

}

public static void main(String[] args) {

PrimitiveDefaults obj = new PrimitiveDefaults();

obj.printDefaults();

}

}

2. Detect overflow when adding two byte variables

public class ByteOverflowDetection {

public static void main(String[] args) {

byte a = 120;

byte b = 10;

int result = a + b;

if (result > Byte.MAX\_VALUE || result < Byte.MIN\_VALUE) {

System.out.println("Overflow detected! Result = " + result);

} else {

byte sum = (byte) result;

System.out.println("No overflow. Sum = " + sum);

}

}

}

3. Type casting double to int and float to byte

public class TypeCastingExample {

public static void main(String[] args) {

double doubleValue = 123.456;

float floatValue = 130.75f;

int intValue = (int) doubleValue;

byte byteValue = (byte) floatValue;

System.out.println("Double to int: " + intValue);

System.out.println("Float to byte: " + byteValue);

}

}

4. Bitwise operations between int and byte

public class BitwiseOperations {

public static void main(String[] args) {

byte b = 0b0101;

int i = 0b00110000;

System.out.println("AND: " + (b & i));

System.out.println("OR: " + (b | i));

System.out.println("XOR: " + (b ^ i));

System.out.println("NOT b: " + (~b));

}

}

5. Accept input for all primitive types and display formatted

import java.util.Scanner;

public class PrimitiveInput {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

byte b = sc.nextByte();

short s = sc.nextShort();

int i = sc.nextInt();

long l = sc.nextLong();

float f = sc.nextFloat();

double d = sc.nextDouble();

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

boolean bool = sc.nextBoolean();

System.out.printf("Byte: %d, Short: %d, Int: %d, Long: %d\n", b, s, i, l);

System.out.printf("Float: %.2f, Double: %.3f\n", f, d);

}

}

System.out.println("Char: " + c + ", Boolean: " + bool);