

# OOPJ-Assignment No-1

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1. Create a program that declares and initializes all primitive data types in Java and prints their default and assigned values.

**ANS:.**

```
public class PrimitiveTypesData {
    public static void main(String[] args) {

        byte b = 10;
        short s = 100;
        int i = 1000;
        long l = 100000L;
        float f = 10.5f;
        double d = 20.99;
        char ch = 'A';
        boolean bol = true;
        System.out.println("byte: " + b);
        System.out.println("short: " + s);
        System.out.println("int: " + i);
        System.out.println("long: " + l);
        System.out.println("float: " + f);
        System.out.println("double: " + d);
        System.out.println("char: " + ch);
        System.out.println("boolean: " + bol);

        System.out.println("\nAssigned Values:");
        System.out.println("byte: " + b);
        System.out.println("short: " + s);
        System.out.println("int: " + i);
        System.out.println("long: " + l);
        System.out.println("float: " + f);
        System.out.println("double: " + d);
        System.out.println("char: " + ch);
        System.out.println("boolean: " + bol);
    }
}
```

```

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac PrimitiveTypesData.java

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java PrimitiveTypesData
byte: 10
short: 100
int: 1000
long: 100000
float: 10.5
double: 20.99
char: A
boolean: true

Assigned Values:
byte: 10
short: 100
int: 1000
long: 100000
float: 10.5
double: 20.99
char: A
boolean: true

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>

```

2. Write a program to convert an int value to double automatically and display both values.

**ANS:**

```

public class IntToDoubleConversion {
    public static void main(String[] args) {
        int intValue = 10;
        clrscr();
        double doubleValue = intValue;

        System.out.println("Integer Value: " + intValue);
        System.out.println("Double Value: " + doubleValue);
    }
}

```

```

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac IntToDoubleConversion.java

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java IntToDoubleConversion
Integer Value: 10
Double Value: 10.0

```

3. Write a program to convert a double value to int using typecasting and explain the data loss.

**ANS:.**

```

public class DoubleToIntConversion {
    public static void main(String[] args) {
        double doubleValue = 10.75;
        int intValue = (int) doubleValue;

        System.out.println("Original Double Value: " + doubleValue);
        System.out.println("Converted Integer Value: " + intValue);
    }
}

```

```
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac DoubleToIntConversion.java
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java DoubleToIntConversion
Original Double Value: 10.75
Converted Integer Value: 10
```

4. Write a program to calculate the average of three int numbers using typecasting to display the result in double.

**ANS:.**

```
public class AverageCalculation {
    public static void main(String[] args) {
        int num1 = 10, num2 = 15, num3 = 20;
        double average = (double) (num1 + num2 + num3) / 3;

        System.out.println("Average (as double): " + average);
    }
}
```

```
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac AverageCalculation.java
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java AverageCalculation
Average (as double): 15.0
```

5. Write a program to demonstrate binary, octal, hexadecimal, and floating-point literals in Java.

**ANS:.**

```
public class LiteralsDemo {
    public static void main(String[] args) {
        // Integer literals
        int binaryNum = 0b1010; // Binary (prefix 0b or 0B)
        int octalNum = 012;      // Octal (prefix 0)
        int hexNum = 0xA;        // Hexadecimal (prefix 0x or 0X)

        // Floating-point literals
        float floatNum = 10.5f; // 'f' or 'F' is required for float
        double doubleNum = 20.123; // Default is double
        double scientificNum = 1.2e3; // Scientific notation (1.2 × 103)

        // Displaying values
        System.out.println("Binary (0b1010)    = " + binaryNum); // 10
        System.out.println("Octal (012)        = " + octalNum);  // 10
        System.out.println("Hexadecimal (0xA)   = " + hexNum);   // 10
        System.out.println("Float (10.5f)      = " + floatNum);
        System.out.println("Double (20.123)    = " + doubleNum);
        System.out.println("Scientific (1.2e3)  = " + scientificNum); // 1200.0
    }
}
```

```
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac LiteralsDemo.java

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java LiteralsDemo
Binary (0b1010)      = 10
Octal (012)          = 10
Hexadecimal (0xA)    = 10
Float (10.5f)         = 10.5
Double (20.123)       = 20.123
Scientific (1.2e3)    = 1200.0
```

6. Write a program to display character and string literals along with their ASCII values.

**ANS.:**

```
public class CharStringLiterals {
    public static void main(String[] args) {
        // Character literal
        char charLiteral = 'A';

        // String literal
        String stringLiteral = "Hello, Java!";

        // Display character and its ASCII value
        System.out.println("Character Literal: " + charLiteral);
        System.out.println("ASCII Value of '" + charLiteral + "': " + (int) charLiteral);

        // Display string literal
        System.out.println("String Literal: " + stringLiteral);

        // Display ASCII values of each character in the string
        System.out.print("ASCII Values of String: ");
        for (int i = 0; i < stringLiteral.length(); i++) {
            System.out.print((int) stringLiteral.charAt(i) + " ");
        }
    }
}
```

```
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac CharStringLiterals.java

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java CharStringLiterals
Character Literal: A
ASCII Value of 'A': 65
String Literal: Hello, Java!
ASCII Values of String: 72 101 108 108 111 44 32 74 97 118 97 33
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>
```

7. Write a program that uses boolean literals to control program flow in an if-else statement.

**Ans.:**

```
public class BooleanLiteralsDemo {
    public static void main(String[] args) {
        boolean isJavaFun = true; // Boolean literal
        boolean isRainy = false;  // Boolean literal

        // Using boolean literals in if-else conditions
```

```

    if (isJavaFun) {
        System.out.println("Java is fun to learn!");
    } else {
        System.out.println("Java is not fun.");
    }

    if (isRainy) {
        System.out.println("Take an umbrella.");
    } else {
        System.out.println("Enjoy the sunshine!");
    }
}
}
}

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac BooleanLiteralsDemo.java

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java BooleanLiteralsDemo
Java is fun to learn!
Enjoy the sunshine!

```

8. Write a program to perform addition, subtraction, multiplication, division, and modulus operations on two integer numbers and display the results.

**ANS.:**

```

import java.util.Scanner;

public class ArithmeticOperations {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Taking input from the user
        System.out.print("Enter first number: ");
        int num1 = scanner.nextInt();
        System.out.print("Enter second number: ");
        int num2 = scanner.nextInt();

        // Performing arithmetic operations
        int sum = num1 + num2;
        int difference = num1 - num2;
        int product = num1 * num2;
        int quotient = num1 / num2;
        int remainder = num1 % num2;

        // Displaying results
        System.out.println("\nResults:");
        System.out.println("Addition: " + sum);
        System.out.println("Subtraction: " + difference);
        System.out.println("Multiplication: " + product);
        System.out.println("Division: " + quotient);
        System.out.println("Modulus (Remainder): " + remainder);

        scanner.close();
    }
}

```

```
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac ArithmeticOperations.java

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java ArithmeticOperations
Enter first number: 5
Enter second number: 7

Results:
Addition: 12
Subtraction: -2
Multiplication: 35
Division: 0
Modulus (Remainder): 5
```

9. Write a program to compare two integers using all relational operators (==, !=, >, <, >=, <=) and display the results.

**Ans.:**

```
import java.util.Scanner;
```

```
public class RelationalOperatorsDemo {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Taking input from the user
        System.out.print("Enter first number: ");
        int num1 = scanner.nextInt();
        System.out.print("Enter second number: ");
        int num2 = scanner.nextInt();

        // Comparing using relational operators
        System.out.println("\nComparison Results:");
        System.out.println(num1 + " == " + num2 + " : " + (num1 == num2));
        System.out.println(num1 + " != " + num2 + " : " + (num1 != num2));
        System.out.println(num1 + " > " + num2 + " : " + (num1 > num2));
        System.out.println(num1 + " < " + num2 + " : " + (num1 < num2));
        System.out.println(num1 + " >= " + num2 + " : " + (num1 >= num2));
        System.out.println(num1 + " <= " + num2 + " : " + (num1 <= num2));

        scanner.close();
    }
}
```

```
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac RelationalOperatorsDemo.java

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java RelationalOperatorsDemo
Enter first number: 5
Enter second number: 2

Comparison Results:
5 == 2 : false
5 != 2 : true
5 > 2 : true
5 < 2 : false
5 >= 2 : true
5 <= 2 : false
```

10. Write a program to check if a number is positive and even using logical operators (&&, ||, !).

**ANS.:**

```
import java.util.Scanner;

public class LogicalOperatorsDemo {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Taking input from the user
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();

        // Using logical operators to check conditions
        boolean isPositive = num > 0;
        boolean isEven = num % 2 == 0;

        // Checking if the number is both positive and even
        if (isPositive && isEven) {
            System.out.println(num + " is positive and even.");
        } else if (!isPositive) {
            System.out.println(num + " is negative or zero.");
        } else {
            System.out.println(num + " is positive but odd.");
        }

        scanner.close();
    }
}
```

```
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>javac LogicalOperatorsDemo.java
D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java LogicalOperatorsDemo
Enter a number: 6
6 is positive and even.
```

11. Write a program to demonstrate the use of assignment operators (=, +=, -=, \*=, /=, %=) on two integers.

**ANS.:**

```
import java.util.Scanner;

public class AssignmentOperatorsDemo {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();
        System.out.print("Enter a value to assign and modify: ");
        int value = scanner.nextInt();

        // Using assignment operators
```

```

        System.out.println("\nInitial Value: " + value);

        value += num;
        System.out.println("After += (Addition): " + value);

        value -= num;
        System.out.println("After -= (Subtraction): " + value);

        value *= num;
        System.out.println("After *= (Multiplication): " + value);

        value /= num;
        System.out.println("After /= (Division): " + value);

        value %= num;
        System.out.println("After %= (Modulus): " + value);

        scanner.close();
    }
}

```

```

D:\CDAC DATA FEB 25\00PJ\Day2\Exercise>java AssignmentOperatorsDemo
Enter a number: 6
Enter a value to assign and modify: 4

Initial Value: 4
After += (Addition): 10
After -= (Subtraction): 4
After *= (Multiplication): 24
After /= (Division): 4
After %= (Modulus): 4

```