

**Pradnya Hitendra More**

**PRN: 2502405200587**

**Form No.: 241205579**

## **Assignment No. 1**

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

```
//Primitive DataType

public class PrimitiveDataTypesDemo {

    public static void main(String[] args) {

        // Declaring variables for all primitive data types


        // byte (Default: 0, Assigned: 10)
        byte byteVar = 10;


        // short (Default: 0, Assigned: 20)
        short shortVar = 20;


        // int (Default: 0, Assigned: 100)
        int intVar = 100;


        // long (Default: 0L, Assigned: 1000L)
        long longVar = 1000L;


        // float (Default: 0.0f, Assigned: 5.75f)
        float floatVar = 5.75f;


        // double (Default: 0.0, Assigned: 19.99)
        double doubleVar = 19.99;
```

```
// char (Default: '\u0000', Assigned: 'A')
```

```
char charVar = 'A';
```

```
// boolean (Default: false, Assigned: true)
```

```
boolean booleanVar = true;
```

```
// Printing default and assigned values
```

```
// byte
```

```
System.out.println("Default value of byte: " + (byte)0);
```

```
System.out.println("Assigned value of byte: " + byteVar);
```

```
// short
```

```
System.out.println("Default value of short: " + (short)0);
```

```
System.out.println("Assigned value of short: " + shortVar);
```

```
// int
```

```
System.out.println("Default value of int: " + 0);
```

```
System.out.println("Assigned value of int: " + intVar);
```

```
// long
```

```
System.out.println("Default value of long: " + 0L);
```

```
System.out.println("Assigned value of long: " + longVar);
```

```
// float
```

```
System.out.println("Default value of float: " + 0.0f);
```

```
System.out.println("Assigned value of float: " + floatVar);
```

```
// double
```

```
System.out.println("Default value of double: " + 0.0);
```

```
System.out.println("Assigned value of double: " + doubleVar);
```

```

// char

System.out.println("Default value of char: " + '\u0000'); // Default value for char

System.out.println("Assigned value of char: " + charVar);


// boolean

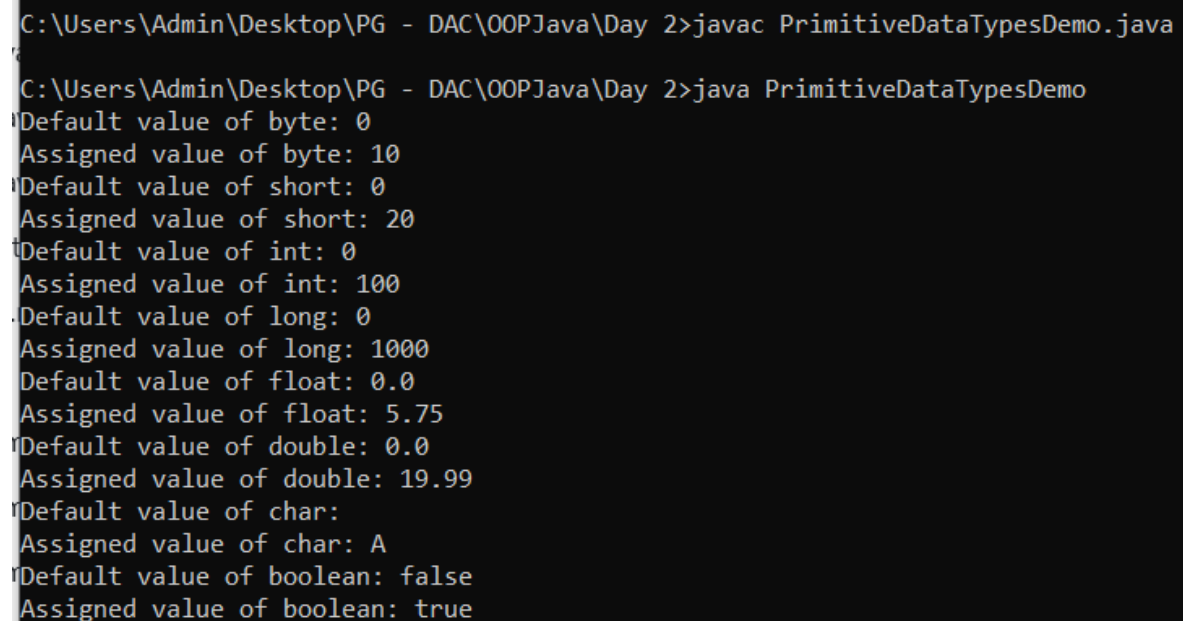
System.out.println("Default value of boolean: " + false);

System.out.println("Assigned value of boolean: " + booleanVar);

}

}

```



```

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>javac PrimitiveDataTypesDemo.java

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>java PrimitiveDataTypesDemo
Default value of byte: 0
Assigned value of byte: 10
Default value of short: 0
Assigned value of short: 20
Default value of int: 0
Assigned value of int: 100
Default value of long: 0
Assigned value of long: 1000
Default value of float: 0.0
Assigned value of float: 5.75
Default value of double: 0.0
Assigned value of double: 19.99
Default value of char:
Assigned value of char: A
Default value of boolean: false
Assigned value of boolean: true

```

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

```

/**Winding** */

```

```

class IntToDoubleConversion{

    public static void main(String args[]){

        int num = 23;

        double d = num;
    }
}

```

```

        System.out.println(d);
    }
}

```

```

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>javac IntToDoubleConversion.java
C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>java IntToDoubleConversion
23.0

```

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

```

class DoubleToIntConversion{
    public static void main(String args[]){
        double d = 9999.99;
        int num = (int) d; //Explicit narrowing : double->int

        System.out.println(d);
        System.out.println(num);
    }
}

```

```

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>javac DoubleToIntConversion.java
C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>java DoubleToIntConversion
9999.99
9999

```

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

```

class Avg3no{
    public static void main(String args[]){
        int num1 = 2, num2 = 3, num3 = 5;
        int sum = num1 + num2 + num3;

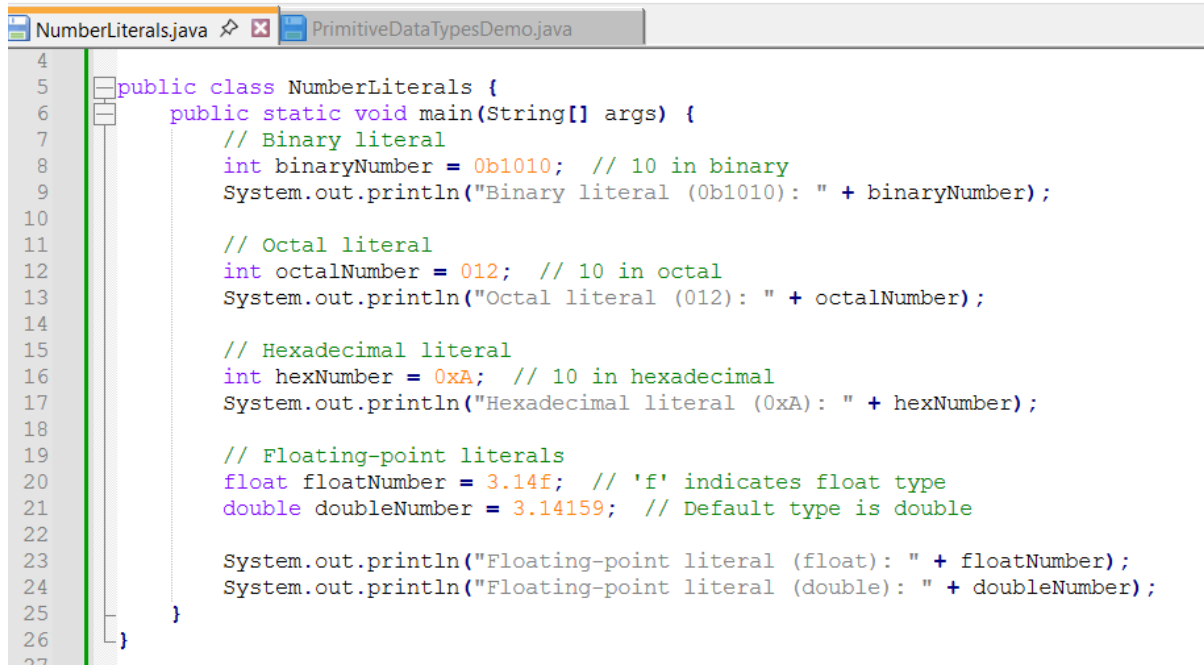
        // Typecast the sum to double and calculate the average
        double Average = (double)sum/3;

        System.out.println("The average is: "+ Average);
    }
}

```

```
}  
  
}
```

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



```
4  
5 public class NumberLiterals {  
6     public static void main(String[] args) {  
7         // Binary literal  
8         int binaryNumber = 0b1010; // 10 in binary  
9         System.out.println("Binary literal (0b1010): " + binaryNumber);  
10  
11         // Octal literal  
12         int octalNumber = 012; // 10 in octal  
13         System.out.println("Octal literal (012): " + octalNumber);  
14  
15         // Hexadecimal literal  
16         int hexNumber = 0xA; // 10 in hexadecimal  
17         System.out.println("Hexadecimal literal (0xA): " + hexNumber);  
18  
19         // Floating-point literals  
20         float floatNumber = 3.14f; // 'f' indicates float type  
21         double doubleNumber = 3.14159; // Default type is double  
22  
23         System.out.println("Floating-point literal (float): " + floatNumber);  
24         System.out.println("Floating-point literal (double): " + doubleNumber);  
25     }  
26 }  
27
```

```
C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>javac NumberLiterals.java  
  
C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>java NumberLiterals  
Binary literal (0b1010): 10  
Octal literal (012): 10  
Hexadecimal literal (0xA): 10  
Floating-point literal (float): 3.14  
Floating-point literal (double): 3.14159
```

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

```
class AsciiDemo {  
  
    public static void main(String[] args) {  
  
        // Character literal and its ASCII value  
  
        char a = 'f';  
  
        int c = (int) a;  
  
        System.out.println(a + " ASCII value: " + c);  
  
    }  
}
```

```
// String literal and its ASCII values

String s = "hello world";

System.out.println(s + " ASCII values: ");


// Iterate through the string and print ASCII values of each character
for (int i = 0; i < s.length(); i++) {

    System.out.print((int)(s.charAt(i)) + " ");

}

}
```

```
C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2\Assignment1_Java Program>java AsciiDemo
f ASCII value: 102
hello world ASCII values:
104 101 108 108 111 32 119 111 114 108 100
C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2\Assignment1_Java Program>
```

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

```
public class BooleanLiteral{

    public static void main(String[] args){

        boolean Apple = true;

        if(Apple){

            System.out.println("in if block");

        }else {

            System.out.println("in another if block");

        }

        boolean Pen = false;

        if (Pen){
```

```

        System.out.println("pen is in if block of false ");
    }else{
        System.out.println("Pen is in another block");
    }
}
}
}

```

**o/p:**

```

C:\Users\Admin\Desktop\PG - DAC\00PJava\Day 2\Assignment1_Java Program>javac BooleanLiteral.java
C:\Users\Admin\Desktop\PG - DAC\00PJava\Day 2\Assignment1_Java Program>java BooleanLiteral
in if block
Pen is in another block

```

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

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

```

public class ArithmeticOperators {
    public static void main(String[] args) {
        int a = 10, b = 5;
        System.out.println("Addition: " + (a + b));
        System.out.println("Subtraction: " + (a - b));
        System.out.println("Multiplication: " + (a * b));
        System.out.println("Division: " + (a / b));
        System.out.println("Modulus: " + (a % b));
    }
}

```

```
C:\Users\Admin\Desktop\PG - DAC\00PJava\Day 2>javac ArithmeticOperators.java

C:\Users\Admin\Desktop\PG - DAC\00PJava\Day 2>java ArithmeticOperators
Addition: 15
Subtraction: 5
Multiplication: 50
Division: 2
Modulus: 0
```

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

```
public class CompareIntegers {
    public static void main(String[] args) {
        // Declare and initialize two integers
        int num1 = 10;
        int num2 = 20;

        // Compare the two integers using all relational operators and display the results

        // Equal to (==)
        System.out.println("num1 == num2: " + (num1 == num2));

        // Not equal to (!=)
        System.out.println("num1 != num2: " + (num1 != num2));

        // Greater than (>)
        System.out.println("num1 > num2: " + (num1 > num2));

        // Less than (<)
        System.out.println("num1 < num2: " + (num1 < num2));

        // Greater than or equal to (>=)
        System.out.println("num1 >= num2: " + (num1 >= num2));
```



```

        // Less than or equal to (<=)
        System.out.println("num1 <= num2: " + (num1 <= num2));
    }
}

```

```

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>javac CompareIntegers.java

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>java CompareIntegers
num1 == num2: false
num1 != num2: true
num1 > num2: false
num1 < num2: true
num1 >= num2: false
num1 <= num2: true

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>

```

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

```

class LogicalOperators {
    public static void main(String[] args) {
        // Directly assigning a number to check
        int number = 6; // You can change this number to test other cases

        // Check if the number is positive and even using logical NOT (!) operator
        if (!(number <= 0) && !(number % 2 != 0)) {
            System.out.println(number + " is positive and even.");
        } else {
            System.out.println(number + " is either not positive or not even.");
        }
    }
}

```

```

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>javac LogicalOperators.java

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>java LogicalOperators
6 is positive and even.

C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>

```

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

```
public class AssignmentOperatorsDemo {  
    public static void main(String[] args) {  
        // Declare and initialize two integers  
        int num1 = 10;  
        int num2 = 5;  
  
        // Using the assignment operator (=)  
        num1 = num2; // Assign the value of num2 to num1  
        System.out.println("After num1 = num2, num1 = " + num1 + ", num2 = " + num2);  
  
        // Using the addition assignment operator (+=)  
        num1 += num2; // num1 = num1 + num2  
        System.out.println("After num1 += num2, num1 = " + num1 + ", num2 = " + num2);  
  
        // Using the subtraction assignment operator (-=)  
        num1 -= num2; // num1 = num1 - num2  
        System.out.println("After num1 -= num2, num1 = " + num1 + ", num2 = " + num2);  
  
        // Using the multiplication assignment operator (*=)  
        num1 *= num2; // num1 = num1 * num2  
        System.out.println("After num1 *= num2, num1 = " + num1 + ", num2 = " + num2);  
  
        // Using the division assignment operator (/=)  
        num1 /= num2; // num1 = num1 / num2  
        System.out.println("After num1 /= num2, num1 = " + num1 + ", num2 = " + num2);  
  
        // Using the modulus assignment operator (%=)  
        num1 %= num2; // num1 = num1 % num2  
        System.out.println("After num1 %= num2, num1 = " + num1 + ", num2 = " + num2);  
    }  
}
```

```
}  
}
```

```
C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>javac AssignmentOperatorsDemo.java
```

```
C:\Users\Admin\Desktop\PG - DAC\OOPJava\Day 2>java AssignmentOperatorsDemo
```

```
After num1 = num2, num1 = 5, num2 = 5  
After num1 += num2, num1 = 10, num2 = 5  
After num1 -= num2, num1 = 5, num2 = 5  
After num1 *= num2, num1 = 25, num2 = 5  
After num1 /= num2, num1 = 5, num2 = 5  
After num1 %= num2, num1 = 0, num2 = 5
```