

Experiment No: 01**Experiment Name:** Introduction to Java Programming Language**Objectives:**

- Familiarize with the fundamental concepts of Java programming language,
- Understand the syntax, structure, and logic of writing code in Java.
- Understand the different data types used in Java.

Introduction:

Java was officially released in 1995 and has since become one of the most widely used programming languages in the world. Its popularity stems from its "Write Once, Run Anywhere" (WORA) philosophy, which means that Java code can run on any device equipped with a Java Virtual Machine (JVM). This platform independence is achieved by compiling Java source code into an intermediate form called bytecode, which is then executed by the JVM. Java is extensively used in web development (Java Servlets, JSP), mobile app development (Android applications), enterprise applications (Java EE), and scientific computing.

Source Code:

```
package project;
```

```
public class Project {
```

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

```
        int a = 50;
```

```
        float b = 100.4f;
```

```
        char c = 'C';
```

```
        boolean d = false;
```

```
        String s = "CSE";
```

```
        System.out.println(a);
```

```
        System.out.println(b);
```

```
        System.out.println(c);
```

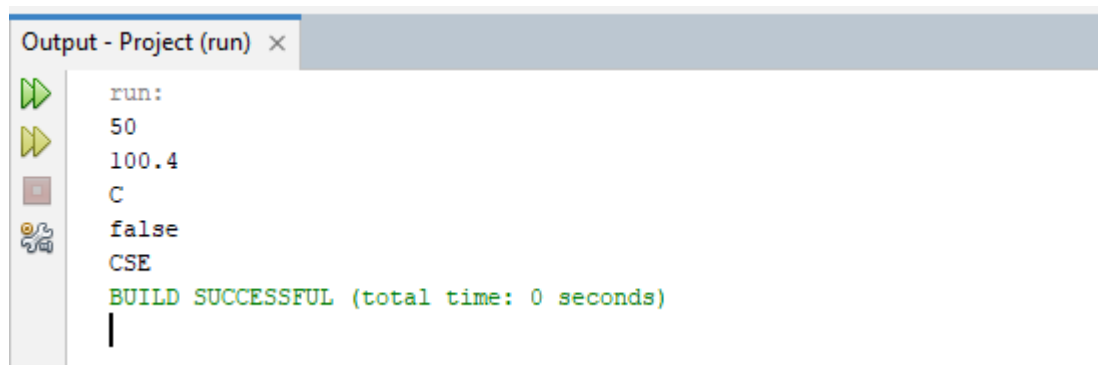
```
        System.out.println(d);
```

```
        System.out.println(s);
```

```
    }
```

```
}
```

Output:

The screenshot shows an IDE's 'Output - Project (run)' window. On the left, there is a vertical toolbar with icons for running (green play button), stepping through (yellow play button), stopping (red square), and debugging (bug icon). The main area of the window displays the output of the program in a monospaced font. The output consists of several lines: 'run:', '50', '100.4', 'C', 'false', 'CSE', and a green-colored line 'BUILD SUCCESSFUL (total time: 0 seconds)'. A cursor is visible at the end of the last line.

```
run:
50
100.4
C
false
CSE
BUILD SUCCESSFUL (total time: 0 seconds)
|
```

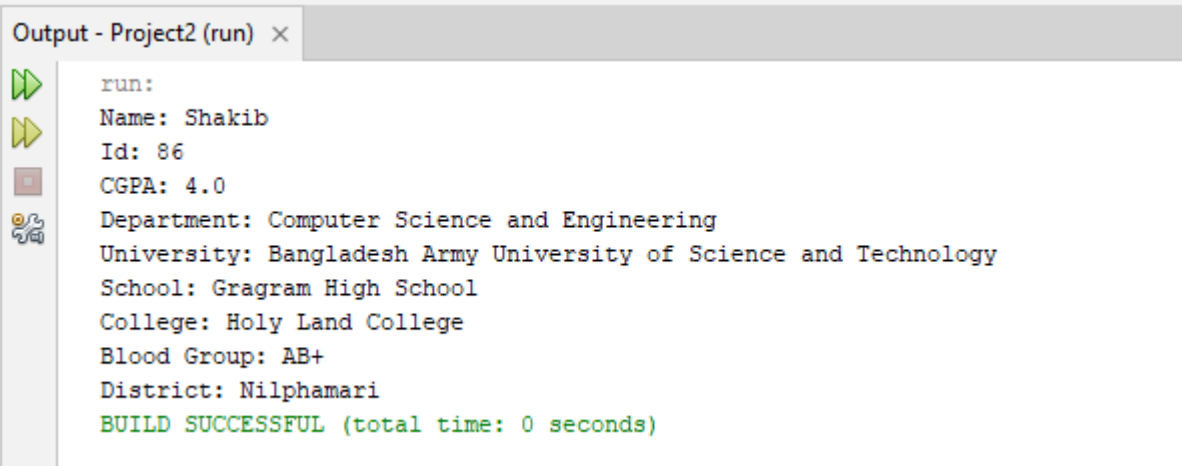
Source Code:

```
package project2;

public class Project2 {

    public static void main(String[] args) {
        String name = "Shakib";
        int id = 86;
        float cgpa = 4.00f;
        String dept = "Computer Science and Engineering";
        String versity = "Bangladesh Army University of Science and Technology";
        String schl = "Gramam High School";
        String clg = "Holy Land College";
        String group = "AB+";
        String district = "Nilphamari";
        System.out.println("Name: " + name);
        System.out.println("Id: " + id);
        System.out.println("CGPA: " + cgpa);
        System.out.println("Department: " + dept);
        System.out.println("University: " + versity);
        System.out.println("School: " + schl);
        System.out.println("College: " + clg);
        System.out.println("Blood Group: " + group);
        System.out.println("District: " + district);
    }
}
```

Output:



```
Output - Project2 (run) ×
run:
Name: Shakib
Id: 86
CGPA: 4.0
Department: Computer Science and Engineering
University: Bangladesh Army University of Science and Technology
School: Gragram High School
College: Holy Land College
Blood Group: AB+
District: Nilphamari
BUILD SUCCESSFUL (total time: 0 seconds)
```

Source Code:

```
package calculator;

import java.util.Scanner;

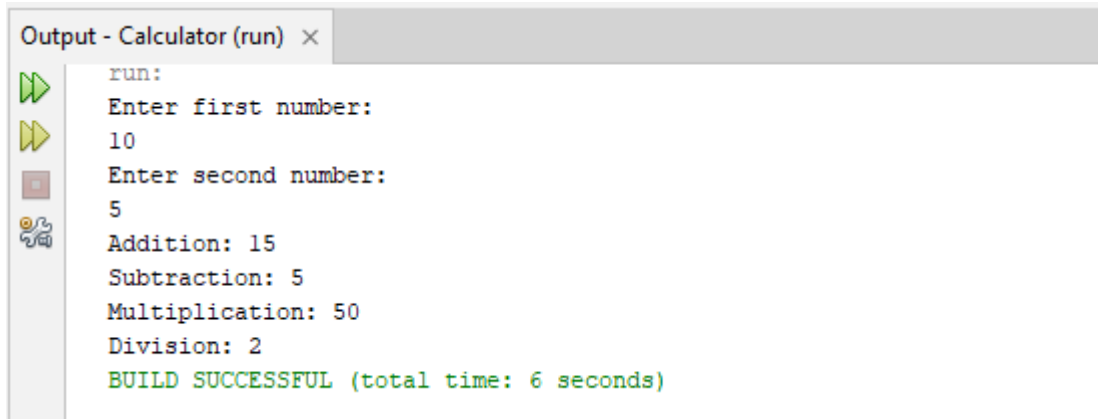
public class Calculator {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.println("Enter first number: ");
        int a = input.nextInt();
        System.out.println("Enter second number: ");
        int b = input.nextInt();
        System.out.println("Addition: " +(a+b));
        System.out.println("Subtraction: " +(a-b));
        System.out.println("Multiplication: " +(a*b));
        System.out.println("Division: " +(a/b));

    }

}
```

Output:



```
run:
Enter first number:
10
Enter second number:
5
Addition: 15
Subtraction: 5
Multiplication: 50
Division: 2
BUILD SUCCESSFUL (total time: 6 seconds)
```

Discussion:

This lab session successfully provided a foundational understanding of the Java programming language. We gained practical experience with basic syntax, data types and variables laying the foundation for further learning and development of more complex Java programs.