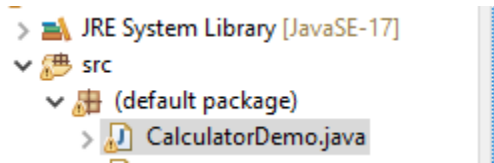


# TASK 2

## 1. Project Structure



## 2. Source Code

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

```
/*
```

```
 * Task 2: Variables, Data Types & Console Input
```

```
*/
```

```
public class CalculatorDemo {
```

```
    // Static variable (shared across all objects)
```

```
    static String appName = "Console Calculator";
```

```
    // Instance variable (belongs to object)
```

```
    int instanceCounter = 0;
```

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

```
    // Local variables (inside method)
```

```
    byte b = 10;        // 1 byte
```

```
    short s = 100;      // 2 bytes
```

```
    int i = 1000;        // 4 bytes
```

```
    long l = 100000L;    // 8 bytes
```

```
float f = 10.5f;    // 4 bytes
double d = 99.99;   // 8 bytes
char c = 'A';       // 2 bytes
boolean flag = true; // 1 bit (logical)
```

```
System.out.println("=== " + appName + " ===");
```

```
// Scanner for console input
```

```
Scanner sc = new Scanner(System.in);
```

```
// Accepting user input
```

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

```
double num1 = sc.nextDouble();
```

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

```
double num2 = sc.nextDouble();
```

```
System.out.print("Choose operation (+ - * /): ");
```

```
char operator = sc.next().charAt(0);
```

```
double result = 0;
```

```
boolean valid = true;
```

```
// Arithmetic operations with validation
```

```
switch (operator) {
```

**case '+':**

result = num1 + num2;

**break;**

**case '-':**

result = num1 - num2;

**break;**

**case '\*':**

result = num1 \* num2;

**break;**

**case '/':**

**if** (num2 != 0) {

result = num1 / num2;

**}** **else** {

System.out.println("Error: Division by zero not allowed.");

valid = **false**;

**}**

**break;**

**default:**

System.out.println("Invalid operator selected.");

valid = **false**;

**}**

```
// Formatted output

if (valid) {

    System.out.printf("Result: %.2f %c %.2f = %.2f%n",
        num1, operator, num2, result);

}

// Type casting examples

int castedInt = (int) d; // Explicit casting

double autoCast = i;    // Implicit casting

System.out.println("\nType Casting Examples:");

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

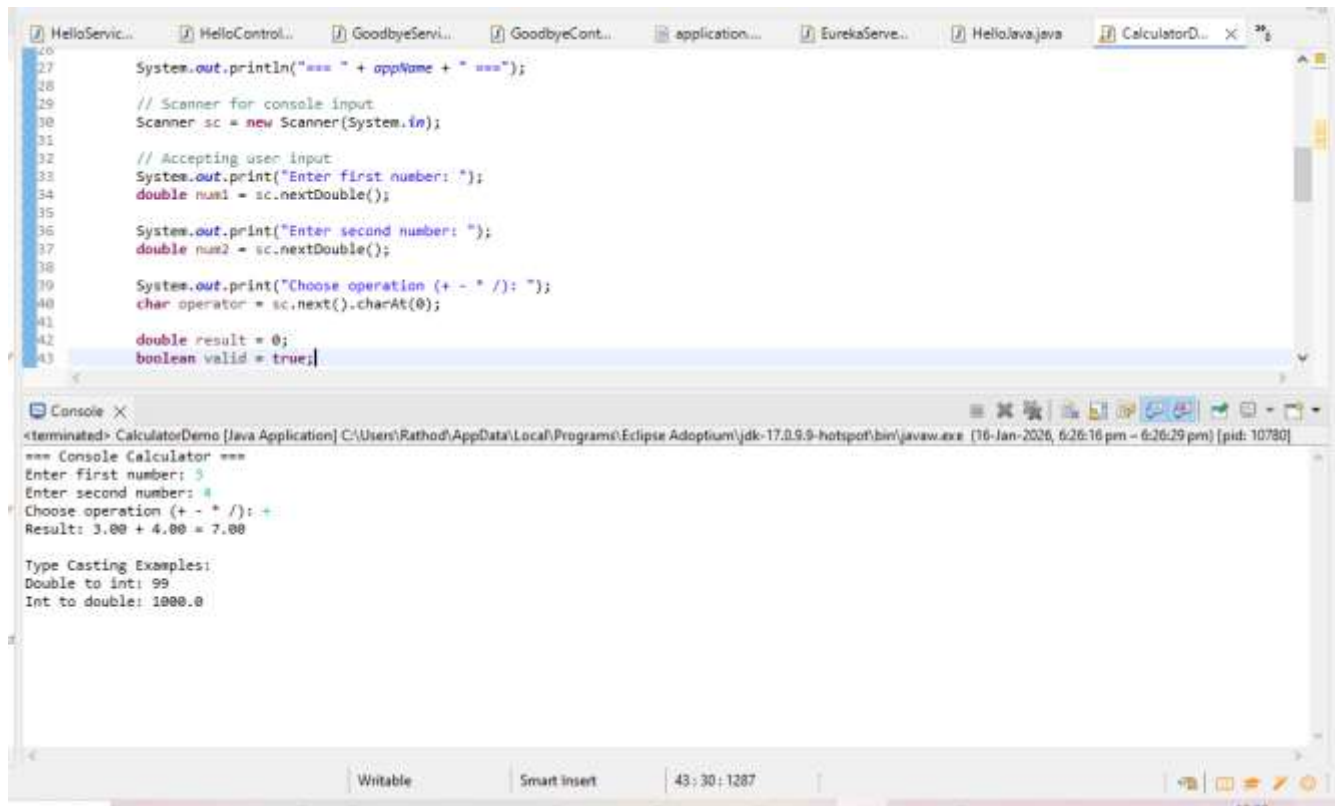
System.out.println("Int to double: " + autoCast);

sc.close();

}

}
```

### 3.Console Input & Output



The screenshot displays the Eclipse IDE interface. The top editor shows a Java file named `CalculatorDemo.java` with the following code:

```
26
27 System.out.println("=== " + appName + " ===");
28
29 // Scanner for console input
30 Scanner sc = new Scanner(System.in);
31
32 // Accepting user input
33 System.out.print("Enter first number: ");
34 double num1 = sc.nextDouble();
35
36 System.out.print("Enter second number: ");
37 double num2 = sc.nextDouble();
38
39 System.out.print("Choose operation (+ - * /): ");
40 char operator = sc.next().charAt(0);
41
42 double result = 0;
43 boolean valid = true;
```

The bottom console window shows the execution output:

```
<terminated> CalculatorDemo [Java Application] C:\Users\Rathod\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.9-hotspot\bin\javaw.exe (16-Jan-2026, 6:26:16 pm - 6:26:29 pm) [pid: 10780]
=== Console Calculator ===
Enter first number: 3
Enter second number: 4
Choose operation (+ - * /): +
Result: 3.00 + 4.00 = 7.00

Type Casting Examples:
Double to int: 99
Int to double: 1000.0
```

The status bar at the bottom indicates the file is writable, smart insert is active, and the cursor is at line 43, column 30.