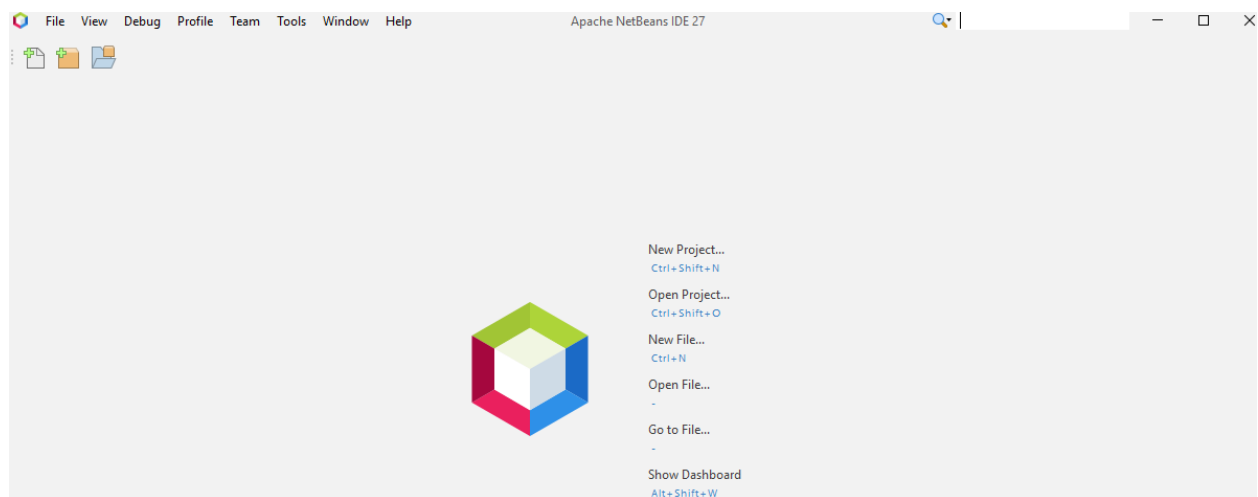# COMSATS University Islamabad Abbottabad Campus
Department of Computer Science

Lab Task 01

Install Java JDK and NetBeans IDE on Your Laptop and create first project

INSTALLED
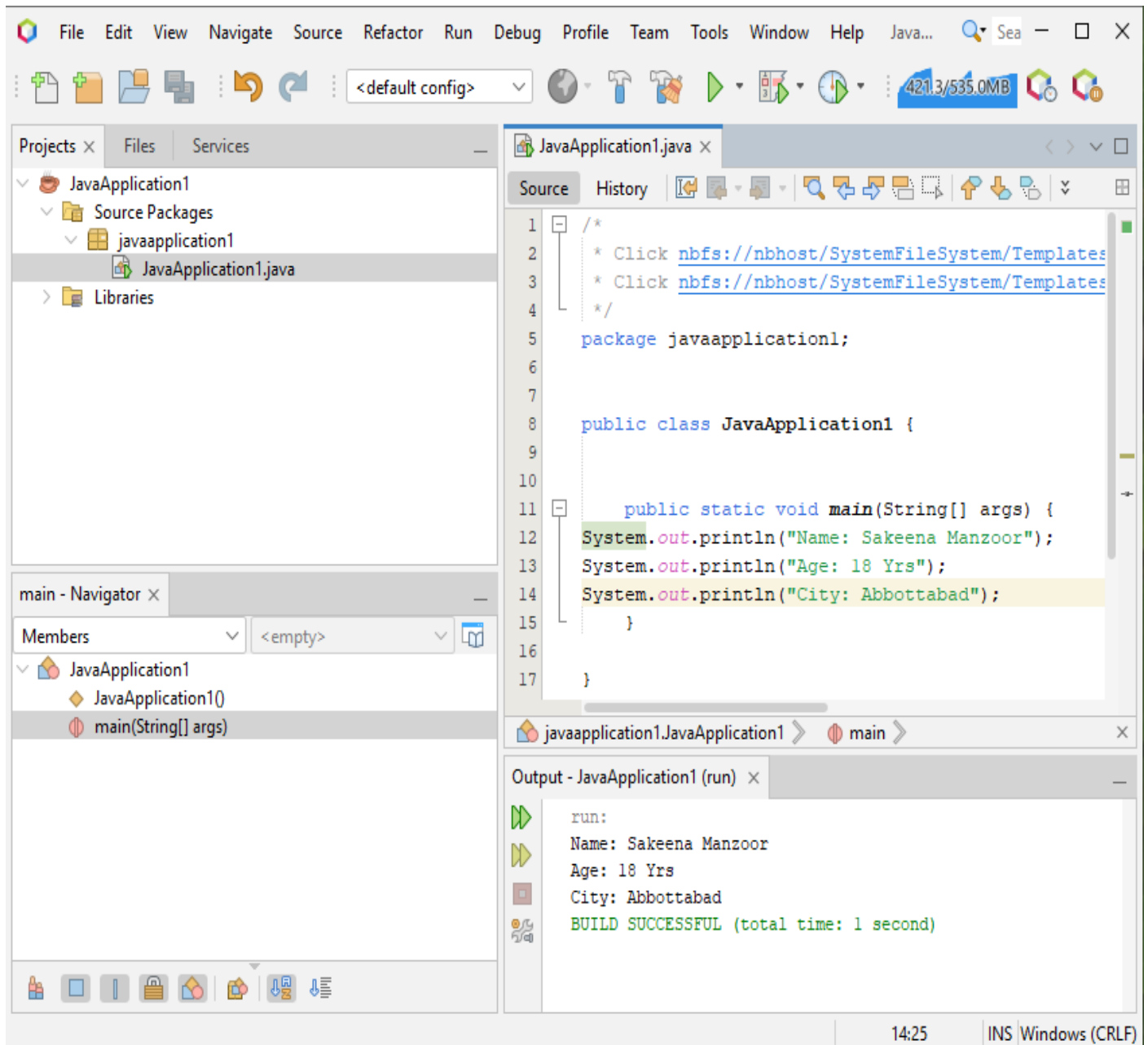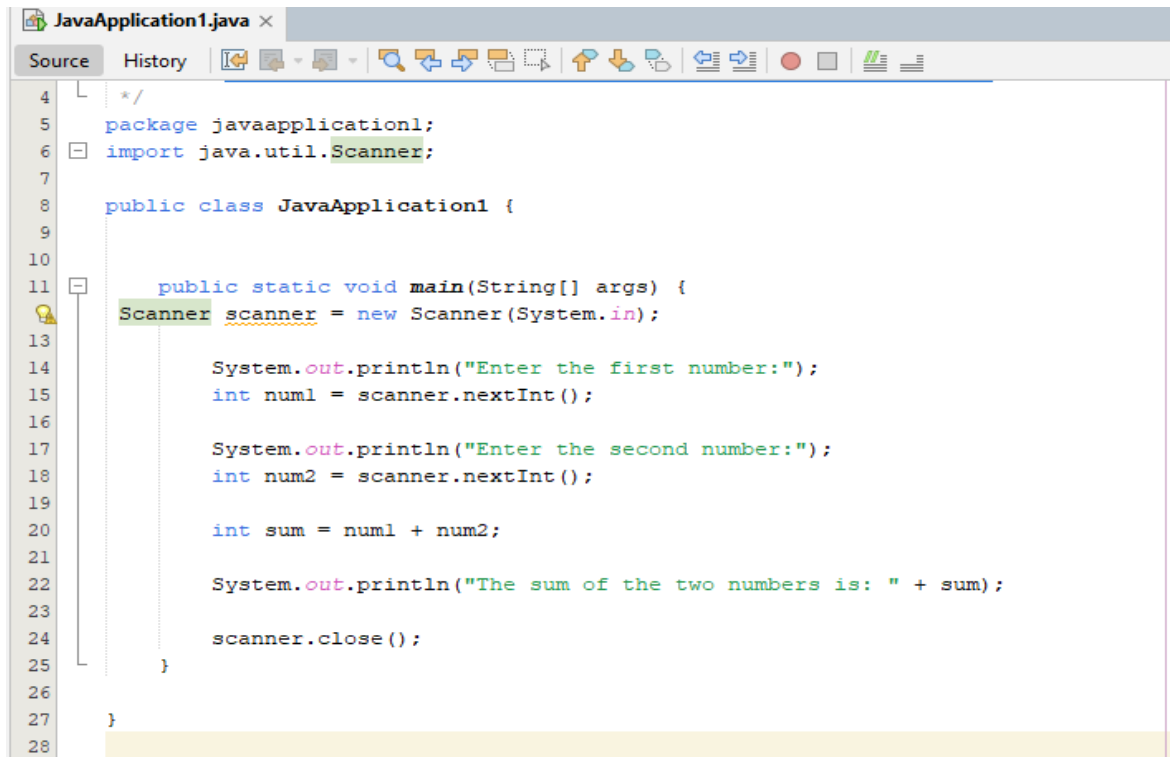
Lab Task 02

Java Basics Practice

1. **Print Your Details** Write a Java program to print your name, age, and city on the screen.
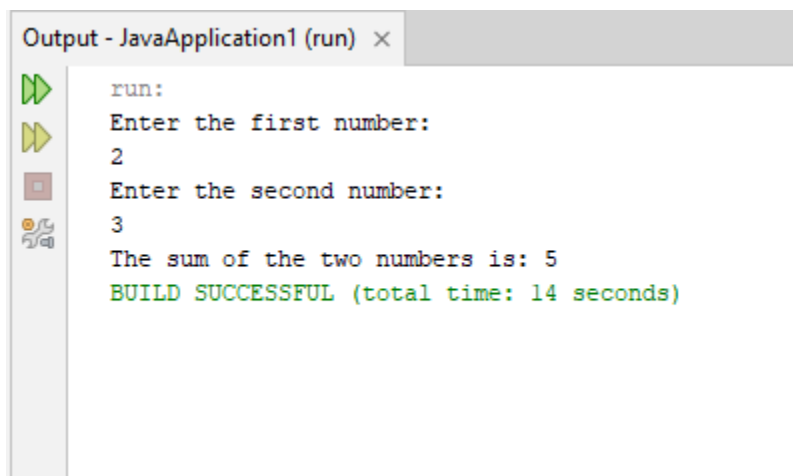
2. Simple Arithmetic Calculator

Write a program that takes two numbers as input from the user and displays their sum, difference, product, and quotient.

SUM:

```java
    */
    package javaapplication1;
    import java.util.Scanner;

    public class JavaApplication1 {


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

                System.out.println("Enter the first number:");
                int num1 = scanner.nextInt();

                System.out.println("Enter the second number:");
                int num2 = scanner.nextInt();

                int sum = num1 + num2;

                System.out.println("The sum of the two numbers is: " + sum);

                scanner.close();
        }

    }
```

OUTPUT:

```
run:
Enter the first number:
2
Enter the second number:
3
The sum of the two numbers is: 5
BUILD SUCCESSFUL (total time: 14 seconds)
```

DIFFERENCE:

```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Main.java to edit thi
 */
package javaapplication1;
import java.util.Scanner;

public class JavaApplication1 {


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

            System.out.println("Enter the first number:");
            int num1 = scanner.nextInt();

            System.out.println("Enter the second number:");
            int num2 = scanner.nextInt();

            int difference = num1 - num2;

            System.out.println("The sum of the two numbers is: " + difference);

            scanner.close();
        }

    }
```

OUTPUT:

```
run:
Enter the first number:
2
Enter the second number:
3
The sum of the two numbers is: 6
BUILD SUCCESSFUL (total time: 1 minute 34 seconds)
```
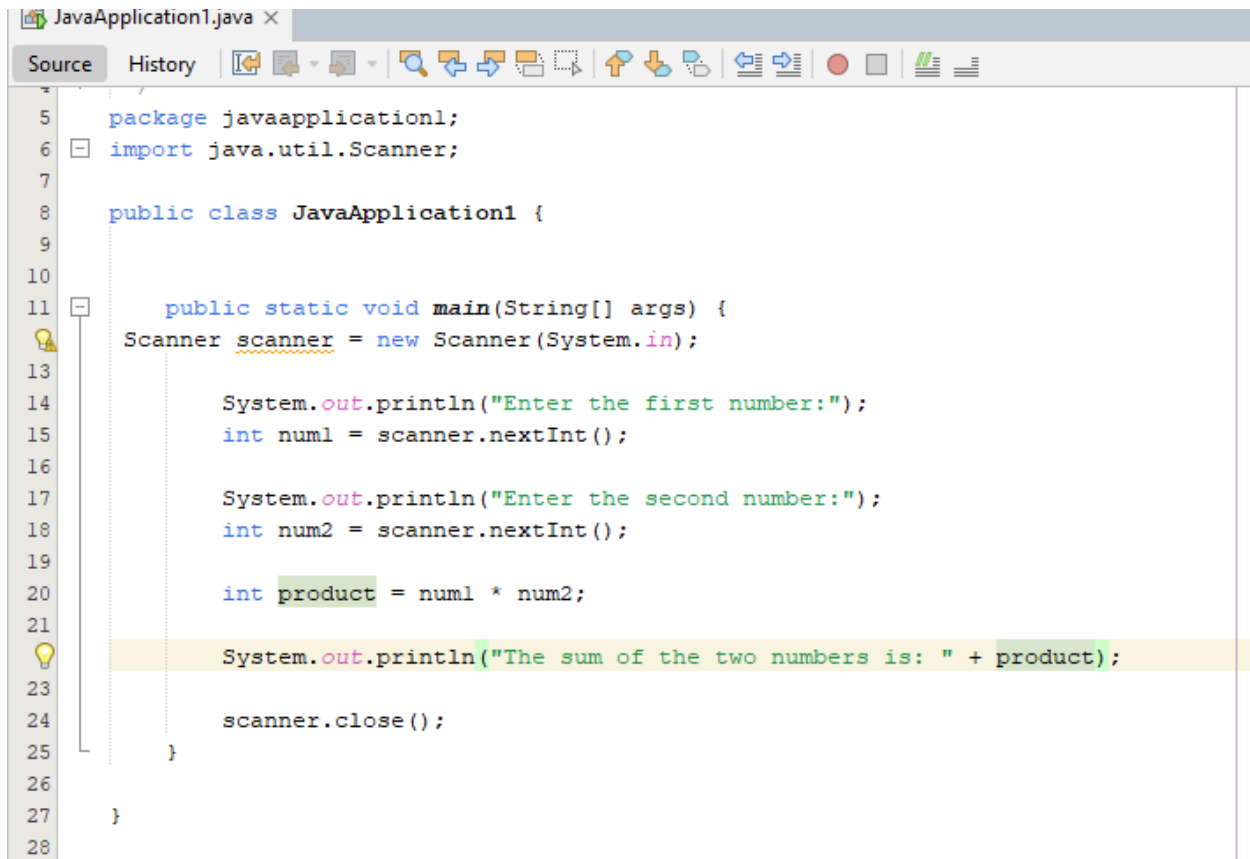
PRODUCT

```java
package javaapplication1;
import java.util.Scanner;

public class JavaApplication1 {


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

        System.out.println("Enter the first number:");
        int num1 = scanner.nextInt();

        System.out.println("Enter the second number:");
        int num2 = scanner.nextInt();

        int product = num1 * num2;

        System.out.println("The sum of the two numbers is: " + product);

        scanner.close();
    }

}
```

OUTPUT:

```
run:
Enter the first number:
2
Enter the second number:
3
The sum of the two numbers is: 6
BUILD SUCCESSFUL (total time: 1 minute 34 seconds)
```
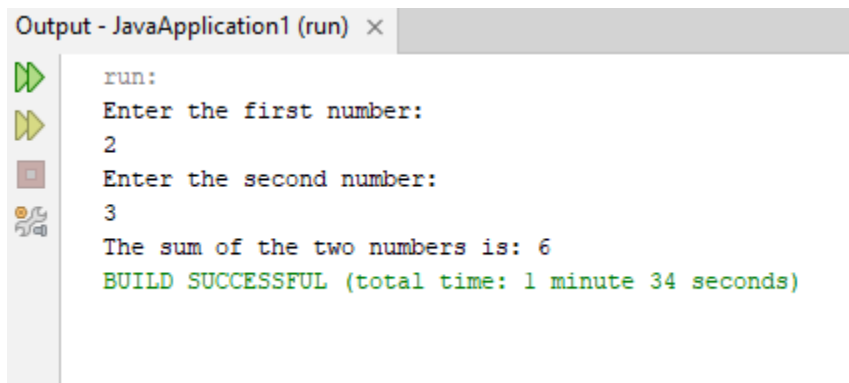
QOUTIENT:

```
JavaApplication1.java ×

Source  History

7
8      public class JavaApplication1 {
9
10
11         public static void main(String[] args) {
           Scanner scanner = new Scanner(System.in);
13
14             System.out.println("Enter the first number:");
15             int num1 = scanner.nextInt();
16
17             System.out.println("Enter the second number:");
18             int num2 = scanner.nextInt();
19
20             int qoutient = num1/ num2;
21
               System.out.println("The sum of the two numbers is: " + qoutient);
23
24             scanner.close();
25         }
26
27     }
```
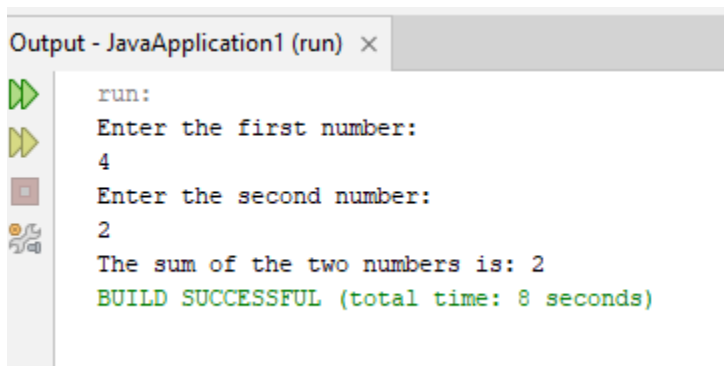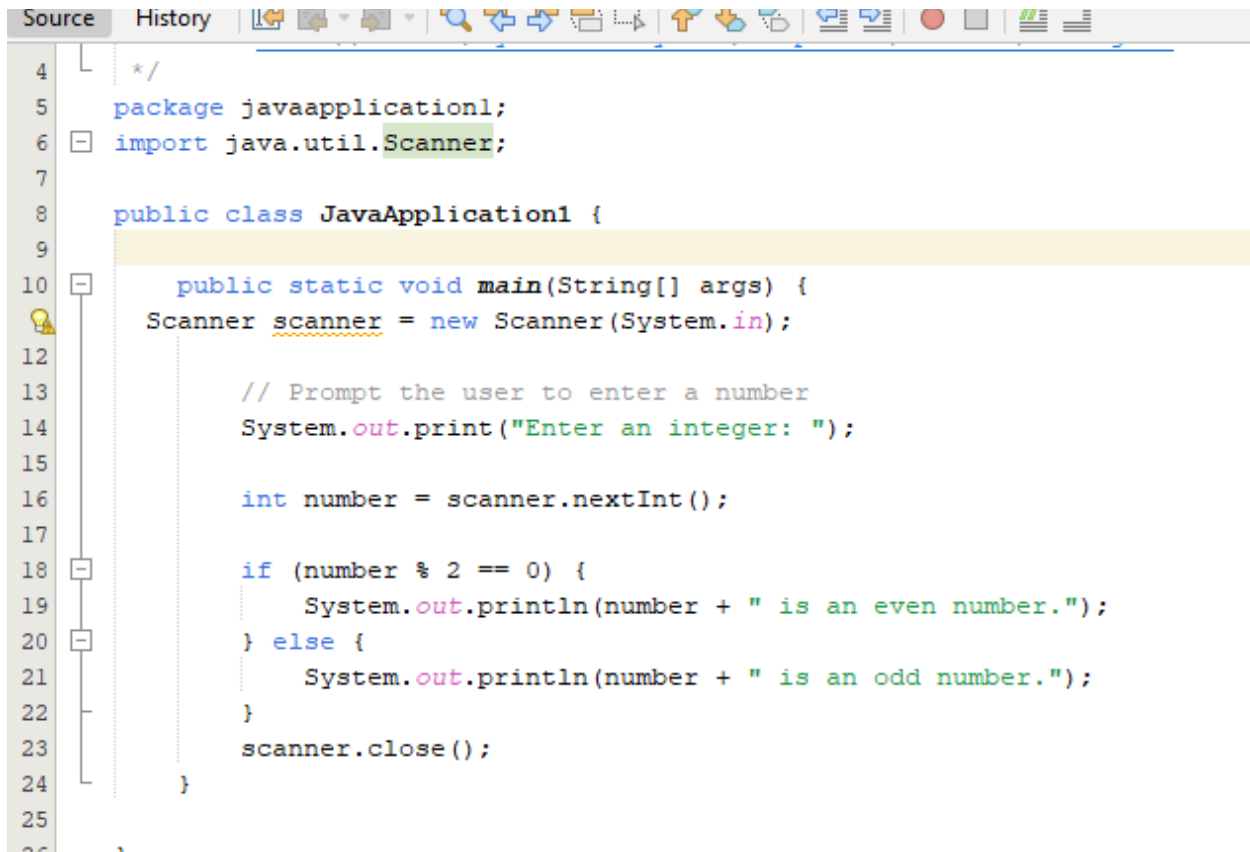
OUTPUT:

```
Output - JavaApplication1 (run) ×

run:
Enter the first number:
4
Enter the second number:
2
The sum of the two numbers is: 2
BUILD SUCCESSFUL (total time: 8 seconds)
```
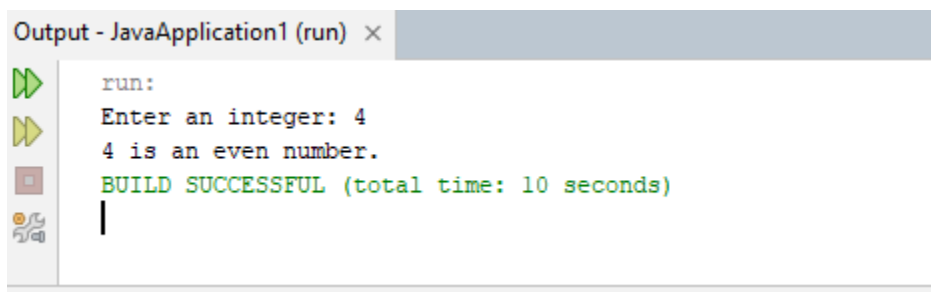
3. Even or Odd Number Write a program that asks the user to enter a number and prints whether it is even or odd.

PROGRAM:

```
Source  History

4    */
5    package javaapplication1;
6    import java.util.Scanner;
7
8    public class JavaApplication1 {
9
10       public static void main(String[] args) {
         Scanner scanner = new Scanner(System.in);
12
13           // Prompt the user to enter a number
14           System.out.print("Enter an integer: ");
15
16           int number = scanner.nextInt();
17
18           if (number % 2 == 0) {
19               System.out.println(number + " is an even number.");
20           } else {
21               System.out.println(number + " is an odd number.");
22           }
23           scanner.close();
24       }
25
26    }
```
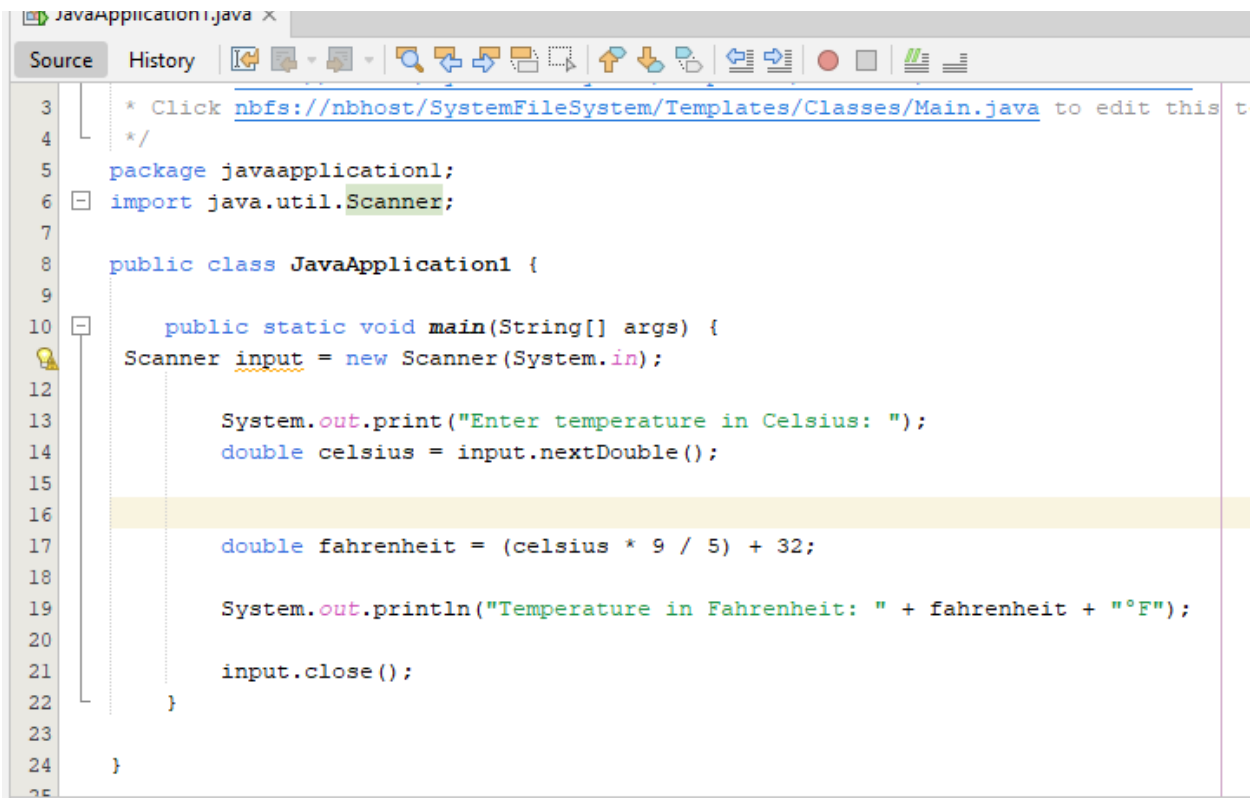
OUTPUT:

```
Output - JavaApplication1 (run)  ×

    run:
    Enter an integer: 4
    4 is an even number.
    BUILD SUCCESSFUL (total time: 10 seconds)
```
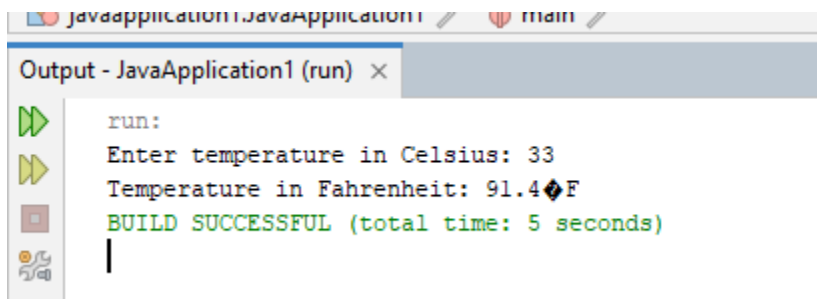
4. Temperature Converter Write a Java program to convert a temperature from Celsius to Fahrenheit. The formula is: Fahrenheit = (Celsius × 9/5) + 32 .

PROGRAM:

```
JavaApplication1.java ×

Source   History   [toolbar icons]

3        * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Main.java to edit this t
4      */
5      package javaapplication1;
6 ⊟   import java.util.Scanner;
7
8      public class JavaApplication1 {
9
10 ⊟      public static void main(String[] args) {
         Scanner input = new Scanner(System.in);
12
13            System.out.print("Enter temperature in Celsius: ");
14            double celsius = input.nextDouble();
15
16
17            double fahrenheit = (celsius * 9 / 5) + 32;
18
19            System.out.println("Temperature in Fahrenheit: " + fahrenheit + "°F");
20
21            input.close();
22        }
23
24     }
25
```

OUTPUT:

```
JavaApplication1.JavaApplication1    main

Output - JavaApplication1 (run) ×

  run:
  Enter temperature in Celsius: 33
  Temperature in Fahrenheit: 91.4◆F
  BUILD SUCCESSFUL (total time: 5 seconds)
```
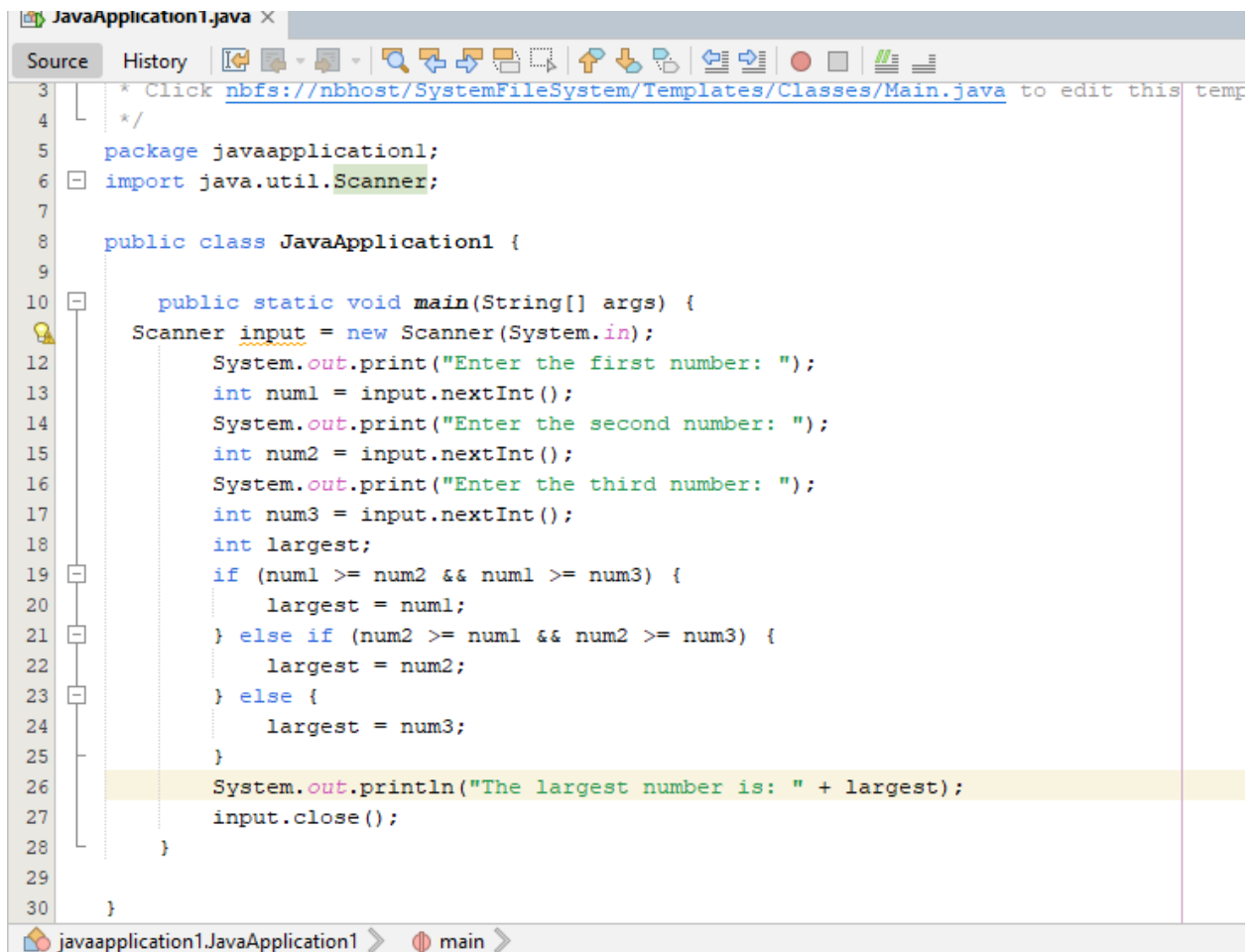
5. Find the Largest Number Write a program that asks the user to enter three numbers and prints the largest number among them.
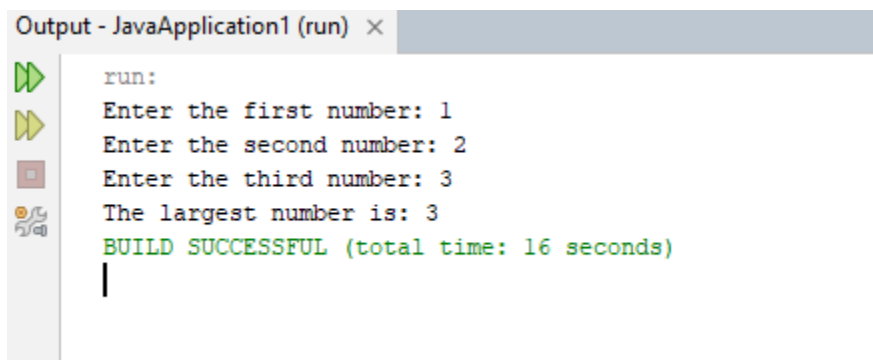
PROGRAM:

```java
3      * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Main.java to edit this temp
4      */
5     package javaapplication1;
6     import java.util.Scanner;
7
8     public class JavaApplication1 {
9
10        public static void main(String[] args) {
          Scanner input = new Scanner(System.in);
12            System.out.print("Enter the first number: ");
13            int num1 = input.nextInt();
14            System.out.print("Enter the second number: ");
15            int num2 = input.nextInt();
16            System.out.print("Enter the third number: ");
17            int num3 = input.nextInt();
18            int largest;
19            if (num1 >= num2 && num1 >= num3) {
20                largest = num1;
21            } else if (num2 >= num1 && num2 >= num3) {
22                largest = num2;
23            } else {
24                largest = num3;
25            }
26            System.out.println("The largest number is: " + largest);
27            input.close();
28        }
29
30    }
```

javaapplication1.JavaApplication1 > ⬤ main >

OUTPUT:

Output - JavaApplication1 (run) ×
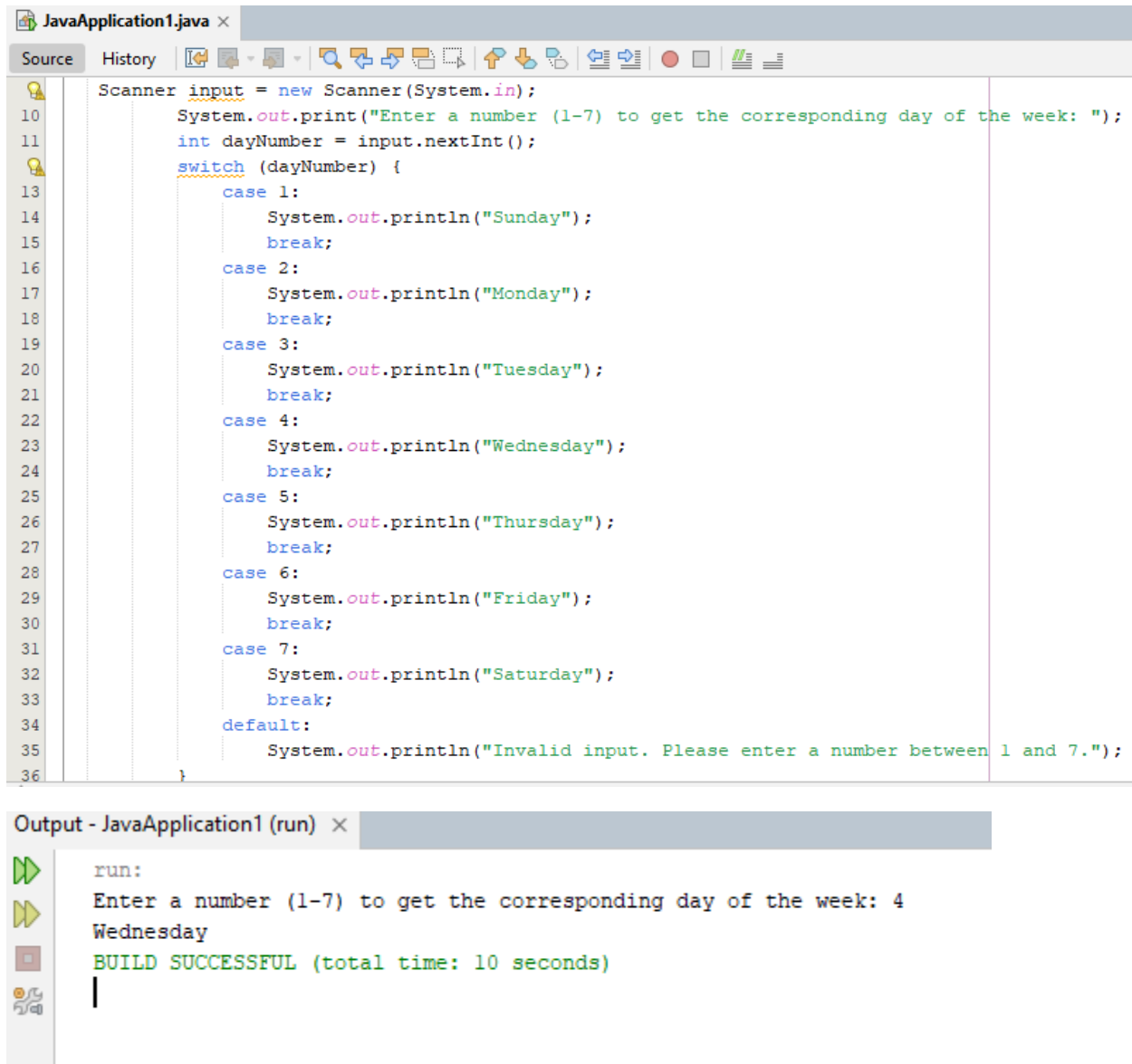
```
run:
Enter the first number: 1
Enter the second number: 2
Enter the third number: 3
The largest number is: 3
BUILD SUCCESSFUL (total time: 16 seconds)
```

6. Day of the Week Using Switch Write a program that asks the user to enter a number (1–7) and prints the corresponding day of the week using a switch statement.

PROGRAM:

```java
        Scanner input = new Scanner(System.in);
        System.out.print("Enter a number (1-7) to get the corresponding day of the week: ");
        int dayNumber = input.nextInt();
        switch (dayNumber) {
            case 1:
                System.out.println("Sunday");
                break;
            case 2:
                System.out.println("Monday");
                break;
            case 3:
                System.out.println("Tuesday");
                break;
            case 4:
                System.out.println("Wednesday");
                break;
            case 5:
                System.out.println("Thursday");
                break;
            case 6:
                System.out.println("Friday");
                break;
            case 7:
                System.out.println("Saturday");
                break;
            default:
                System.out.println("Invalid input. Please enter a number between 1 and 7.");
        }
```

Output - JavaApplication1 (run)

```
run:
Enter a number (1-7) to get the corresponding day of the week: 4
Wednesday
BUILD SUCCESSFUL (total time: 10 seconds)
```

Lab Task 03 – Java Basics Practice project
Q1: Student Grade Calculator
Topics Covered:

Output, Comments, Variables, Data Types, Operators, Type Casting, If-Else Statements

Instructions:

☐ Ask the user to enter marks for Quiz (out of 15), Assignment (out of 10), Mid-Term (out of 25), and
Final Exam (out of 50).
Ask the user to enter marks for Quiz (out of 15), Assignment (out of 10), Mid-Term (out of 25), and
Final Exam (out of 50)
.☐ Store these values in variables of appropriate data types.
☐ Calculate Total Marks and Average (use type casting to show decimal values).
☐ Display the Grade using if-else.
☐ Add comments to explain your code.

Grading Rules:

☐ Average >= 85 → Grade A
☐ 70 <= Average < 85 → Grade B
☐ 50 <= Average < 70 → Grade C
☐ Average < 50 → Fail

Expected Output Example:

Enter Quiz Marks: 12

Enter Assignment Marks: 9

Enter Mid-Term Marks: 20

Enter Final Marks: 40

Total Marks = 81

Average = 81.0

Grade = B

PROGRAM:

```java
public class JavaApplication2 {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter Quiz Marks (out of 15): ");
        int quiz = input.nextInt();
        System.out.print("Enter Assignment Marks (out of 10): ");
        int assignment = input.nextInt();
        System.out.print("Enter Mid-Term Marks (out of 25): ");
        int midTerm = input.nextInt();
        System.out.print("Enter Final Exam Marks (out of 50): ");
        int finalExam = input.nextInt();
        int totalMarks = quiz + assignment + midTerm + finalExam;
        double average = (double) totalMarks;
        System.out.println("Total Marks = " + totalMarks);
        System.out.println("Average = " + average);
        String grade;
        if (average >= 85) {
            grade = "A";
        } else if (average >= 70) {
            grade = "B";
        } else if (average >= 50) {
            grade = "C";
        } else {
            grade = "Fail";
        }
        System.out.println("Grade = " + grade);
```

OUTPUT:

```
Output - JavaApplication2 (run)  ×

    run:
    Enter Quiz Marks (out of 15): 13
    Enter Assignment Marks (out of 10): 9
    Enter Mid-Term Marks (out of 25): 20
    Enter Final Exam Marks (out of 50): 45
    Total Marks = 87
    Average = 87.0
    Grade = A
    BUILD SUCCESSFUL (total time: 4 minutes 6 seconds)
```

Q2: Pizza Billing System

Topics Covered:

Strings, If-Else, Switch, Math Operators, Booleans, Output and Comments

Instructions:

☐ Ask the user for Pizza Size (small, medium, large).

☐ Use a switch statement to assign base prices: Small = 100, Medium = 200, Large = 300.

☐ Ask if the user wants pepperoni: Small → +30, Medium/Large → +50.

☐ Ask if the user wants extra cheese (+20).

☐ Display the final bill.

Expected Output Example:

Enter pizza size (small/medium/large): small

Do you want pepperoni? (yes/no): yes

Do you want extra cheese? (yes/no): no

Your final bill is: 130 rupees

PROGRAM:

```java
 4      */
 5     package pizzabillingsystem;
 6         import java.util.Scanner;
 7     public class PizzaBillingSystem {
 8         public static void main(String[] args) {
            Scanner input = new Scanner(System.in);
10          System.out.print("Enter pizza size (small/medium/large): ");
11          String size = input.nextLine().toLowerCase();
12
            int bill = 0;
            switch (size) {
15              case "small":
16                  bill = 100;
17                  break;
18              case "medium":
19                  bill = 200;
20                  break;
21              case "large":
22                  bill = 300;
23                  break;
24              default:
25                  System.out.println("Invalid pizza size entered!");
26                  input.close();
27                  return;
28          }
29          System.out.print("Do you want pepperoni? (yes/no): ");
30          String pepperoni = input.nextLine().toLowerCase();
31
```

```java
        }
        System.out.print("Do you want pepperoni? (yes/no): ");
        String pepperoni = input.nextLine().toLowerCase();

        if (pepperoni.equals("yes")) {
            if (size.equals("small")) {
                bill += 30;
            } else {
                bill += 50;
            }
        }
        System.out.print("Do you want extra cheese? (yes/no): ");
        String cheese = input.nextLine().toLowerCase();

        if (cheese.equals("yes")) {
            bill += 20;
        }
        System.out.println("Your final bill is: " + bill + " rupees");

        input.close();
    }
}
```

OUTPUT:

Output - PizzaBillingSystem (run) ✕

```
run:
Enter pizza size (small/medium/large): large
Do you want pepperoni? (yes/no): yes
Do you want extra cheese? (yes/no): yes
Your final bill is: 370 rupees
BUILD SUCCESSFUL (total time: 18 seconds)
```