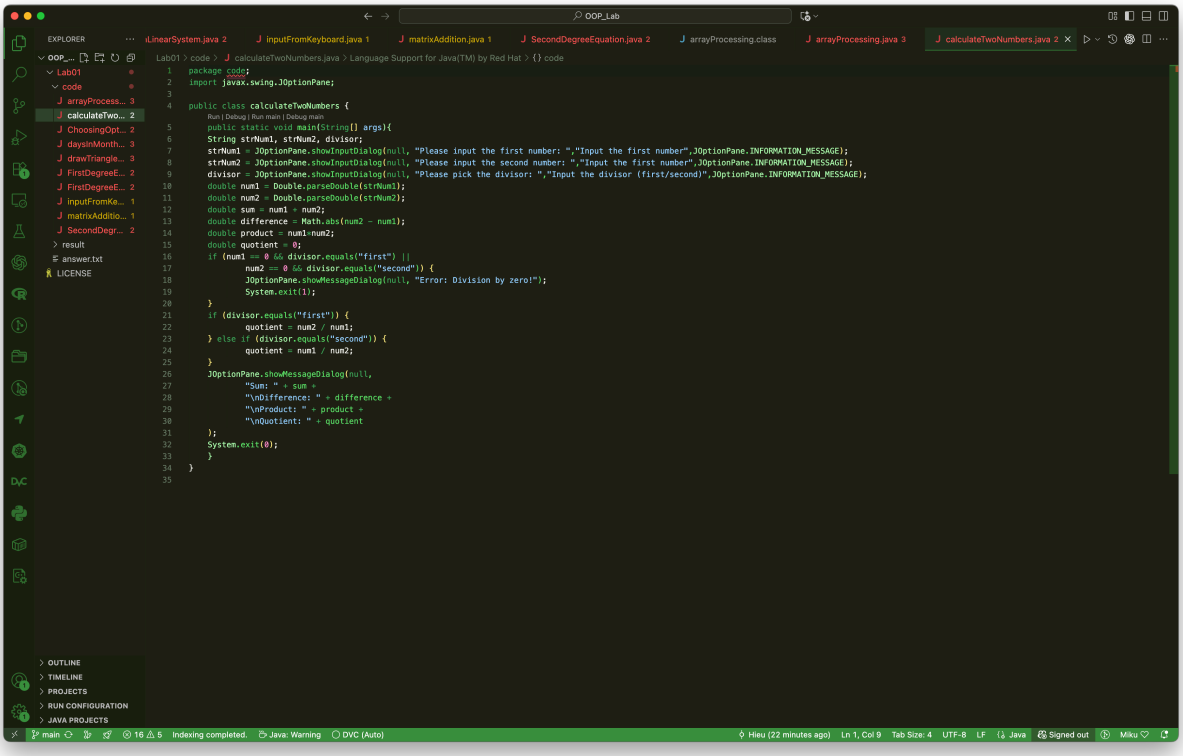
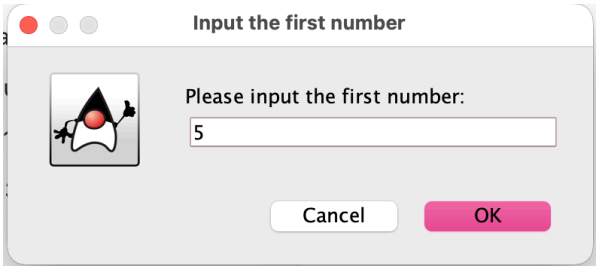
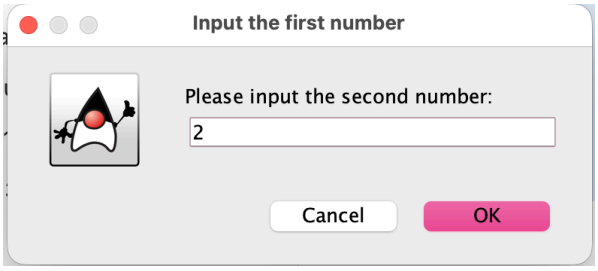
Lab01 Report

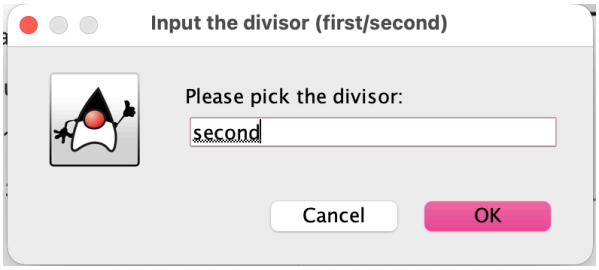
2.2.5

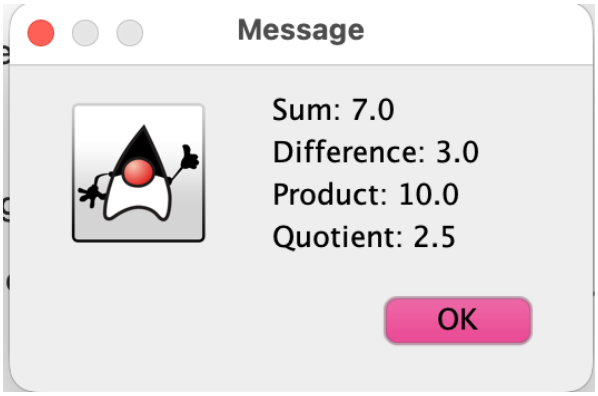


```java
package code;
import javax.swing.JOptionPane;

public class calculateTwoNumbers {
    public static void main(String[] args){
    String strNum1, strNum2, divisor;
    strNum1 = JOptionPane.showInputDialog(null, "Please input the first number: ","Input the first number",JOptionPane.INFORMATION_MESSAGE);
    strNum2 = JOptionPane.showInputDialog(null, "Please input the second number: ","Input the first number",JOptionPane.INFORMATION_MESSAGE);
    divisor = JOptionPane.showInputDialog(null, "Please pick the divisor: ","Input the divisor (first/second)",JOptionPane.INFORMATION_MESSAGE);
    double num1 = Double.parseDouble(strNum1);
    double num2 = Double.parseDouble(strNum2);
    double sum = num1 + num2;
    double difference = Math.abs(num2 - num1);
    double product = num1*num2;
    double quotient = 0;
    if (num1 == 0 && divisor.equals("first") ||
            num2 == 0 && divisor.equals("second")) {
            JOptionPane.showMessageDialog(null, "Error: Division by zero!");
            System.exit(1);
    }
    if (divisor.equals("first")) {
            quotient = num2 / num1;
    } else if (divisor.equals("second")) {
            quotient = num1 / num2;
    }
    JOptionPane.showMessageDialog(null,
            "Sum: " + sum +
            "\nDifference: " + difference +
            "\nProduct: " + product +
            "\nQuotient: " + quotient
    );
    System.exit(0);
    }
}
```



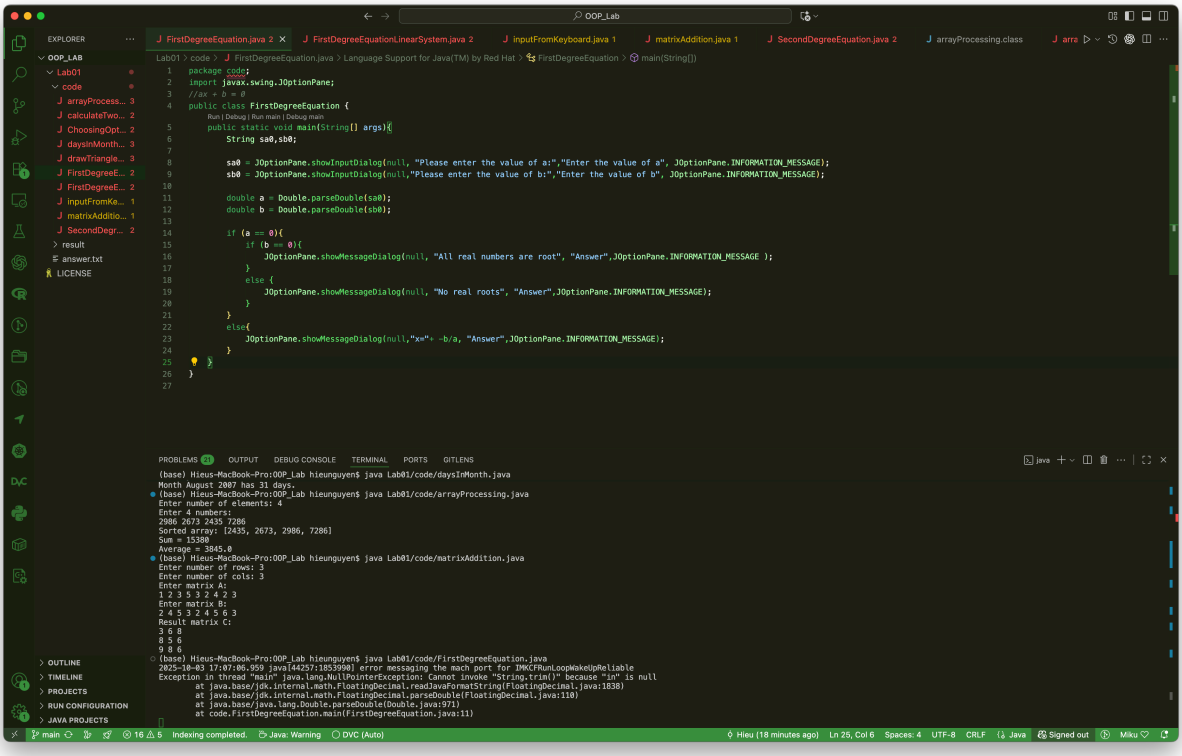


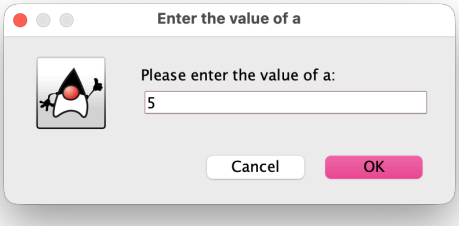


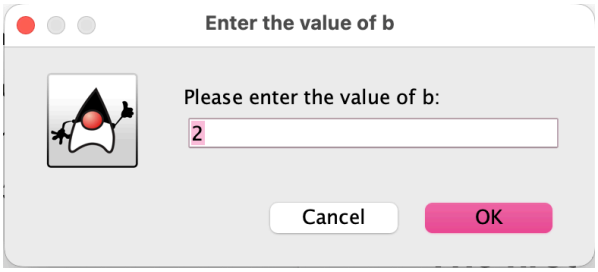


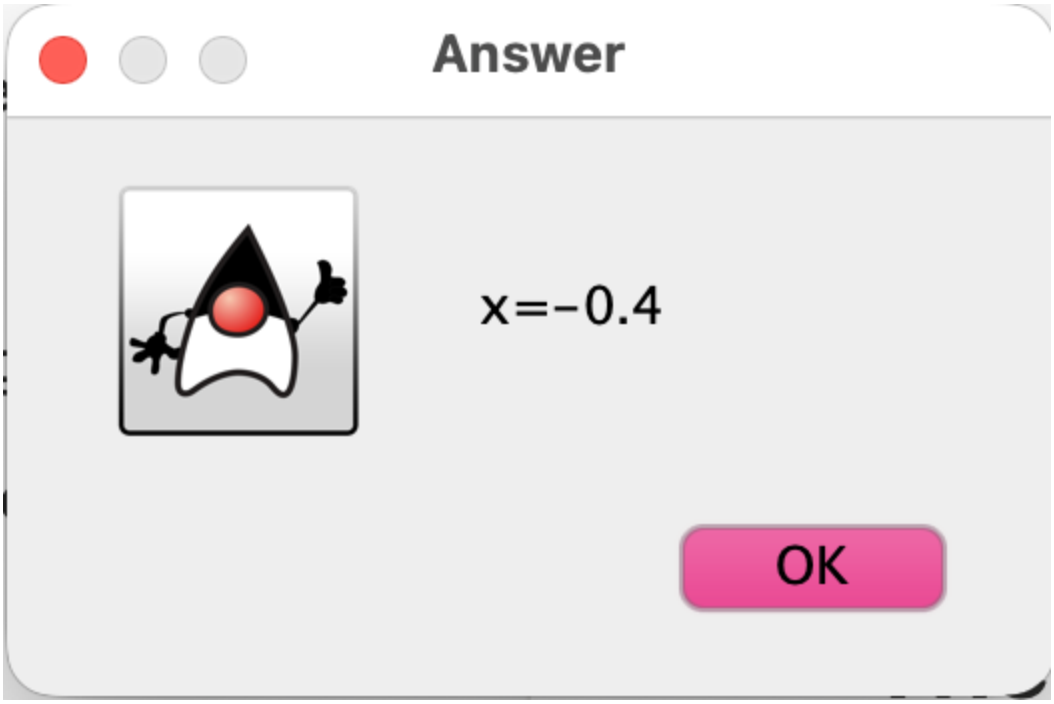
2.2.6

The first-degree equation (linear equation) with one variable

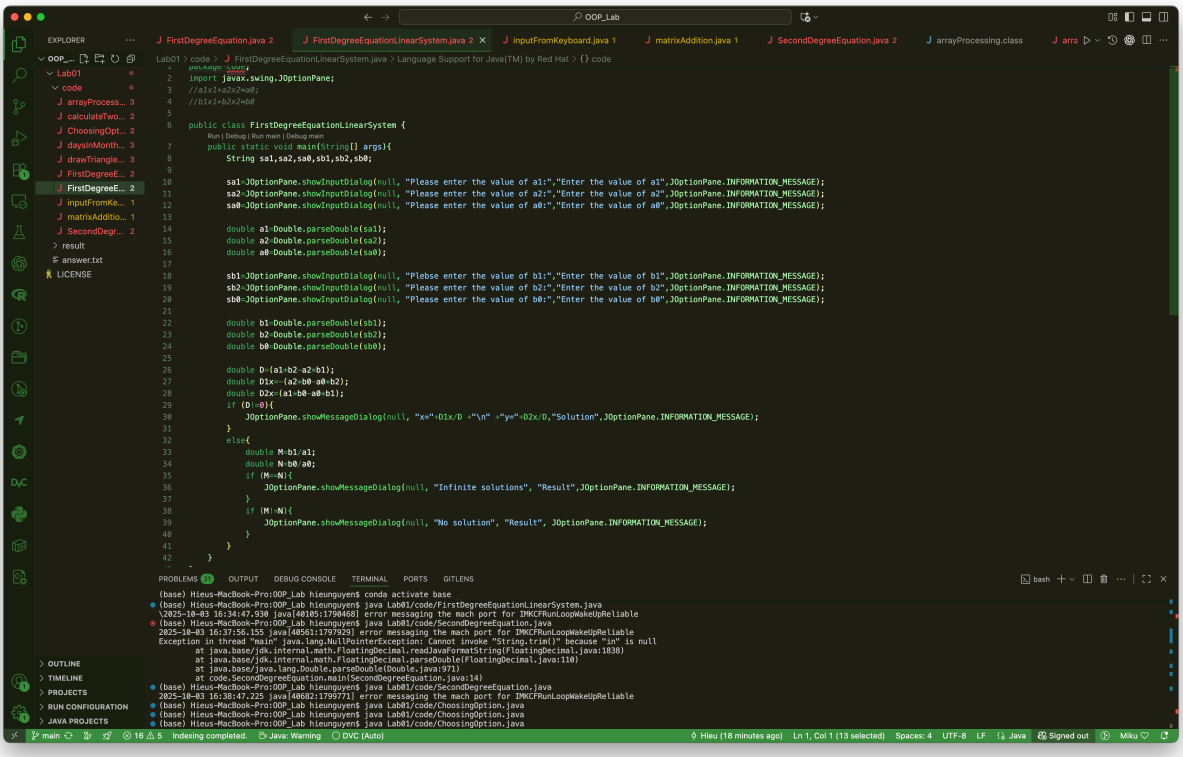






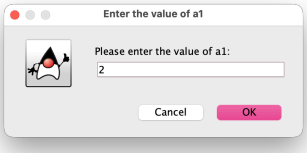


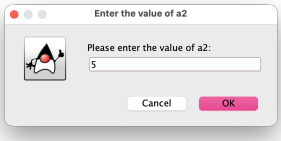
The system of first-degree equations (linear system) with two variables

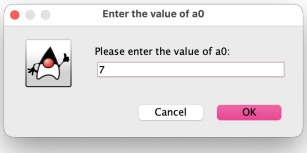


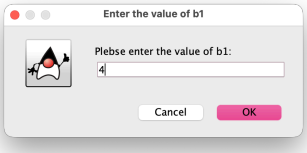
```java
import javax.swing.JOptionPane;
//a1x1+a2x2=a0;
//b1x1+b2x2=b0

public class FirstDegreeEquationLinearSystem {
    public static void main(String[] args){
        String sa1,sa2,sa0,sb1,sb2,sb0;

        sa1=JOptionPane.showInputDialog(null, "Please enter the value of a1:","Enter the value of a1",JOptionPane.INFORMATION_MESSAGE);
        sa2=JOptionPane.showInputDialog(null, "Please enter the value of a2:","Enter the value of a2",JOptionPane.INFORMATION_MESSAGE);
        sa0=JOptionPane.showInputDialog(null, "Please enter the value of a0:","Enter the value of a0",JOptionPane.INFORMATION_MESSAGE);

        double a1=Double.parseDouble(sa1);
        double a2=Double.parseDouble(sa2);
        double a0=Double.parseDouble(sa0);

        sb1=JOptionPane.showInputDialog(null, "Plebse enter the value of b1:","Enter the value of b1",JOptionPane.INFORMATION_MESSAGE);
        sb2=JOptionPane.showInputDialog(null, "Please enter the value of b2:","Enter the value of b2",JOptionPane.INFORMATION_MESSAGE);
        sb0=JOptionPane.showInputDialog(null, "Please enter the value of b0:","Enter the value of b0",JOptionPane.INFORMATION_MESSAGE);

        double b1=Double.parseDouble(sb1);
        double b2=Double.parseDouble(sb2);
        double b0=Double.parseDouble(sb0);

        double D=(a1*b2-a2*b1);
        double D1x=(a2*b0-a0*b2);
        double D2x=(a1*b0-a0*b1);
        if (D!=0){
            JOptionPane.showMessageDialog(null, "x="+D1x/D +"\n" +"y="+D2x/D,"Solution",JOptionPane.INFORMATION_MESSAGE);
        }
        else{
            double M=b1/a1;
            double N=b0/a0;
            if (M==N){
                JOptionPane.showMessageDialog(null, "Infinite solutions", "Result",JOptionPane.INFORMATION_MESSAGE);
            }
            if (M!=N){
                JOptionPane.showMessageDialog(null, "No solution", "Result", JOptionPane.INFORMATION_MESSAGE);
            }
        }
    }
}
```

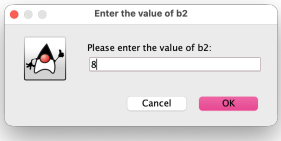
```
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ conda activate base
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/FirstDegreeEquationLinearSystem.java
\2025-10-03 16:34:47.930 java[40105:1790468] error messaging the mach port for IMKCFRunLoopWakeUpReliable
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/SecondDegreeEquation.java
2025-10-03 16:37:56.155 java[40561:1797929] error messaging the mach port for IMKCFRunLoopWakeUpReliable
Exception in thread "main" java.lang.NullPointerException: Cannot invoke "String.trim()" because "in" is null
        at java.base/jdk.internal.math.FloatingDecimal.readJavaFormatString(FloatingDecimal.java:1838)
        at java.base/jdk.internal.math.FloatingDecimal.parseDouble(FloatingDecimal.java:110)
        at java.base/java.lang.Double.parseDouble(Double.java:971)
        at code.SecondDegreeEquation.main(SecondDegreeEquation.java:14)
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/SecondDegreeEquation.java
2025-10-03 16:38:47.225 java[40682:1799771] error messaging the mach port for IMKCFRunLoopWakeUpReliable
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/ChoosingOption.java
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/ChoosingOption.java
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/ChoosingOption.java
```

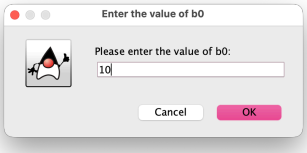


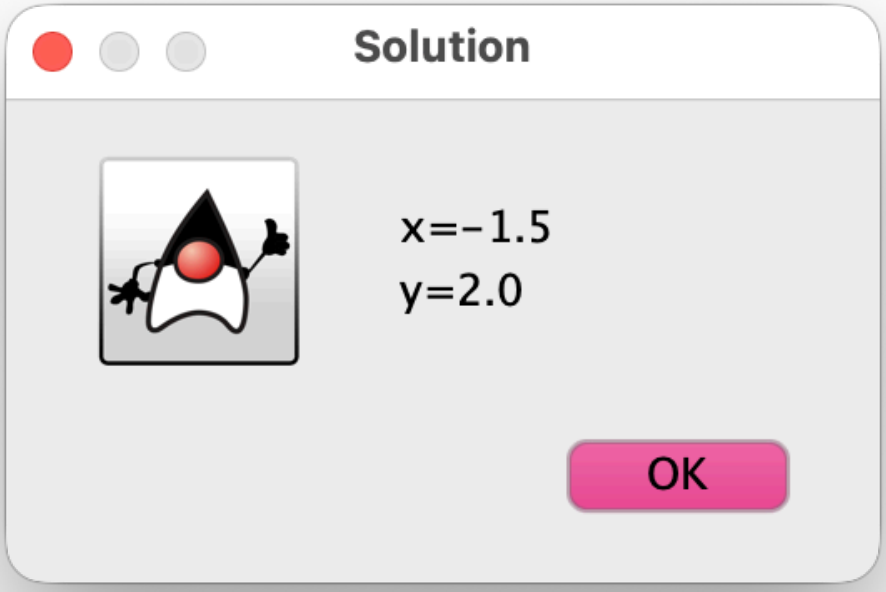




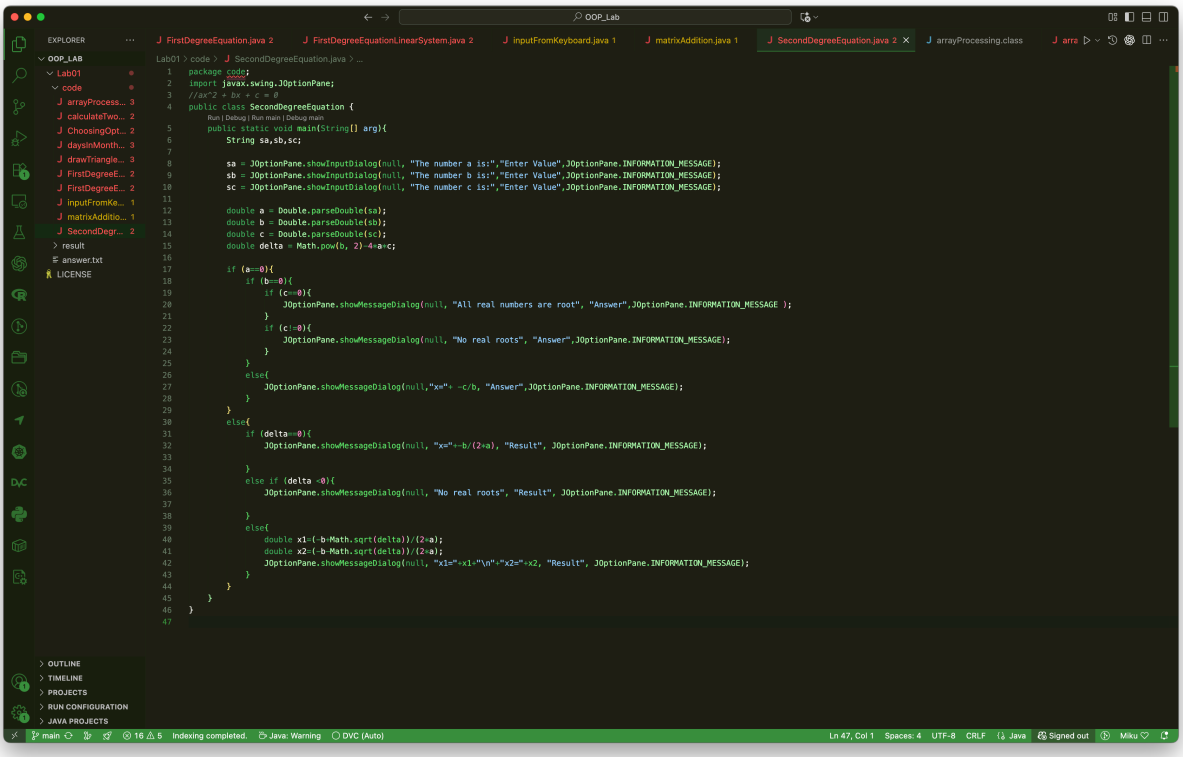




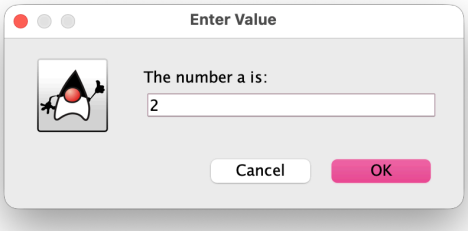


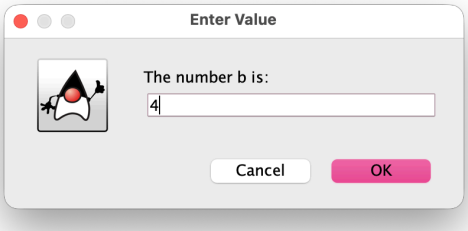


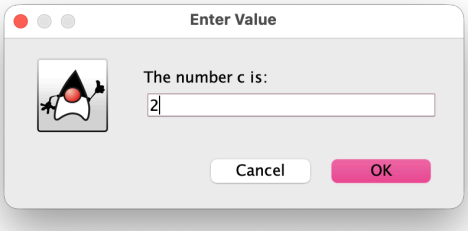
The second-degree equation with one variable

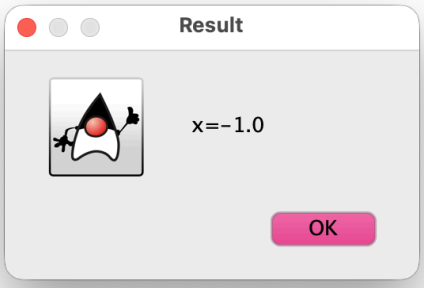


```java
package code;
import javax.swing.JOptionPane;
//ax^2 + bx + c = 0
public class SecondDegreeEquation {
    public static void main(String[] arg){
        String sa,sb,sc;

        sa = JOptionPane.showInputDialog(null, "The number a is:","Enter Value",JOptionPane.INFORMATION_MESSAGE);
        sb = JOptionPane.showInputDialog(null, "The number b is:","Enter Value",JOptionPane.INFORMATION_MESSAGE);
        sc = JOptionPane.showInputDialog(null, "The number c is:","Enter Value",JOptionPane.INFORMATION_MESSAGE);

        double a = Double.parseDouble(sa);
        double b = Double.parseDouble(sb);
        double c = Double.parseDouble(sc);
        double delta = Math.pow(b, 2)-4*a*c;

        if (a==0){
            if (b==0){
                if (c==0){
                    JOptionPane.showMessageDialog(null, "All real numbers are root", "Answer",JOptionPane.INFORMATION_MESSAGE );
                }
                if (c!=0){
                    JOptionPane.showMessageDialog(null, "No real roots", "Answer",JOptionPane.INFORMATION_MESSAGE);
                }
            }
            else{
                JOptionPane.showMessageDialog(null,"x="+ -c/b, "Answer",JOptionPane.INFORMATION_MESSAGE);
            }
        }
        else{
            if (delta==0){
                JOptionPane.showMessageDialog(null, "x="+-b/(2*a), "Result", JOptionPane.INFORMATION_MESSAGE);

            }
            else if (delta <0){
                JOptionPane.showMessageDialog(null, "No real roots", "Result", JOptionPane.INFORMATION_MESSAGE);

            }
            else{
                double x1=(-b-Math.sqrt(delta))/(2*a);
                double x2=(-b-Math.sqrt(delta))/(2*a);
                JOptionPane.showMessageDialog(null, "x1="+x1+"\n"+"x2="+x2, "Result", JOptionPane.INFORMATION_MESSAGE);
            }
        }
    }
}
```

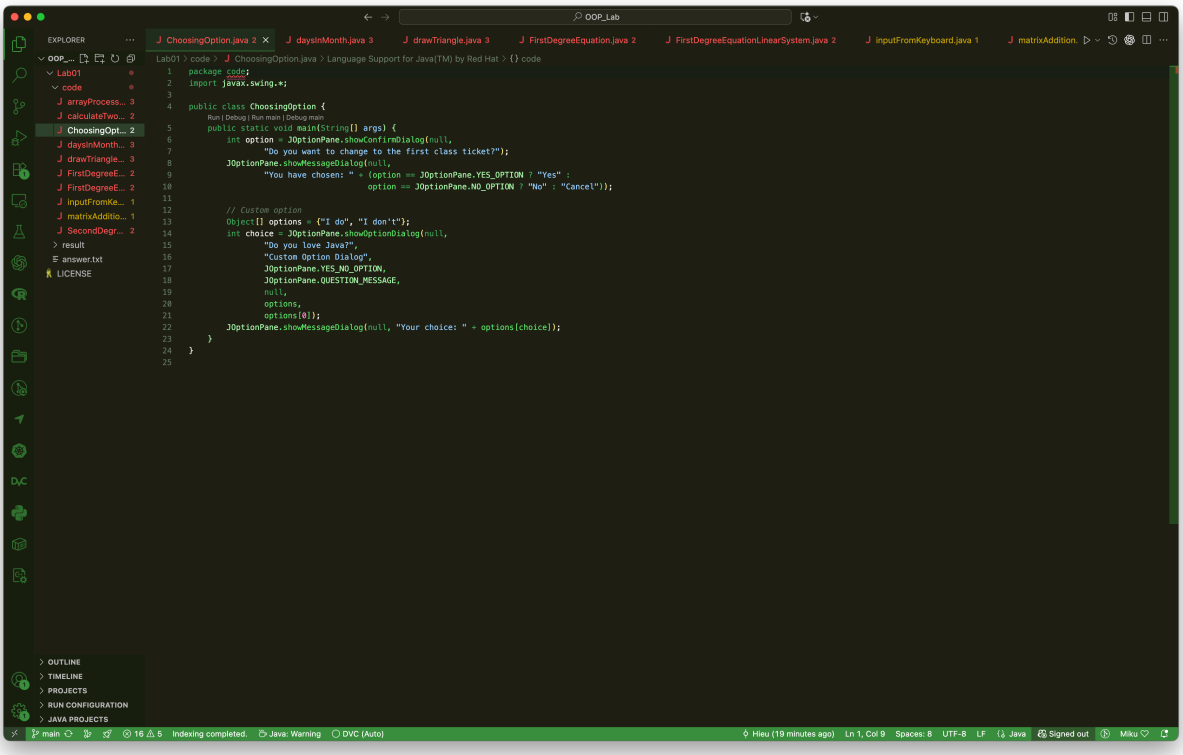


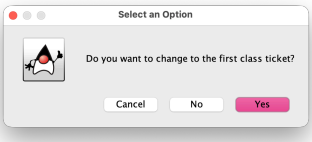


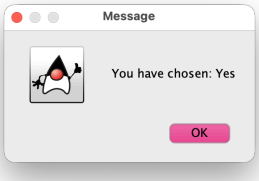

Enter Value
The number c is:
2
Cancel
OK

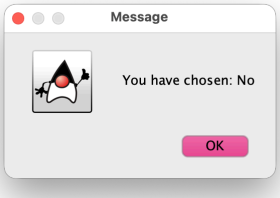

Result
x=-1.0
OK

6.1


OOP_Lab
EXPLORER
ChoosingOption.java 2
daysInMonth.java 3
drawTriangle.java 3
FirstDegreeEquation.java 2
FirstDegreeEquationLinearSystem.java 2
inputFromKeyboard.java 1
matrixAddition.
Lab01 > code > ChoosingOption.java > Language Support for Java(TM) by Red Hat > {} code
package code;
import javax.swing.*;
public class ChoosingOption {
Run | Debug | Run main | Debug main
public static void main(String[] args) {
int option = JOptionPane.showConfirmDialog(null,
"Do you want to change to the first class ticket?");
JOptionPane.showMessageDialog(null,
"You have chosen: " + (option == JOptionPane.YES_OPTION ? "Yes" :
option == JOptionPane.NO_OPTION ? "No" : "Cancel"));
// Custom option
Object[] options = {"I do", "I don't"};
int choice = JOptionPane.showOptionDialog(null,
"Do you love Java?",
"Custom Option Dialog",
JOptionPane.YES_NO_OPTION,
JOptionPane.QUESTION_MESSAGE,
null,
options,
options[0]);
JOptionPane.showMessageDialog(null, "Your choice: " + options[choice]);
}
}
result
answer.txt
LICENSE
OUTLINE
TIMELINE
PROJECTS
RUN CONFIGURATION
JAVA PROJECTS
main
Indexing completed.
Java: Warning
DVC (Auto)
Hieu (19 minutes ago)
Ln 1, Col 9
Spaces: 8
UTF-8
LF
Java
Signed out
Miku


Select an Option
Do you want to change to the first class ticket?
Cancel
No
Yes


Message
You have chosen: Yes
OK

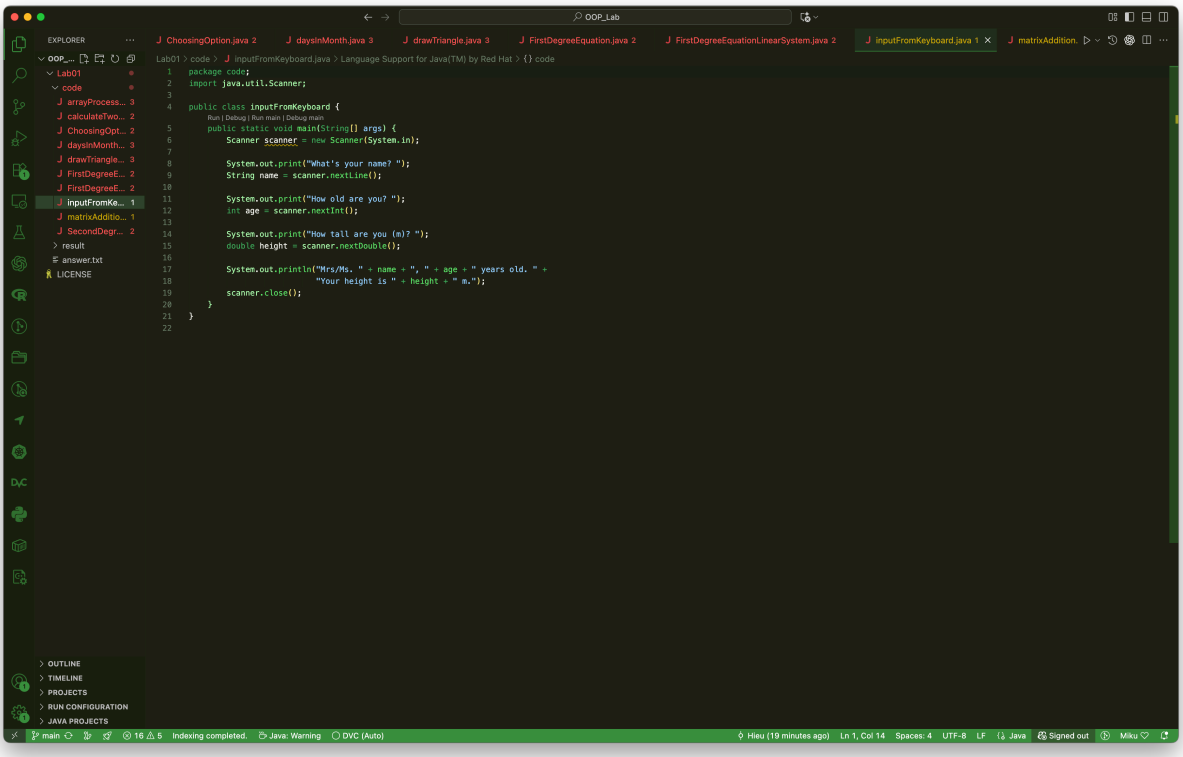

Message
You have chosen: No
OK


Custom Option Dialog
Do you love Java?
I don't
I do


Message
Your choice: I do
OK

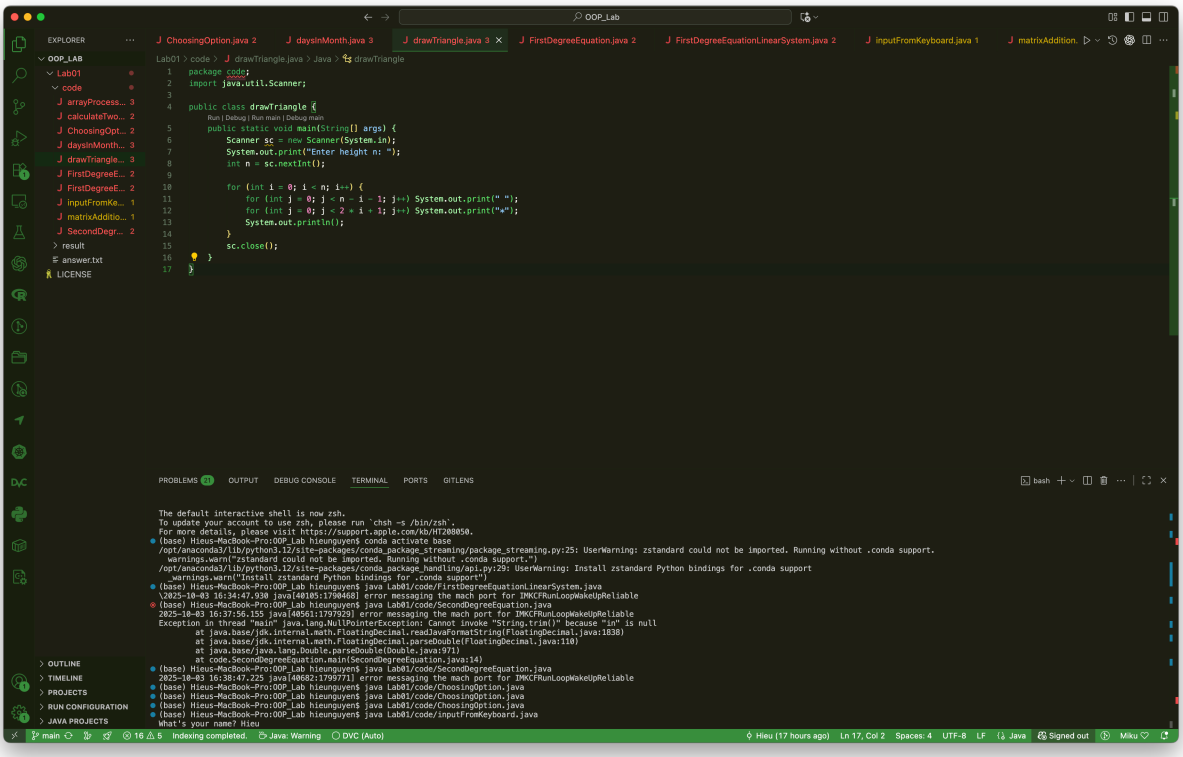

Message
Your choice: I don't
OK

6.2



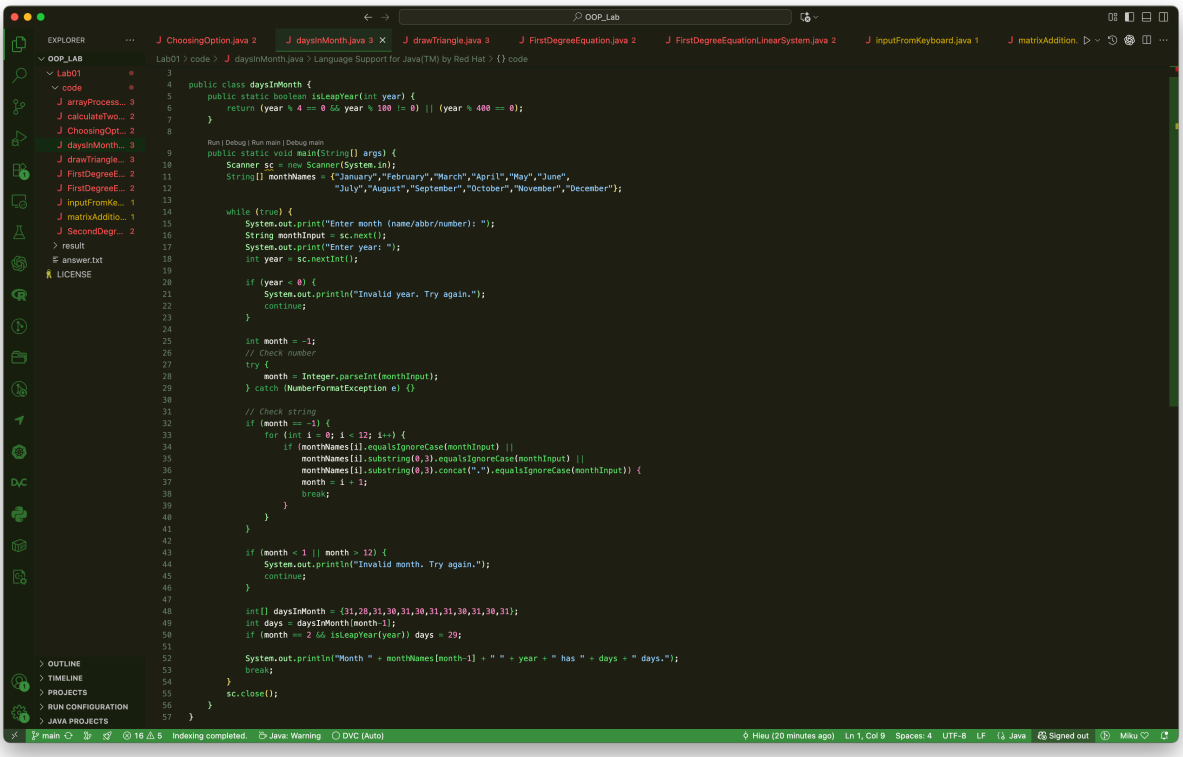

```
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/inputFromKeyboard.java
What's your name? Hieu
How old are you? 19
How tall are you (m)? 1.62
Mrs/Ms. Hieu, 19 years old. Your height is 1.62 m.
```

6.3



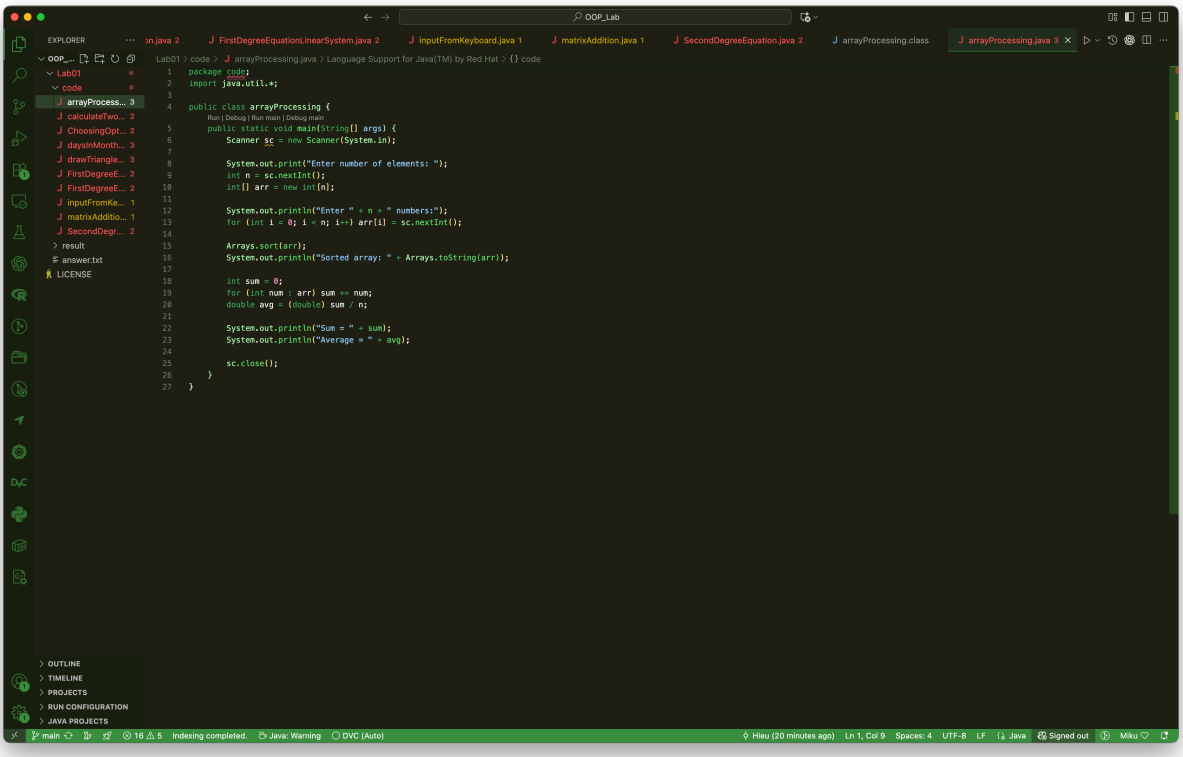

```
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/drawTriangle.java
Enter height n: 5
    *
   ***
  *****
 *******
*********
```

6.4



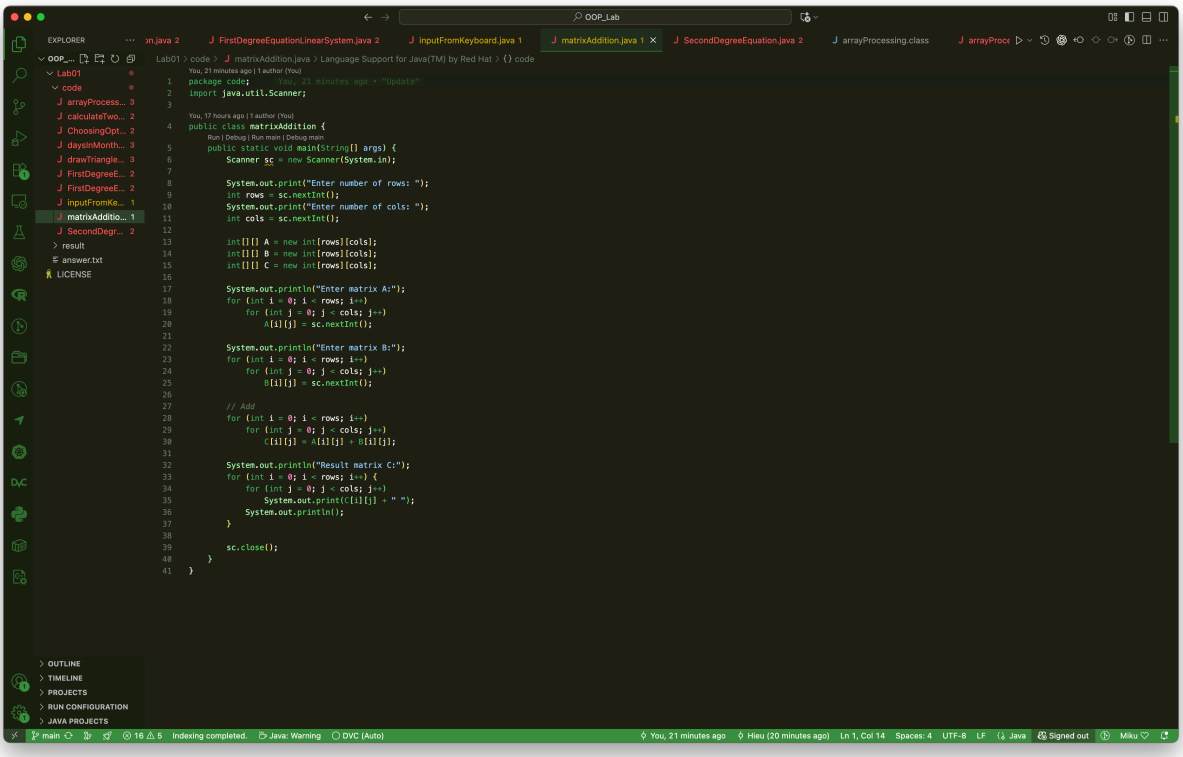

```
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/daysInMonth.java
Enter month (name/abbr/number): august
Enter year: 2007
Month August 2007 has 31 days.
```

6.5




```
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/arrayProcessing.java
Enter number of elements: 4
Enter 4 numbers:
2986 2673 2435 7286
Sorted array: [2435, 2673, 2986, 7286]
Sum = 15380
Average = 3845.0
```

6.6




```
(base) Hieus-MacBook-Pro:OOP_Lab hieunguyen$ java Lab01/code/matrixAddition.java
Enter number of rows: 3
Enter number of cols: 3
Enter matrix A:
1 2 3 5 3 2 4 2 3
Enter matrix B:
2 4 5 3 2 4 5 6 3
Result matrix C:
3 6 8
8 5 6
9 8 6
```