

# BÁO CÁO THỰC HÀNH LAB 11

## Lập trình hướng đối tượng

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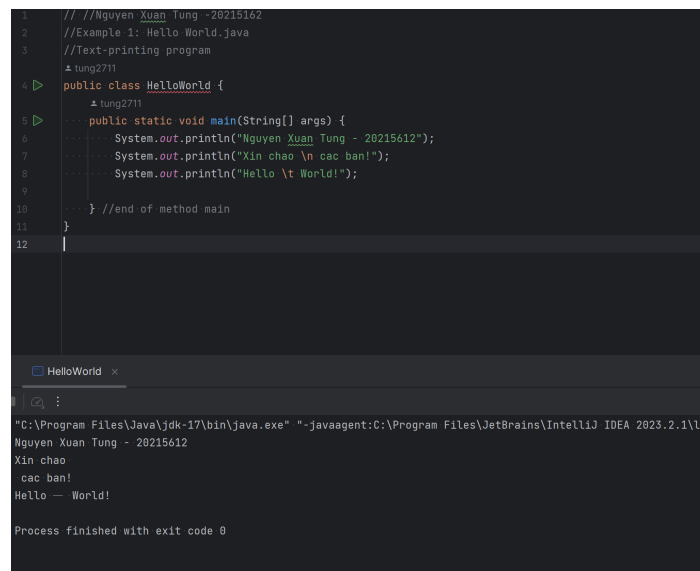
Ngày 15 tháng 10 năm 2023

### The Very First Java Programs

#### 2.2.1 Write, compile the first Java application:

```
1 //Example 1: HelloWorld.java
2 //Text-printing program
3 public class HelloWorld {
4
5     public static void main(String args[]){
6         System.out.println("Xin chào \n các bạn!");
7         System.out.println("Hello \t world!");
8     } // end of method main
9 }
10 }
```

Hình 1: đề bài 2.2.1



```
1 // Nguyễn Xuân Tùng - 20215162
2 //Example 1: Hello World.java
3 //Text-printing program
4 //tung2711
5 public class HelloWorld {
6     //tung2711
7     public static void main(String[] args) {
8         System.out.println("Nguyễn Xuân Tùng - 20215612");
9         System.out.println("Xin chào \n các bạn!");
10        System.out.println("Hello \t World!");
11    } //end of method main
12 }

HelloWorld x
C:\Program Files\Java\jdk-17\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2023.2.1\lib\idea_rt.jar"
Nguyễn Xuân Tùng - 20215612
Xin chào
các bạn!
Hello — World!

Process finished with exit code 0
```

Hình 2: Mã nguồn và kết quả 2.2.1

### 2.2.2 Write, compile the first dialog Java program

```
1 // Example 2: FirstDialog.java
2 import javax.swing.JOptionPane;
3 public class FirstDialog{
4     public static void main(String[] args){
5         JOptionPane.showMessageDialog(null,"Hello world! How are you?");
6         System.exit(0);
7     }
8 }
```

Hình 3: Đề bài 2.2.2

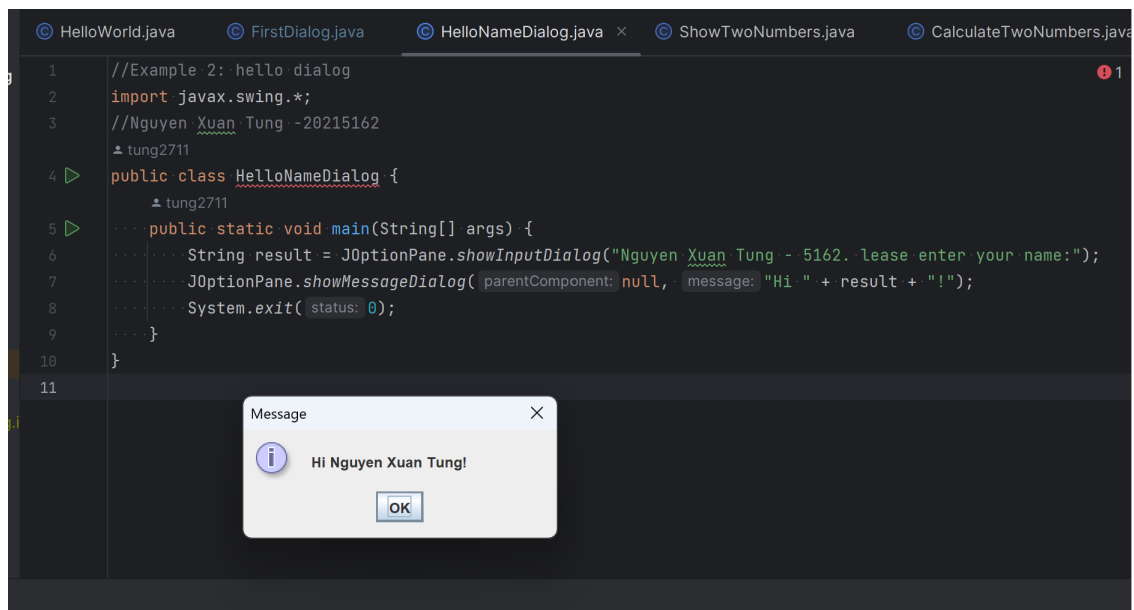
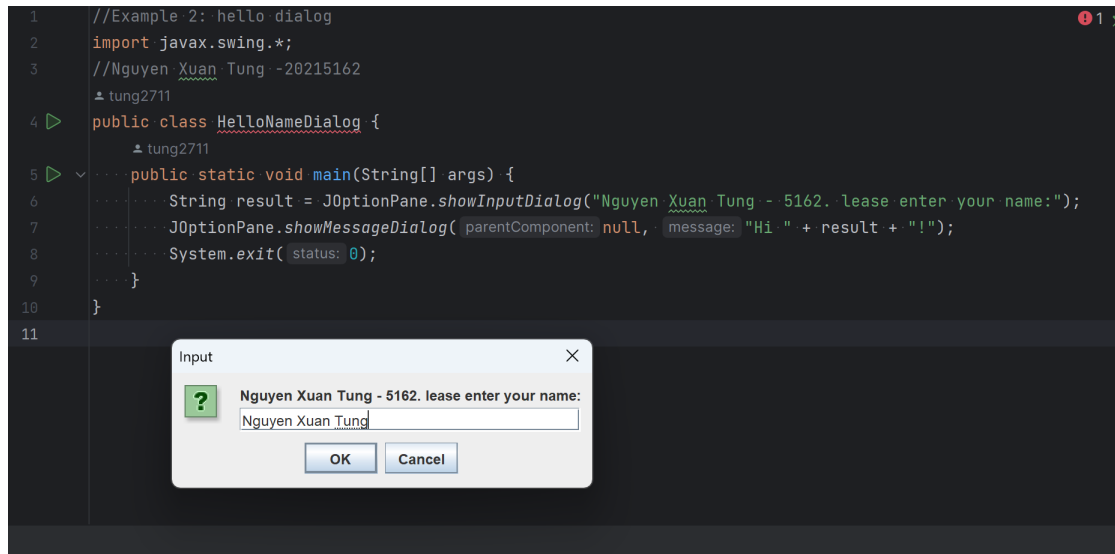


Hình 4: Mã nguồn và kết quả 2.2.2

### 2.2.3 Write, compile the first input dialog Java application

```
1 // Example 3: HelloNameDialog.java
2 import javax.swing.JOptionPane;
3 public class HelloNameDialog{
4     public static void main(String[] args){
5         String result;
6         result = JOptionPane.showInputDialog("Please enter your name:");
7         JOptionPane.showMessageDialog(null, "Hi " + result + "!");
8         System.exit(0);
9     }
10 }
```

Hình 5: Đề bài 2.2.3



Hình 6: Kết quả 2.2.3

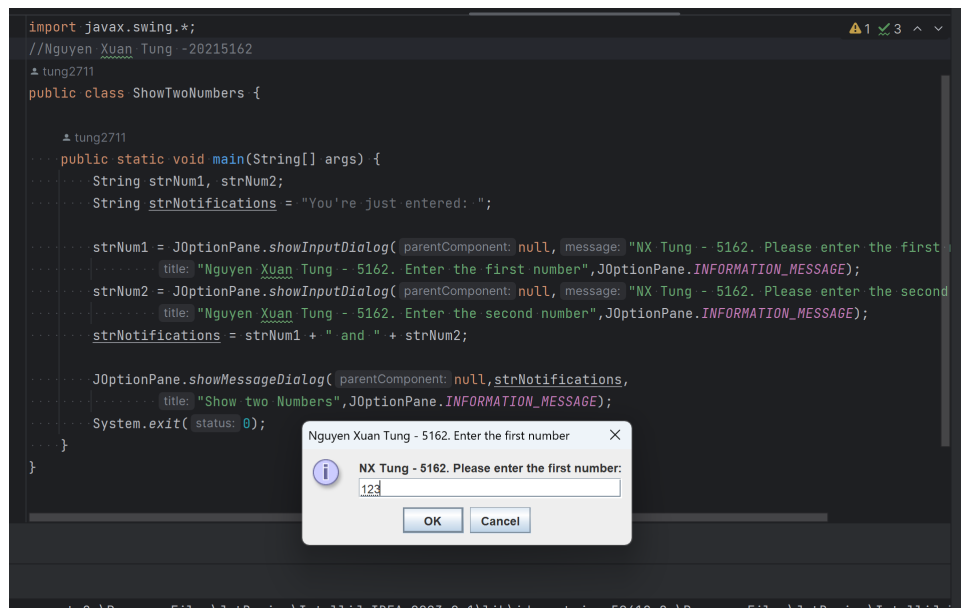
### 2.2.4 Write, compile, and run the following example:

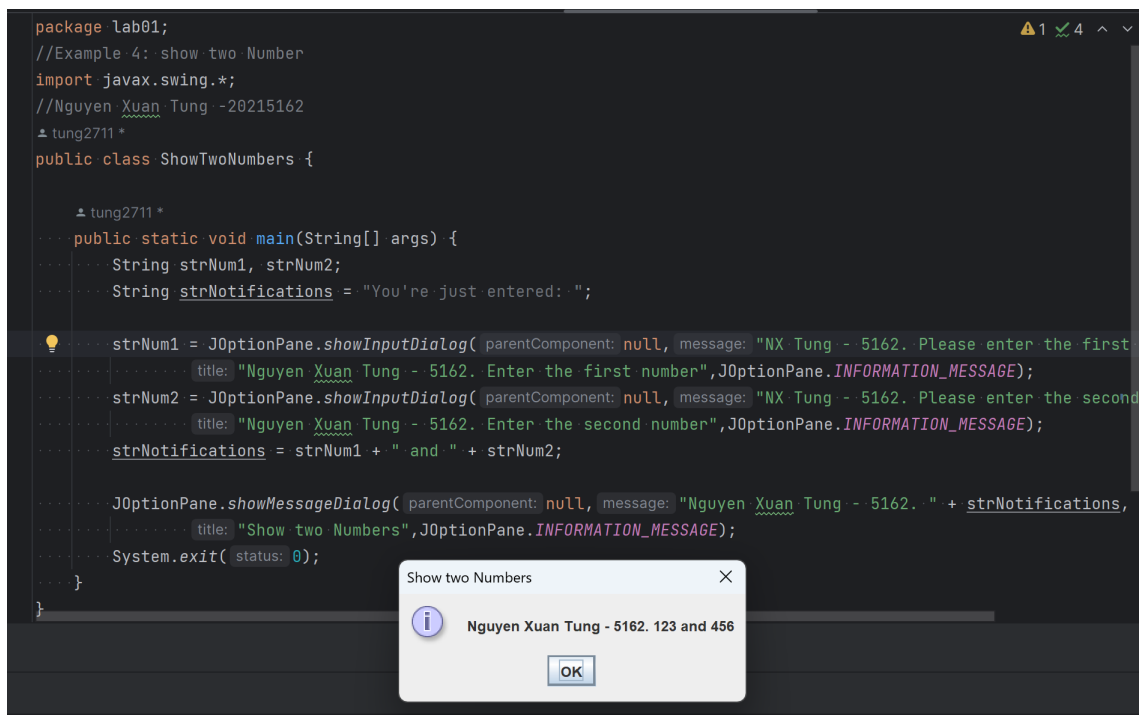
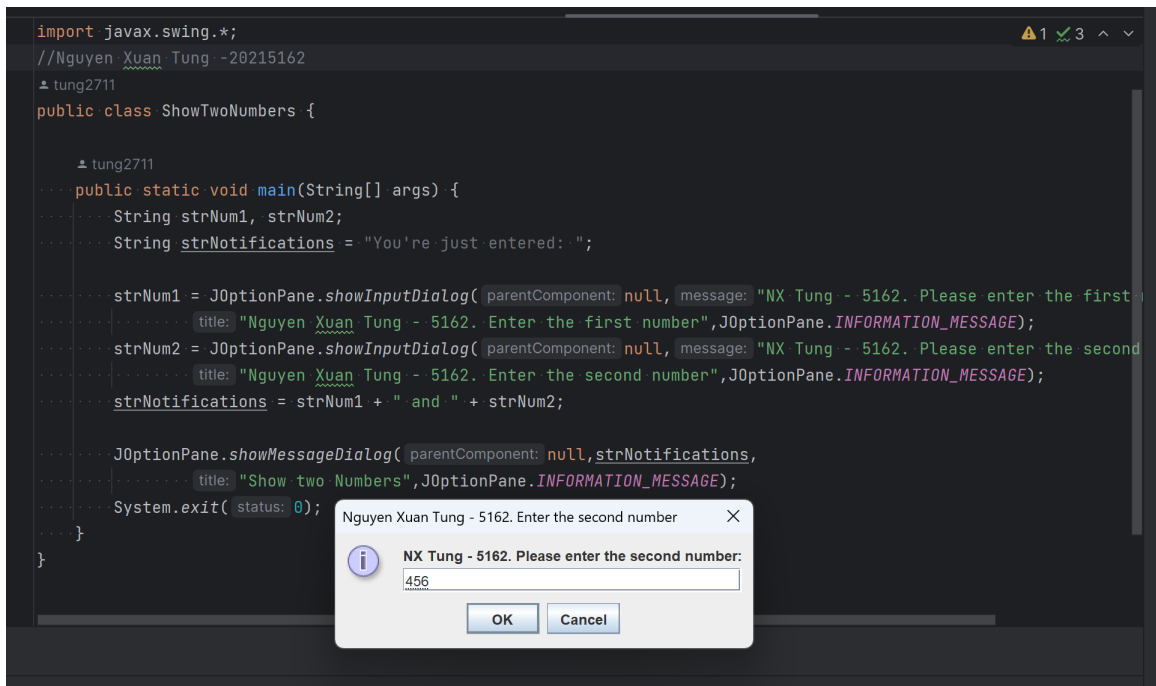
```

1 // Example 5: ShowTwoNumbers.java
2 import javax.swing.JOptionPane;
3 public class ShowTwoNumbers {
4     public static void main(String[] args){
5         String strNum1, strNum2;
6         String strNotification = "You've just entered: ";
7
8         strNum1 = JOptionPane.showInputDialog(null,
9             "Please input the first number: ", "Input the first number",
10            JOptionPane.INFORMATION_MESSAGE);
11         strNotification += strNum1 + " and ";
12
13         strNum2 = JOptionPane.showInputDialog(null,
14             "Please input the second number: ", "Input the second number",
15            JOptionPane.INFORMATION_MESSAGE);
16         strNotification += strNum2;
17
18         JOptionPane.showMessageDialog(null, strNotification,
19             "Show two numbers", JOptionPane.INFORMATION_MESSAGE);
20         System.exit(0);
21     }
22 }

```

Hình 7: Đề bài 2.2.4





Hình 8: Mã nguồn và kết quả 2.2.4

### 2.2.5 Write a program to calculate sum, difference, product, and quotient of 2 double numbers which are entered by users.

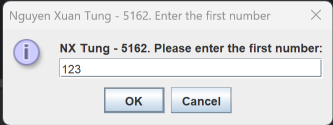
```
//Example5: Calculate two number
import javax.swing.*;
// Tinh toan tong, hieu, tich, thuong tu 2 so nhap vao
@tung2711

public class CalculateTwoNumbers {
    @tung2711
    public static void main(String[] args) {
        String strNum1, strNum2;

        strNum1 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the first number", title: "Nguyễn Xuân Tùng - 5162. Enter the first number",JOptionPane.INFORMATION_MESSAGE);
        strNum2 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the second number", title: "Nguyễn Xuân Tùng - 5162. Enter the second number",JOptionPane.INFORMATION_MESSAGE);

        double num1 = Double.parseDouble(strNum1);
        double num2 = Double.parseDouble(strNum2);

        JOptionPane.showMessageDialog( parentComponent: null, message: "sum: " + (num1+num2) + "\n"
        + "difference: " + (num1 - num2) + "\n"
        + "product: " + num1*num2 + "\n"
        + "quotient: " + num1/num2);
        System.exit( status: 0);
    }
}
```



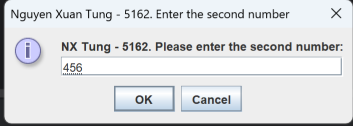
```
//Example5: Calculate two number
import javax.swing.*;
// Tinh toan tong, hieu, tich, thuong tu 2 so nhap vao
@tung2711

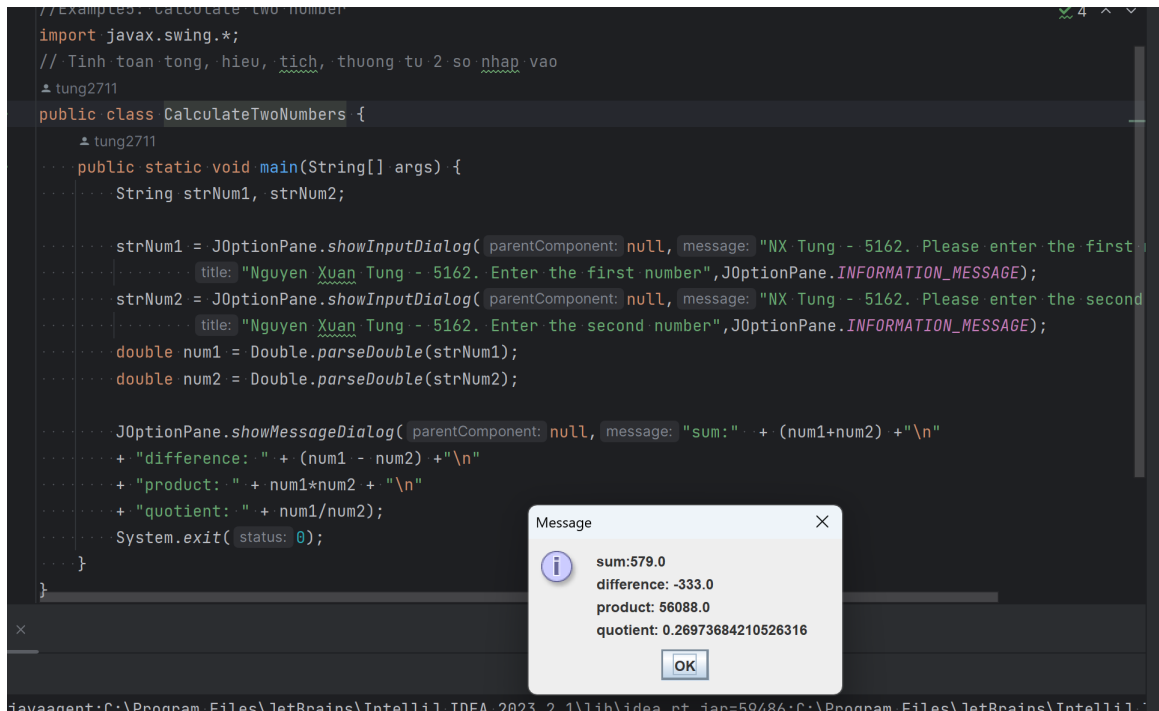
public class CalculateTwoNumbers {
    @tung2711
    public static void main(String[] args) {
        String strNum1, strNum2;

        strNum1 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the first number", title: "Nguyễn Xuân Tùng - 5162. Enter the first number",JOptionPane.INFORMATION_MESSAGE);
        strNum2 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the second number", title: "Nguyễn Xuân Tùng - 5162. Enter the second number",JOptionPane.INFORMATION_MESSAGE);

        double num1 = Double.parseDouble(strNum1);
        double num2 = Double.parseDouble(strNum2);

        JOptionPane.showMessageDialog( parentComponent: null, message: "sum: " + (num1+num2) + "\n"
        + "difference: " + (num1 - num2) + "\n"
        + "product: " + num1*num2 + "\n"
        + "quotient: " + num1/num2);
        System.exit( status: 0);
    }
}
```





Hình 9: Mã nguồn và kết quả 2.2.5

## 2.2.6 Write a program to solve equation

```

// Nguyen xuan tung - 20215162
import java.util.Scanner;
//Example 6: solving equations
@tung2711
public class EquationSolver {
    @tung2711
    public static void main(String[] args) {
        System.out.println(
            """
            1. giải phương trình bậc 1
            2. giải hệ phương trình
            3. giải phương trình bậc 2"""
        );
        Scanner scanner = new Scanner(System.in);
        int option = scanner.nextInt();
        switch (option) {
            case 1 -> {
                System.out.println("format: ax + b = 0");
                System.out.print("a: ");
                int a = scanner.nextInt();
                System.out.print("b: ");
                int b = scanner.nextInt();
                linearEquation(a,b);
            }
            case 2 -> {
                SystemEquations();
            }
            case 3 -> {
                TwoDegreeEquation();
            }
            default -> System.exit( status: 0);
        }
    }
}

```

```

14  //usage ± tung2711
15  public static void linearEquation(int a, int b) {
16      System.out.print("result: ");
17      System.out.println((a==0 && b == 0) ? "Infinite result": ((a == 0) ? "no solution": (double) -a/b));
18  }
19
20  //usage ± tung2711
21  public static void SystemEquations() {
22      System.out.println("Format: \na11*x1+ a12*x2 = b1 \na21*x1 + a22*x2 = b2\n");
23      Scanner scanner = new Scanner(System.in);
24      System.out.print("a11: ");
25      int a11 = scanner.nextInt();
26      System.out.print("a12: ");
27      int a12 = scanner.nextInt();
28      System.out.print("b1: ");
29      int b1 = scanner.nextInt();
30      System.out.print("a21: ");
31      int a21 = scanner.nextInt();
32      System.out.print("a22: ");
33      int a22 = scanner.nextInt();
34      System.out.print("b2: ");
35      int b2 = scanner.nextInt();
36
37      int D = a11*a22 - a21*a12;
38      int D1 = b1*a22 - b2*a12;
39      int D2 = b2*a11 - b1*a21;
40
41      System.out.println("x1: " + (double) D1/D);
42      System.out.println("x1: " + (double) D2/D);
43  }

```

```

//usage ± tung2711
public static void TwoDegreeEquation() {
    System.out.println("Format: a*x^2 + b*x c = 0");
    Scanner scanner = new Scanner(System.in);
    System.out.print("a b c: ");
    int a = scanner.nextInt();
    int b = scanner.nextInt();
    int c = scanner.nextInt();

    int delta = b*b - 4*a*c;

    int x1 = 0, x2 = 0;

    if(delta < 0) {
        System.out.println("No solution");
    } else if(delta == 0) {
        System.out.println("x: " + (double) -b/(2*a));
    } else {
        System.out.println("x1: " + (double) ((-b + Math.sqrt(delta))/(2*a)) + " x2: " +
            (double) ((-b - Math.sqrt(delta))/(2*a)));
    }
}

```

Hình 10: Mã nguồn 2.2.6



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

```
1.giai phuong trinh bac 1
2. giai he phuong trinh
3. giai phuong trinh bac 2
1
format: ax + b = 0
a: 5
b: 5
result: -1.0
```

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

```
1.giai phuong trinh bac 1
2. giai he phuong trinh
3. giai phuong trinh bac 2
2
Format:
a11*x1+ a12*x2 = b1
a21*x1 + a22*x2 = b2

a11: 1
a12: 1
b1: 0
a21: 1
a22: -1
b2: 2
x1: 1.0
x1: -1.0
```

The second-degree equation with one variable

```
1.giai phuong trinh bac 1
2. giai he phuong trinh
3. giai phuong trinh bac 2
3
Format: a*x^2 + b*x + c = 0
a b c: 1 2 1
x: -1.0

Format: a*x^2 + b*x + c = 0
a b c: 1 1 1
No solution

Format: a*x^2 + b*x + c = 0
a b c: 1 3 2
x1: -1.0 x2: -2.0
```