

## BÁO CÁO THỰC HÀNH LẬP 1 LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG

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## The Very First Java Programs

## 2.2.1 Write, compile the first Java application:

```

Lab1 > J HelloWorld.java > HelloWorld
1 //Example 1: HelloWorld.java
2 // MSSV: 20184092
3 // Ho va ten: Le Anh Hao
4 public class HelloWorld{
5
6     Run | Debug
7     public static void main(String args[]){
8         System.out.println(x: "Xin chào \n cac ban!");
9         System.out.println(x: "Hello \t world!");
10    }

```

## Kết quả

```

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL JUPYTER COMMENTS
error: file not found: HelloWorld.java
Usage: javac <options> <source files>
use --help for a list of possible options
PS F:\oolt.vn.20212.20184092.anhhao> cd Lab1
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> javac HelloWorld.java
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> java HelloWorld
Xin chào
cac ban!
Hello world!
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> 

```

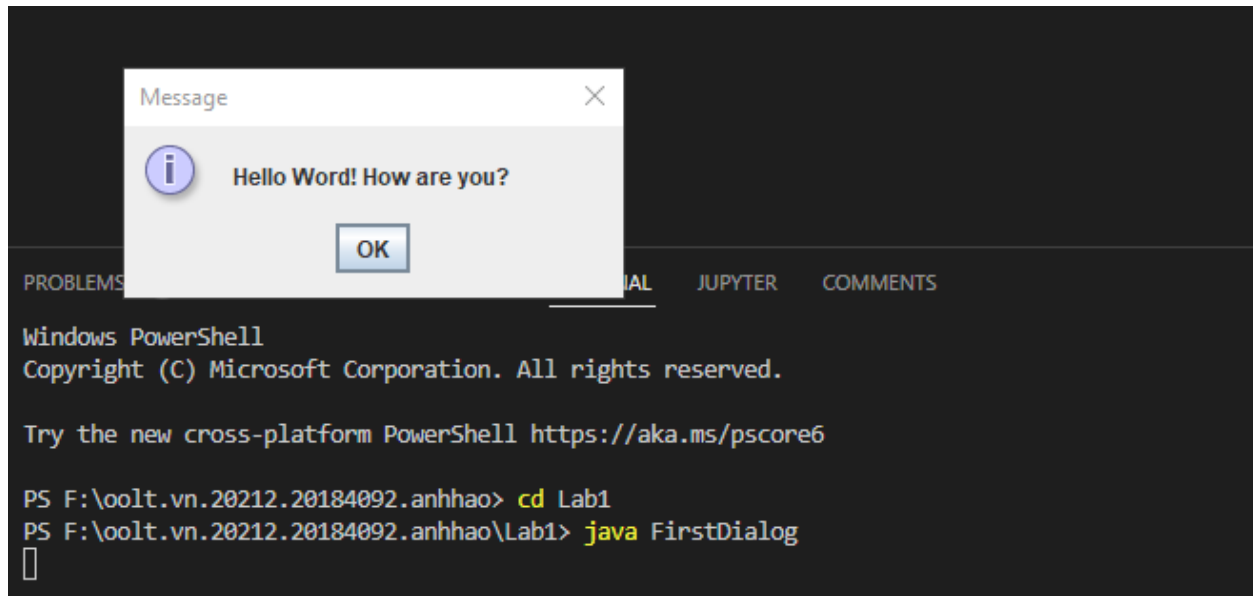
## 2.2.2 Write, compile the first dialog Java program

```

Lab1 > J FirstDialog.java > ...
1 // Example2
2 // MSSV: 20184092
3 // Ho va ten: Le Anh Hao
4 import javax.swing.JOptionPane;
5 public class FirstDialog{
6     Run | Debug
7     public static void main(String[] args){
8         JOptionPane.showMessageDialog(parentComponent: null,message: "Hello Word! How are you?");
9         System.exit(status: 0);
10    }

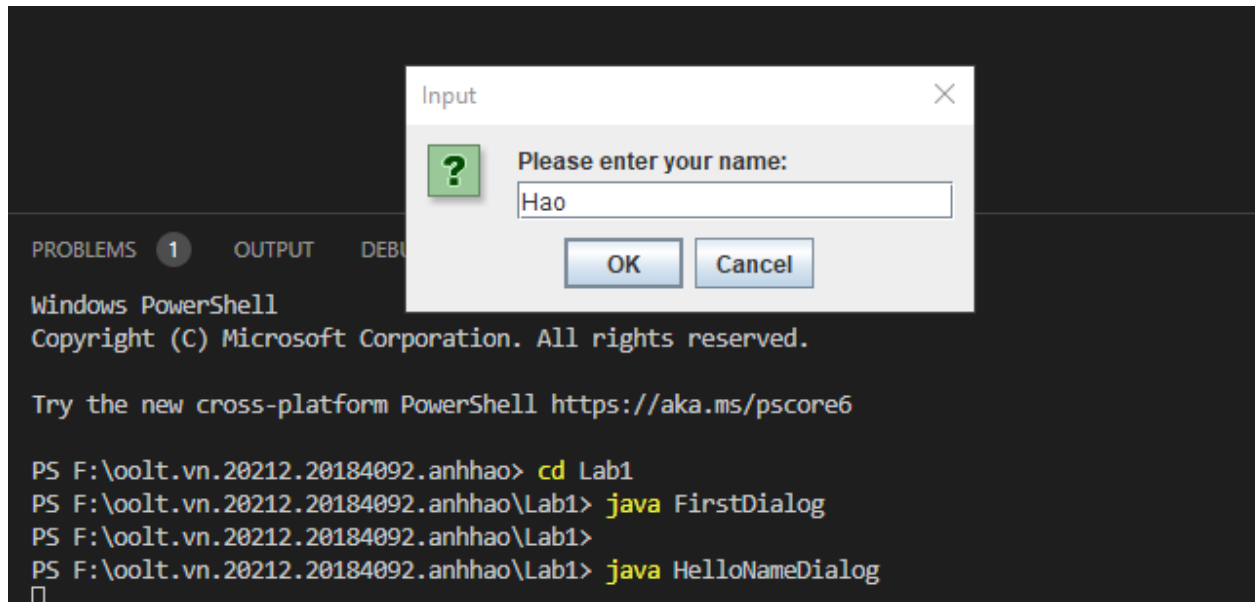
```

Kết quả

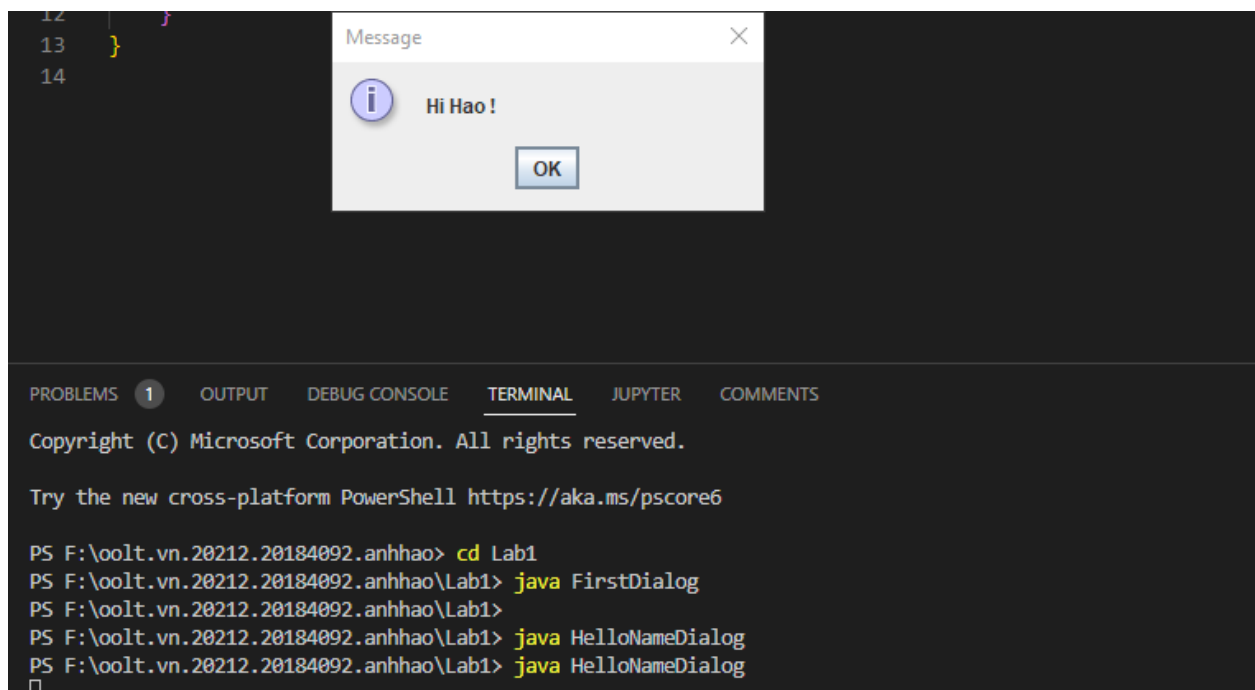


### 2.2.3 Write, compile the first input dialog Java application





Kết quả



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

```

J ShowTwoNumbers.java M
Lab1 > J ShowTwoNumbers.java > ShowTwoNumbers > main(String[])
1 //Example4
2 // MSSV: 20184092
3 // Ho va ten: Le Anh Hao
4 import javax.swing.JOptionPane;
5
6 public class ShowTwoNumbers {
7     public static void main(String[] args) {
8         String strNum1, strNum2;
9         String strNotification = "You've just entered ";
10
11         strNum1 = JOptionPane.showInputDialog(parentComponent: null, message: "Please input the first number: ",
12             title: "Input the first number",JOptionPane.INFORMATION_MESSAGE);
13
14         strNotification += strNum1 + " and ";
15
16         strNum2 = JOptionPane.showInputDialog(parentComponent: null, message: "Please input the second number: ",
17             title: "Input the second number",JOptionPane.INFORMATION_MESSAGE);
18
19         strNotification += strNum2;
20
21         JOptionPane.showMessageDialog(parentComponent: null, strNotification, title: "Show two numbers",
22             JOptionPane.INFORMATION_MESSAGE);
23
24         System.exit(status: 0);
25     }
26 }
27
28

```

```

Lab1 > J ShowTwoNumbers.java > ...
1 //Example4
2 // MSSV: 20184092
3 // Ho va ten: Le Anh Hao
4 import javax.swing.JOptionPane;
5
6 public class ShowTwoNumbers {
7     public static void main(String[] args) {
8         String strNum1, strNum2;
9         String strNotification = "You've just entered ";
10
11         strNum1 = JOptionPane.showInputDialog(parentComponent: null, message: "Please input the first number: ",
12             title: "Input the first number",JOptionPane.INFORMATION_MESSAGE);
13
14         strNotification += strNum1 + " and ";
15
16         strNum2 = JOptionPane.showInputDialog(parentComponent: null, message: "Please input the second number: ",
17             title: "Input the second number",JOptionPane.INFORMATION_MESSAGE);
18
19         strNotification += strNum2;
20
21         JOptionPane.showMessageDialog(parentComponent: null, strNotification, title: "Show two numbers",
22             JOptionPane.INFORMATION_MESSAGE);
23
24
25

```

Input the first number

Please input the first number:

90

OK Cancel

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL JUPYTER COMMENTS

Windows PowerShell

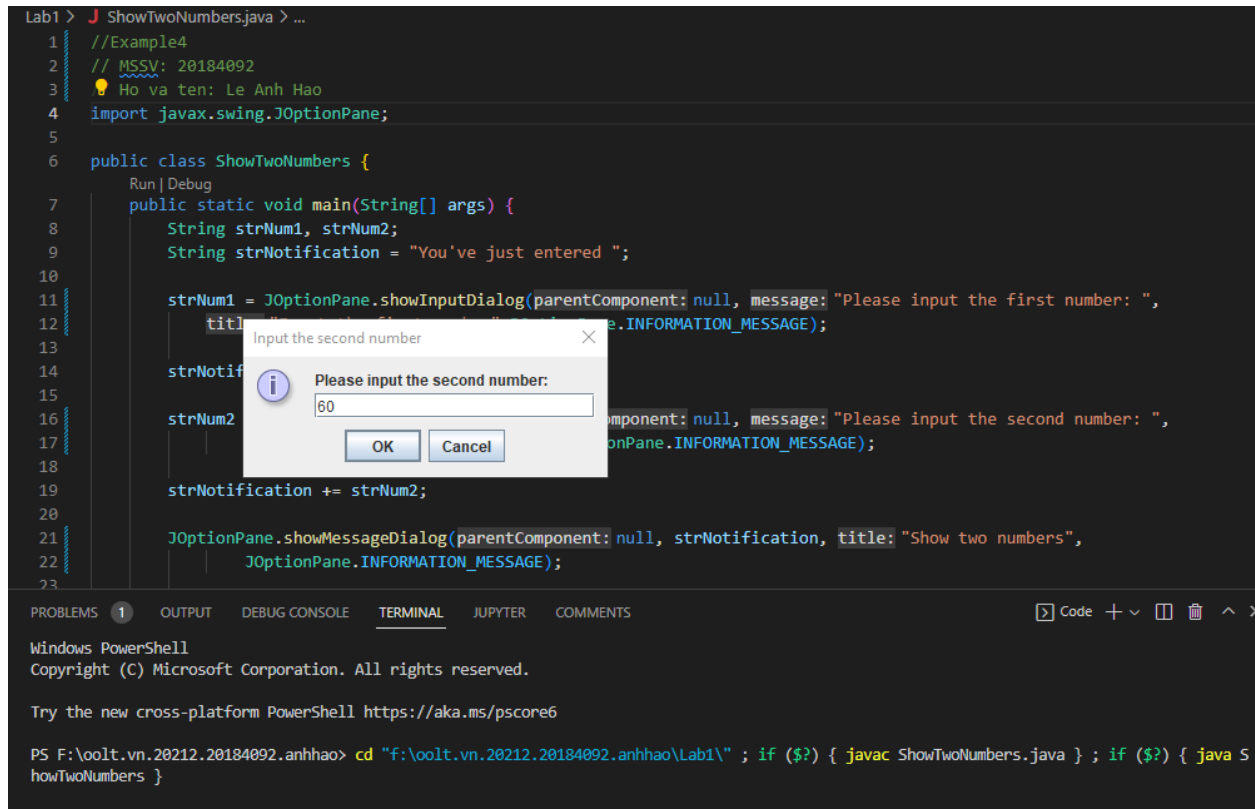
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell <https://aka.ms/pscore6>

PS F:\oolt.vn.20212.20184092.anhhao> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1\" ; if (\$?) { javac ShowTwoNumbers.java } ; if (\$?) { java ShowTwoNumbers }

java

Code



The screenshot shows an IDE with a Java file named `ShowTwoNumbers.java`. The code is as follows:

```
1 //Example4
2 // MSSV: 20184092
3 // Ho va ten: Le Anh Hao
4 import javax.swing.JOptionPane;
5
6 public class ShowTwoNumbers {
7     public static void main(String[] args) {
8         String strNum1, strNum2;
9         String strNotification = "You've just entered ";
10
11         strNum1 = JOptionPane.showInputDialog(parentComponent: null, message: "Please input the first number: ",
12         title: "Please input the first number: ", JOptionPane.INFORMATION_MESSAGE);
13
14         strNotif
15
16         strNum2
17
18         strNotification += strNum2;
19
20
21         JOptionPane.showMessageDialog(parentComponent: null, strNotification, title: "Show two numbers",
22         JOptionPane.INFORMATION_MESSAGE);
23     }
```

A dialog box titled "Please input the second number:" is displayed over the code. It contains an information icon, a text input field with the value "60", and "OK" and "Cancel" buttons. The IDE's bottom panel shows the "TERMINAL" tab with the following PowerShell output:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS F:\oolt.vn.20212.20184092.anhhao> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1\" ; if ($?) { javac ShowTwoNumbers.java } ; if ($?) { java S
howTwoNumbers }
```

Kết quả

The screenshot shows an IDE with a Java file named `ShowTwoNumbers.java`. The code prompts the user to enter two numbers and displays a message box with the results. A terminal window at the bottom shows the command to run the program, and a PowerShell window displays the output.

```

8      String strNum1, strNum2;
9      String strNotification = "You've just entered ";
10
11     strNum1 = JOptionPane.showInputDialog(parentComponent: null, message: "Please input the first number: ",
12     title: "Input the first number", JOptionPane.INFORMATION_MESSAGE);
13
14     strNotification += strNum1 + " and ";
15
16     strNum2 = JOptionPane.showInputDialog(parentComponent: null, message: "Please input the second number: ",
17     title: "Input the second number", JOptionPane.INFORMATION_MESSAGE);
18
19     strNotification += strNum2;
20
21     JOptionPane.showMessageDialog(parentComponent: null, strNotification, title: "Show two numbers",
22     JOptionPane.INFORMATION_MESSAGE);
23
24     System.exit(0);
25 }
26
27
28

```

Terminal output:

```

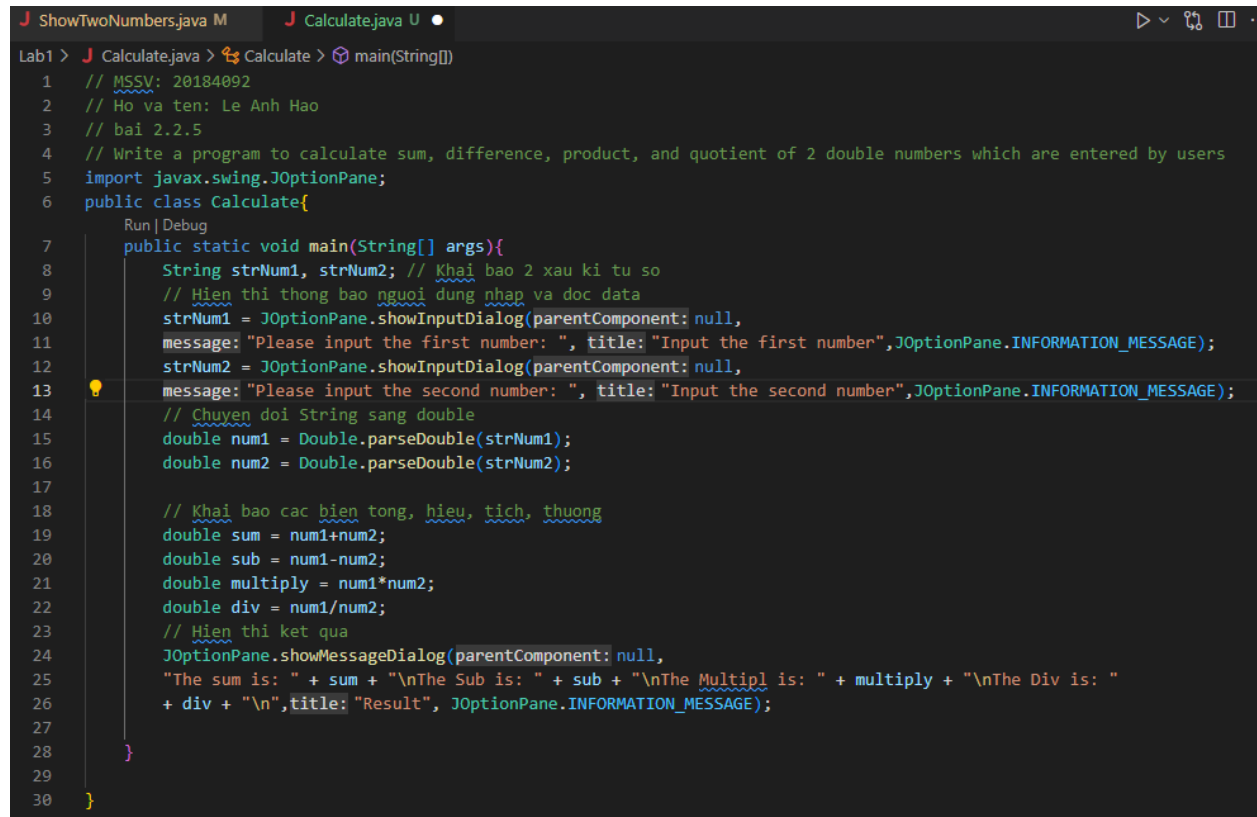
PS F:\oolt.vn.20212.20184092.anhhao> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1\" ; if ($?) { javac ShowTwoNumbers.java } ; if ($?) { java ShowTwoNumbers }
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1\" ; if ($?) { javac ShowTwoNumbers.java } ; if ($?) { java ShowTwoNumbers }
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1\" ; if ($?) { javac ShowTwoNumbers.java } ; if ($?) { java ShowTwoNumbers }

```

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

#### Notes

- To convert from String to double, you can use  
`double num1 = Double.parseDouble(strNum1)`
- Check the divisor of the division

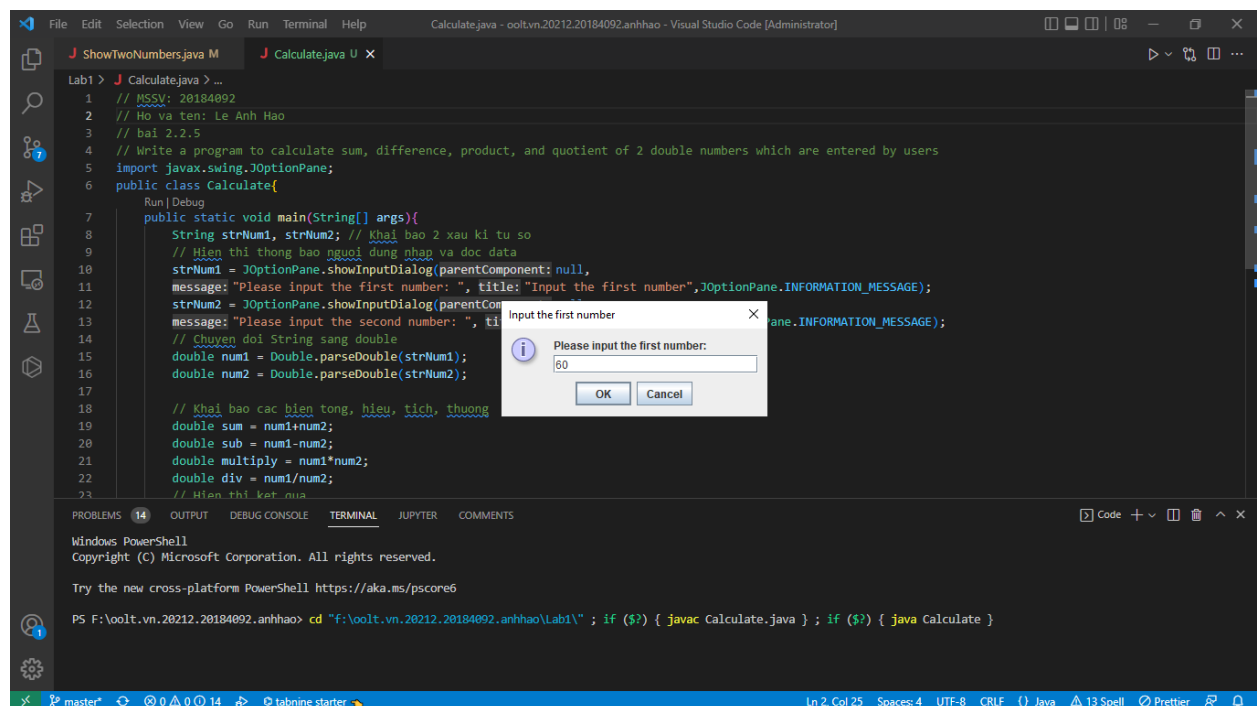


```

1 // MSSV: 20184092
2 // Ho va ten: Le Anh Hao
3 // bai 2.2.5
4 // Write a program to calculate sum, difference, product, and quotient of 2 double numbers which are entered by users
5 import javax.swing.JOptionPane;
6 public class Calculate{
7     public static void main(String[] args){
8         String strNum1, strNum2; // Khai bao 2 xau ki tu so
9         // Hien thi thong bao nguoi dung nhap va doc data
10        strNum1 = JOptionPane.showInputDialog(parentComponent: null,
11        message: "Please input the first number: ", title: "Input the first number",JOptionPane.INFORMATION_MESSAGE);
12        strNum2 = JOptionPane.showInputDialog(parentComponent: null,
13        message: "Please input the second number: ", title: "Input the second number",JOptionPane.INFORMATION_MESSAGE);
14        // Chuyen doi String sang double
15        double num1 = Double.parseDouble(strNum1);
16        double num2 = Double.parseDouble(strNum2);
17
18        // Khai bao cac bien tong, hieu, tich, thuong
19        double sum = num1+num2;
20        double sub = num1-num2;
21        double multiply = num1*num2;
22        double div = num1/num2;
23        // Hien thi ket qua
24        JOptionPane.showMessageDialog(parentComponent: null,
25        "The sum is: " + sum + "\nThe Sub is: " + sub + "\nThe Multipl is: " + multiply + "\nThe Div is: "
26        + div + "\n",title: "Result", JOptionPane.INFORMATION_MESSAGE);
27    }
28 }
29
30 }

```

Chạy chương trình



```

1 // MSSV: 20184092
2 // Ho va ten: Le Anh Hao
3 // bai 2.2.5
4 // Write a program to calculate sum, difference, product, and quotient of 2 double numbers which are entered by users
5 import javax.swing.JOptionPane;
6 public class Calculate{
7     public static void main(String[] args){
8         String strNum1, strNum2; // Khai bao 2 xau ki tu so
9         // Hien thi thong bao nguoi dung nhap va doc data
10        strNum1 = JOptionPane.showInputDialog(parentComponent: null,
11        message: "Please input the first number: ", title: "Input the first number",JOptionPane.INFORMATION_MESSAGE);
12        strNum2 = JOptionPane.showInputDialog(parentComponent: null,
13        message: "Please input the second number: ", title: "Input the second number",JOptionPane.INFORMATION_MESSAGE);
14        // Chuyen doi String sang double
15        double num1 = Double.parseDouble(strNum1);
16        double num2 = Double.parseDouble(strNum2);
17
18        // Khai bao cac bien tong, hieu, tich, thuong
19        double sum = num1+num2;
20        double sub = num1-num2;
21        double multiply = num1*num2;
22        double div = num1/num2;
23        // Hien thi ket qua
24        JOptionPane.showMessageDialog(parentComponent: null,
25        "The sum is: " + sum + "\nThe Sub is: " + sub + "\nThe Multipl is: " + multiply + "\nThe Div is: "
26        + div + "\n",title: "Result", JOptionPane.INFORMATION_MESSAGE);
27    }
28 }
29
30 }

```

Input the first number

Please input the first number:

60

OK Cancel

PROBLEMS 14 OUTPUT DEBUG CONSOLE TERMINAL JUPYTER COMMENTS

Windows PowerShell

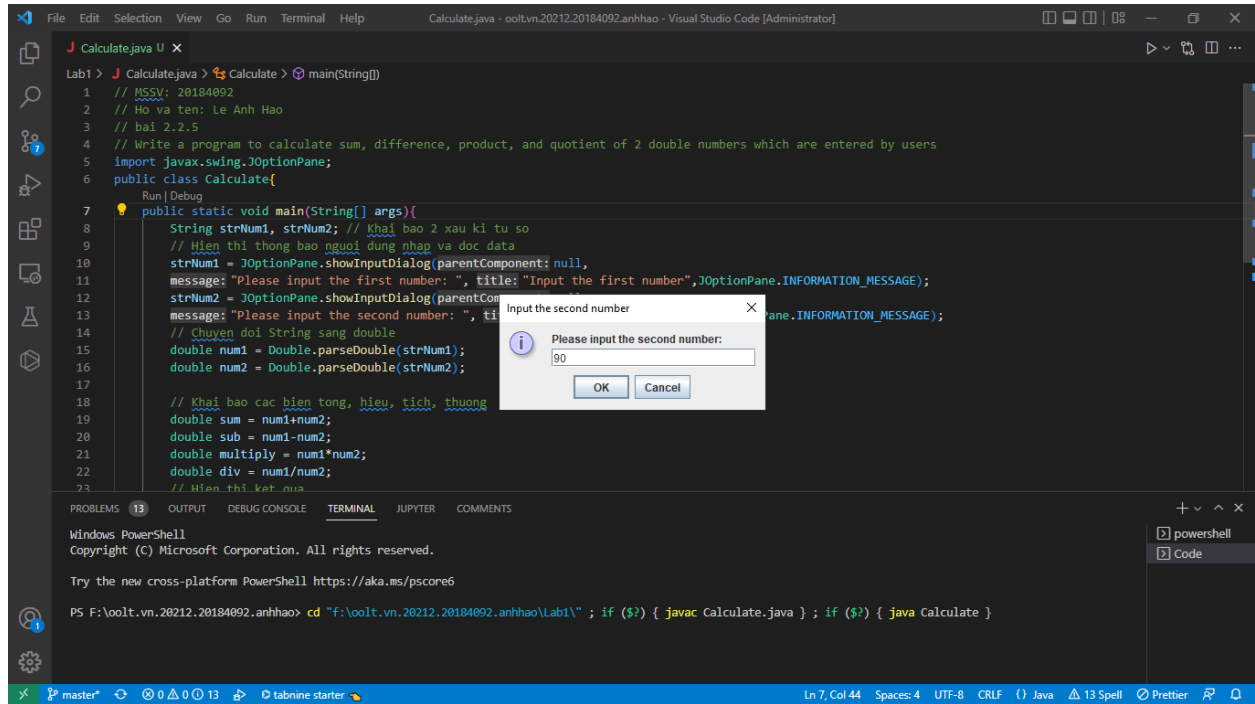
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell <https://aka.ms/pscore6>

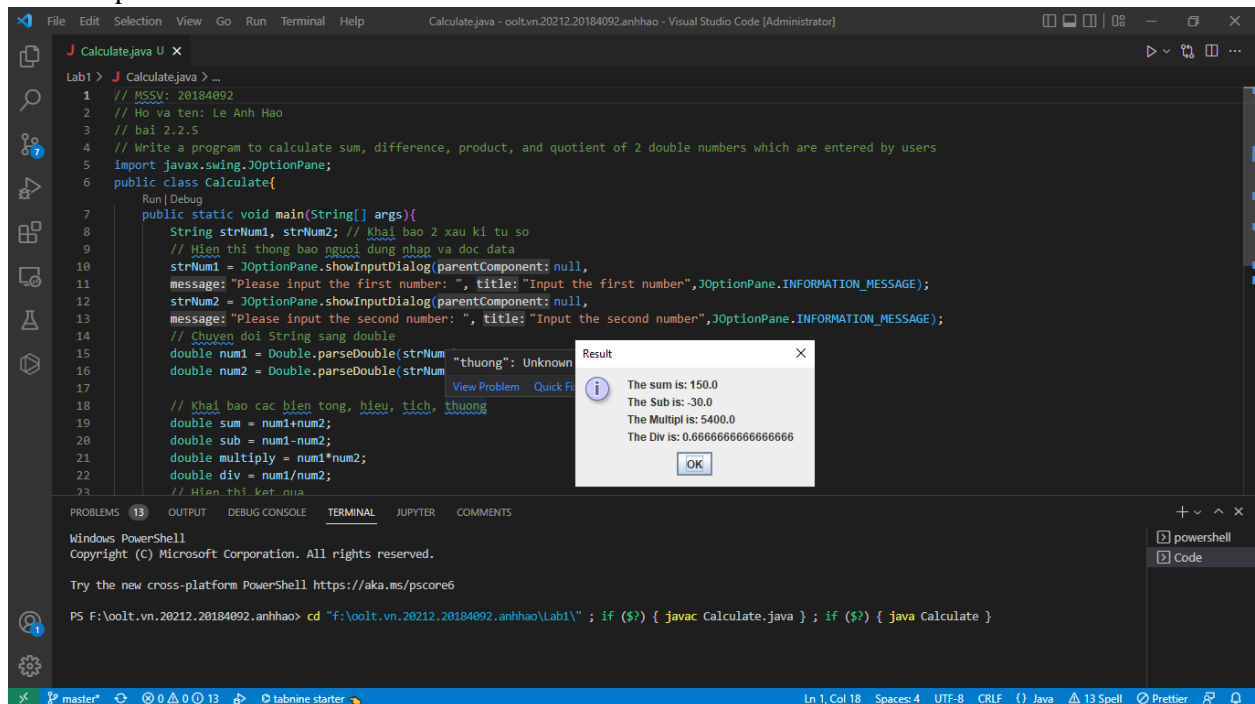
PS F:\oolt.vn.2012.20184092.anhhao> cd "F:\oolt.vn.2012.20184092.anhhao\Lab1"; if (\$?) { javac Calculate.java }; if (\$?) { java Calculate }

Ln 2, Col 25 Spaces: 4 UTF-8 CRLF ( ) Java 13 Spell Prettier





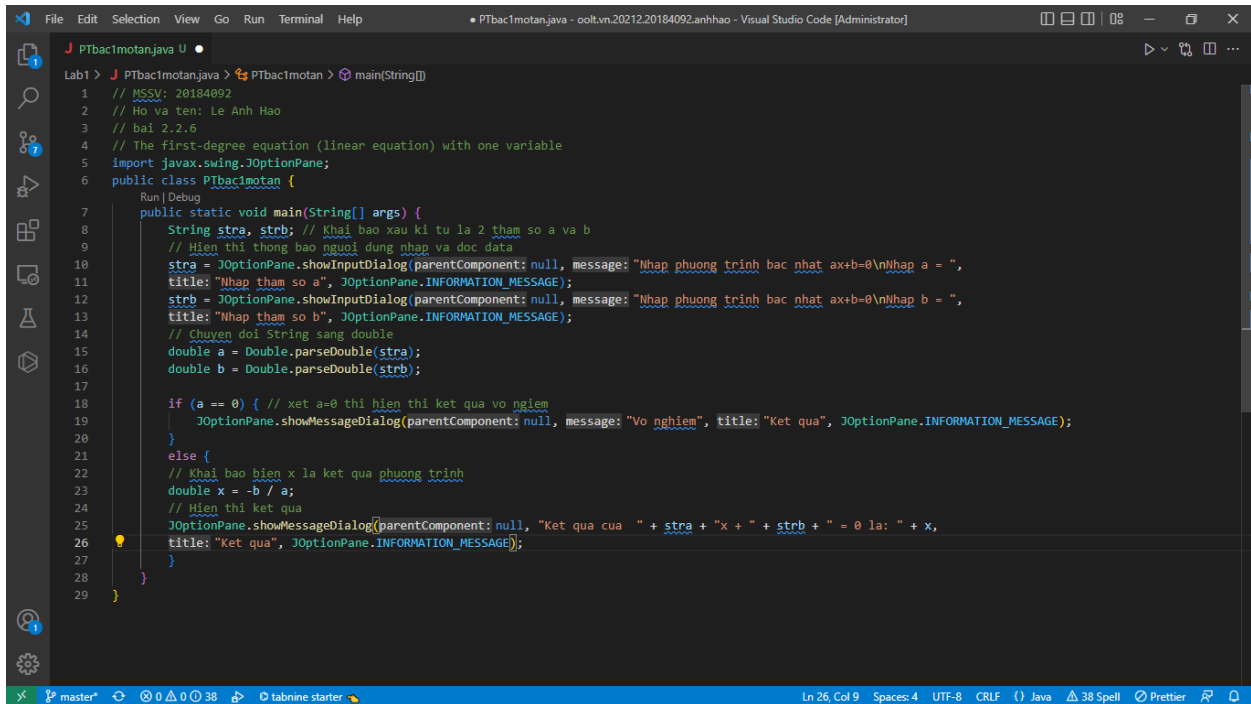
## Kết quả



## 2.2.6 Write a program to solve:

For simplicity, we only consider the real roots of the equations in this task.

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

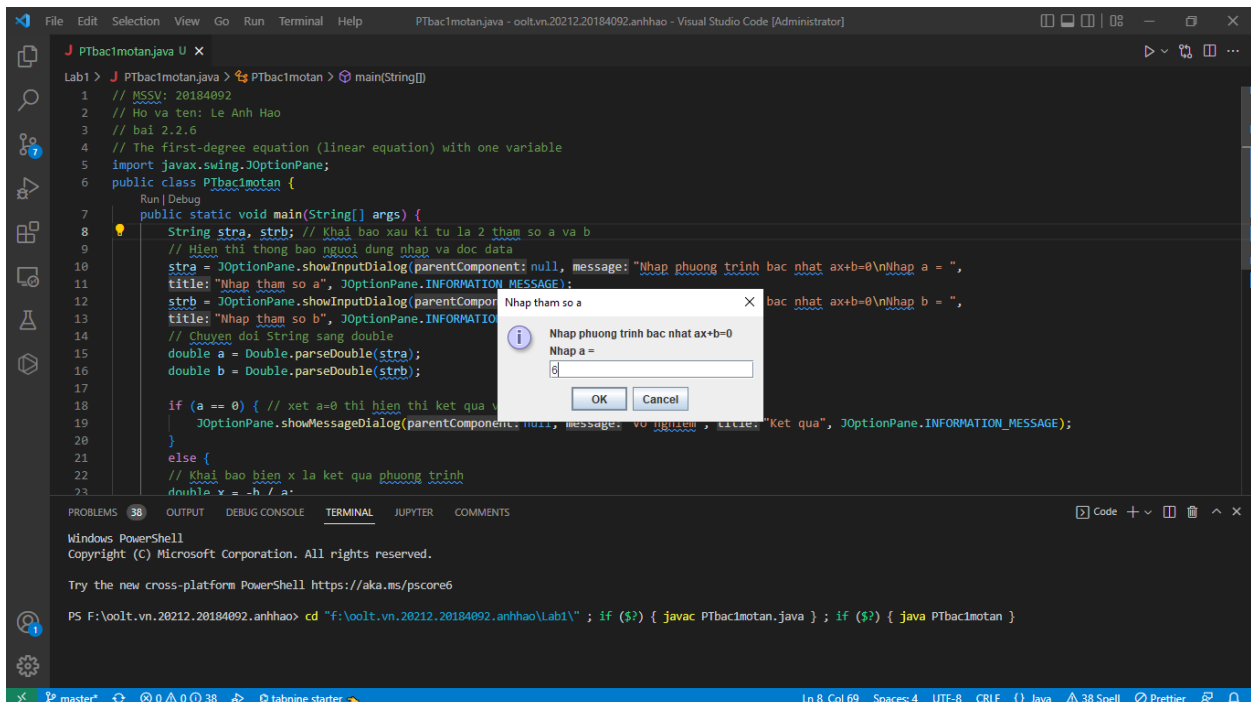


```

1 // MSSV: 20184092
2 // Ho va ten: Le Anh Hao
3 // bai 2.2.6
4 // The first-degree equation (linear equation) with one variable
5 import javax.swing.JOptionPane;
6 public class PTbac1motan {
7     public static void main(String[] args) {
8         String strA, strB; // Khai bao xau ki tu la 2 tham so a va b
9         // Hien thi thong bao nguoi dung nhap va doc data
10        strA = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac nhat ax+b=0\nNhap a = ",
11        title: "Nhap tham so a", JOptionPane.INFORMATION_MESSAGE);
12        strB = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac nhat ax+b=0\nNhap b = ",
13        title: "Nhap tham so b", JOptionPane.INFORMATION_MESSAGE);
14        // Chuyen doi String sang double
15        double a = Double.parseDouble(strA);
16        double b = Double.parseDouble(strB);
17
18        if (a == 0) { // xet a=0 thi hien thi ket qua vo nghiem
19            JOptionPane.showMessageDialog(parentComponent: null, message: "Vo nghiem", title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
20        }
21        else {
22            // Khai bao bien x la ket qua phuong trinh
23            double x = -b / a;
24            // Hien thi ket qua
25            JOptionPane.showMessageDialog(parentComponent: null, "Ket qua cua " + strA + "x + " + strB + " = 0 la: " + x,
26            title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
27        }
28    }
29 }

```

## Chạy chương trình



```

1 // MSSV: 20184092
2 // Ho va ten: Le Anh Hao
3 // bai 2.2.6
4 // The first-degree equation (linear equation) with one variable
5 import javax.swing.JOptionPane;
6 public class PTbac1motan {
7     public static void main(String[] args) {
8         String strA, strB; // Khai bao xau ki tu la 2 tham so a va b
9         // Hien thi thong bao nguoi dung nhap va doc data
10        strA = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac nhat ax+b=0\nNhap a = ",
11        title: "Nhap tham so a", JOptionPane.INFORMATION_MESSAGE);
12        strB = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac nhat ax+b=0\nNhap b = ",
13        title: "Nhap tham so b", JOptionPane.INFORMATION_MESSAGE);
14        // Chuyen doi String sang double
15        double a = Double.parseDouble(strA);
16        double b = Double.parseDouble(strB);
17
18        if (a == 0) { // xet a=0 thi hien thi ket qua vo nghiem
19            JOptionPane.showMessageDialog(parentComponent: null, message: "Vo nghiem", title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
20        }
21        else {
22            // Khai bao bien x la ket qua phuong trinh
23            double x = -b / a;
24            // Hien thi ket qua
25            JOptionPane.showMessageDialog(parentComponent: null, "Ket qua cua " + strA + "x + " + strB + " = 0 la: " + x,
26            title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
27        }
28    }
29 }

```

```

1 // MSSV: 20184092
2 // Ho va ten: Le Anh Hao
3 // bai 2.2.6
4 // The first-degree equation (linear equation) with one variable
5 import javax.swing.JOptionPane;
6 public class PTbac1motan {
7     public static void main(String[] args) {
8         String strA, strB; // Khai bao xau ki tu la 2 tham so a va b
9         // Hien thi thong bao nguoi dung nhap va doc data
10        strA = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac nhat ax+b=0\nNhap a = ",
11        title: "Nhap tham so a", JOptionPane.INFORMATION_MESSAGE);
12        strB = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac nhat ax+b=0\nNhap b = ",
13        title: "Nhap tham so b", JOptionPane.INFORMATION_MESSAGE);
14        // Chuyen doi String sang double
15        double a = Double.parseDouble(strA);
16        double b = Double.parseDouble(strB);
17
18        if (a == 0) { // xet a=0 thi hien thi ket qua vo nghiem
19            JOptionPane.showMessageDialog(parentComponent: null, message: "Vo nghiem", title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
20        }
21        else {
22            // Khai bao bien x la ket qua phuong trinh
23            double x = -b / a;
24        }
25    }
26 }

```

Terminal output:

```

PS F:\oilt.vn.20212.20184092.anhhao> cd "F:\oilt.vn.20212.20184092.anhhao\Lab1"; if ($?) { javac PTbac1motan.java }; if ($?) { java PTbac1motan }
PS F:\oilt.vn.20212.20184092.anhhao\Lab1>
PS F:\oilt.vn.20212.20184092.anhhao\Lab1> cd "F:\oilt.vn.20212.20184092.anhhao\Lab1"; if ($?) { javac PTbac1motan.java }; if ($?) { java PTbac1motan }

```

## Kết quả

```

1 // MSSV: 20184092
2 // Ho va ten: Le Anh Hao
3 // bai 2.2.6
4 // The first-degree equation (linear equation) with one variable
5 import javax.swing.JOptionPane;
6 public class PTbac1motan {
7     public static void main(String[] args) {
8         String strA, strB; // Khai bao xau ki tu la 2 tham so a va b
9         // Hien thi thong bao nguoi dung nhap va doc data
10        strA = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac nhat ax+b=0\nNhap a = ",
11        title: "Nhap tham so a", JOptionPane.INFORMATION_MESSAGE);
12        strB = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac nhat ax+b=0\nNhap b = ",
13        title: "Nhap tham so b", JOptionPane.INFORMATION_MESSAGE);
14        // Chuyen doi String sang double
15        double a = Double.parseDouble(strA);
16        double b = Double.parseDouble(strB);
17
18        if (a == 0) { // xet a=0 thi hien thi ket qua vo nghiem
19            JOptionPane.showMessageDialog(parentComponent: null, message: "Vo nghiem", title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
20        }
21        else {
22            // Khai bao bien x la ket qua phuong trinh
23            double x = -b / a;
24        }
25    }
26 }

```

Terminal output:

```

PS F:\oilt.vn.20212.20184092.anhhao> cd "F:\oilt.vn.20212.20184092.anhhao\Lab1"; if ($?) { javac PTbac1motan.java }; if ($?) { java PTbac1motan }
PS F:\oilt.vn.20212.20184092.anhhao\Lab1>
PS F:\oilt.vn.20212.20184092.anhhao\Lab1> cd "F:\oilt.vn.20212.20184092.anhhao\Lab1"; if ($?) { javac PTbac1motan.java }; if ($?) { java PTbac1motan }
PS F:\oilt.vn.20212.20184092.anhhao\Lab1>
PS F:\oilt.vn.20212.20184092.anhhao\Lab1> cd "F:\oilt.vn.20212.20184092.anhhao\Lab1"; if ($?) { javac PTbac1motan.java }; if ($?) { java PTbac1motan }
PS F:\oilt.vn.20212.20184092.anhhao\Lab1>
PS F:\oilt.vn.20212.20184092.anhhao\Lab1> cd "F:\oilt.vn.20212.20184092.anhhao\Lab1"; if ($?) { javac PTbac1motan.java }; if ($?) { java PTbac1motan }
PS F:\oilt.vn.20212.20184092.anhhao\Lab1>

```

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

- The second-degree equation with one variable

```

Lab1 > J PTbac2.java > ...
1
2 // MSSV: 20184092
3 // Ho va ten: Le Anh Hao
4 // bai 2.2.6
5 ⚡ The second-degree equation with one variable
6 import javax.swing.JOptionPane;
7 import java.lang.Math;
8 public class PTbac2 {
9     Run | Debug
10     public static void main(String[] args) {
11         String stra, strb, strc; // Khai bao xau ki tu la tham so cua phuong trinh bac hai
12         // Hien thi thong bao nguoi dung nhap va doc data
13         stra = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac hai ax^2+bx+c=0\nNhap a = ",
14         title: "Nhap tham so a", JOptionPane.INFORMATION_MESSAGE);
15         strb = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac hai ax^2+bx+c=0\nNhap b = ",
16         title: "Nhap tham so b", JOptionPane.INFORMATION_MESSAGE);
17         strc = JOptionPane.showInputDialog(parentComponent: null, message: "Nhap phuong trinh bac hai ax^2+bx+c=0\nNhap c = ",
18         title: "Nhap tham so c", JOptionPane.INFORMATION_MESSAGE);
19
20         // Chuyen doi String sang double
21         double a = Double.parseDouble(stra);
22         double b = Double.parseDouble(strb);
23         double c = Double.parseDouble(strc);
24         // Xet a=0 thi co nghiem la pt bac 1
25         if (a == 0){
26             double x1 = -c/b; // khai bao nghiem x1 cua pt
27             JOptionPane.showMessageDialog(parentComponent: null, "Ket qua cua " + stra + "x^2 + " + strb + "x + " + strc + " = 0 la: " + x1,
28             title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
29         }
30
31         if (a != 0){
32             // Khai bao bien x la delta cua pt
33             double x = b*b - 4*a*c;
34             if (x < 0){ // Xet delta < 0 thi cho ket qua vo nghiem
35                 JOptionPane.showMessageDialog(parentComponent: null, message: "Phuong trinh vo nghiem",
36                 title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
37             }
38             else if (x==0){ // Xet delta = 0 thi cho ket qua nghiem kep y
39                 double y = (-b)/(2*a);
40                 JOptionPane.showMessageDialog(parentComponent: null, "Ket qua cua " + stra + "x^2 + " + strb + "x + " + strc + " = 0 la: " + y,
41                 title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
42             }
43             else if (x > 0){ // Xet delta > 0 thi cho ket qua la 2 nghiem y1 y2
44                 double y1 = (-b + Math.sqrt(x))/(2*a);
45                 double y2 = (-b - Math.sqrt(x))/(2*a);
46                 JOptionPane.showMessageDialog(parentComponent: null, "Ket qua cua " + stra + "x^2 + " + strb + "x + " + strc + " = 0 la: " + y1 + "va" + y2,
47                 title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
48             }
49         }
50     }
51 }

```

Chạy chương trình

The image displays two screenshots of a Visual Studio Code editor window, showing a Java program for solving quadratic equations. The program is named `PTbac2.java` and is located in the directory `oolt.vn.2012.20184092.anhhao`.

**Top Screenshot:** The program is running, and a dialog box titled "Nhập tham số a" (Enter parameter a) is displayed. The dialog box contains the text "Nhập phương trình bậc hai ax^2+bx+c=0" (Enter quadratic equation ax^2+bx+c=0) and a text input field labeled "Nhập a =" (Enter a =). The input field contains the value "1". The "OK" button is highlighted.

**Bottom Screenshot:** The program is running, and a dialog box titled "Nhập tham số b" (Enter parameter b) is displayed. The dialog box contains the text "Nhập phương trình bậc hai ax^2+bx+c=0" (Enter quadratic equation ax^2+bx+c=0) and a text input field labeled "Nhập b =" (Enter b =). The input field contains the value "-5". The "OK" button is highlighted.

The Java code in the background is as follows:

```
1 Lab1 > J PTbac2.java > PTbac2 > main(String[] args)
21 double b = Double.parseDouble(strb);
22 double c = Double.parseDouble(strc);
23 // Ket a=0 thi co nghiem la pt bac 1
24 if (a == 0){
25     double x1 = -c/b; // khai bao nghiem x1 cua pt
26     JOptionPane.showMessageDialog(parentComponent: null, "Ket qua cua " + strb + "x^2 + " + strb + "x + " + strc + " = 0 la: " + x1,
27     title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
28 }
29
30 if (a != 0){
31     // Khai bao bien x la denta cua pt
32     double x = b*b - 4*a*c;
33     if (x < 0){ // Ket denta < 0 thi cho ket qua
34         JOptionPane.showMessageDialog(parentComponent: null, "Ket qua cua " + strb + "x^2 + " + strb + "x + " + strc + " = 0 la: " + x1,
35         title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
36     }
37     else if (x==0){ // Ket denta = 0 thi cho ket qua
38         double y = (-b)/(2*a);
39         JOptionPane.showMessageDialog(parentComponent: null, "Ket qua cua " + strb + "x^2 + " + strb + "x + " + strc + " = 0 la: " + y,
40         title: "Ket qua", JOptionPane.INFORMATION_MESSAGE);
41     }
42     else if (x > 0){ // Ket denta > 0 thi cho ket qua la 2 nghiem y1 y2
43         double y1 = (-b + Math.sqrt(x))/(2*a);
44         double y2 = (-b - Math.sqrt(x))/(2*a);
```

The screenshot shows the Visual Studio Code editor with the file `PTbac2.java` open. The code implements a program to solve a quadratic equation  $ax^2 + bx + c = 0$ . It prompts the user to input coefficients `a`, `b`, and `c`. A dialog box titled "Nhập tham số c" (Enter parameter c) is currently displayed, asking for the value of `c`. The code includes logic to calculate the discriminant  $\Delta = b^2 - 4ac$  and determine the nature of the roots based on its value.

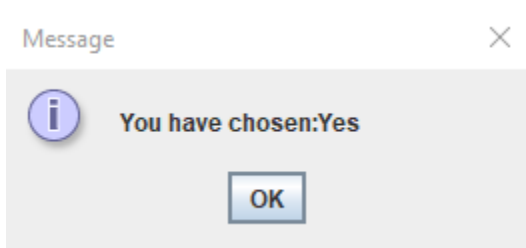
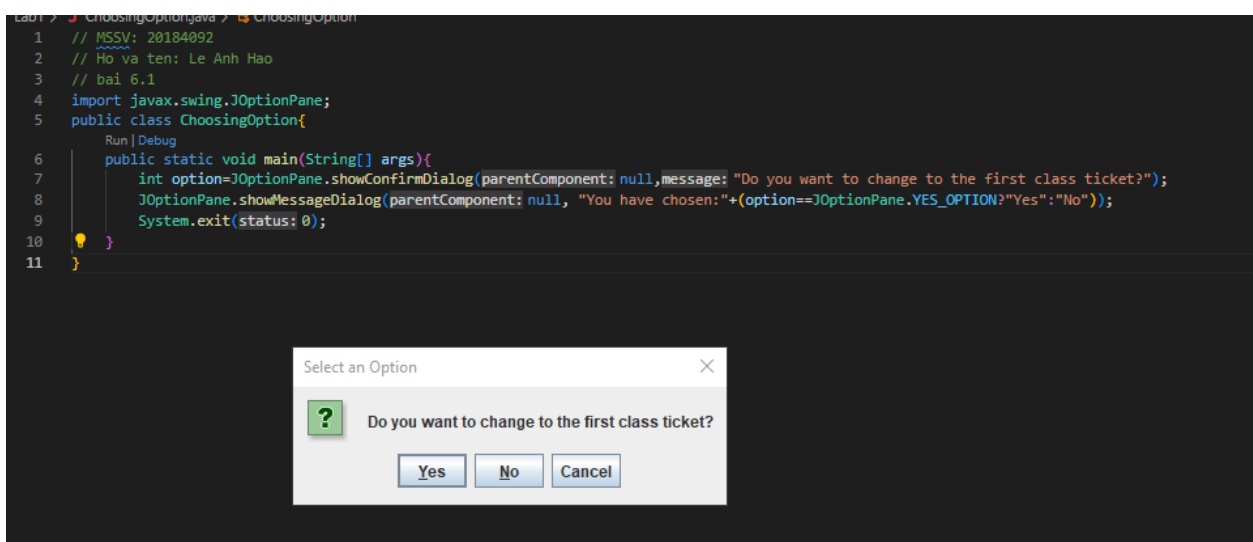
## Kết quả

The screenshot shows the Visual Studio Code editor with the file `PTbac2.java` open. The code is the same as in the previous screenshot. A dialog box titled "Ket qua" (Result) is displayed, showing the output of the program: "Ket qua cua  $1x^2 + -5x + 6 = 0$  la: 3.0va2.0". This indicates that the program has successfully calculated the roots of the quadratic equation for the given coefficients.

## 6.1 Write, compile and run the ChoosingOption program

```
Lab1 > J ChoosingOption.java > ChoosingOption
1 // MSSV: 20184092
2 // Ho va ten: Le Anh Hao
3 // bai 6.1
4 import javax.swing.JOptionPane;
5 public class ChoosingOption{
6     public static void main(String[] args){
7         int option=JOptionPane.showConfirmDialog(parentComponent: null,message: "Do you want to change to the first class ticket?");
8         JOptionPane.showMessageDialog(parentComponent: null, "You have chosen:"+ (option==JOptionPane.YES_OPTION?"Yes":"No"));
9         System.exit(status: 0);
10    }
11 }
```

Kết quả



## 6.2 Write a program for input/output from keyboard

```

Lab1 > J InputFromKeyboard.java > InputFromKeyboard
1
2 // MSSV: 20184092
3 // Ho va ten: Le Anh Hao
4 // bai 6.2
5 import java.util.Scanner;
6
7 public class InputFromKeyboard {
8     Run | Debug
9     public static void main(String[] args) {
10         Scanner keyboard=new Scanner(System.in);
11         System.out.println(x: "What is your name?");
12         String strName=keyboard.nextLine();
13         System.out.println(x: "How old are you?");
14         int iAge=keyboard.nextInt();
15         System.out.println(x: "How tall are you?");
16         double dHeight=keyboard.nextDouble();
17         System.out.println("Mrs/Ms "+strName+", "+iAge+" years old. "+"You height is "+dHeight+".");
18     }
19 }

```

Kết quả

```

PS F:\oolt.vn.20212.20184092.anhhao\Lab1> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1\" ; if
What is your name?
Hao
How old are you?
22
How tall are you?
170
Mrs/Ms Hao,22 years old. You height is 170.0.
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> 

```

## 6.3 Write a program to display a triangle with a height of n stars (\*), n is entered by users.

E.g. n=5:

```

      *
     ***
    *****
   ********
  *********
 
```



\*\*\*\*\*

Note: You must create a new Java project for this exercise.

```

J PTbac2.java U J AddMatrices.java U J Tamgiac.java 1, U J Calculate.java U
Lab1 > J Tamgiac.java > ...
1
2 // MSSV: 20184092
3 // Ho va ten: Le Anh Hao
4 // bai 6.3
5 import java.util.Scanner;
6 public class Tamgiac {
7     public static void main(String[] args) {
8         int h; // Khai bao chieu cao cua tam giac
9         Scanner scanner = new Scanner(System.in);
10        System.out.println(x: "Nhap vao chieu cao cua tam giac: "); // nhap chieu cao
11        h = scanner.nextInt();
12        for (int i=1; i<2*h; i += 2)
13    {
14        // ve tam giac
15        for (int k=0; k < (h-1 - i / 2); k++)
16        {
17            System.out.print(s: " ");
18        }
19        for (int j=0; j<i; j++)
20        {
21            System.out.print(s: "**");
22        }
23        System.out.println(x: "");
24    }
25 }

```

Kết quả

```

PS F:\oolt.vn.20212.20184092.anhhao> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1\"
Nhap vao chieu cao cua tam giac:
5
 *
 ***
*****
*****
*****
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> 

```

6.4 Write a program to display the number of days of a month, which is entered by users (both month and year). If it is an invalid month/year, ask the user to enter again.

Note: You must create a new Java project for this exercise.

```

Lab1 > J dayofamonth.java > dayofamonth
1 // MSSV: 20184092
2 // Ho va ten: Le Anh Hao
3 // bai 6.4
4 import java.util.Scanner;
5
6 public class dayofamonth {
7
8     public static void main(String[] args) {
9         int month; // khai bao thang
10        int year; // khai bao nam
11        Scanner scanner = new Scanner(System.in);
12        System.out.println(x: "Month: "); // nhap thang
13        month = scanner.nextInt();
14        System.out.println(x: "Year: "); // nhap nam
15        year = scanner.nextInt();
16
17        switch (month) {
18            // thang 1 3 5 7 8 10 12 co 31 ngay
19            case 1:
20            case 3:
21            case 5:
22            case 7:
23            case 8:
24            case 10:
25            case 12:
26                System.out.println("Month " + month + " year " + year + " have 31 days.");
27                break;
28            // thang 4 6 9 11 co 30 ngay
29            case 4:
30            case 6:
31            case 9:
32            case 11:
33                System.out.println("Month " + month + " year " + year + " have 30 days.");
34                break;
35
36            // thang 2 co 28 hoac 29 ngay tinh theo nam nhuan
37            case 2:
38
39                if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
40                    System.out.println("Month " + month + " year " + year + " have 29 days.");
41                } else {
42                    System.out.println("Month " + month + " year " + year + " have 28 days.");
43                }
44                break;
45            default:
46                System.out.println(x: "Error");
47        }
48    }
49 }
50

```

Kết quả

```

PS F:\oolt.vn.20212.20184092.anhhao\Lab1> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1\" ; if
Month:
5
Year:
2000
Month 5 year 2000 have 31 days.
PS F:\oolt.vn.20212.20184092.anhhao\Lab1>

```

6.5 Write a Java program to sort a numeric array, and calculate the sum and average value of array elements.

Note: You must create a new Java project for this exercise.

- The array can be entered by the user or a constant.

```

Lab1 > J Array.java > Array > main(String[])
1  // MSSV: 20184092
2  // Họ và tên: Lê Anh Hà
3  // bài 6.5
4  import java.util.Scanner;
5  public class Array {
6      public static Scanner scanner = new Scanner(System.in);
7
8      public static void main(String[] args) {
9          System.out.print("Enter the number of elements in the array:"); //nhap chieu dai mang
10         int n = scanner.nextInt();
11
12         int [] arr = new int [n];
13         System.out.print("Enter the elements of the array: \n"); // nhap cac phan tu cua mang
14         for (int i = 0; i < n; i++) {
15             System.out.printf("a[%d] = ", i);
16             arr[i] = scanner.nextInt();
17         }
18         // sắp xếp dãy số theo thứ tự tăng dần
19         sortArr(arr);
20         System.out.println("Array Sort ");
21         show(arr);
22         SumArr(arr);
23     }
24     public static void sortArr(int [] arr) {
25         int temp = arr[0];
26         for (int i = 0; i < arr.length - 1; i++) {
27             for (int j = i + 1; j < arr.length; j++) {
28                 if (arr[i] > arr[j]) {
29                     temp = arr[j];
30                     arr[j] = arr[i];
31                     arr[i] = temp;
32                 }
33             }
34         }
35     }
36     // khai báo biến tính tổng và trung bình
37     public static void SumArr(int [] arr) {
38         int k=0;
39         for (int i = 0; i < arr.length; i++) {
40             k+=arr[i]; // tính tổng
41         }
42         System.out.println("Sum of Array : "+k); //in tổng của mảng
43         System.out.println("Average of Array: "+(double)k/arr.length); // in trung bình của mảng
44     }
45     public static void show(int [] arr) { // in mảng ra
46         for (int i = 0; i < arr.length; i++) {
47             System.out.print(arr[i] + " ");
48         }
49     }
50 }

```

Kết quả

```
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1\"
Enter the number of elements in the array:6
Enter the elements of the array:
a[0] = 5
a[1] = 2
a[2] = 7
a[3] = 1
a[4] = 62
a[5] = 40
Array Sort
1 2 5 7 40 62 Sum of Array : 117
Average of Array: 19.5
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> 
```

6.6 Write a Java program to add two matrices of the same size.

Note: You must create a new Java project for this exercise.

- The matrices can be entered by the user or constants.

```

Lab1 > J AddMatrices.java > AddMatrices > main(String[])
1 // MSSV: 20184092
2 // Ho va ten: Le Anh Hao
3 // bai 6.6
4 // Cong hai ma tran
5 import java.util.Scanner;
6 public class AddMatrices {
7     Run | Debug
8     public static void main(String args[])
9     {
10         int m, n, c, d; // Khai bao hang cot, 2 bien lap
11         Scanner in = new Scanner(System.in);
12
13         System.out.println(x: "Input number of rows of matrix");
14         m = in.nextInt();
15         System.out.println(x: "Input number of columns of matrix");
16         n = in.nextInt();
17
18         int array1[][] = new int[m][n]; // Khai bao ma tran 1
19         int array2[][] = new int[m][n]; // Khai bao ma tran 2
20         int sum[][] = new int[m][n]; // Khai bao tong ma tran
21         //Nhap ma tran 1
22         System.out.println(x: "Input elements of first matrix");
23
24         for ( c = 0 ; c < m ; c++ )
25             for ( d = 0 ; d < n ; d++ )
26                 array1[c][d] = in.nextInt();
27         //Nhap ma tran 2
28         System.out.println(x: "Input the elements of second matrix");
29
30         for ( c = 0 ; c < m ; c++ )
31             for ( d = 0 ; d < n ; d++ )
32                 array2[c][d] = in.nextInt();
33         // Tong hai ma tran
34         for ( c = 0 ; c < m ; c++ )
35             for ( d = 0 ; d < n ; d++ )
36                 sum[c][d] = array1[c][d] + array2[c][d];
37         // in ma tran tong
38         System.out.println(x: "Sum of the matrices:-");
39
40         for ( c = 0 ; c < m ; c++ )
41         {
42             for ( d = 0 ; d < n ; d++ )
43                 System.out.print(sum[c][d]+" ");
44             System.out.println();
45         }
46     }
47 }
48

```

Kết quả

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS F:\oolt.vn.20212.20184092.anhhao> cd "f:\oolt.vn.20212.20184092.anhhao\Lab1"
Input number of rows of matrix
2
Input number of columns of matrix
3
Input elements of first matrix
1
2
3
4
5
6
Input the elements of second matrix
6
5
4
3
2
1
Sum of the matrices:-
7      7      7
7      7      7
PS F:\oolt.vn.20212.20184092.anhhao\Lab1> 
```