BÁO CÁO

BÀI THỰC HÀNH SỐ 1: HƯỚNG ĐỐI TƯỢNG

Github: https://github.com/NgocJQK/OOP_TN

Bài 1:

2.2.1 Write, compile the first Java application:

Step 1: Create a new file. From the Notepad interface, choose File → New File.

Step 2: Save the file. From the Notepad interface, choose File → Save. Browse the desired directory, change the file name to "*HelloWorld.java*" and hit the "*Save*" button.

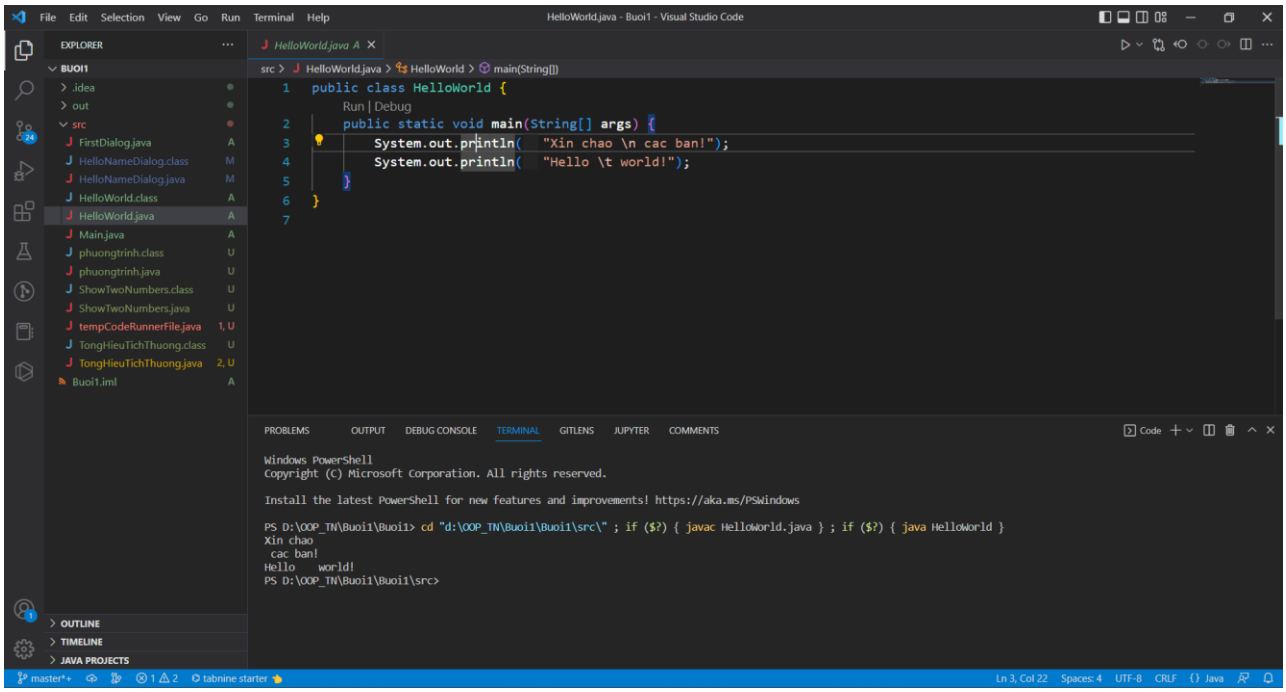
Step 3: Write the source code. The source code is shown in Figure 5.

```
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 chao \n cac ban!");
7           System.out.println("Hello \t world!");
8
9     } // end of method main
10 }
```

Figure 5. The First Java Application

Step 4: Compile. On a Command Prompt or a Terminal, change the current working directory[1] into the directory where we have saved the source code. Then issue the following commands.

```
$ javac HelloWorld.java
$ java HelloWorld
```



Bài 2:

2.2.2 Write, compile the first dialog Java program

Step 1: Create a new file. From the Notepad interface, choose File → New File.

Step 2: Save the file. From the Notepad interface, choose File → Save. Browse the desired directory, change the file name to "*FirstDialog.java,*" and click the "*Save*" button.

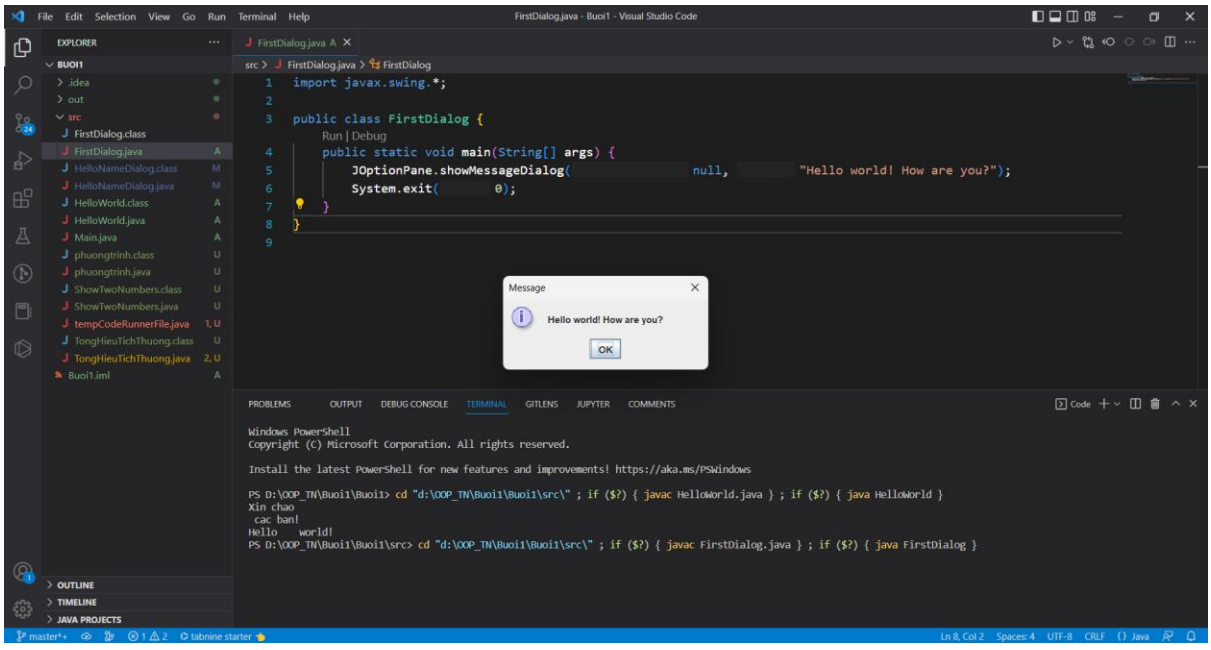
Step 3: Write the source code. The source code is shown in Figure 6

```
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 }
```

Figure 6. The First Dialog Java Application

Step 4: Compile. On a Command Prompt or a Terminal, change the current working directory into the directory where we have saved the source code. Issue the following commands.

```
$ javac FirstDialog.java
$ java FirstDialog
```



Bài 3:

2.2.3 Write, compile the first input dialog Java application

Step 1: Create a new file. From the Notepad interface, choose File → New File.

Step 2: Save the file. From the Notepad interface, choose File → Save. Browse the desired directory, change the file name to "*HelloNameDialog.java,*" and click the "*Save*" button.

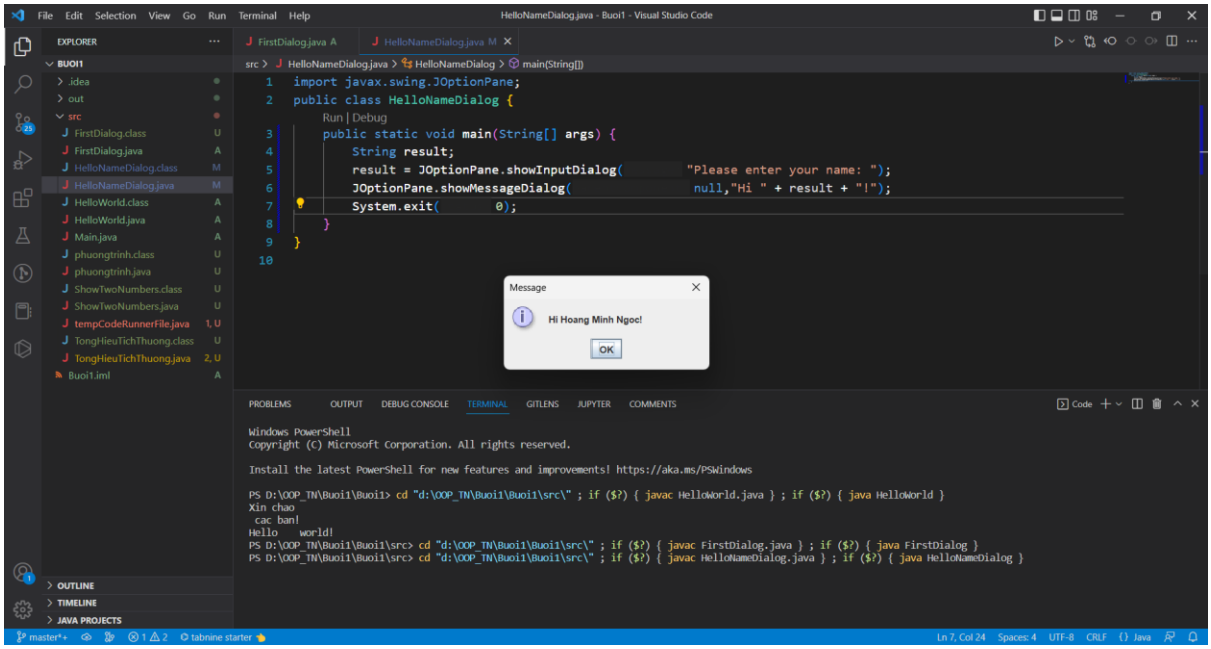
Step 3: Write the source code. The source code is shown in Figure 7

```
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 }
```

Figure 7. The First Input Dialog Java Application

Step 4: Compile. On a Command Prompt or a Terminal, change the current working directory into the directory where we have saved the source code. Issue the following commands.

```
$ javac HelloNameDialog.java
$ java HelloNameDialog
```



Bài 4:

2.2.4 Write, compile, and run the following example:

Step 1: Create a new file. From the Notepad interface, choose File → New File.

Step 2: Save the file. From the Notepad interface, choose File → Save. Browse the desired directory, change the file name to "*ShowTwoNumbers.java,*" and click the "*Save*" button.

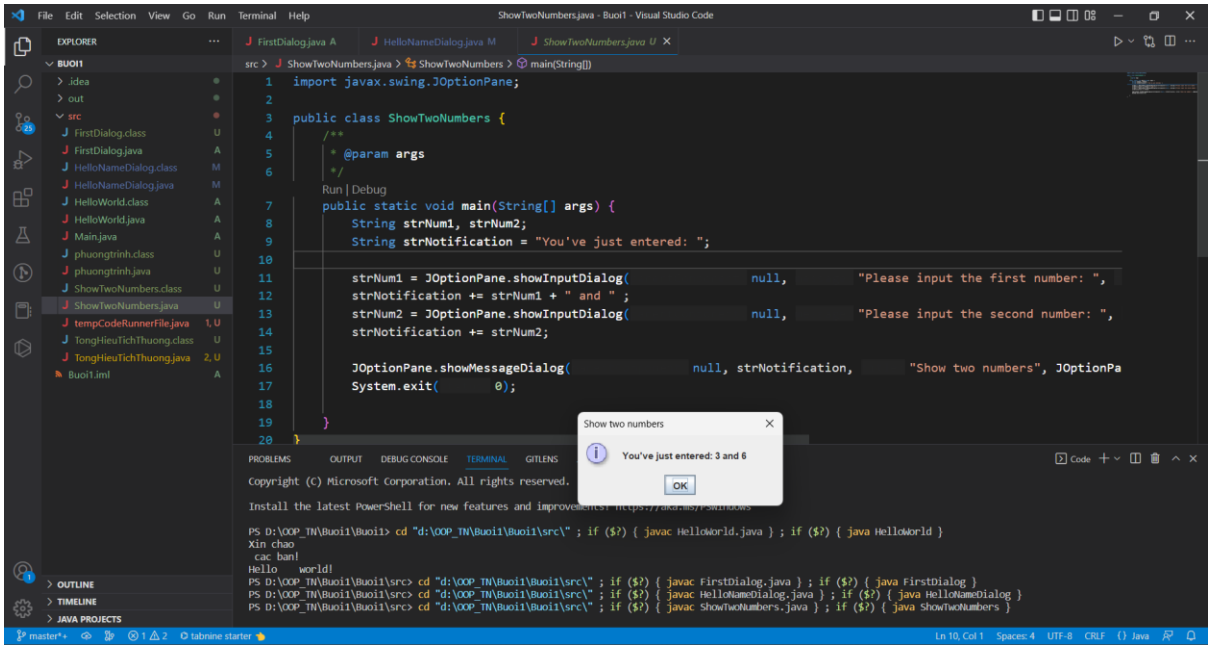
Step 3: Write the source code. The source code is shown in Figure 8

```
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 }
```

Figure 8. Java Application showing two entered numbers and their sum

Step 4: Compile. On a Command Prompt or a Terminal, change the current working directory into the directory where we have saved the source code. Issue the following commands.

```
$ javac ShowTwoNumbers.java
$ java ShowTwoNumbers
```



Bài 5:

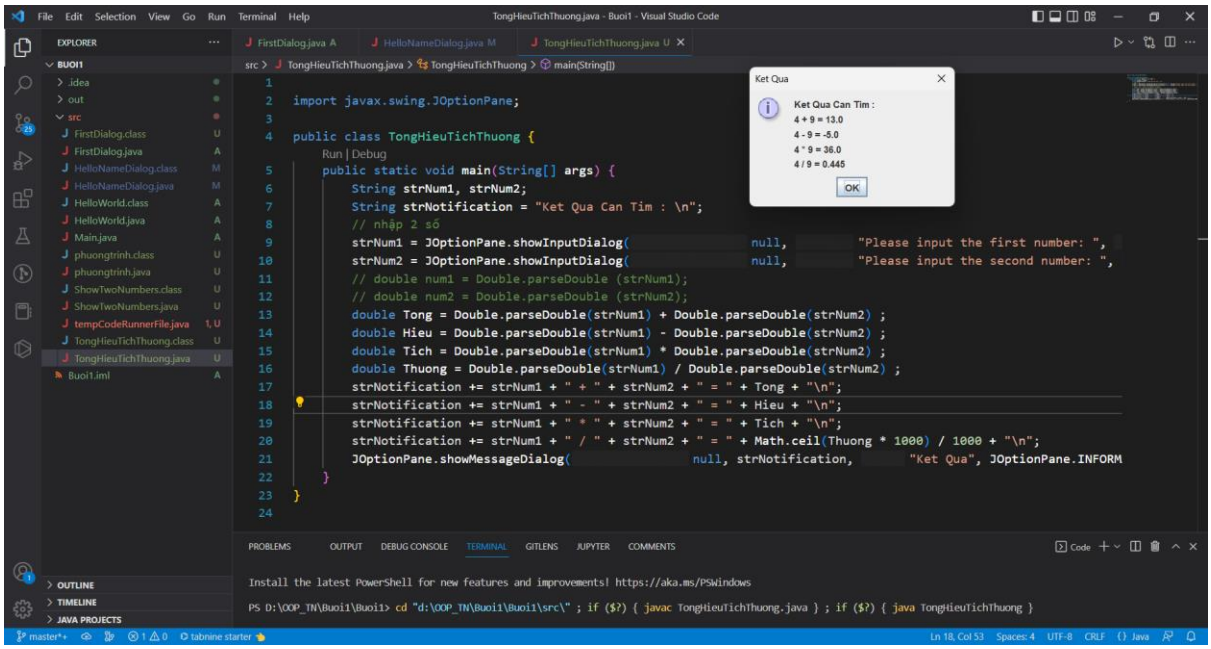
2.2.5 Write a program to calculate sum, difference, product, and quotient of 2 double numbers which are entered by users.

Notes

- To convert from String to double, you can use

```
double num1 = Double.parseDouble(strNum1)
```

- Check the divisor of the division



Bài 6

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**

Note: A first-degree equation with one variable can have a form such as $ax + b = 0\ (a \neq 0)$.

You should handle the case where the user input value 0 for a.

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

Note: A system of first-degree equations with two variables x_1 and x_2 can be written as follows.

$$\{a_{11}x_1 + a_{12}x_2 = b_1\ a_{21}x_1 + a_{22}x_2 = b_2$$

You should handle the case where the values of the coefficients produce infinitely many solutions and the case where they produce no solution.

Hint:

Use the following determinants:

$D = |a_{11}\ a_{12}\ a_{21}\ a_{22}\ | = a_{11}a_{22} - a_{21}a_{12}$ $D_1 = |b_1\ a_{12}\ b_2\ a_{22}\ | = b_1a_{22} - b_2a_{12}$ $D_2 = |a_{11}\ b_1\ a_{21}\ b_2\ | = a_{11}b_2 - a_{21}b_1$

- **The second-degree equation with one variable**

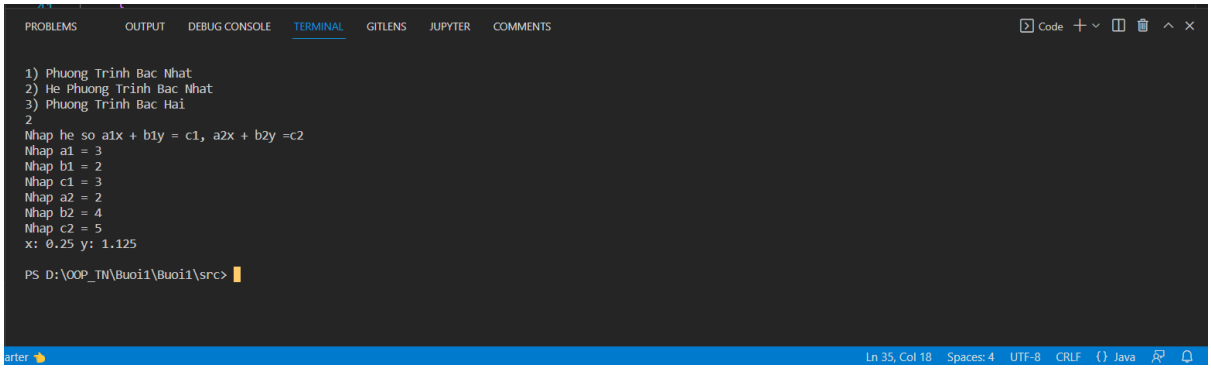
Note: A second-degree equation with one variable (i.e., quadratic equation) can have a form such as $ax^2 + bx + c = 0$, where x is the variable, and a, b, and c are coefficients ($a \neq 0$).

You should handle the case where the values of the coefficients produce a double root & the case where they produce no root. You should also handle the case where the user input value 0 for a.

Hint:

Use the discriminant $\Delta = b^2 - 4ac$

demo



[redacted]

```
import java.util.Scanner;
import java.lang.Math;
public class phuongtrinh{
    public static void phuongtrinhbacnhat(double a, double b){
        if(a==0 && b==0) System.out.println("Phuong trinh vo so
nghiem\n");
        else if(a==0 && b!=0) System.out.println("Phuong trinh
vo nghiem ");
        else {
            double x = -b/a;
            System.out.println("Nghiem cua phuong trinh la x =
" + Math.ceil(x * 1000) / 1000);
        }
    }

    public static void hephuongtrinh(double a1, double a2,
double b1, double b2, double c1, double c2){
        double D = a1*b2-a2*b1;
        double Dx = c1*b2-c2*b1;
        double Dy = a1*c2-a2*c1;
        if(D==0 && Dx == 0 && Dy == 0) System.out.println("He
phuong trinh co vo so nghiem\n");
```

```
        else if((D==0 && Dx!= 0) || (D==0 && Dy!= 0))
System.out.println("He phuong trinh vo nghiem");
        else System.out.println("x: " + Math.ceil((Dx/D) *
1000)/1000 + " y: " + Math.ceil((Dy/D) * 1000)/1000 + "\n");
    }
    public static void phuongtrinhbac2(double a, double b,
double c){
        if(a==0 && b !=0) System.out.println("Phuong trinh co
nghiem la: " + Math.ceil((-c/b) * 1000)/1000);
        else if(a==0 && b == 0 && c == 0)
            System.out.println("Phuong trinh co vo so nghiem");
        else if(a==0 && b==0 && c!=0)
            System.out.println("Phuong trinh vo nghiem");
        else {
            double denta = b*b-4*a*c;
        if(denta>0) {
            double x1 = Math.ceil(((-b+Math.sqrt(denta))/(2*a))
* 1000)/1000;
            double x2 = Math.ceil(((-b-Math.sqrt(denta))/(2*a))
* 1000)/1000;
            System.out.println("\n x1 = " + x1 + "\n x2 = " +
x2);
        } else if(denta == 0) {
            double nghiemkep = Math.ceil((-b/(2*a)) *
1000)/1000;
            System.out.println("Nghiem kep cua phuong trinh la:
" + nghiemkep);
        }
        if(denta<0) System.out.println("Phuong trinh vo
nghiem");
        }


    }

    public static void Menu(){
        System.out.println("\n1) Phuong Trinh Bac Nhat \n2) He
Phuong Trinh Bac Nhat \n3) Phuong Trinh Bac Hai");
    }
    /**
```

```
     * @param args
     */
    public static void main(String[] args) {
        double a,b,c;
      Menu();
      try (Scanner sc = new Scanner(System.in)) {
        int chucnang = sc.nextInt();
          if(chucnang == 1)
          {
            System.out.println("Nhap he so ax+b=0");
            System.out.print("Nhap a = "); a=sc.nextDouble();
            System.out.print("Nhap b = "); b=sc.nextDouble();
            phuongtrinhbacnhat(a,b);
          }
          if(chucnang == 2)
          {
            double a1,a2,b1,b2,c1,c2;
            System.out.println("Nhap he so a1x + b1y = c1, a2x
+ b2y =c2");
            System.out.print("Nhap a1 = "); a1=sc.nextDouble();
            System.out.print("Nhap b1 = "); b1=sc.nextDouble();
            System.out.print("Nhap c1 = "); c1=sc.nextDouble();
            System.out.print("Nhap a2 = "); a2=sc.nextDouble();
            System.out.print("Nhap b2 = "); b2=sc.nextDouble();
            System.out.print("Nhap c2 = "); c2=sc.nextDouble();
            hephuongtrinh(a1, a2, b1, b2, c1, c2);
          }

          if(chucnang == 3){
            System.out.println("Nhap phuong trinh aX^2 + bX + c
= 0");
            System.out.print("Nhap a = "); a=sc.nextDouble();
            System.out.print("Nhap b = "); b=sc.nextDouble();
            System.out.print("Nhap c = "); c=sc.nextDouble();
            phuongtrinhbac2(a, b, c);
          }
    }


    }
```

```
}
```