LABORATORY 1: Environment Setup and Java Basics

2.2.1. Write, compile the first Java application.

Helloworld

File Edit View

```
class Helloworld
{
	public static void main(String args[])
	{
		System.out.println("Hello world");
		System.out.println("I am a developer!\nAbout you ??");

	}
};
```

➔ Command line and result

```
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> javac .\Helloworld.java
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> java Helloworld
Hello world
I am a developer!
About you ??
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src>
```

2.2.2. Write, compile the first dialog Java program.

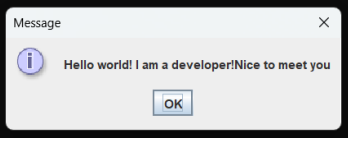
FirstDialog

File Edit View

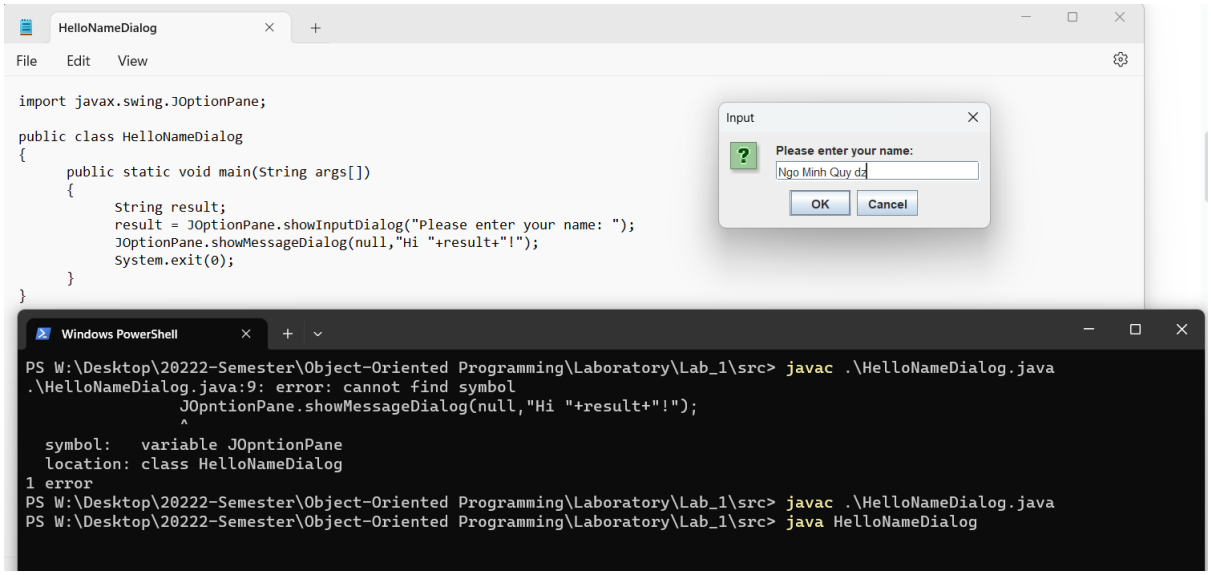
```
import javax.swing.JOptionPane;
class FirstDialog
{
	public static void main(String args[])
	{
		JOptionPane.showMessageDialog(null,"Hello world! I am a developer!Nice to meet you");
		System.exit(0);
	}
};
```

➔ Command and result

```
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> javac .\FirstDialog.java
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> java FirstDialog
```

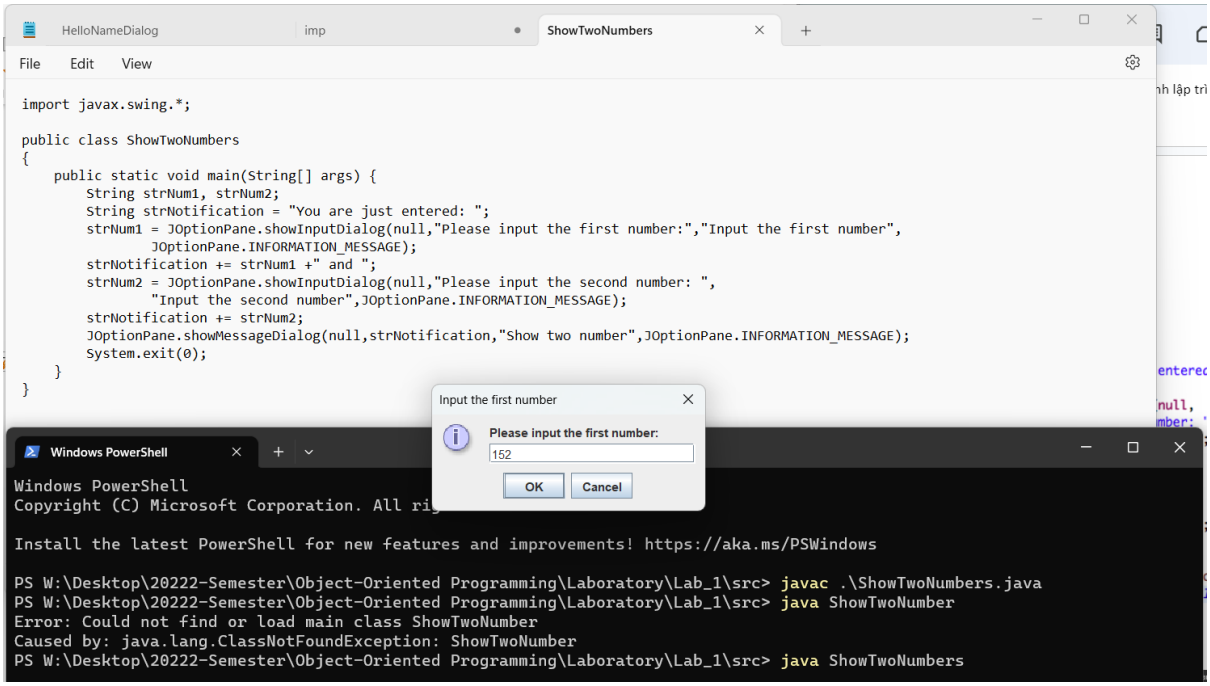


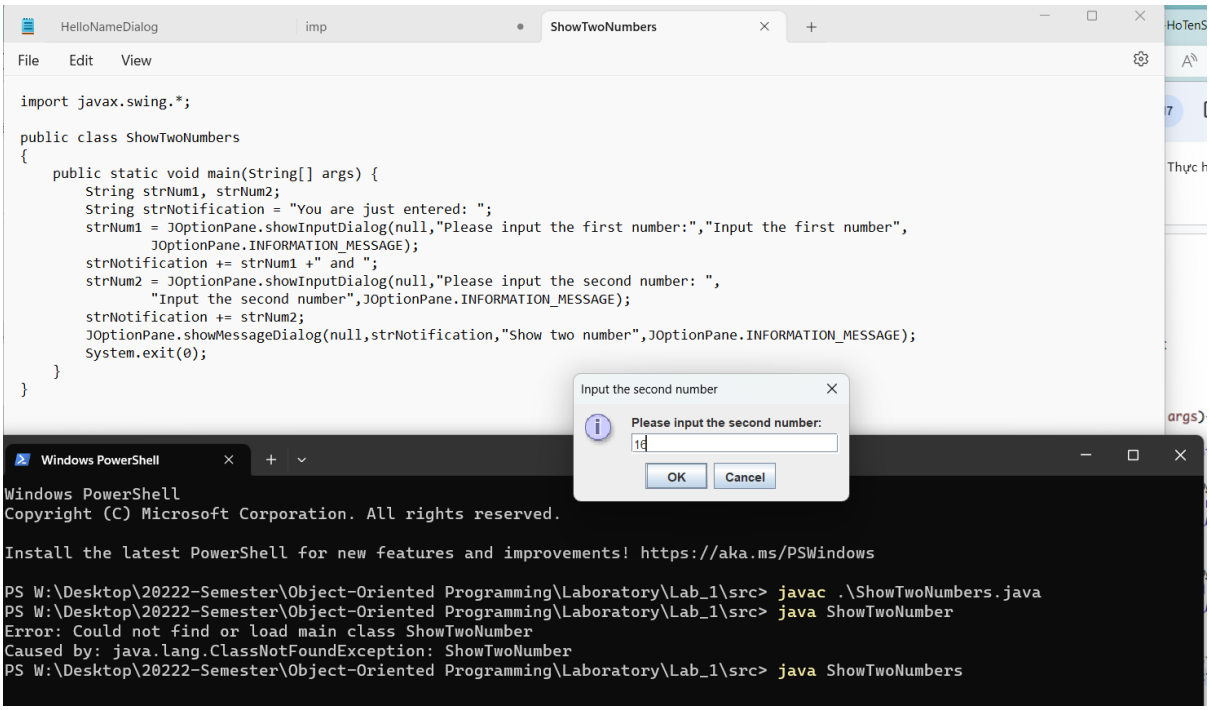
2.2.3. Write and compile the first input dialog Java application

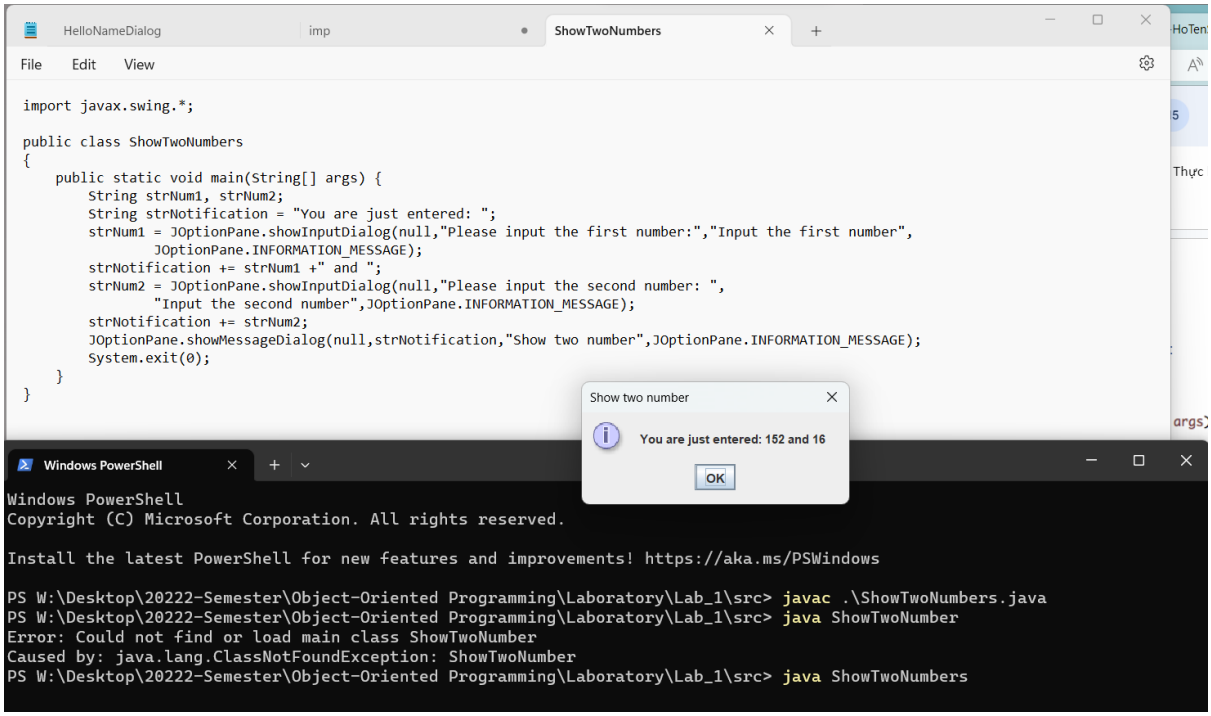


➔ Result

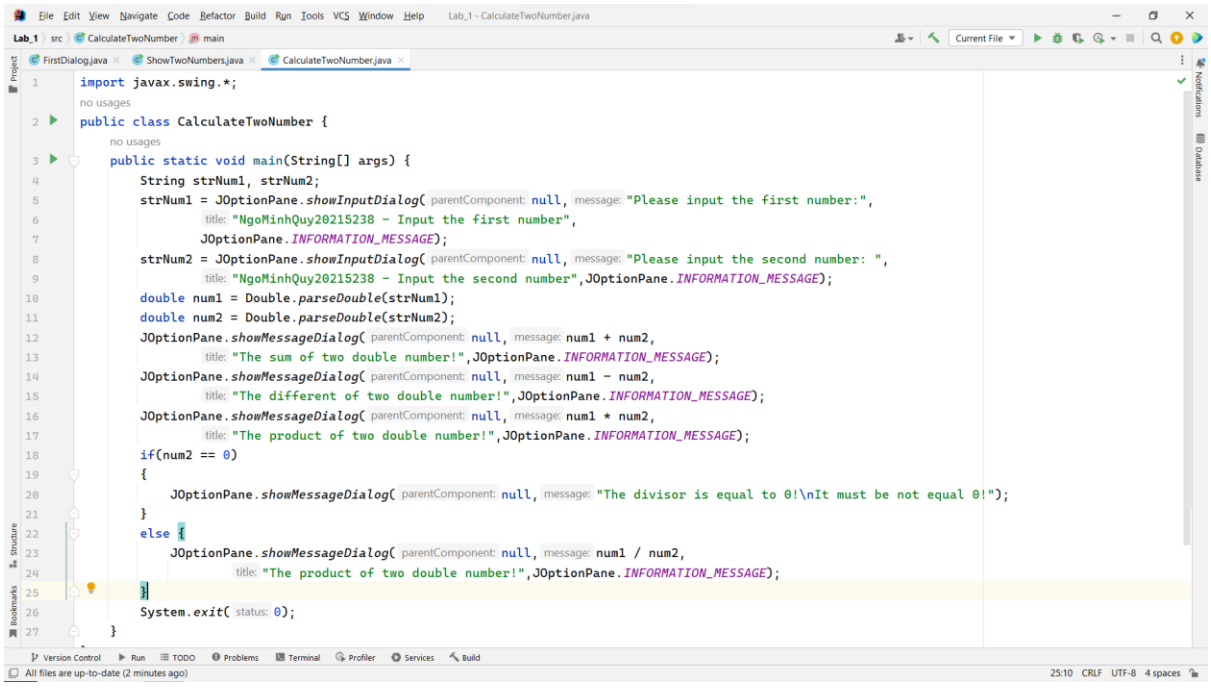
2.2.4. Write, compile and run the following example


HelloNameDialog
imp
ShowTwoNumbers
File
Edit
View
import javax.swing.*;
public class ShowTwoNumbers
{
public static void main(String[] args) {
String strNum1, strNum2;
String strNotification = "You are just entered: ";
strNum1 = JOptionPane.showInputDialog(null,"Please input the first number:","Input the first number",
JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum1 +" and ";
strNum2 = JOptionPane.showInputDialog(null,"Please input the second number: ",
"Input the second number",JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum2;
JOptionPane.showMessageDialog(null,strNotification,"Show two number",JOptionPane.INFORMATION_MESSAGE);
System.exit(0);
}
}
Input the first number
Please input the first number:
152
OK
Cancel
Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All ri
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> javac .\ShowTwoNumbers.java
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> java ShowTwoNumber
Error: Could not find or load main class ShowTwoNumber
Caused by: java.lang.ClassNotFoundException: ShowTwoNumber
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> java ShowTwoNumbers

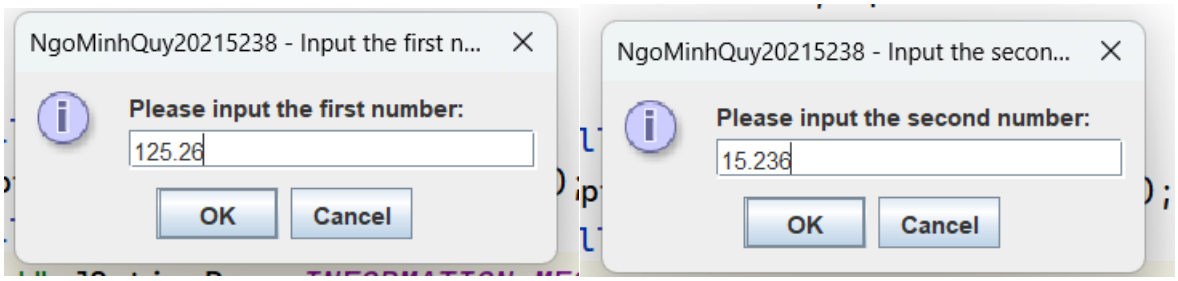

HelloNameDialog
imp
ShowTwoNumbers
File
Edit
View
import javax.swing.*;
public class ShowTwoNumbers
{
public static void main(String[] args) {
String strNum1, strNum2;
String strNotification = "You are just entered: ";
strNum1 = JOptionPane.showInputDialog(null,"Please input the first number:","Input the first number",
JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum1 +" and ";
strNum2 = JOptionPane.showInputDialog(null,"Please input the second number: ",
"Input the second number",JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum2;
JOptionPane.showMessageDialog(null,strNotification,"Show two number",JOptionPane.INFORMATION_MESSAGE);
System.exit(0);
}
}
Input the second number
Please input the second number:
16
OK
Cancel
Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> javac .\ShowTwoNumbers.java
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> java ShowTwoNumber
Error: Could not find or load main class ShowTwoNumber
Caused by: java.lang.ClassNotFoundException: ShowTwoNumber
PS W:\Desktop\20222-Semester\Object-Oriented Programming\Laboratory\Lab_1\src> java ShowTwoNumbers



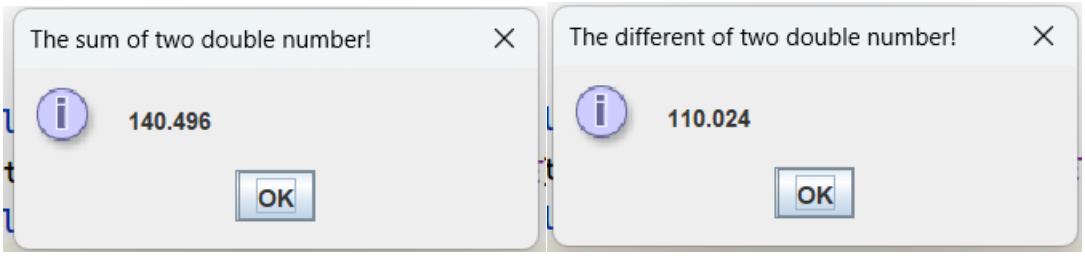
2.2.5. Write and compile calculating the sum, different, product… program.

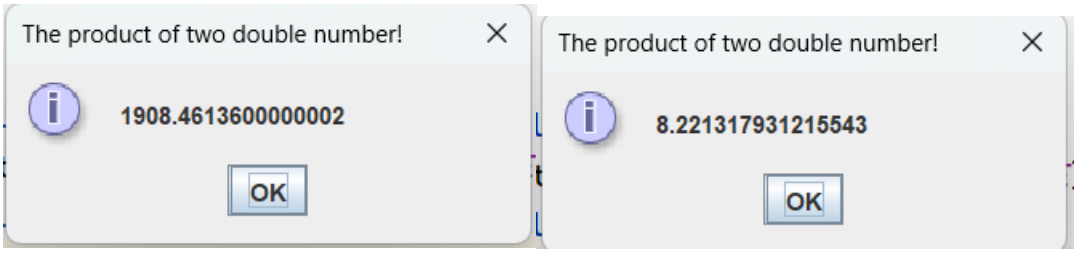


→Input:

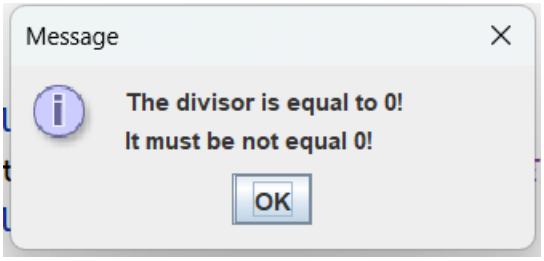


➔ Result:





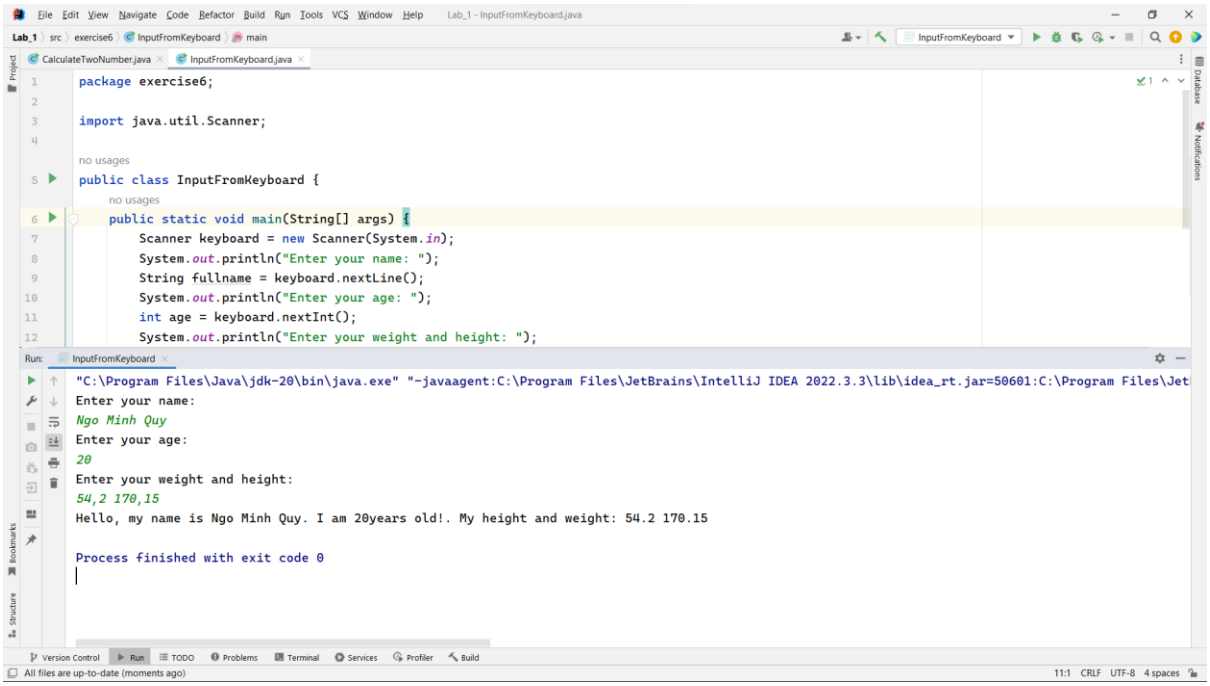
Other case (a = 10.25, b = 0) → print ERROR



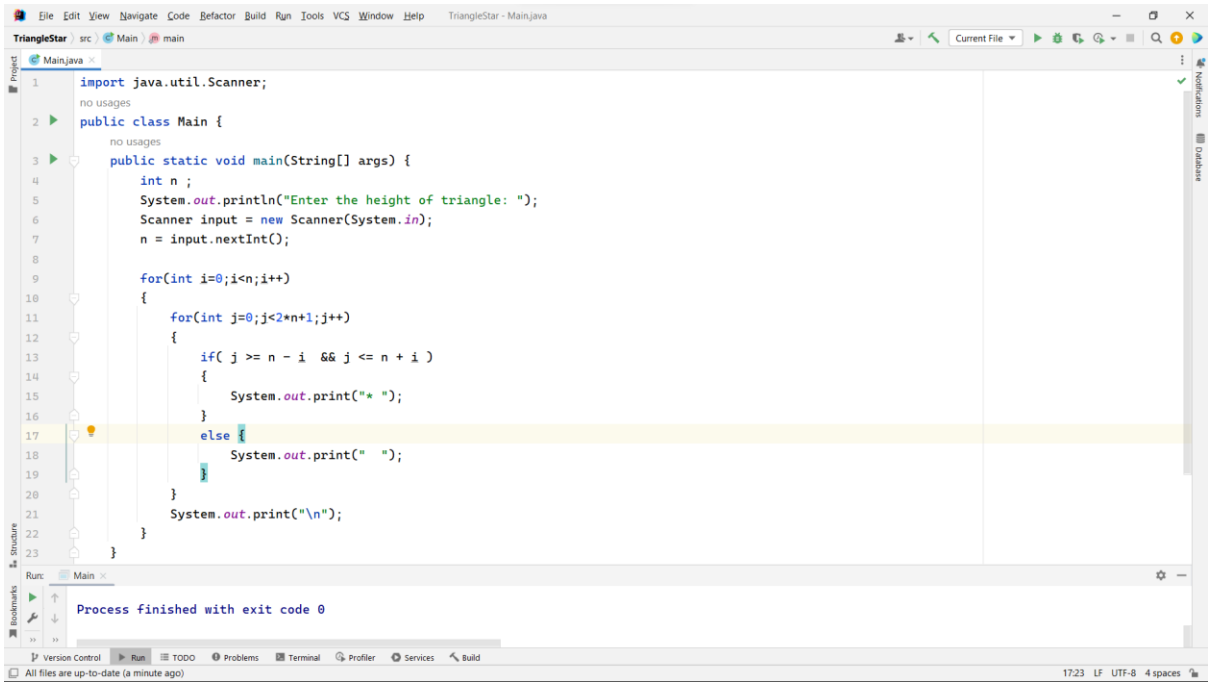
Exercise 6:

6.1. Nothing to print in here because it's so easy

6.2. Input Output stream in Java. Using package java.util.Scanner and class Scanner.

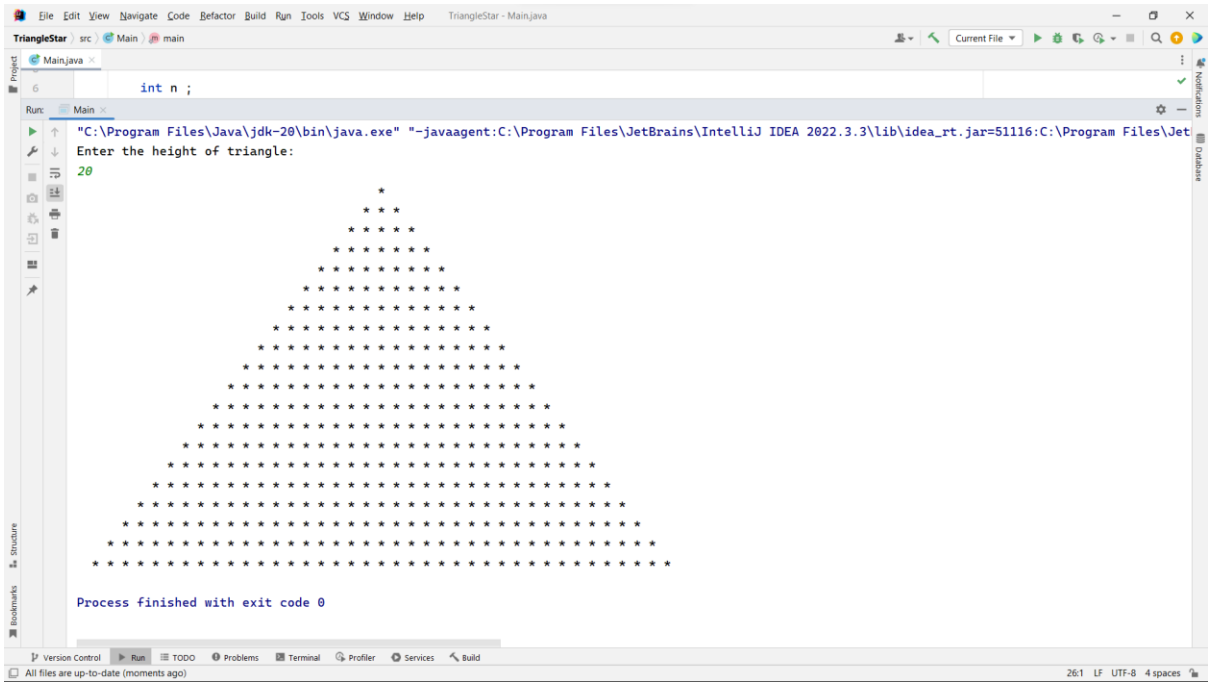


6.3. Draw a triangle with heigh of it



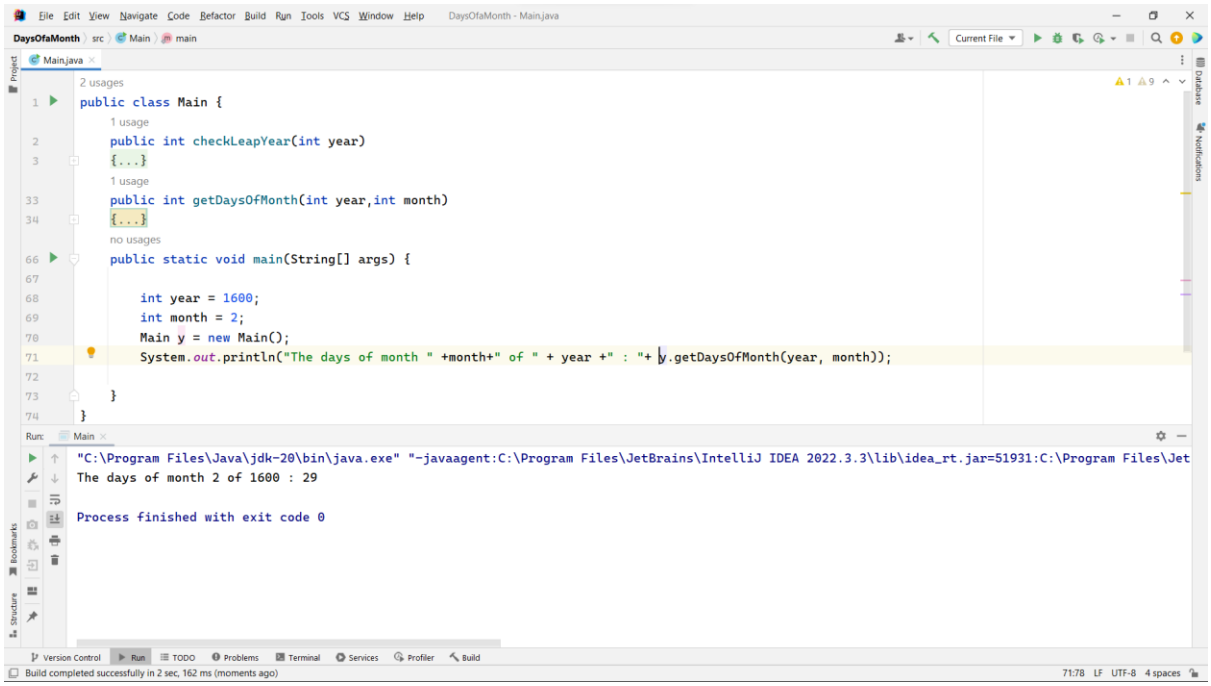
```
import java.util.Scanner;
no usages
public class Main {
    no usages
    public static void main(String[] args) {
        int n ;
        System.out.println("Enter the height of triangle: ");
        Scanner input = new Scanner(System.in);
        n = input.nextInt();

        for(int i=0;i<n;i++)
        {
            for(int j=0;j<2*n+1;j++)
            {
                if( j >= n - i  && j <= n + i )
                {
                    System.out.print("* ");
                }
                else {
                    System.out.print("  ");
                }
            }
            System.out.print("\n");
        }
    }
```

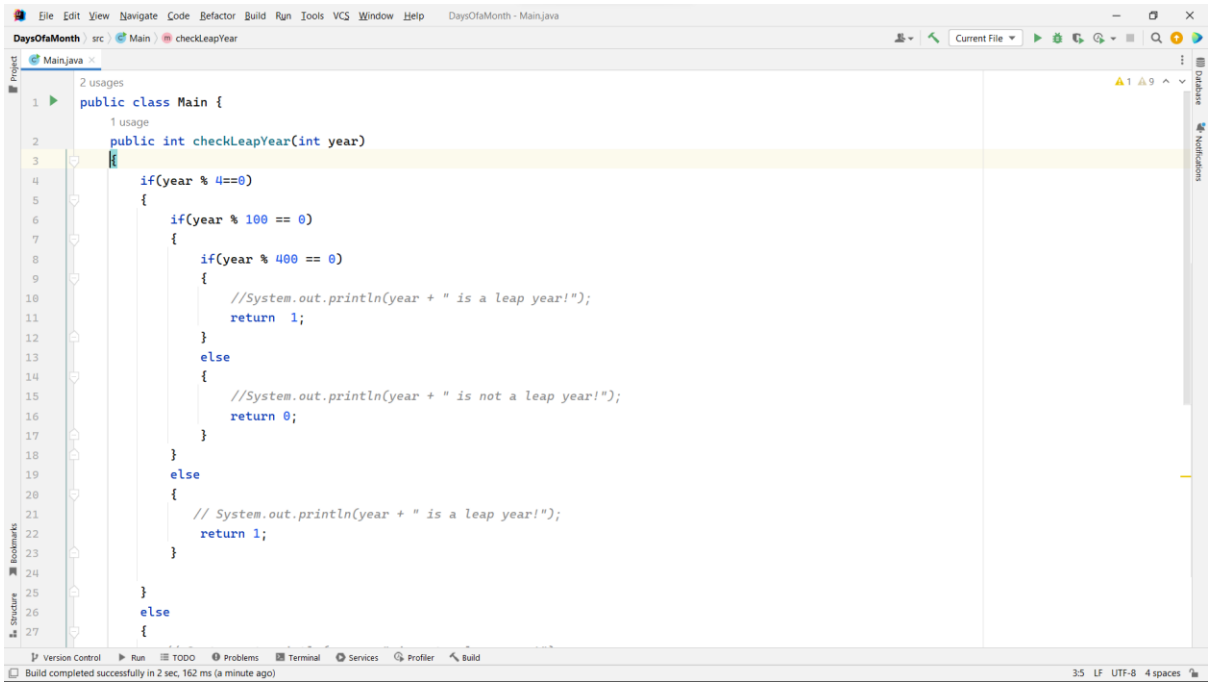
```
Process finished with exit code 0
```

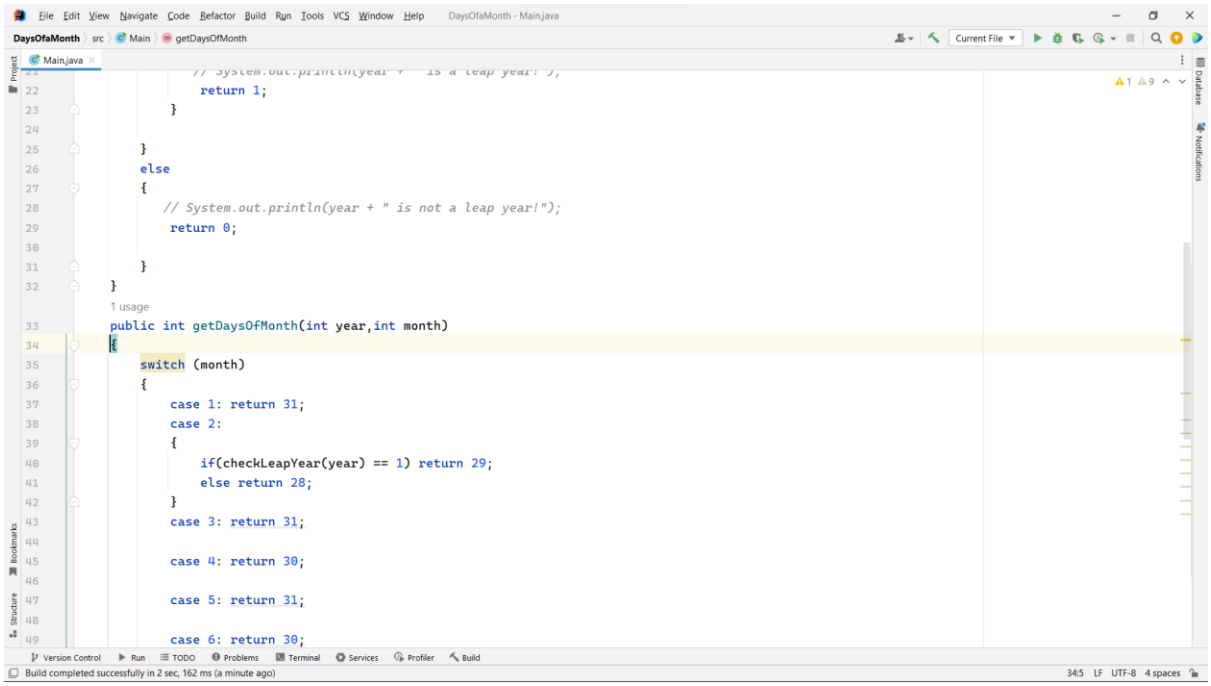


```
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.3\lib\idea_rt.jar=51116:C:\Program Files\Jet
Enter the height of triangle:
20
                                        *
                                      * * *
                                    * * * * *
                                  * * * * * * *
                                * * * * * * * * *
                              * * * * * * * * * * *
                            * * * * * * * * * * * * *
                          * * * * * * * * * * * * * * *
                        * * * * * * * * * * * * * * * * *
                      * * * * * * * * * * * * * * * * * * *
                    * * * * * * * * * * * * * * * * * * * * *
                  * * * * * * * * * * * * * * * * * * * * * * *
                * * * * * * * * * * * * * * * * * * * * * * * * *
              * * * * * * * * * * * * * * * * * * * * * * * * * * *
            * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
          * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Process finished with exit code 0
```

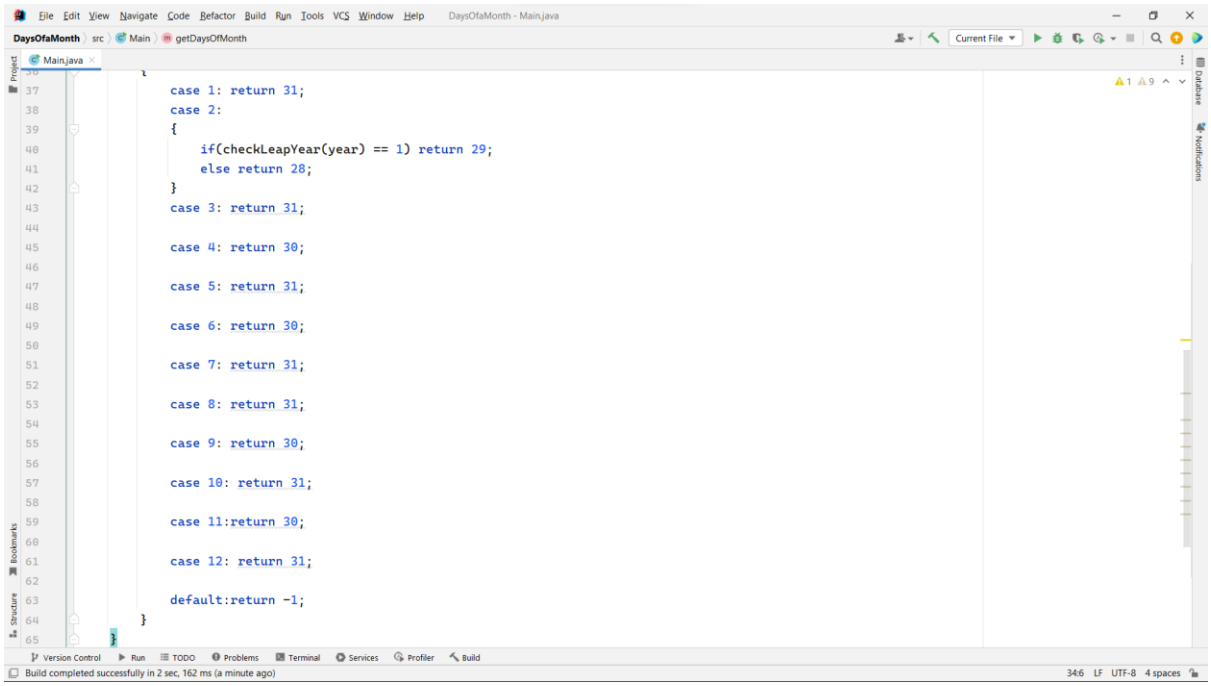
6.4. Days of a month of a leap year or normal year


File Edit View Navigate Code Refactor Build Run Tools VCS Window Help
DaysOfaMonth - Main.java
DaysOfaMonth src Main main
Current File
Main.java
2 usages
public class Main {
1 usage
public int checkLeapYear(int year)
{...}
1 usage
public int getDaysOfMonth(int year,int month)
{...}
no usages
public static void main(String[] args) {
int year = 1600;
int month = 2;
Main y = new Main();
System.out.println("The days of month " +month+" of " + year +" : "+ y.getDaysOfMonth(year, month));
}
}
Run: Main
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.3\lib\idea_rt.jar=51931:C:\Program Files\Jet
The days of month 2 of 1600 : 29
Process finished with exit code 0
Version Control Run TODO Problems Terminal Services Profiler Build
Build completed successfully in 2 sec, 162 ms (moments ago)
71:78 LF UTF-8 4 spaces


File Edit View Navigate Code Refactor Build Run Tools VCS Window Help
DaysOfaMonth - Main.java
DaysOfaMonth src Main checkLeapYear
Current File
Main.java
2 usages
public class Main {
1 usage
public int checkLeapYear(int year)
{
if(year % 4==0)
{
if(year % 100 == 0)
{
if(year % 400 == 0)
{
//System.out.println(year + " is a leap year!");
return 1;
}
else
{
//System.out.println(year + " is not a leap year!");
return 0;
}
}
else
{
// System.out.println(year + " is a leap year!");
return 1;
}
}
else
{
Version Control Run TODO Problems Terminal Services Profiler Build
Build completed successfully in 2 sec, 162 ms (a minute ago)
3:5 LF UTF-8 4 spaces

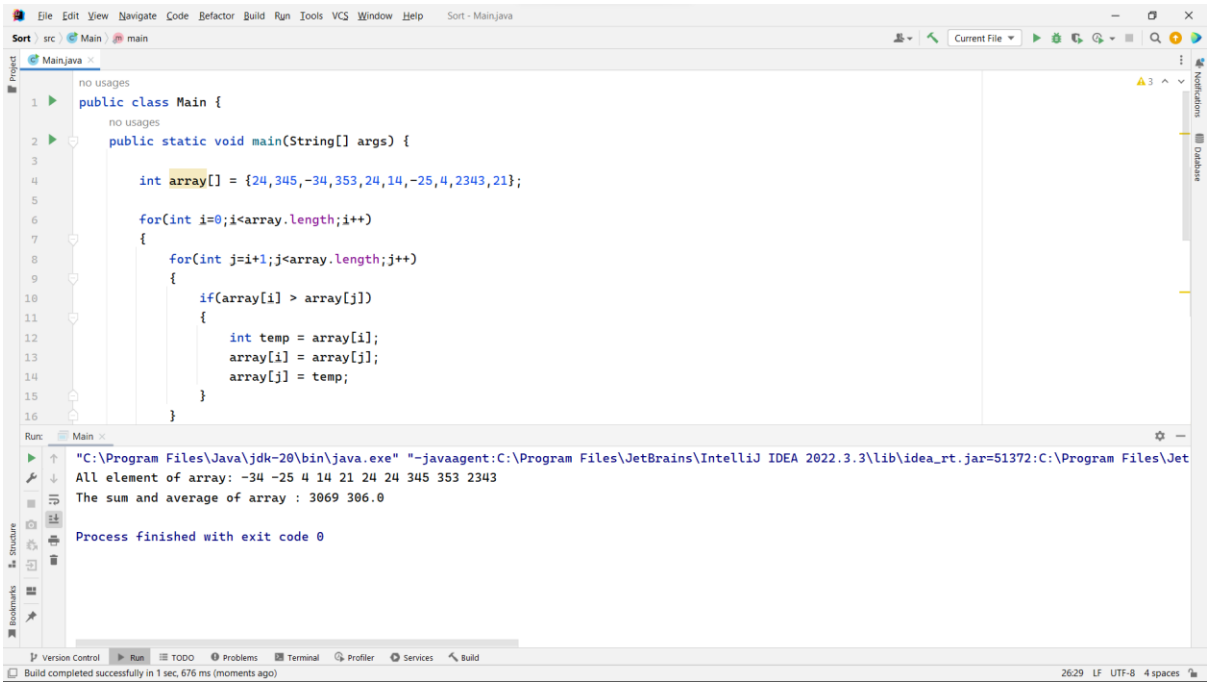


```
            return 1;
        }

    }
    else
    {
       // System.out.println(year + " is not a leap year!");
        return 0;

    }
}
1 usage
public int getDaysOfMonth(int year,int month)
{
    switch (month)
    {
        case 1: return 31;
        case 2:
        {
            if(checkLeapYear(year) == 1) return 29;
            else return 28;
        }
        case 3: return 31;

        case 4: return 30;

        case 5: return 31;

        case 6: return 30;
```



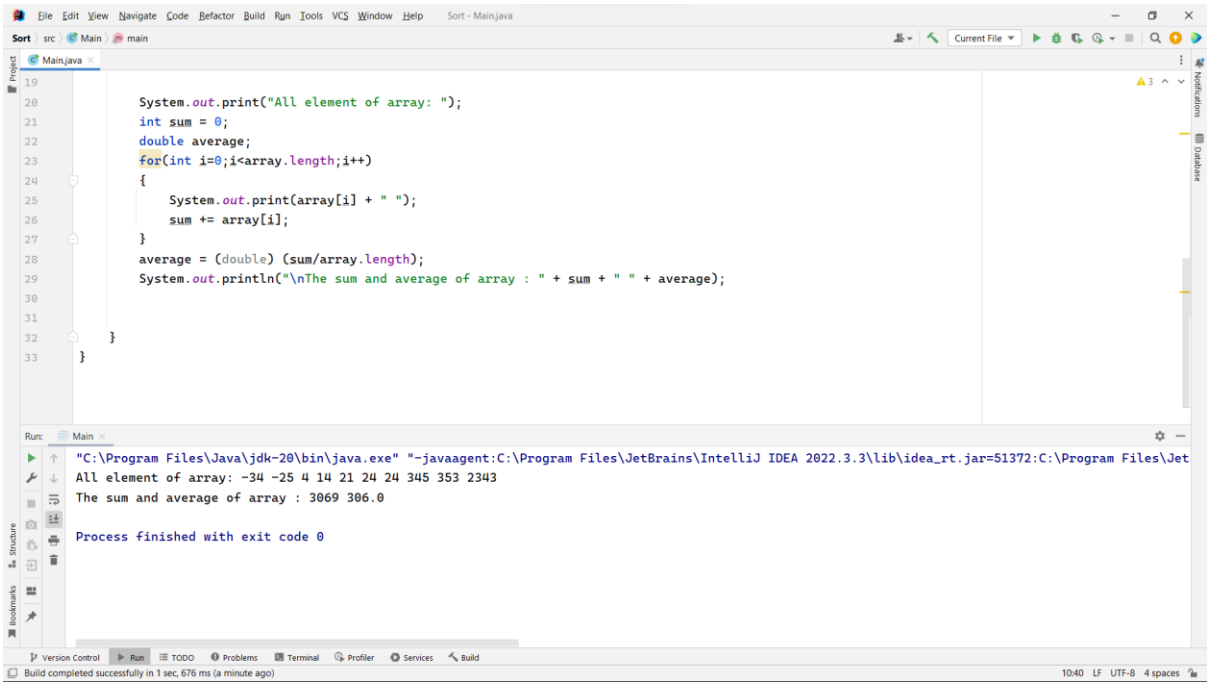
```
        case 1: return 31;
        case 2:
        {
            if(checkLeapYear(year) == 1) return 29;
            else return 28;
        }
        case 3: return 31;

        case 4: return 30;

        case 5: return 31;

        case 6: return 30;

        case 7: return 31;

        case 8: return 31;

        case 9: return 30;

        case 10: return 31;

        case 11:return 30;

        case 12: return 31;

        default:return -1;
    }
}
```

6.5. Sort and calculating sum and average of all element of array;



```
no usages
public class Main {
    no usages
    public static void main(String[] args) {

        int array[] = {24,345,-34,353,24,14,-25,4,2343,21};

        for(int i=0;i<array.length;i++)
        {
            for(int j=i+1;j<array.length;j++)
            {
                if(array[i] > array[j])
                {
                    int temp = array[i];
                    array[i] = array[j];
                    array[j] = temp;
                }
            }
```

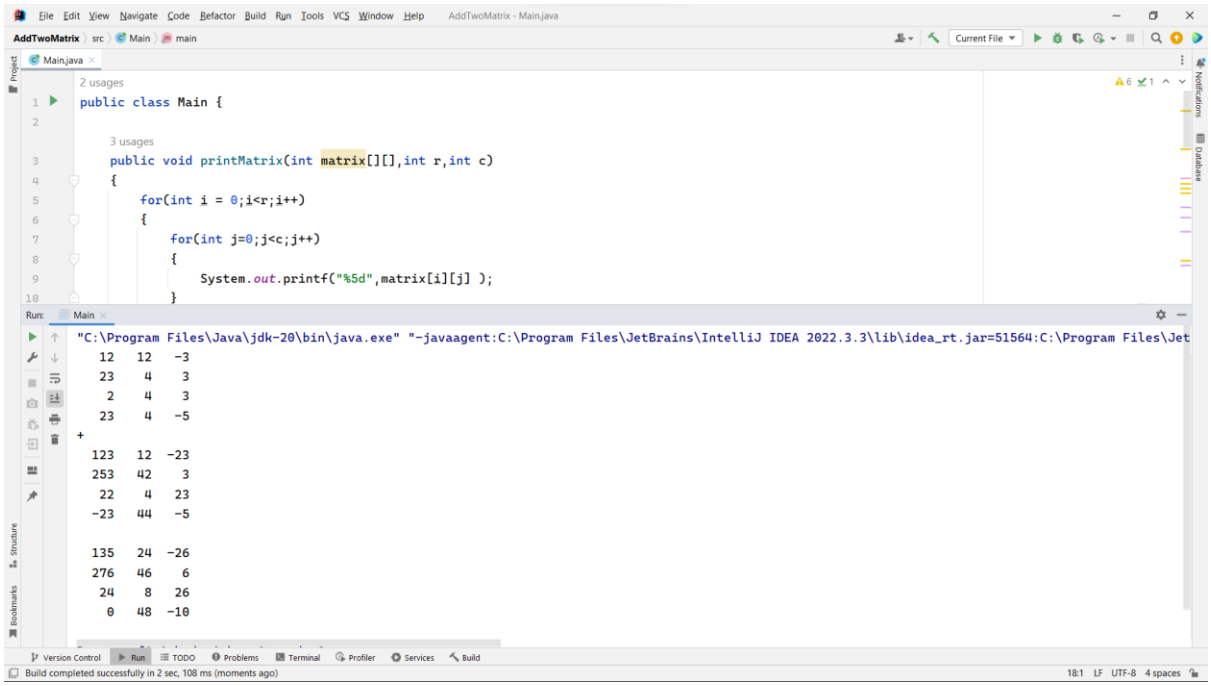
```
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.3\lib\idea_rt.jar=51372:C:\Program Files\Jet
All element of array: -34 -25 4 14 21 24 24 345 353 2343
The sum and average of array : 3069 306.0

Process finished with exit code 0
```

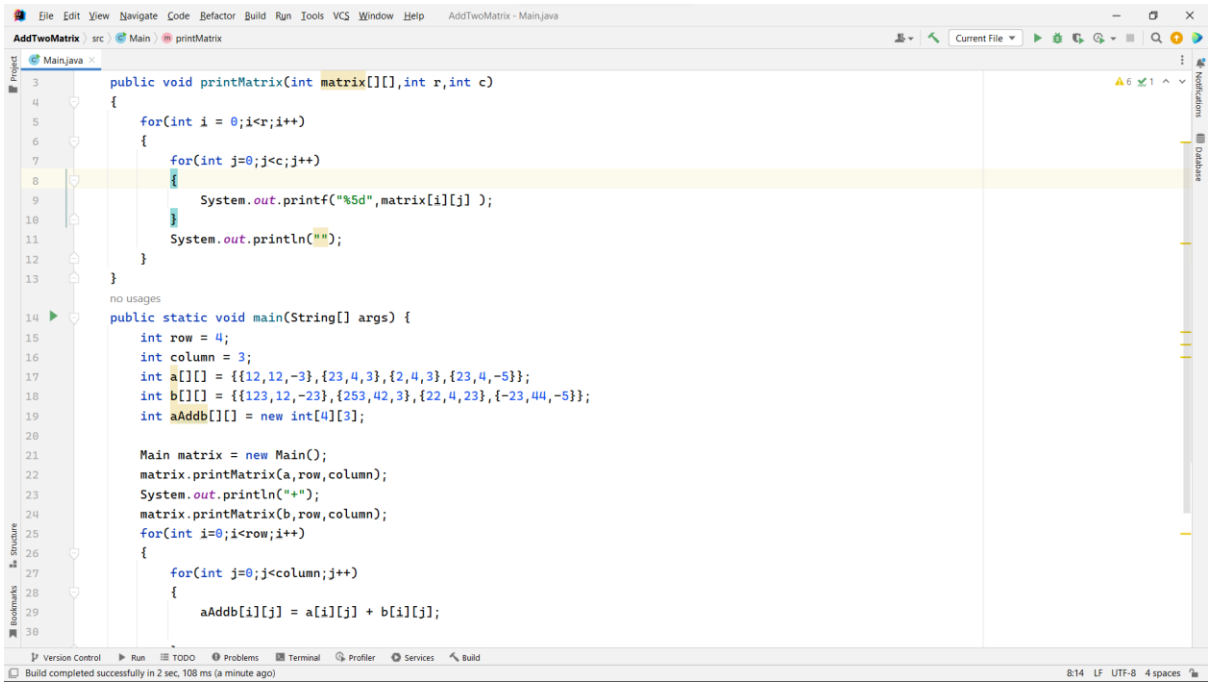


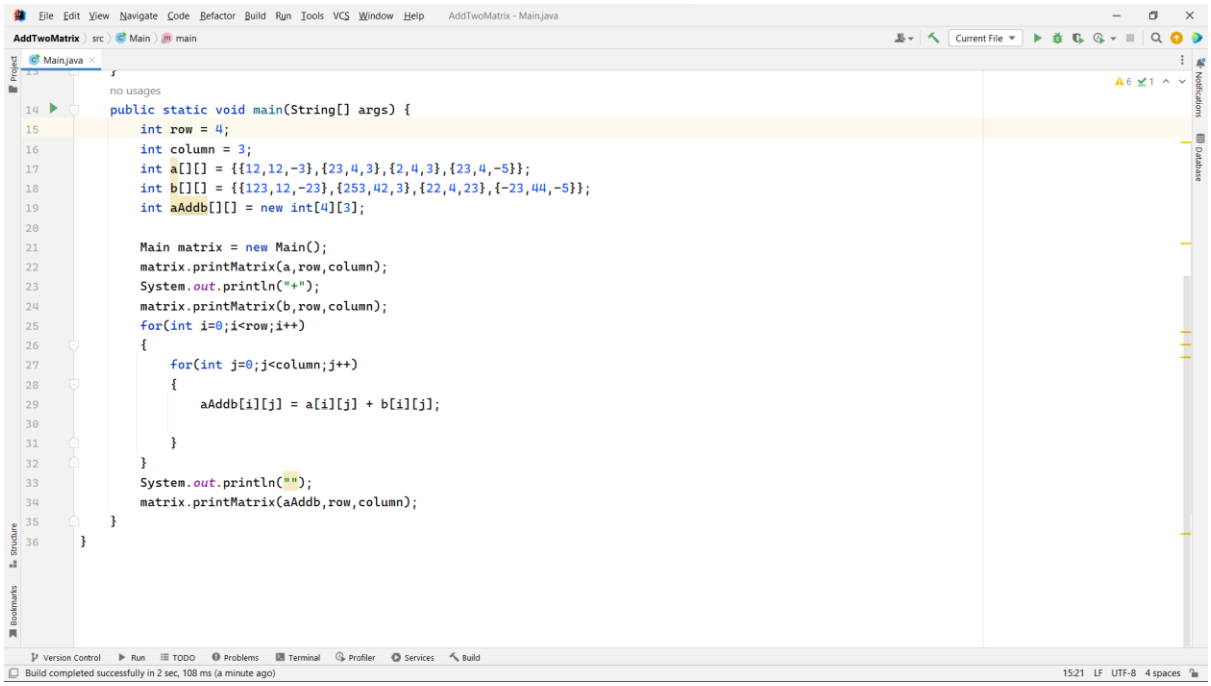
```
        System.out.print("All element of array: ");
        int sum = 0;
        double average;
        for(int i=0;i<array.length;i++)
        {
            System.out.print(array[i] + " ");
            sum += array[i];
        }
        average = (double) (sum/array.length);
        System.out.println("\nThe sum and average of array : " + sum + " " + average);


    }
}
```

```
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.3\lib\idea_rt.jar=51372:C:\Program Files\Jet
All element of array: -34 -25 4 14 21 24 24 345 353 2343
The sum and average of array : 3069 306.0

Process finished with exit code 0
```

6.6. Add 2 matrix


File Edit View Navigate Code Refactor Build Run Tools VCS Window Help
AddTwoMatrix - Main.java
AddTwoMatrix src Main main
Current File
Main.java
2 usages
public class Main {
3 usages
public void printMatrix(int matrix[][],int r,int c)
{
for(int i = 0;i<r;i++)
{
for(int j=0;j<c;j++)
{
System.out.printf("%5d",matrix[i][j]);
}
Run: Main
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.3\lib\idea_rt.jar=51564:C:\Program Files\Jet
12 12 -3
23 4 3
2 4 3
23 4 -5
+
123 12 -23
253 42 3
22 4 23
-23 44 -5
135 24 -26
276 46 6
24 8 26
0 48 -10
Version Control Run TODO Problems Terminal Profiler Services Build
Build completed successfully in 2 sec, 108 ms (moments ago)
18:1 LF UTF-8 4 spaces


File Edit View Navigate Code Refactor Build Run Tools VCS Window Help
AddTwoMatrix - Main.java
AddTwoMatrix src Main printMatrix
Current File
Main.java
public void printMatrix(int matrix[][],int r,int c)
{
for(int i = 0;i<r;i++)
{
for(int j=0;j<c;j++)
{
System.out.printf("%5d",matrix[i][j]);
}
System.out.println("");
}
}
no usages
public static void main(String[] args) {
int row = 4;
int column = 3;
int a[][] = {{12,12,-3},{23,4,3},{2,4,3},{23,4,-5}};
int b[][] = {{123,12,-23},{253,42,3},{22,4,23},{-23,44,-5}};
int aAddb[][] = new int[4][3];
Main matrix = new Main();
matrix.printMatrix(a,row,column);
System.out.println("+");
matrix.printMatrix(b,row,column);
for(int i=0;i<row;i++)
{
for(int j=0;j<column;j++)
{
aAddb[i][j] = a[i][j] + b[i][j];
Version Control Run TODO Problems Terminal Profiler Services Build
Build completed successfully in 2 sec, 108 ms (a minute ago)
8:14 LF UTF-8 4 spaces


File Edit View Navigate Code Refactor Build Run Tools VCS Window Help
AddTwoMatrix - Main.java
AddTwoMatrix src Main main
Current File
Main.java
no usages
public static void main(String[] args) {
int row = 4;
int column = 3;
int a[][] = {{12,12,-3},{23,4,3},{2,4,3},{23,4,-5}};
int b[][] = {{123,12,-23},{253,42,3},{22,4,23},{-23,44,-5}};
int aAddb[][] = new int[4][3];
Main matrix = new Main();
matrix.printMatrix(a,row,column);
System.out.println("+");
matrix.printMatrix(b,row,column);
for(int i=0;i<row;i++)
{
for(int j=0;j<column;j++)
{
aAddb[i][j] = a[i][j] + b[i][j];
}
}
System.out.println("=");
matrix.printMatrix(aAddb,row,column);
}
}
Version Control
Run
TODO
Problems
Terminal
Profiler
Services
Build
Build completed successfully in 2 sec, 108 ms (a minute ago)
15:21 LF UTF-8 4 spaces