JAVA PROGRAMMING COURSE

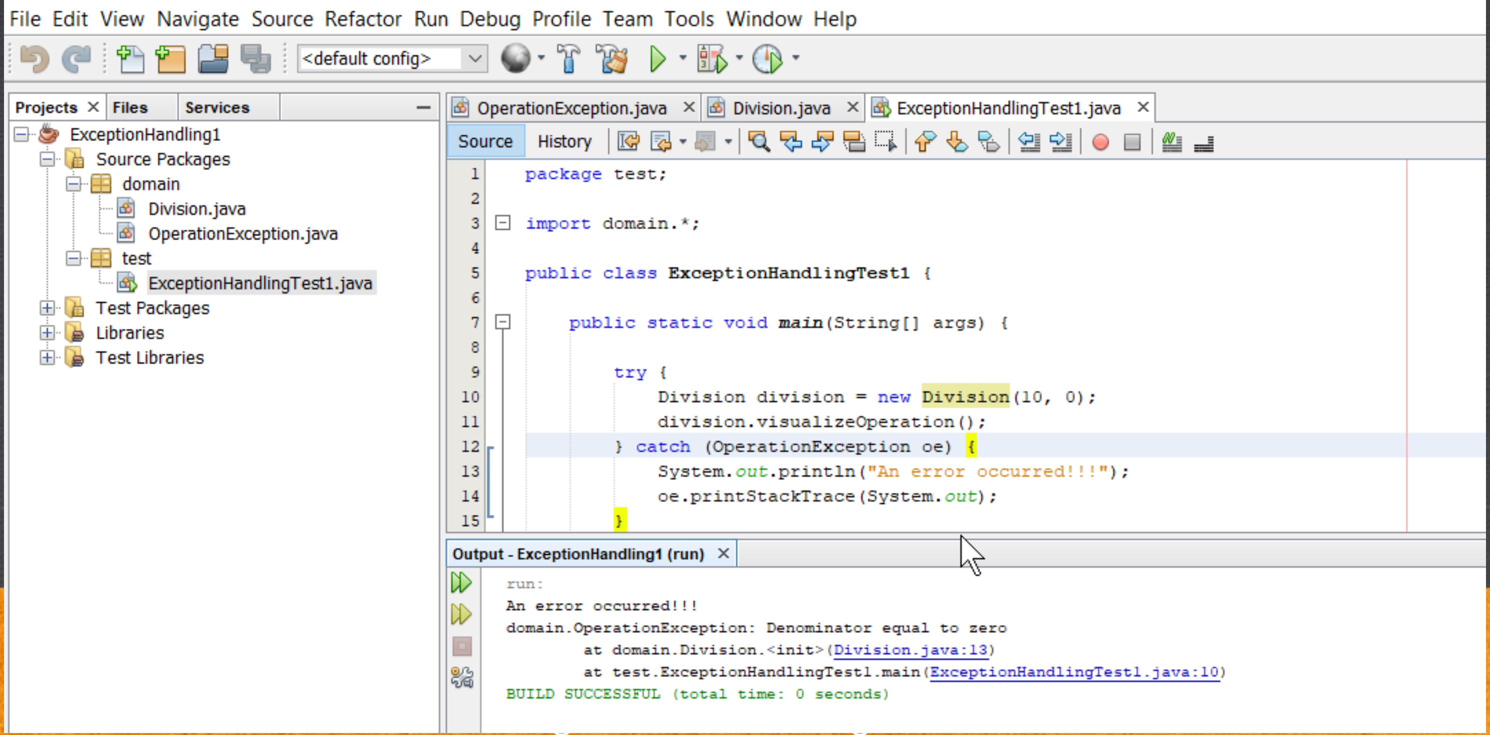
EXERCISE

EXCEPTION HANDLING 1

Global Mentoring

EXERCISE OBJECTIVE

Create an exercise for basic use of exceptions. At the end we should observe the following:

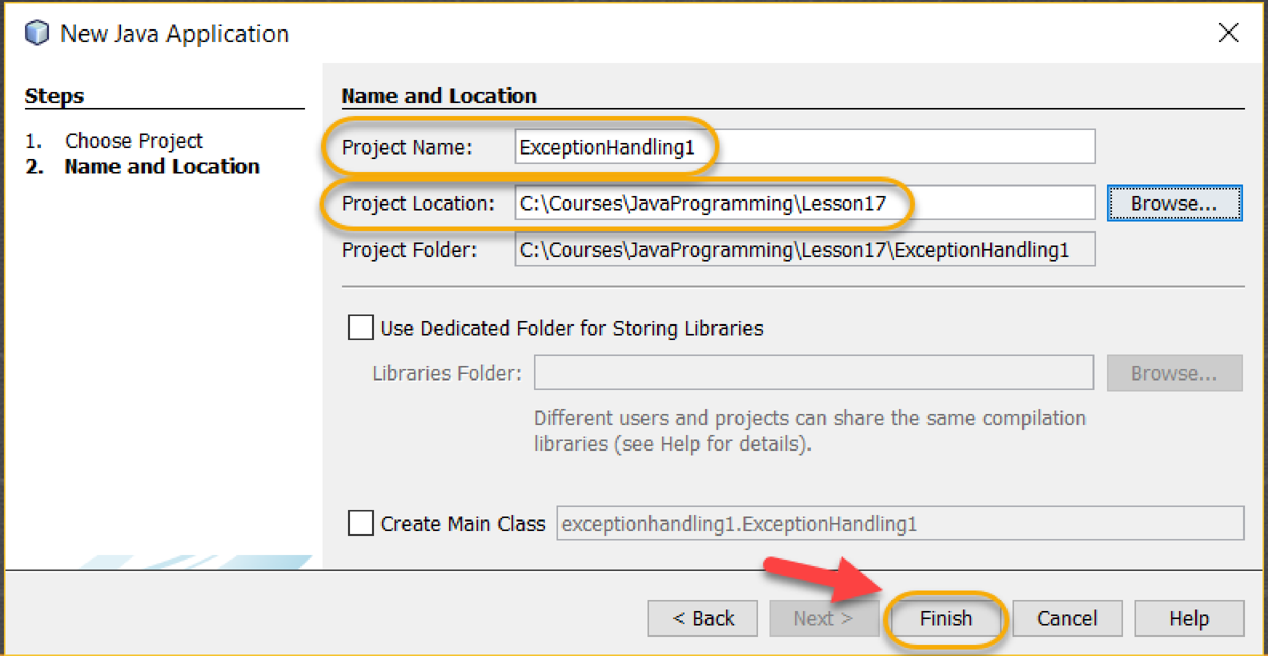


```
package test;

import domain.*;

public class ExceptionHandlingTest1 {

    public static void main(String[] args) {

        try {
            Division division = new Division(10, 0);
            division.visualizeOperation();
        } catch (OperationException oe) {
            System.out.println("An error occurred!!!");
            oe.printStackTrace(System.out);
        }
```

```
run:
An error occurred!!!
domain.OperationException: Denominator equal to zero
        at domain.Division.<init>(Division.java:13)
        at test.ExceptionHandlingTest1.main(ExceptionHandlingTest1.java:10)
BUILD SUCCESSFUL (total time: 0 seconds)
```

1. CREATE A NEW PROJECT

Create a new Project:



New Java Application

Steps

1. Choose Project
2. **Name and Location**

Name and Location

Project Name: ExceptionHandling1

Project Location: C:\Courses\JavaProgramming\Lesson17

Project Folder: C:\Courses\JavaProgramming\Lesson17\ExceptionHandling1

☐ Use Dedicated Folder for Storing Libraries

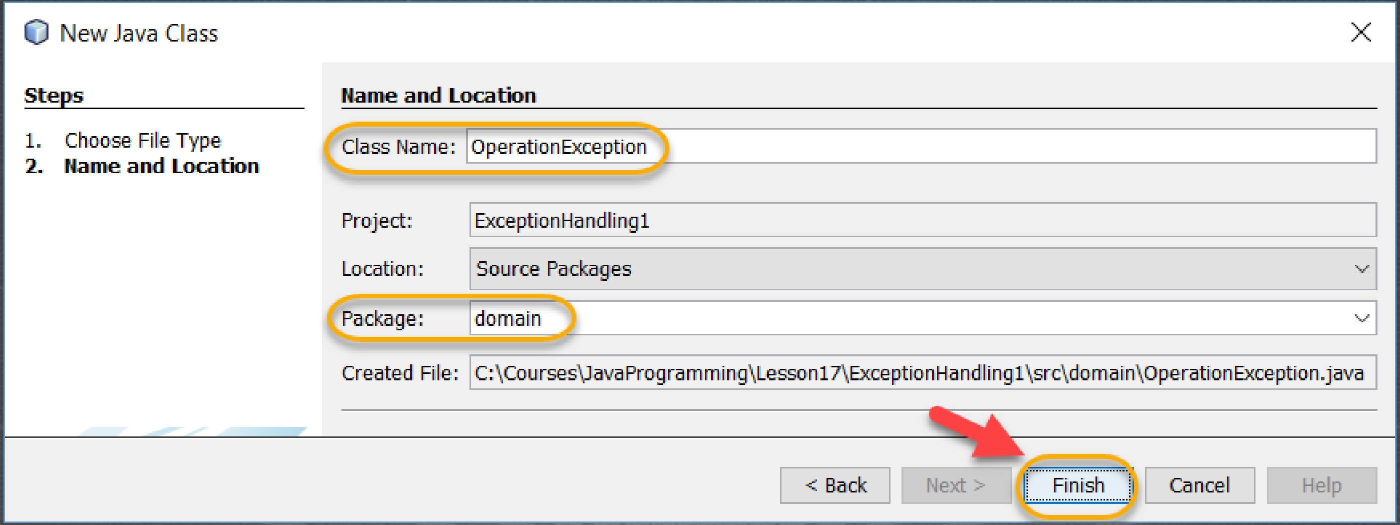
Libraries Folder:

Different users and projects can share the same compilation libraries (see Help for details).

☐ Create Main Class exceptionhandling1.ExceptionHandling1

2. CREATE A NEW CLASS

Create a new class:



New Java Class

Steps

1. Choose File Type
2. **Name and Location**

Name and Location

Class Name: OperationException

Project: ExceptionHandling1

Location: Source Packages

Package: domain

Created File: C:\Courses\JavaProgramming\Lesson17\ExceptionHandling1\src\domain\OperationException.java

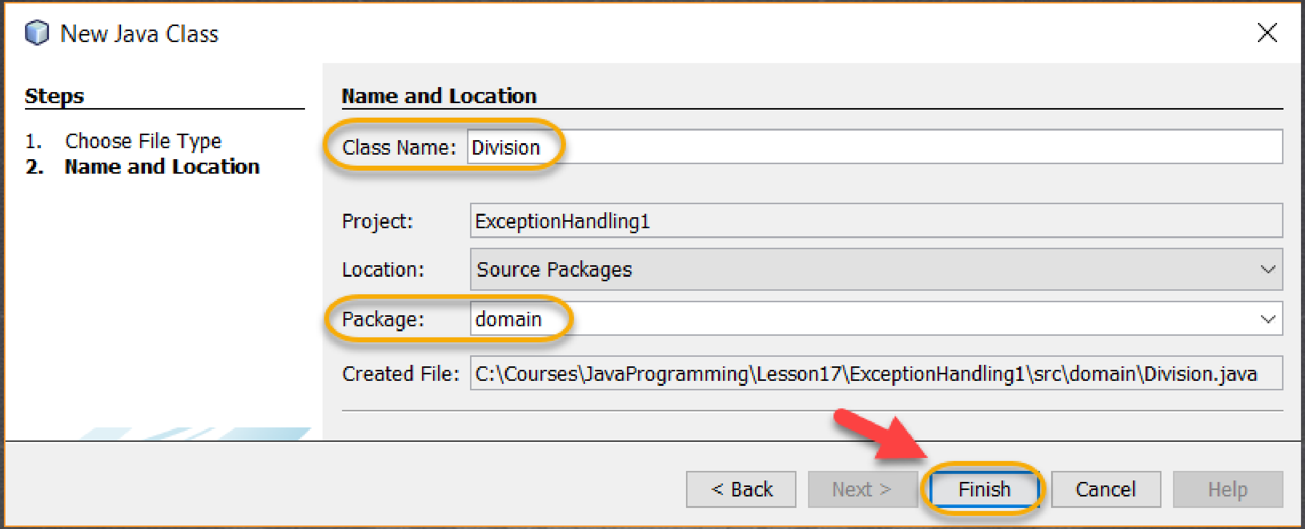
3. MODIFY THE CODE

OperationException.java :

```java
package domain;

public class OperationException extends Exception {

    public OperationException(String message) {
        //Initialize the error message of the parent class
        super(message);
    }
}
```

4. CREATE A NEW CLASS

Create a new class:



New Java Class

Steps

1. Choose File Type
2. **Name and Location**

Name and Location

Class Name: Division

Project: ExceptionHandling1

Location: Source Packages

Package: domain

Created File: C:\Courses\JavaProgramming\Lesson17\ExceptionHandling1\src\domain\Division.java

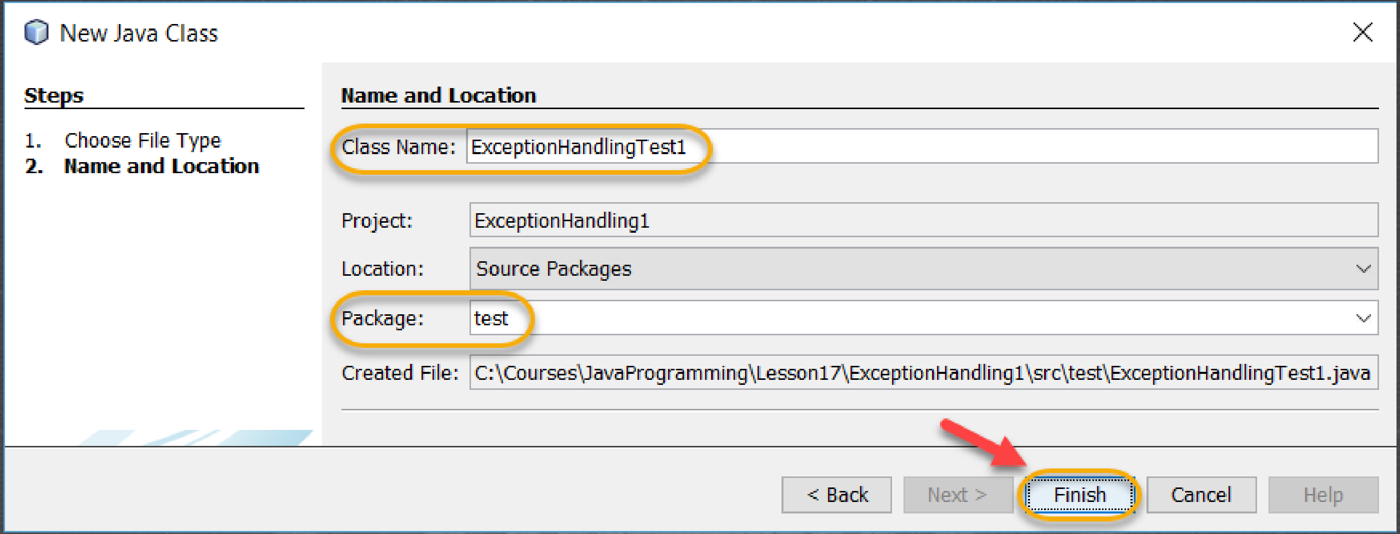
5. MODIFY THE CODE

Division.java:

```java
package domain;

public class Division {

    //attributes of the class
    private int numerator;
    private int denominator;

    public Division(int numerator, int denominator) throws OperationException {

        if (denominator == 0) {
            //throw new IllegalArgumentException("Denominator equal to zero");
            throw new OperationException("enominator equal to zero");
        }
        this.numerator = numerator;
        this.denominator = denominator;
    }

    public void visualizeOperation() {
        System.out.println("The division result is: " + numerator / denominator);
    }
}
```

6. CREATE A NEW CLASS

Create a new class:



New Java Class

Steps

1. Choose File Type
2. **Name and Location**

Name and Location

Class Name: ExceptionHandlingTest1

Project: ExceptionHandling1

Location: Source Packages

Package: test

Created File: C:\Courses\JavaProgramming\Lesson17\ExceptionHandling1\src\test\ExceptionHandlingTest1.java

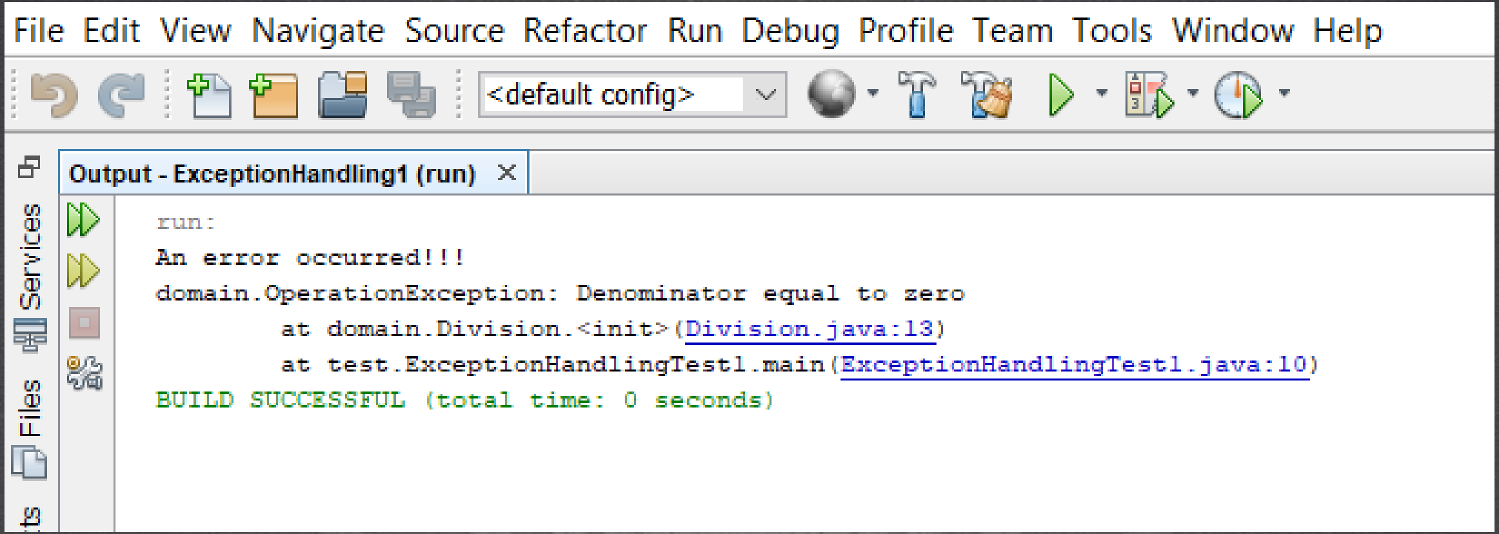
7. MODIFY THE CODE

HandlingExceptionsTest1.java:

```java
package test;

import domain.*;

public class ExceptionHandlingTest1 {

    public static void main(String[] args) {

        try {
            Division division = new Division(10, 0);
            division.visualizeOperation();
        } catch (OperationException oe) {
            System.out.println("An error occurred!!!");
            oe.printStackTrace(System.out);
        }
    }
}
```

8. EXECUTE THE PROJECT

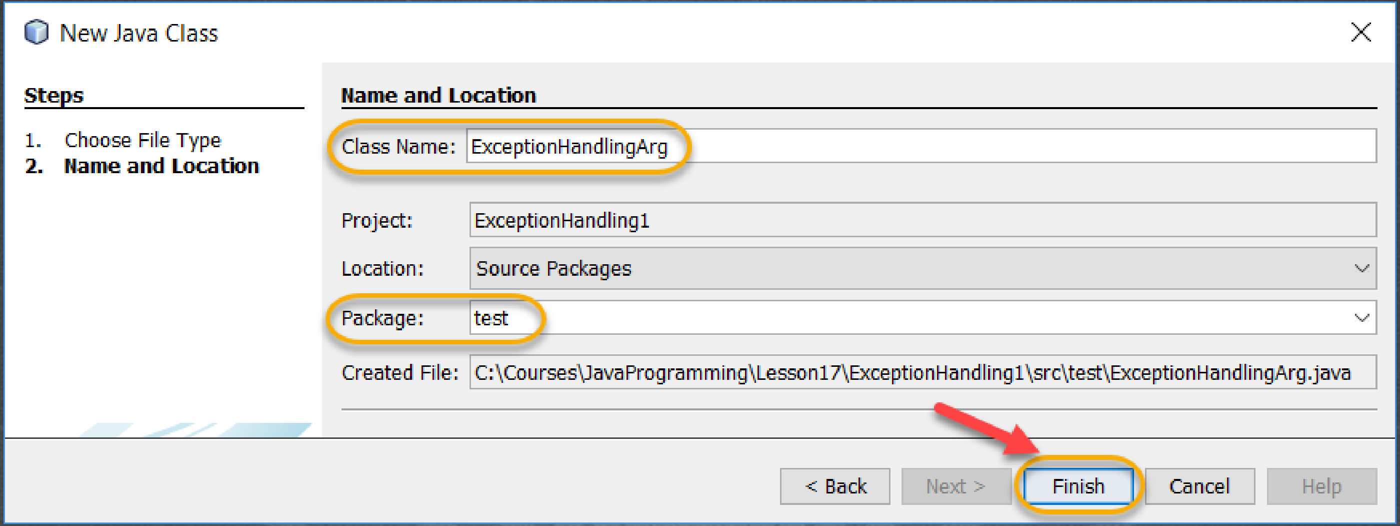
The result is as follows:


File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config>
Output - ExceptionHandling1 (run)
Services
Files

```
run:
An error occurred!!!
domain.OperationException: Denominator equal to zero
        at domain.Division.<init>(Division.java:13)
        at test.ExceptionHandlingTest1.main(ExceptionHandlingTest1.java:10)
BUILD SUCCESSFUL (total time: 0 seconds)
```

9. CREATE A NEW CLASS

Create a new class:



New Java Class

Steps

1. Choose File Type
2. **Name and Location**

Name and Location

Class Name: ExceptionHandlingArg

Project: ExceptionHandling1

Location: Source Packages

Package: test

Created File: C:\Courses\JavaProgramming\Lesson17\ExceptionHandling1\src\test\ExceptionHandlingArg.java

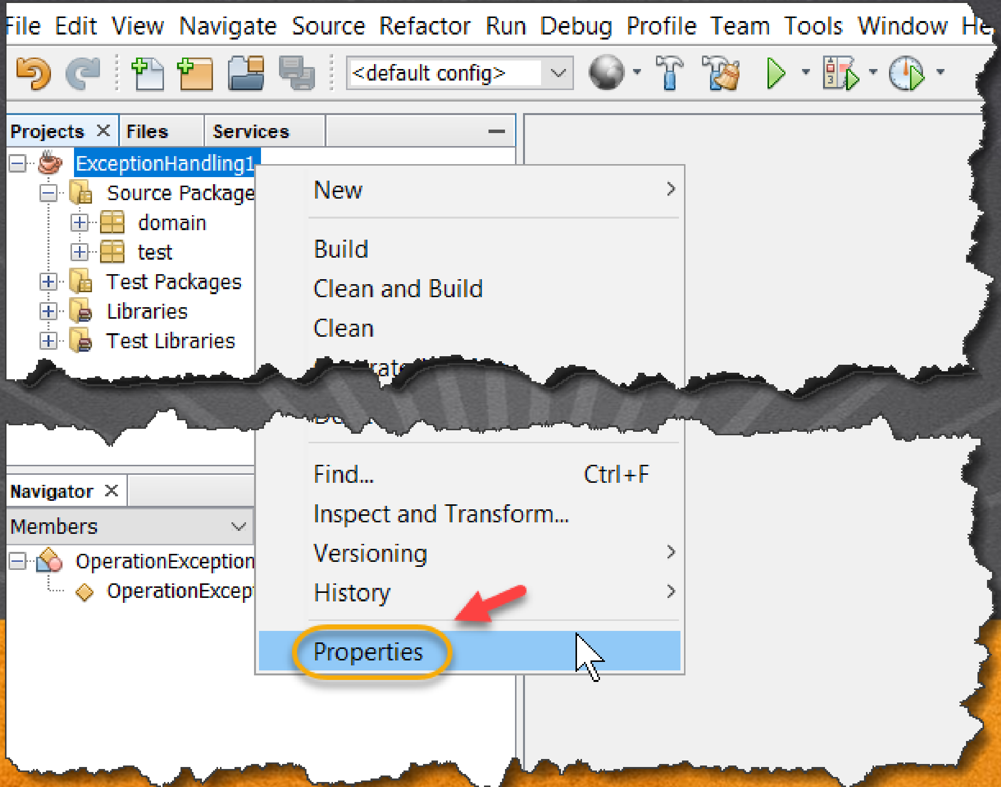
10. MODIFY THE CODE

ExceptionHandlingArg.java:

```java
package test;

import domain.*;

public class ExceptionHandlingArg {

    public static void main(String args[]) throws OperationException {
        try {
            int op1 = Integer.parseInt(args[0]);
            int op2 = Integer.parseInt(args[1]);
            Division div = new Division(op1, op2);
            div.visualizeOperation();
        } catch (ArrayIndexOutOfBoundsException aie) {
            System.out.print("An error occurred!");
            System.out.println("There was an error accessing an item out of range");
            aie.printStackTrace(System.out);
        } catch (NumberFormatException nfe) {
            System.out.print("An error occurred! ");
            System.out.println("One of the arguments is not an int");
            nfe.printStackTrace(System.out);
        } catch (OperationException oe) {
            System.out.print("An error occurred! ");
            System.out.println("It tried to perform an erroneous operation");
            oe.printStackTrace(System.out);
        } finally {
            System.out.println("The exceptions were reviewed");
        }
    }
}
```

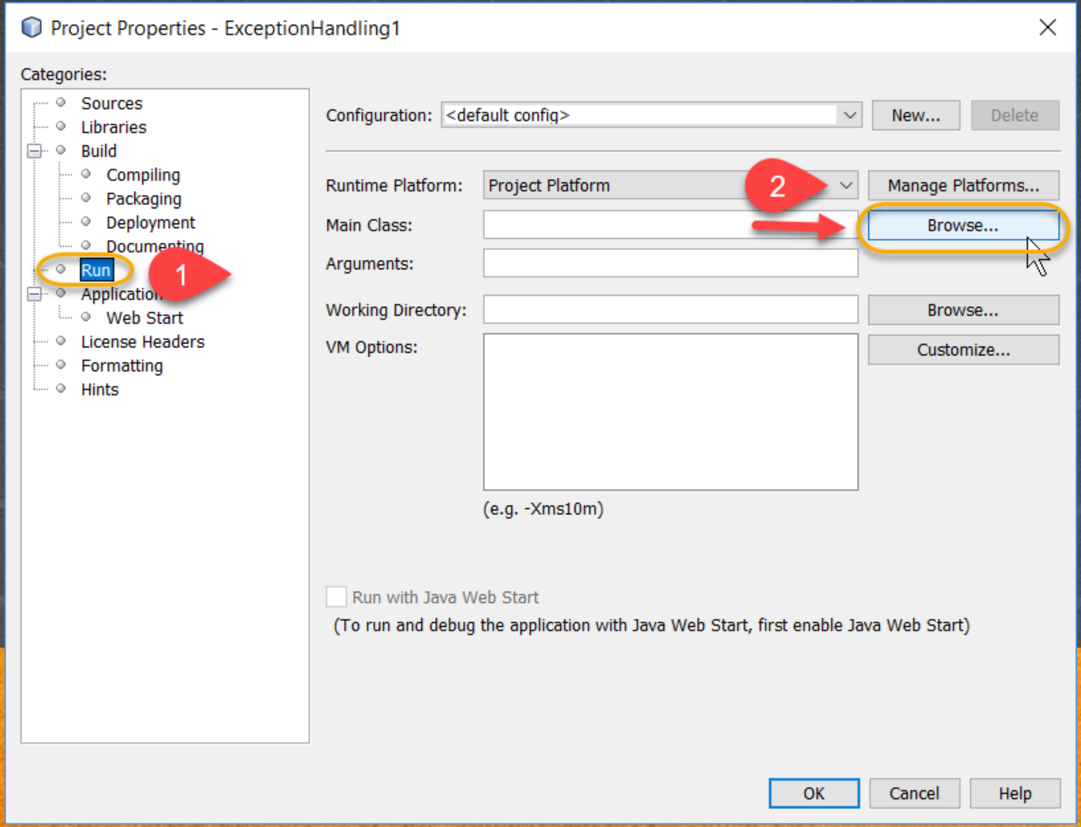
11. EXECUTE THE PROJECT

We execute the project, but passing arguments:



11. EXECUTE THE PROJECT

We execute the project, but passing arguments:



Project Properties - ExceptionHandling1

Categories:

- Sources
- Libraries
- Build
  - Compiling
  - Packaging
  - Deployment
  - Documenting
- Run
- Application
  - Web Start
- License Headers
- Formatting
- Hints

Configuration: <default config>

Runtime Platform: Project Platform

Main Class:

Arguments:

Working Directory:

VM Options:

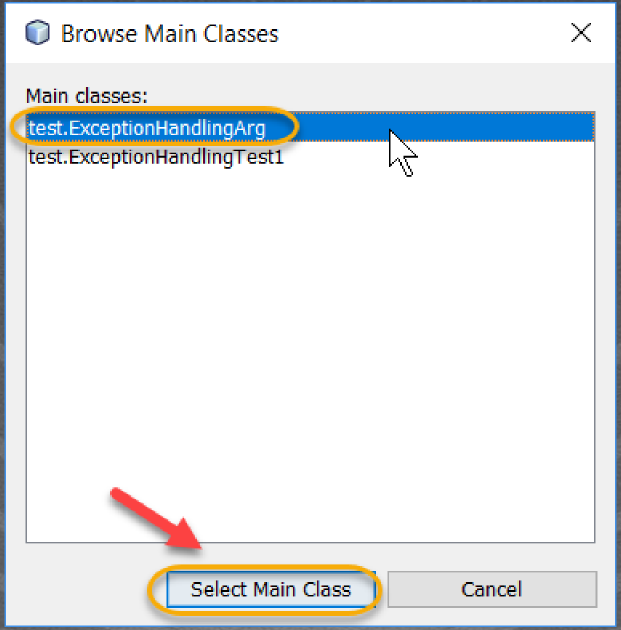
(e.g. -Xms10m)

□ Run with Java Web Start

(To run and debug the application with Java Web Start, first enable Java Web Start)

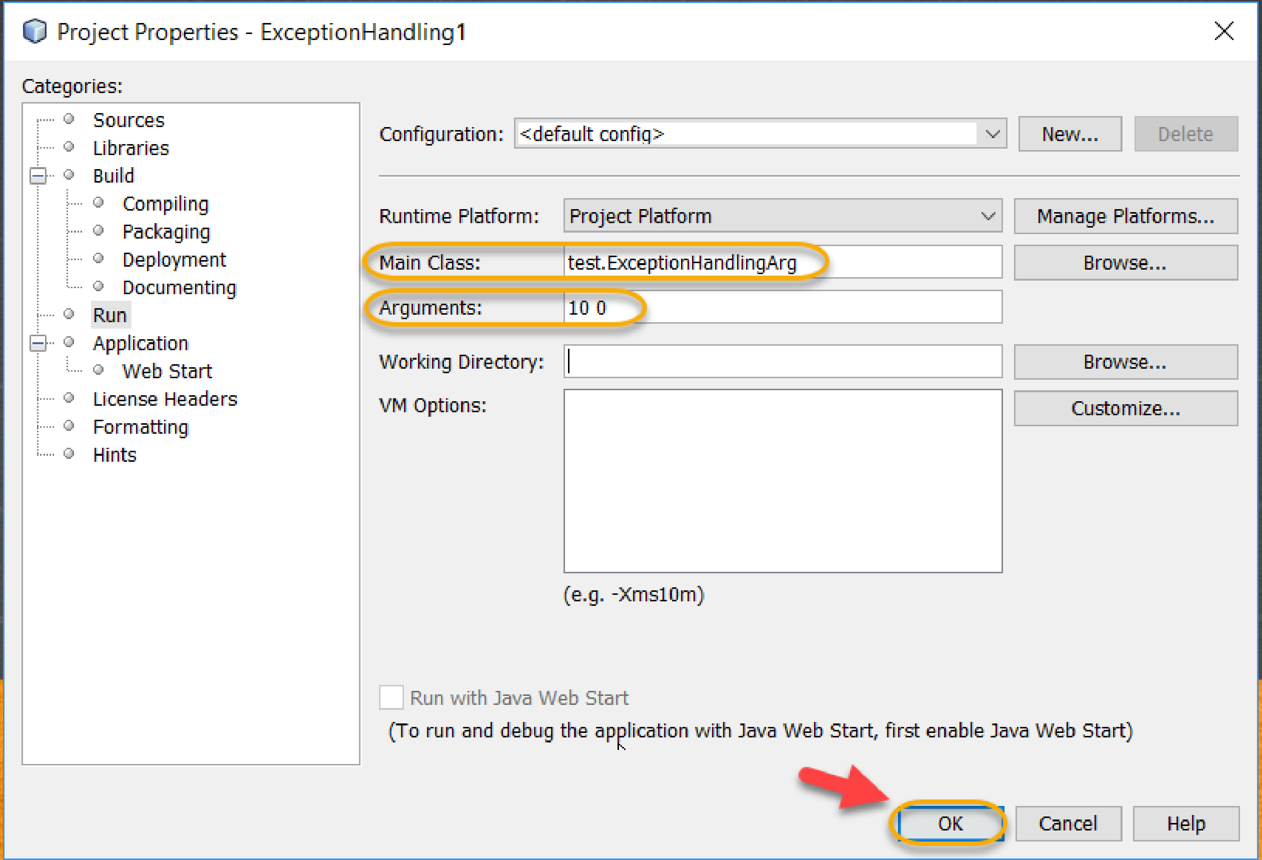
11. EXECUTE THE PROJECT

Select the Main class that will be executed when running the project:



11. EXECUTE THE PROJECT

We pass some arguments to the program, for example: 10 and 0, as shown:



Project Properties - ExceptionHandling1

Configuration: <default config>

Runtime Platform: Project Platform

Main Class: test.ExceptionHandlingArg

Arguments: 10 0

Working Directory:

VM Options:

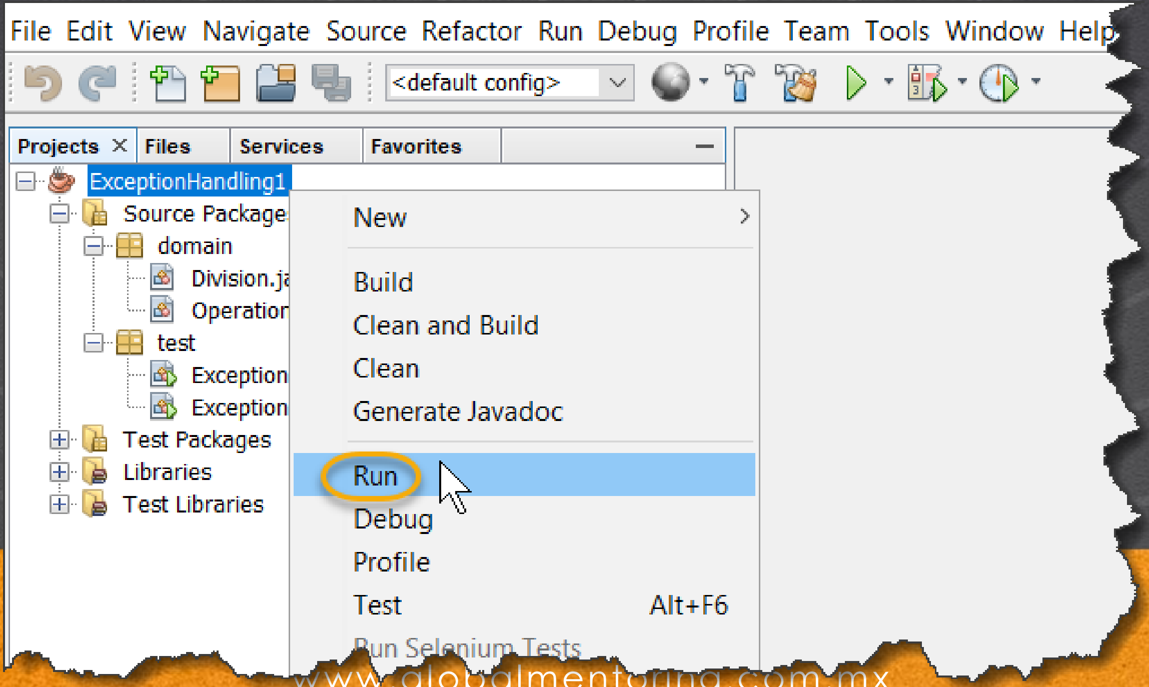
(e.g. -Xms10m)

□ Run with Java Web Start

(To run and debug the application with Java Web Start, first enable Java Web Start)

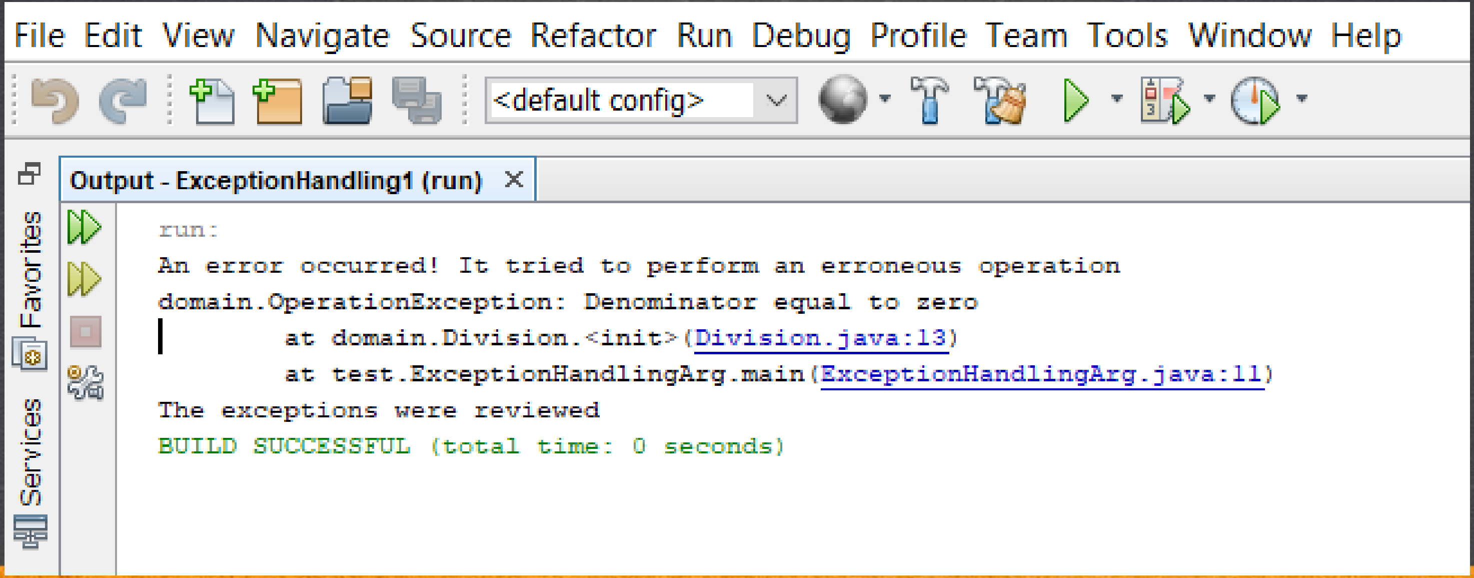
11. EJECUTAMOS EL PROYECTO

Execute the class as shown below, from the proyect, in order to take the arguments that we have set:



11. EJECUTAMOS EL PROYECTO

Execute the class as shown below, from the proyect, in order to take the arguments that we have set:



File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config>
Output - ExceptionHandling1 (run)
Favorites
Services

```
run:
An error occurred! It tried to perform an erroneous operation
domain.OperationException: Denominator equal to zero
        at domain.Division.<init>(Division.java:13)
        at test.ExceptionHandlingArg.main(ExceptionHandlingArg.java:11)
The exceptions were reviewed
BUILD SUCCESSFUL (total time: 0 seconds)
```

EXERCISE CONCLUSION

- With this exercise we have put into practice the concept of exceptions in Java.

- This is the first of the exercises that we are going to perform on the subject of exceptions.

ONLINE COURSE

JAVA PROGRAMMING

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