EXERCISE

EXCEPTION HANDLING 2

EXERCISE OBJECTIVE

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

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Projects | Files | Services | Favorites

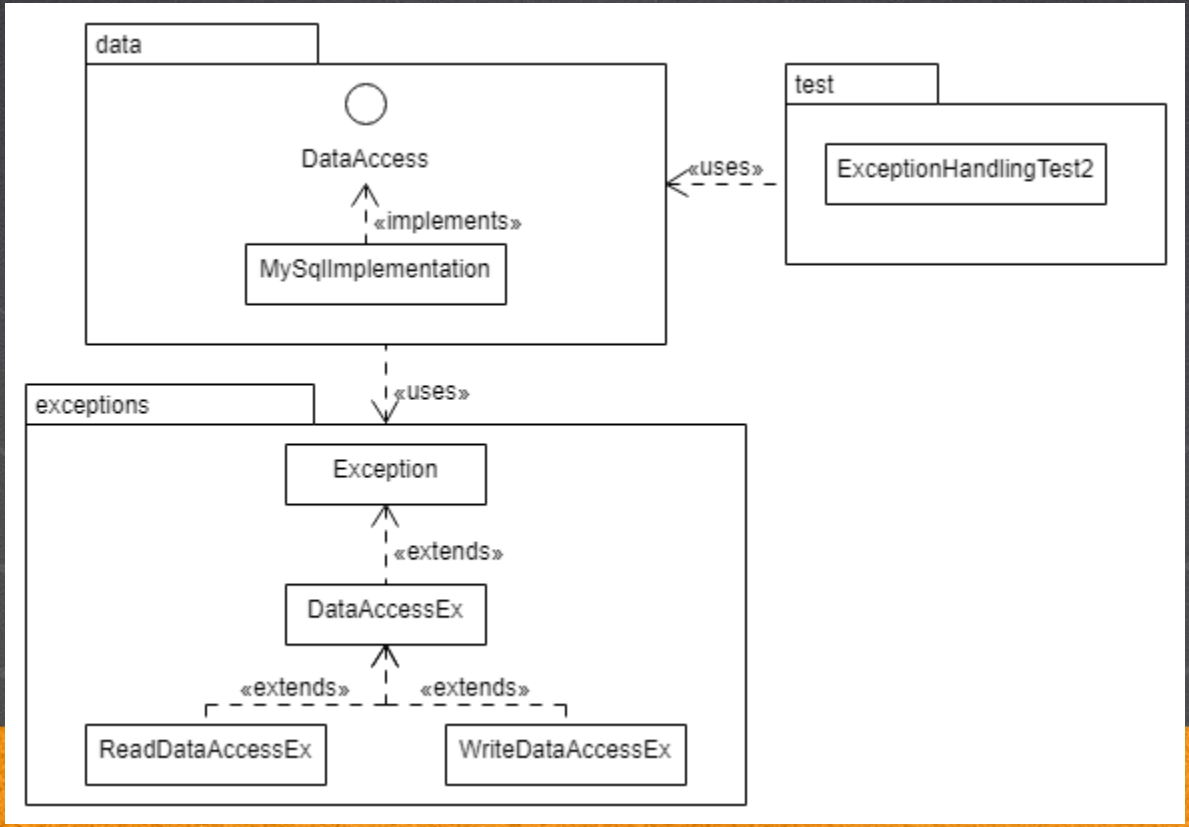
- ExceptionHandling2
  - Source Packages
    - data
      - DataAccess.java
      - MySqlImplementation.java
    - exceptions
      - DataAccessEx.java
      - ReadDataAccessEx.java
      - WriteDataAccessEx.java
    - test
      - ExceptionHandlingTest2.java
  - Test Packages
  - Libraries
  - Test Libraries

...ava | ReadDataAccessEx.java | WriteDataAccessEx.java | DataAccess.java | MySqlImpl

Source | History

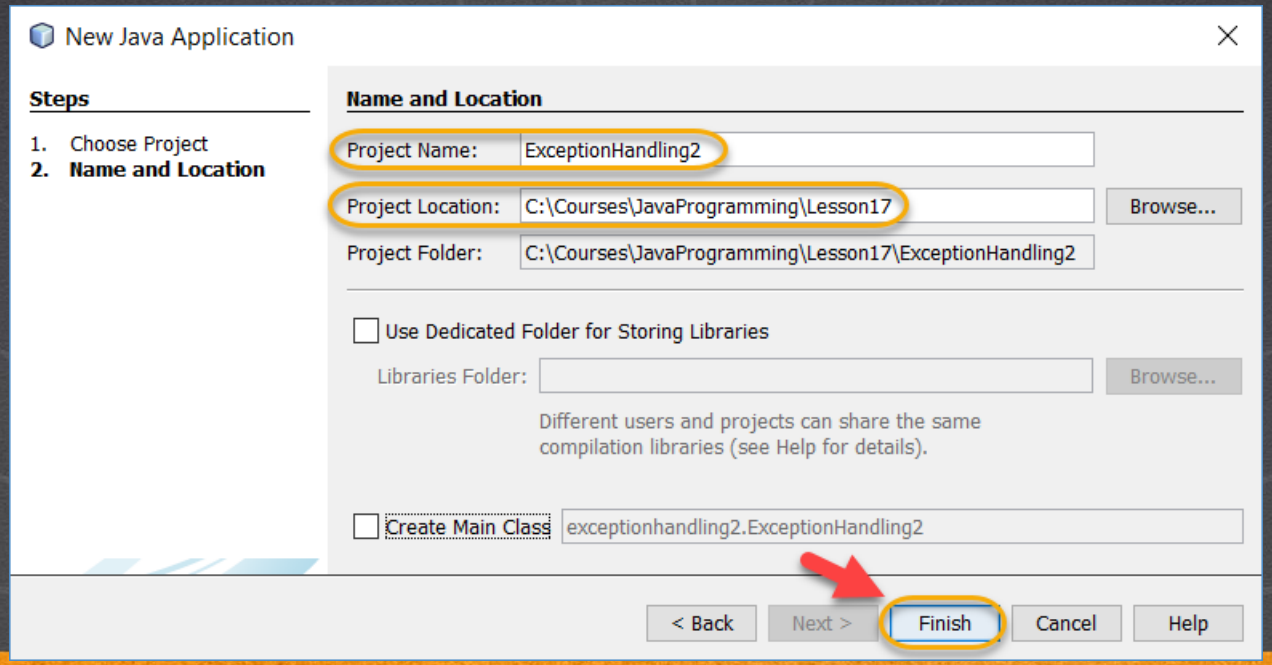
```
2
3   import data.*;
4   import exceptions.*;
5
6   public class ExceptionHandlingTest2 {
7
8       public static void main(String[] args) {
9           DataAccess data = new MySqlImplementation();
10          //Change the state to simulateError = true to test this value
11          data.simulateError(true);
12          execute(data, "list");
13
14          //Change the state to simulateError = false to test this value
15          data.simulateError(true);
16          System.out.println("");
17          execute(data, "insert");
18      }
19
20      private static void execute(DataAccess data, String action) {
        if ("list".equals(action)) {
```

DIAGRAMA DE CLASES DEL EJERCICIO



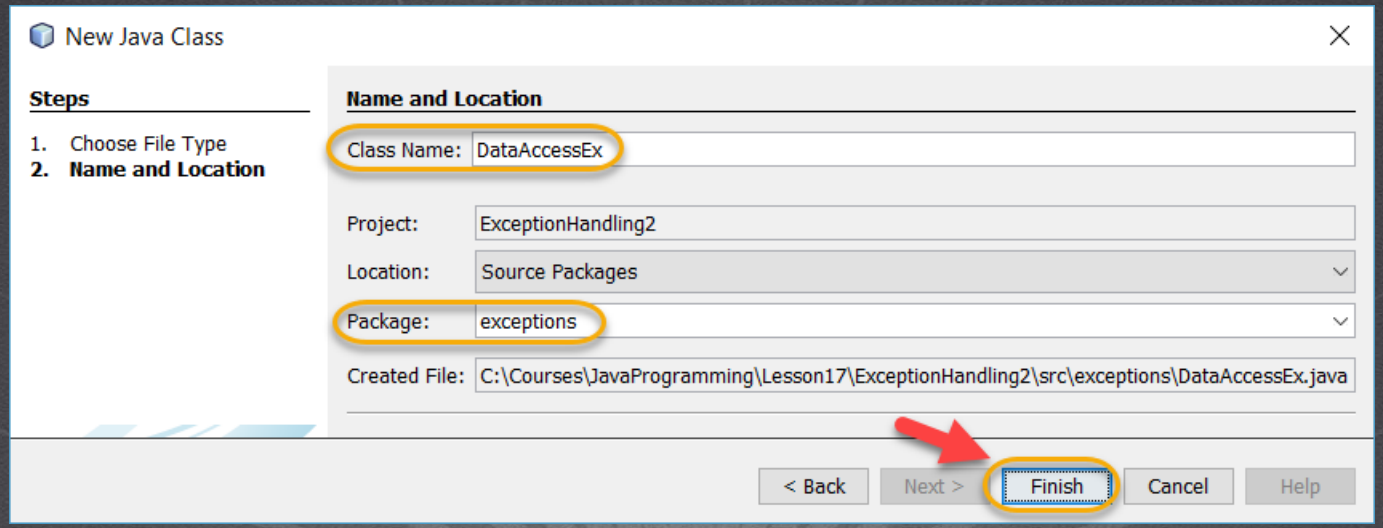
1. CREATE A NEW PROJECT

Create a new project:



2. CREATE A NEW CLASS

Create a new class:



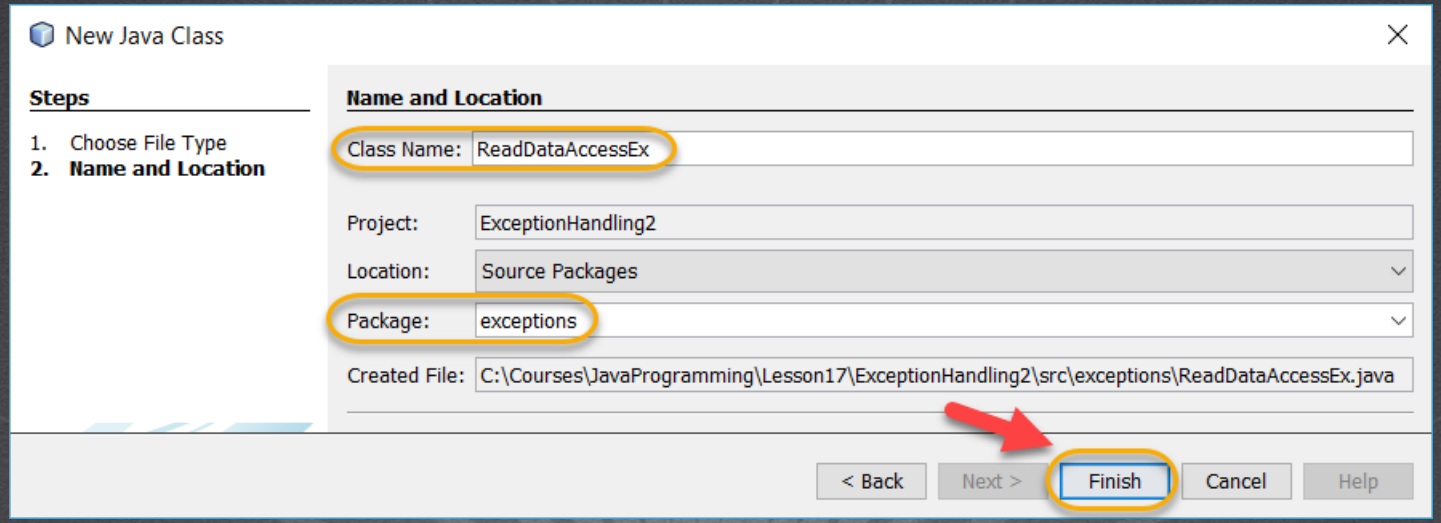
3. MODIFY THE CODE

DataAccessEx.java:

```
package exceptions;

public class DataAccessEx extends Exception{

    public DataAccessEx(String message){
        super(message);
    }
}
```

4. CREATE A NEW CLASS

Create a new class:



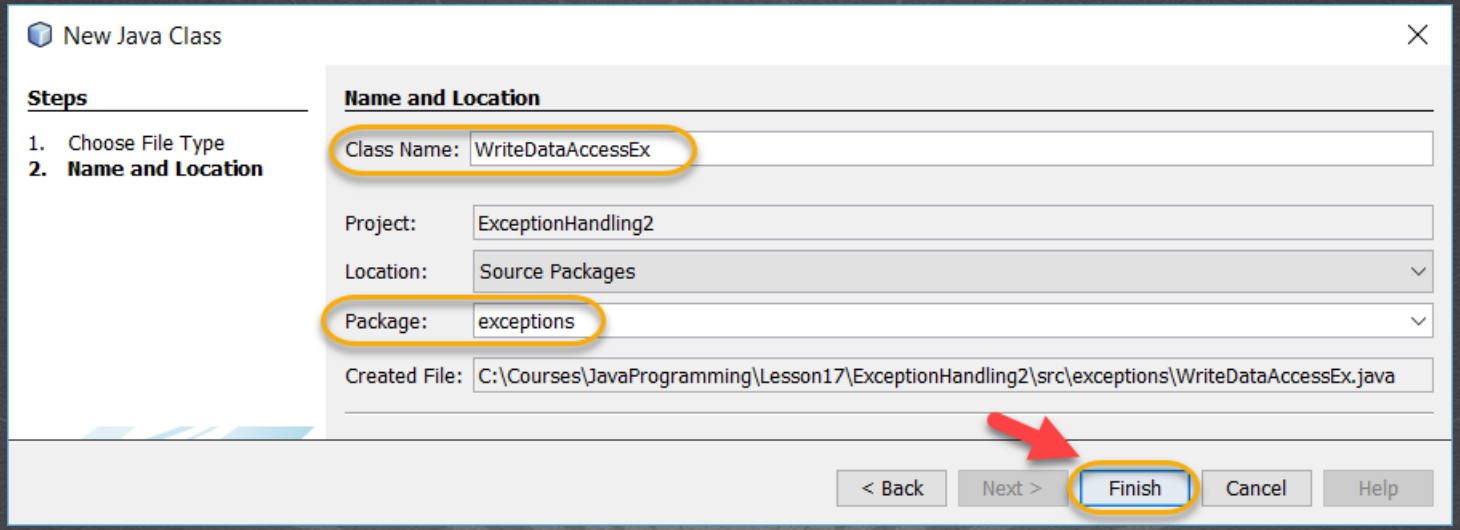
5. MODIFY THE CODE

ReadDataAccessEx.java:

```
package exceptions;

public class DataAccessEx extends Exception{

    public DataAccessEx(String message){
        super(message);
    }
}
```

6. CREATE A NEW CLASS

Create a new class:



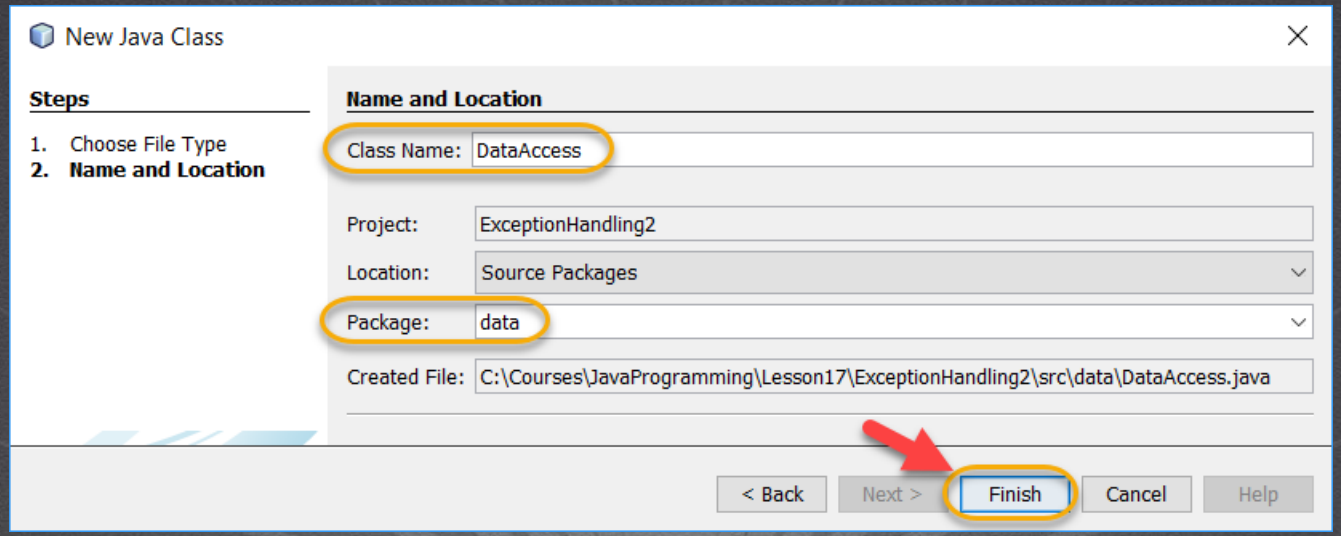
7. MODIFY THE CODE

WriteDataAccessEx.java :

```
package exceptions;

public class WriteDataAccessEx extends DataAccessEx{


    public WriteDataAccessEx(String message) {
        super(message);
    }
}
```

8. CREATE A NEW CLASS

Create a new class:



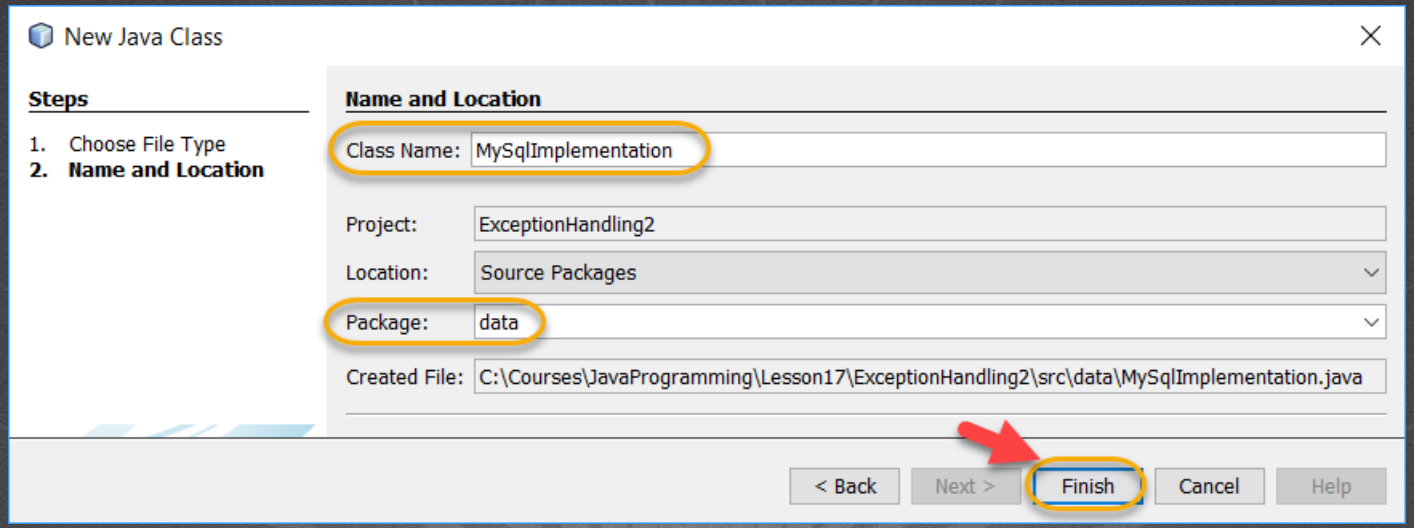
9. MODIFY THE CODE

DataAccess.java :

```
package data;

import exceptions.DataAccessEx;

public interface DataAccess {

    public abstract void insert() throws DataAccessEx;

    public abstract void list() throws DataAccessEx;

    public abstract void simulateError(boolean simularError);
}
```

10. CREATE A NEW CLASS

Create a new class:



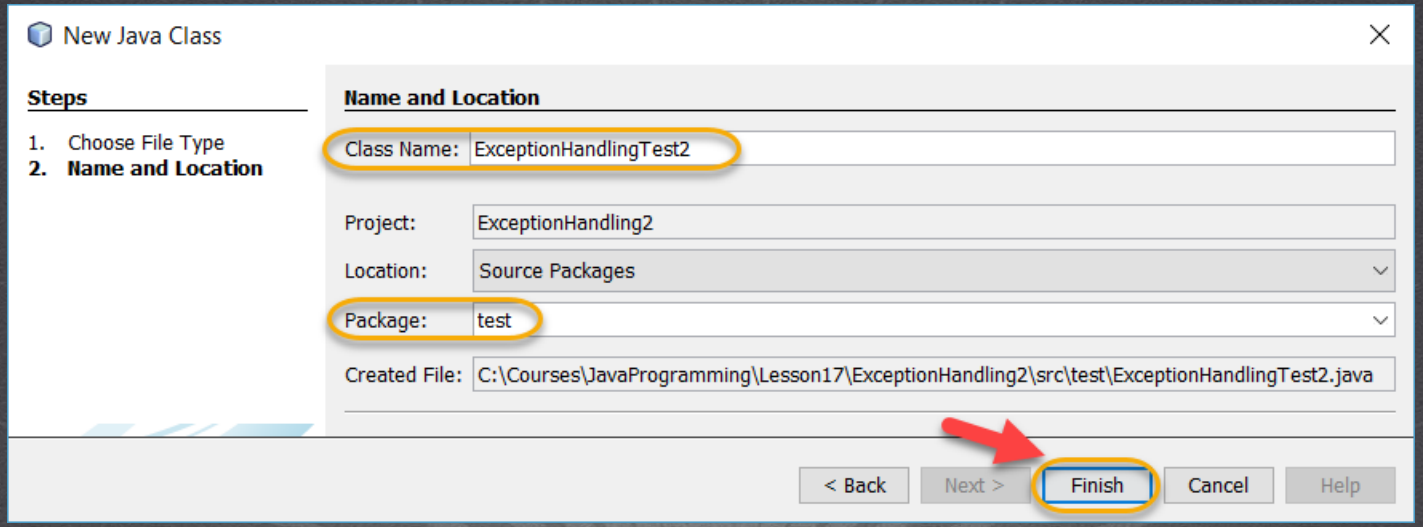
11. MODIFY THE CODE

MySqlImplementation.java:

```
package data;
import exceptions.*;

public class MySqlImplementation implements DataAccess{
    private boolean simulateError;

    @Override
    public void insert() throws DataAccessEx {
         if (simulateError) {
            throw new WriteDataAccessEx("Data writing error");
        } else {
             System.out.println("Insert from MySql");
        }
    }

    @Override
    public void list() throws DataAccessEx {
        if (simulateError) {
            throw new ReadDataAccessEx("Data reading error");
        } else {
            System.out.println("List from MySql");
        }
    }

    public boolean isSimulateError() {
        return simulateError;
    }

    @Override
    public void simulateError(boolean simularError) {
        this.simulateError = simularError;
    }
}
```

12. CREATE A NEW CLASS

Create a new class:



13. MODIFY THE CODE

ExceptionHandlingTest2.java:

```
package test;

import data.*;
import exceptions.*;

public class ExceptionHandlingTest2 {

    public static void main(String[] args) {
        DataAccess data = new MySqlImplementation();
        //Change the state to simulateError = true to test this value
        data.simulateError(true);
        execute(data, "list");

        //Change the state to simulateError = false to test this value
        data.simulateError(true);
        System.out.println("");
        execute(data, "insert");
    }
```

13. MODIFY THE CODE

ExceptionHandlingTest2.java:

```
    private static void execute(DataAccess data, String action) {
        if ("list".equals(action)) {
            try {
                data.list();
            } //Si se van a procesar varias excepciones de la misma jerarquia
            //siempre se debe procesar primero la excepcion de menor jerarquia
            //y posteriormente la de mayor jerarquia
            catch (ReadDataAccessEx ex) {
                System.out.println("Read error: Process the most specific exception of data reading");
            } catch (DataAccessEx ex) {
                System.out.println("Data Access Error: Process the most generic exception of access to data");
            } catch (Exception ex) {
                System.out.println("General error");
            } finally {
                System.out.println("Process finally is optional, it will always run regardless of whether there was
an error or not");
            }
```

13. MODIFY THE CODE

ExceptionHandlingTest2.java:

```
        } else if ("insert".equals(action)) {
            try {
                data.insert();
            } catch (DataAccessEx ex) {
                System.out.println("Data access error: We can process only the most generic exception");
            } finally {
                System.out.println("Process finally is optional, it will always run regardless of whether there was
an error or not");
            }
        } else {
            System.out.println("No known action was provided");
        }
    }
}
```

14. EXECUTE THE PROJECT

The result is as follows:

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<default config>

Output - ExceptionHandling2 (run)

```
run:
Read error: Process the most specific exception of data reading
Process finally is optional, it will always run regardless of whether there was an error or not

Data access error: We can process only the most generic exception
Process finally is optional, it will always run regardless of whether there was an error or not
BUILD SUCCESSFUL (total time: 0 seconds)
```

EXTRA TASKS

- Test with different values and launch parents and child exceptions to check how the exception handling works according to the hierarchy of exceptions that we have declared.

EXERCISE CONCLUSION

- With this exercise we have put into practice more advanced concepts of exceptions in Java.

- We could observe how to work with Exception type exceptions, it is also possible to convert these exceptions to RuntimeException type, simply by extending this class instead of the Exception class. This can be a good exercise to observe how the compiler does NOT require us to process the RuntimeException type exceptions and thus have a cleaner code.

ONLINE COURSE

JAVA PROGRAMMING

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