JAVA FUNDAMENTALS COURSE

MATRICES IN JAVA

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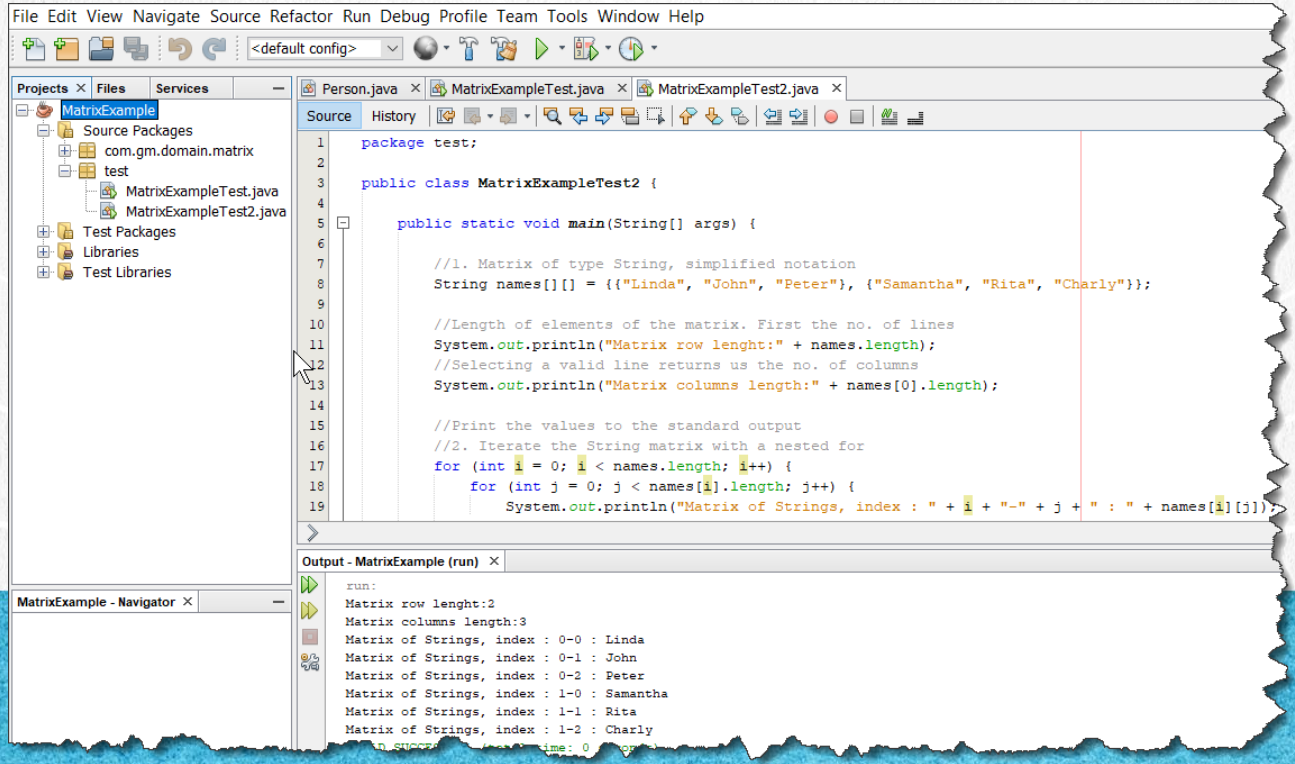
Global Mentoring

JAVA - ONLINE COURSES - UNIVERSITY

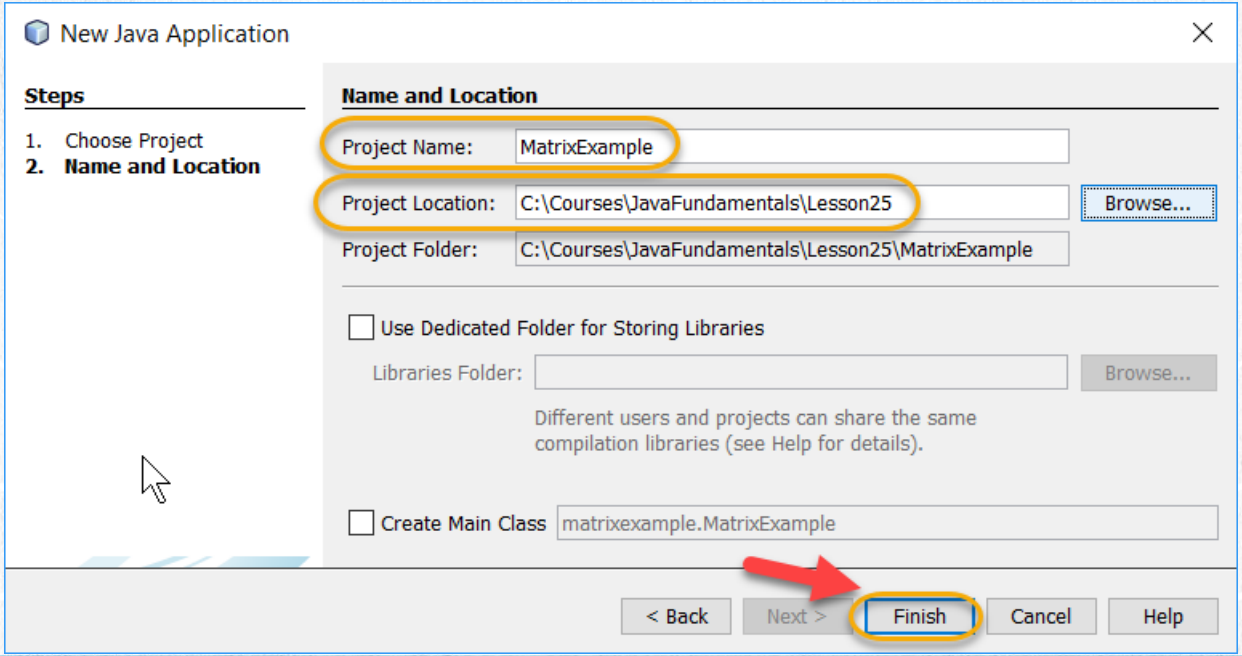
EXERCISE OBJECTIVE

Put into practice the concept of Matrices in Java. At the end we should observe the following:



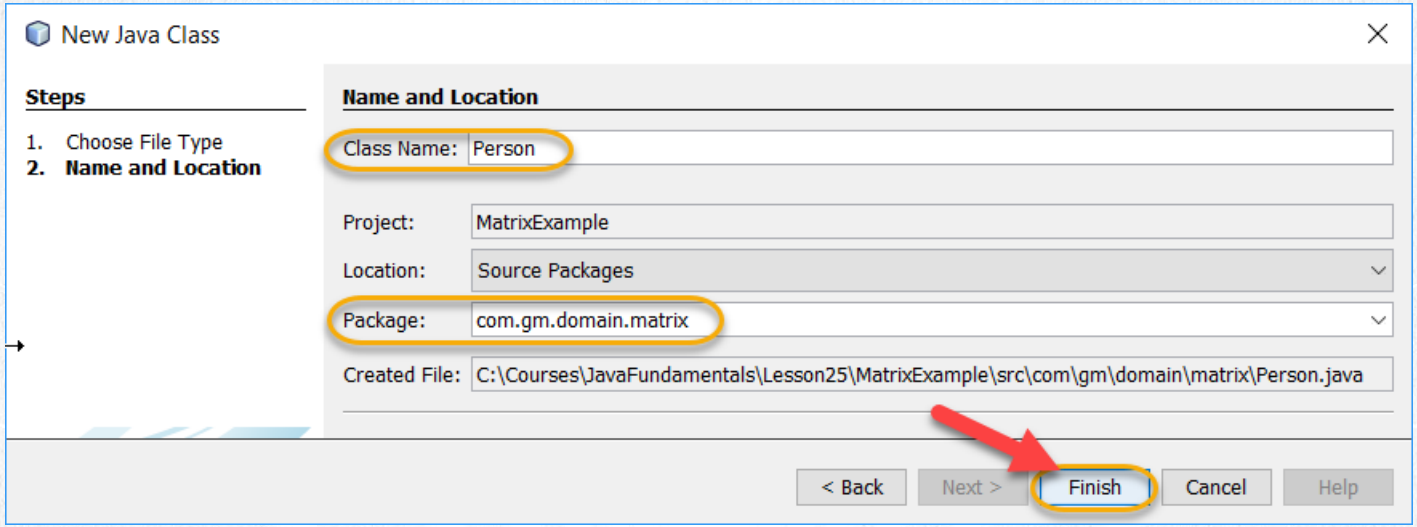
1. CREATE THE PROJECT

Create a new project:



2. CREATE A NEW CLASS

Create a new Java class:



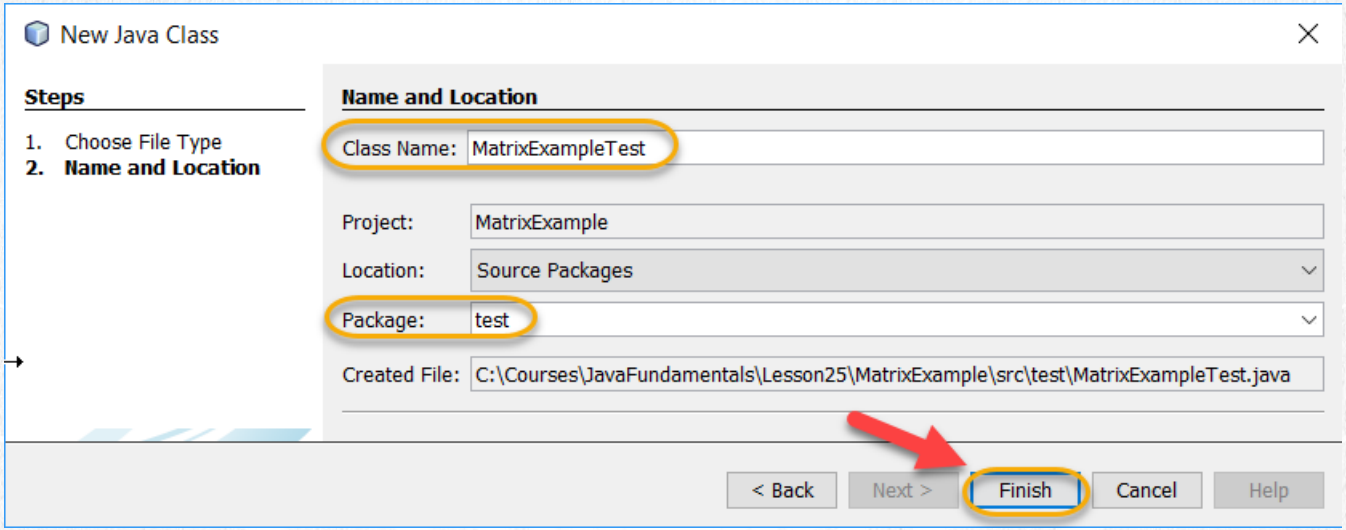
3. MODIFY THE CODE

Person.java:

```
package com.gm.domain.matrix;

public class Person {

    private String name;

    public Person(String name) {
        this.name = name;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    @Override
    public String toString() {
        return "Person{" + "name=" + getName() + '}';
    }
}
```

4. CREATE A NEW CLASS

Create a new Java class:



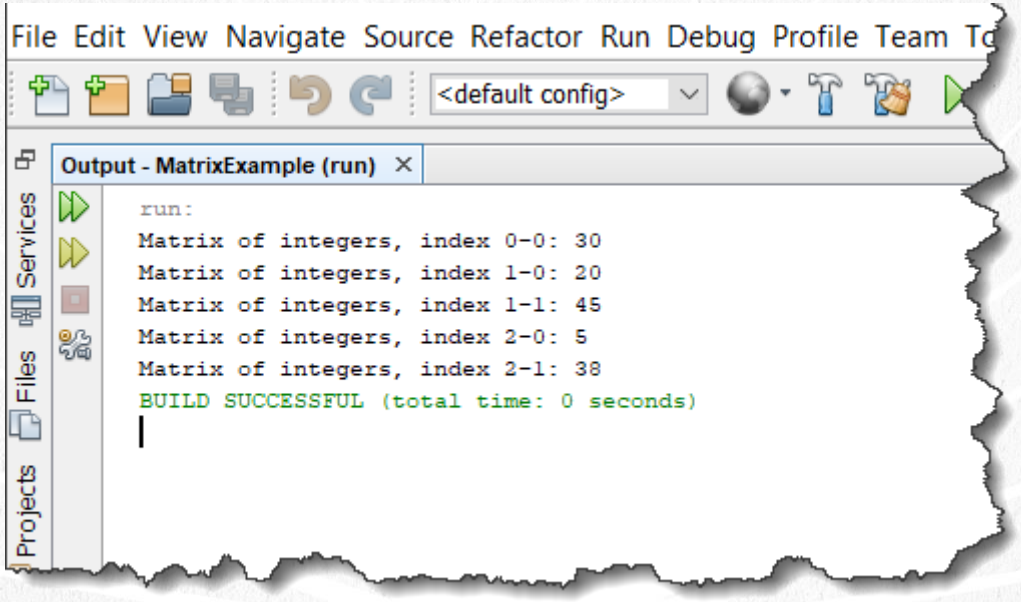
5. MODIFY THE CODE

MatrixExampleTest.java:

```
package test;

public class MatrixExampleTest {

    public static void main(String[] args) {
        //1. Declare a matrix of integers
        int ages[][];
        //2. instantiate a matrix of integers
        ages = new int[3][2];
        //3. Initialize the values of the matrix of integers
        ages[0][0] = 30;
        ages[0][1] = 15;
        ages[1][0] = 20;
        ages[1][1] = 45;
        ages[2][0] = 5;
        ages[2][1] = 38;

        //Print the values to the standard output
        //4. Read the values of each element of the matrix
        System.out.println("Matrix of integers, index 0-0: " + ages[0][0]);
        System.out.println("Matrix of integers, index 1-0: " + ages[1][0]);
        System.out.println("Matrix of integers, index 1-1: " + ages[1][1]);
        System.out.println("Matrix of integers, index 2-0: " + ages[2][0]);
        System.out.println("Matrix of integers, index 2-1: " + ages[2][1]);
    }
}
```

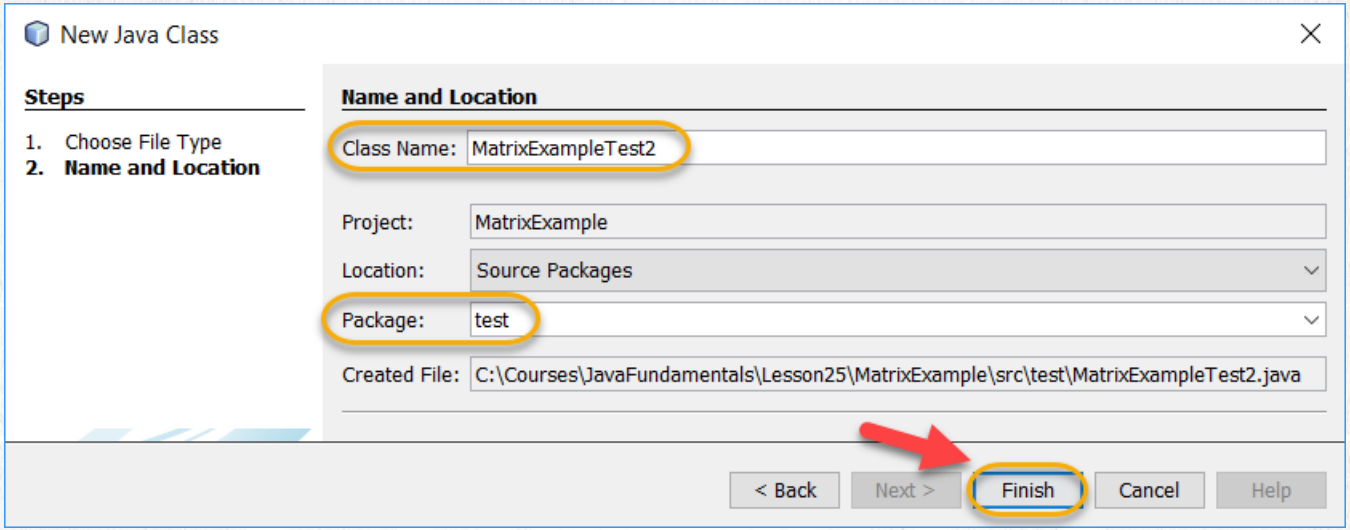
6. EXECUTE THE PROJECT

Run the project:



6. CREATE A NEW CLASS

Create a new Java class:



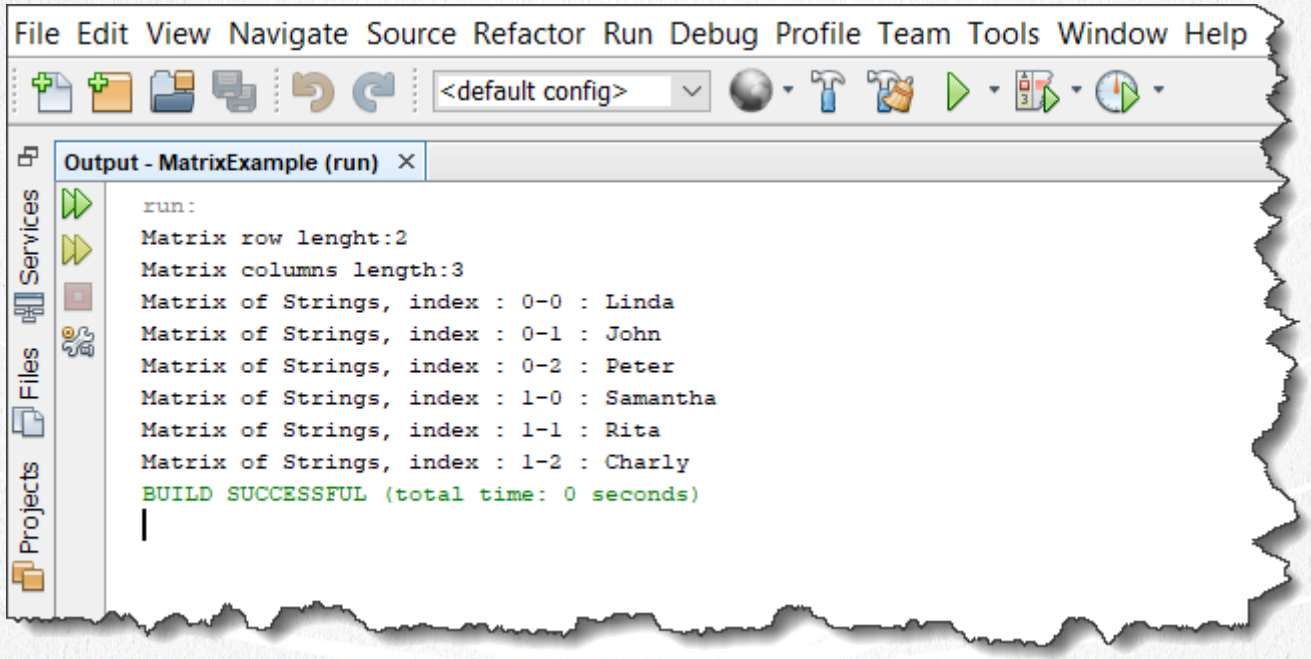
7. MODIFY THE CODE

MatrixExampleTest2.java:

```
package test;

public class MatrixExampleTest2 {

    public static void main(String[] args) {

        //1. Matrix of type String, simplified notation
        String names[][] = {{"Linda", "John", "Peter"}, {"Samantha", "Rita", "Charly"}};

        //Length of elements of the matrix. First the no. of lines
        System.out.println("Matrix row lenght:" + names.length);
        //Selecting a valid line returns us the no. of columns
        System.out.println("Matrix columns length:" + names[0].length);

        //Print the values to the standard output
        //2. Iterate the String matrix with a nested for
        for (int i = 0; i < names.length; i++) {
            for (int j = 0; j < names[i].length; j++) {
                System.out.println("Matrix of Strings, index : " + i + "-" + j + " : " + names[i][j]);
            }
        }
    }
}
```

6. EXECUTE THE CLASS

Run the class:



EXTRA TASKS

- Create a new test class to create a Matrix of Person type with 3 rows and 2 columns.

- Iterate the matrix with nested for loop to show the state of every element assigned in the Matrix of Person type.

EXERCISE CONCLUSION

- With this exercise we have put into practice the concept of Matrices in Java.
- We have seen how to declare, instantiate, initialize, assign and read data from a matrix.
- We also saw how to iterate through a nested for the elements of a matrix. With this we conclude the subject of matrices in Java.

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