ITRW 222 Assignment M1 (Minesweeper 1)

The aim of this assignment is to study the following concepts:

1. Two dimensional arrays
2. Two dimensional arrays of buttons
3. Layout managers for grids on the screen with panels
4. Understanding how to use an CctionListener for an array of buttons

This is step 1 in designing the minesweeper game. You need to use the following variable and class naming conventions. YOU MAY NOT SELECT your own variable names. The reason is to prevent students from copying solutions from the internet and submitting them without thorough understanding.

Phase 1.

You need to develop 2 classes.

Class 1: Minefied

Create a two dimensional array called *grid* of JButtons and add it to a panel using GridLayout. Use global variables ROWS and COLS at the start of your program to set the size of the array and the grid. Set the text of the buttons to the coordinates of the position of the array. (My program code is 20 lines – this is within reach of all the students!). The buttons has no functionality!

Class 2: MinefieldTest

This is a standard test frame class. The main code is only 4 lines long.

Output for Rows=2 and Cols=2 My frame is very large – so I had to make the screen print much smaller – play around with the frame size in your test
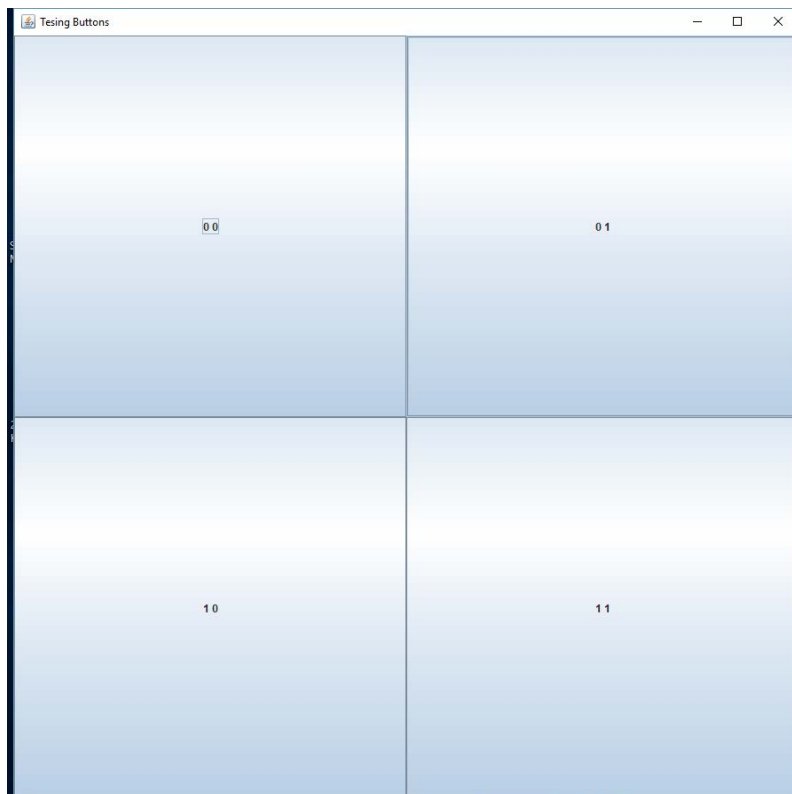
Where to find help:

1. You should start be understanding 2 dimensional arrays: read Deitel & Deitel Chapter 7.9 in my 8th edition.
2. You should start the GUI part by understanding the memo of practical 2 on GUIs.
3. Browse Chapter 14 of Deitel & Deitel – remember there is a video on this chapter.
4. Chapter 14 of Deitel & Deitel has a section on Layout managers: 14.18.3 in my version. You will see that their example use an array of buttons!! This was the key to my understanding of the topic.
5. Do NOT ask assistance before you have studied these topics. You should be able to finish this without any assistance.

Phase 2.

Screen print with Rows = cols = 3
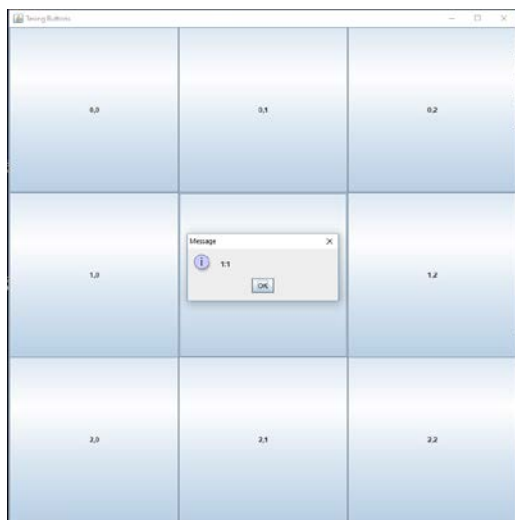
Now you can add functionality to the button.

Without making any other changes to phase 1 add a ButtonHandler that implements ActionListener. When a specific button is pressed you need to show a message with the row and column value

A view hints:

1. An event object has a getSource () method that returns the component that created the event.
2. Each button may ask: Was it me?

This phase was less than 15 additional lines in the Minefield class and no changes in the MinefiledTest class.

Reflection

We learn by reflection. You need to do explicit reflection by completing the refection page provided below. There is a MS WORD version available on EFundi

Run.bat

Create a file in notepad called "run.bat" – use the double quotation marks to force the type to be .bat. You can now simply click on the file to "run" your program. Think about the motivation for the "pause" statement.

javac Minefield.java

javac MinefieldTest.java

java MinefieldTest

pause

Submit

Check the assignment submission section on eFundi for the submission date. Submit a Zip file containing both classed, your run.bat and your reflection page.

Allocation of marks (1 mark out of 3 for each phase and reflection):

Phase 1:

Do not compile = 0 ;
Works without array = 1
Works with array but without global variable for ROWS and COLS = 2
Everything is correct = 3

Phase 2:

Do not compile = 0 ;
Works perfectly with message = 3
Mark of 1 or 2 depending on problem

Reflection page

Mark of 3 for your honest attempt – more words are better!

REFLECTION: Assignment _____

NAME: _____

For every assignment you need to submit a MS Word reflection table

I can describe my initial reaction when I received the assignment as:	

Aspects of ITRW222 I applied	*New Java constructs mastered*

My biggest problem / obstacle:	

How did I solve the problem: (be specific on Internet usage – give addresses)

I enjoyed the following parts:

I now know the following parts of Java better:

Report on your success: