GUI Programming 2021 – Year 2
Labwork 8: (5% - or 50 points out of 500 points for labwork this semester)

IMPORTANT NOTES:

- **NO COPYING PERMITTED AND ZERO MARKS WILL APPLY TO COPIED WORK. FURTHER ACTION MAY BE TAKEN AGAINST STUDENTS THAT HAVE BEEN FOUND TO COPY WORK.**

- **ASSESSMENT WILL INVOLVE ONE-TO-ONE QUESTIONS ABOUT YOUR SUBMITTED WORK. A COMPLETED SELF-ASSESSMENT SHEET WILL BE USED TO GUIDE THE ASSESSMENT. USE COMMENTS IN YOUR CODE TO ENSURE YOU DON'T FORGET WHY YOU WROTE CODE YOU MAY LATER BE ASKED ABOUT.**

- **ALL WORK MUST BE SUBMITTED TO MOODLE BY DATES SPECIFIED (SUBMISSION DEADLINES WILL BE POSTED ON MOODLE).**

- **MANY OF THE TASKS ASSIGNED BELOW CAN BE COMPLEX AND\OR THE DESCRIPTIONS MAY REQUIRE FURTHER CLARIFICATIONS. PLEASE USE THE AVAILABLE LAB TIMES TO ASK FOR CLARIFICATIONS AND ADVICE\HINTS ON THE TASKS BELOW.**

- **YOU CAN USE A SIMPLE JAVA ENABLED TEXT EDITOR IF YOU WISH, e.g., TEXTPAD or NOTEPAD. HOWEVER, I SUPPORT THE MOVING ON TO A MORE ADVANCED IDE AT THIS POINT ALSO (e.g., Eclipse or IntelliJ or NetBeans).**

Part 1 – JFileChooser (10 points)

Create a class called **Lab8Part1**. Create a JFrame that contains a label called *showFileName* and a JButton with the text "Show File Name in Label". Code the JFrame so that when the button is pushed a **JFileChooser** open dialog is launched and the name of the file selected using the chooser is printed to the *showFileName* label.

- Create the label and add to JFrame (1 point)
- Create the button and add the listeners (2 points)
- Organize the components (e.g. in panel or using layout) (1 point)
- Launch the JFileChooser (to select\open file) (2 points)
- Retrieve the file information from the JFileChooser (2 points)
- Update the label to show the file name selected (2 points)

Part 2 – JColorChooser (10 points)

Create a Java program called **Lab8Part2**. Create a JFrame that contains TWO panels in the center (both panels will take up exactly the same amount of space in the CENTER of the JFrame left-to-right and\or side-by-side – figure out a way to achieve this using layout changes!). Add two buttons somewhere on the JFrame with the text "Change Color of Left Panel" and "Change Color of Right Panel". If the user selects the "Change Color of Left Panel" launch a JColorChooser and set the colour of the left panel to the color chosen. Repeat the same action for the right button and the right panel.

- Create the panels and add to JFrame (with same size/space) (2 points)
- Create the buttons and add the listeners (2 points)
- Launch the JColorChooser (to select colour for the panels) (2 points)
- Retrieve\Set the colour information from the JColorChooser (2 points)
- Set the backgrounds of the panels using the correct button (2 points)

Part 3 – Mouse Drag Event (10 points)

Create a JFrame class called **Lab8Part3**. Create a very simple hidden label game where the user must DRAG (i.e, hold down the mouse and move at same time) around the JFrame to find an apparently hidden label. You can decide to put the label anywhere you choose but you must add some text, e.g., "You found me!" once the label detects a drag event. Also, when the drag event is detected the label must either change background colour or show an image.

- Implement the correct mouse listener interface at the class level (1 point)
- Add the mouse listeners to the hidden label (2 points)
- Implement the gameplay to reveal the hidden label (7 points)

Part 4 – An application using mouse events and choosers (20 points)

Create a class called **Lab8Part4**. Create a JFrame that contains four evenly split panels with a light black border (see examples or Oracle website for setting borders). Add a JLabel called *imageLabel* to the first panel. When the first panel is clicked by the mouse make a **JFileChooser** appear. Allow the user to pick an image to display in the label of the first panel and display the chosen image in the panel (the image should fit in the panel area, i.e., not too big!). In the second panel when the mouse enters the panel launch a **JColorChooser**, the user must choose a colour and the background of that panel should change colour. Add a label called *locationLabel* to the third panel. In the third panel listen for mouse **drag** events. When a mouse drag event is detected print the x and y co-ordinates of the event to the label called *locationLabel*. Finally, add a label to the fourth panel called *infoLabel*. When the mouse **exits** the fourth label the label must display the text "Slán Abhaile!, luch!!!" ("Safe home mouse!" in Irish).

- First panel to change image in panel using JFileChooser (5 points)
- Second panel to change colour with JColorChooser (5 points)
- Third label to display x and y location of drag events (5 points)
- Fourth label to display goodbye mouse message on mouse exit (5 points)