GUI Programming 2021 to 2022 – Year 2

Topic: Beginning SWING: JFrame, JLabel, JButton, JTextField, JTextArea

Labwork 2: (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 – Create a blank JFrame and set various properties (10 points)

Create a Java class called **Lab2Part1**. Extend this class from the JFrame class (remember to import javax.swing). Make the frame 350 pixels wide and 450 pixels high. Carry out the following operations on the JFrame (you can go to the Oracle website (or another web source) to find the correct method to use if needed: https://docs.oracle.com/javase/10/docs/api/index.html?javax/swing/JFrame.html:

    a. Set the location of the frame to 300, 300 (clue *setLocation*)
    b. Make the frame so it is NOT resizable (clue *setResizable*)
    c. Create a variable called *contentPane* and assign it to the content pane of the JFrame (clue *getContentPane* method)

- Create class and extends JFrame   (2 points)
- Set size and visibility of the JFrame   (2 points)
- Set location   (2 points)
- Set resizable (NOT resizable)   (2 points)
- Set the variable *contentPane* to reference content pane of JFrame   (2 points)

Part 2 – JLabel without Image and with Image (both in JPanel) (10 points)

Create a Java SWING JFrame (extends JFrame) class called **Lab2Part2**. Set the size of the frame to whatever you wish (at least 100 x 100). Create a JPanel called *holderPanel*. Create TWO JLabels. Call the first JLabel *labelNoImage* and set the text in the label to "This is a label no image". Call the second JLabel *imageLabel* and set the icon (clue: *setIcon*) for the label to some small image of your choice (If the image is too big it will take up the whole interface). Set the text of the second label to "Label with image". Add both labels to the panel called *holderPanel* and add the panel to the content frame of the JFrame.

Required activities and marking guideline:

- Create the JFrame   (1 point)
- Create the JPanel   (2 points)
- Create label without image   (2 points)
- Create label with image   (3 points)
- Add both to panel and add to frame   (2 points)

Part 3 – JButton: Reinvent the "Save" and "Open" buttons (10 points)

Create a JFrame SWING class called **Lab2Part3**. One of the guiding principles to good GUI design is familiarity, i.e., give the user what they are used to using (e.g., show images for icons they expect). However, for the purposes of this lab we will deliberately break this principle. Reinvent the icons used for "Save" and "Open". Create a panel called *buttonPanel*. Create TWO JButtons and set an icon for each. Create a save button that will have text "Save" and a new icon for save (you can be imaginative with the icon but keep the icon small enough, so the button is not huge). Create an open button with a new icon to represent "Open" (again you can be imaginative but keep it small). Add the button to the panel and add the panel to the content pane of the frame.

- Create Save button with image   (4 points)
- Create Open button with image   (4 points)
- Create Panel add to contentPane   (2 points)

Part 4 Build a simple JFrame GUI with Panel, Button, Fields (20 points)

Create a JFrame SWING class called **Lab2Part4**. Make the frame large enough to hold several components. Create a frame that either describes yourself or a pet dog/cat/animal and include a picture with a label [Note: If you don't have a pet or don't want to describe yourself then pick something else unique to yourself to construct the JFrame about, e.g., favourite car, pastime, possession, sport achievement etc.]. Carry out the following with the JFrame:

    a. Set the title of the frame to "About Me" or "About my Pet"
    b. Create a JPanel called holderPanel to hold ALL components
    c. Create a JTextField with your name or pet name in it
    d. Create a JTextArea and add a small description of what is featured (you or your pet etc.)
    e. Create a JLabel with a picture of you or the pet etc. and set the text of the label with a <u>nice font</u> to "This is me" or "This is my pet" etc.
    f. Create a JButton with the text "Like" and a small thumbs up icon
    g. ADD ALL OF THE COMPONENTS TO THE PANEL
    h. Add the panel to the content pane of the JFrame

Required activities and marking guideline:

- Create Frame and set title   (2 points)
- Create the JPanel   (2 points)
- Create the text field with the text in it   (2 points)
- Create the text area with the text inside   (2 points)
- Create the JLabel with the image and text   (4 points)
- Create the JButton with the image and text   (4 points)
- Add components to the panel, panel added to content pane   (3 points)
- GUI launches and runs to spec   (1 point)