

GUI Programming 2021 – Year 2

Labwork 6: (6% - or 60 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 – BorderLayout (10 points)

Create a class called **Lab6Part1**. Create a JFrame that contains two panels. Each panel should contain three JLabels of different colours with the text “One”, “Two”, “Three” etc. (i.e., set the background colour to different colours: note you may have to setOpaque(true) on each label to show the colour). Set the layout of one of the panels as vertical (Y) box layout and the other as horizontal (X) box layout. Add one of the panels to the EAST of the frame and one to the WEST of the Frame.

- Create and add first panel with three components (3 points)
- Create and add second panel with three components (3 points)
- Set box layout vertical on first panel (2 points)
- Set box layout horizontal on second panel (2 points)

Part 2 – Simple CardLayout (10 points)

Create a Java program called **Lab6Part2**. Create a JFrame that presents THREE cards in CardLayout (use a main panel to contain the CardLayout and all of the panels). Each card should contain a JPanel with a JLabel with an image of you or a pet or something unique. Add a button to the bottom of the frame with the text “Next”. When the button is pushed use the *next()* method of the CardLayout to switch to the next card in the sequence (you should see the images page from one to the next)

- Create the CardLayout (main panel) (2 points)
- Create and add panels to the main layout panel (4 points)
- Add the listeners to buttons (2 points)
- Swap between cards using the buttons handler method (2 points)

Part 3 – Simple JProgressBar (10 points)

Create a Java program called **Lab6Part3**. Create a JFrame that contains a button on the south of the frame and a progress bar on the north of the frame. Set max and min values for the progress bar. Add listeners to the button so that when it is pushed the progress bar fills a certain amount (shows progress). Increase the amount of progress on the progress bar each time the button until the progress bar is full.

- Create the JProgressBar and add (2 points)
- Create the button and add (2 points)
- Add the listeners to buttons and implement handler (3 points)
- Code the handler to update the progress bar when button pushed (3 points)

Part 4 – JSlider with listeners (10 points)

Create a JFrame class called **Lab6Part4**. Create a JFrame that mimics a volume and balance controller (for an audio system). The maximum volume of the device is 50 and the minimum level is zero, the maximum balance setting is 10 and the minimum balance setting is -10. Supply labels that show the current selected setting for each slider.

- Create volume slider and add to frame (2 points)
- Create balance slider and add to frame (2 points)
- Add listeners to the volume slider and test (2 points)
- Add listeners to the balance slider and test (2 points)
- Create and add Label display of volume setting (1 point)
- Create and add Label display of balance setting (1 point)

Part 5 – Survey GUI with CardLayout (20 points)

Create a class called **Lab6Part5**. Create a JFrame that conducts a small survey using four panels in a card layout (3 question panels and one for results). On the first three cards present three questions to the user which must have ONE response only (use radio buttons or check boxes that are contained in a button group), e.g., pick your favourite snack from the following Chocolate, Crisps, Popcorn etc. The questions should be chosen by you (about whatever you chose). The fourth card should show the results chosen from the current user (e.g. this user likes Crisps etc.). For full marks use at least one well-defined method to modularize the creation of the panels.

- Three survey panels with options (3 x 2) (6 points)
- Use of methods to build panels\cards (at least one for 2 pts.) (2 points)
- Use of Button groups to restrict choice to one option (MUTEX) (2 points)
- Response panel with survey results (in card layout) (2 points)
- Listeners added and working for components (2 points)
- Added all panels to Card Layout (2 points)
- Swapping of cards controlled by listener\handler (4 points)