

## GUI Programming 2019/2020 – Year 2

### Labwork 6: (5% - or 50 points out of 500 points for labwork this semester)

**NOTE: ALL LABS TO BE COMPLETED USING TEXTPAD. NO COPYING PERMITTED AND ZERO MARKS WILL APPLY TO COPIED WORK.**

**ALL WORK SUBMITTED TO MOODLE BY DATE SPECIFIED (2 LABS SUBMISSIONS OF FIVE LABS THROUGHOUT THE SEMESTER)**

#### **Part 1 – A simple button with a listener (10 points)**

Create a class called **Lab6Part1**. Create a JFrame that contains a JLabel with the text “Hello” and a JButton with the text “Change Label”. Both of these components should be in a JPanel. Implement the action listener and corresponding event handler so the when the button is pressed the text in the label changes from “Hello” to “Hello World!, my listener works!”.

- Create the Label and button and add to panel and frame (2 points)
- Add the panel to the Frame (remember content pane!) (1 point)
- Add listeners to the frame and button (3 points)
- Implement the handler method (actionPerformed) (2 points)
- Set the text of the label when the button is pushed (test it!) (2 points)

#### **Part 2 – Button with listeners combined with JComboBox (10 points)**

Create a Java program called **Lab6Part2**. Create a JFrame with a **JComboBox** called **colourSelector** and a **JButton** called **changeColour** (set the text of the button to “Change Colour”). Implement event handling so that when the changeColour button is pushed the background colour of the panel (the components should be in a panel within the frame) is changed to the colour currently selected in the colourSelector JComboBox.

- Create the combo box with three colours of your choice (2 points)
- Create the JButton and set the text (2 points)
- Add the components to the panel (and to Frame) (2 points)
- Add the listeners (2 points)
- Get the background colour change to work (test it!) (2 points)

### Part 3 – JList with listeners (10 points)

Create a JFrame class called **Lab6Part3**. Create a JFrame with a JList contain a list of ten subjects you have covered so far in the course (e.g., GUI Programming etc.). Add a JLabel to the GUI also at the top of the GUI and add one JTextArea ro the bottom of the GUI. Set the top label text to “Please choose your favourite subjects so far!”. Set the bottom textarea text to “Response will appear here”. Use panels to organize the components. Implement listeners for the JList so that once the user selects their favourite subject the text area at the bottom displays the subject selected. Use the ListSelectionListener in this program (Note: There may be an issue with the event triggering twice: if you can’t figure out how to solve this ask in the labs)

- Create the JList with the subjects listed (3 points)
- Create and add the JLabel and JTextArea (2 points)
- Add the ListSelectionListener and the event handler method (3 points)
- Get the text area to display selection of JList (once!) (2 points)

### Part 4 – First full working GUI – Mobile top-up (20 points)

Create a class called **Lab6Part4**. Create a JFrame to model a simple Mobile top-up system. The GUI should provide a Top-up button, a Make-call button and a Send-text button that will reduce or add to the balance of the phone (you can use your own pricing system). At all times the balance should be visible on the screen using a label and the balance should not be allowed go below zero. It is up to you to design the layout of the GUI some marks will be awarded for the quality of the ‘look’ of the GUI.

- Look and design of the GUI\Layout (3 points)
- Add labels to instruct and guide the user (2 points)
- Implementation of the event listeners and handlers (all buttons) (4 points)
- Send-text reduces the balance and updates correctly (3 points)
- Make-call reduces the balance and updates displayed balance (3 points)
- Top-up values works correctly (3 points)
- System fully working (e.g. zero balance deal with) (2 points)