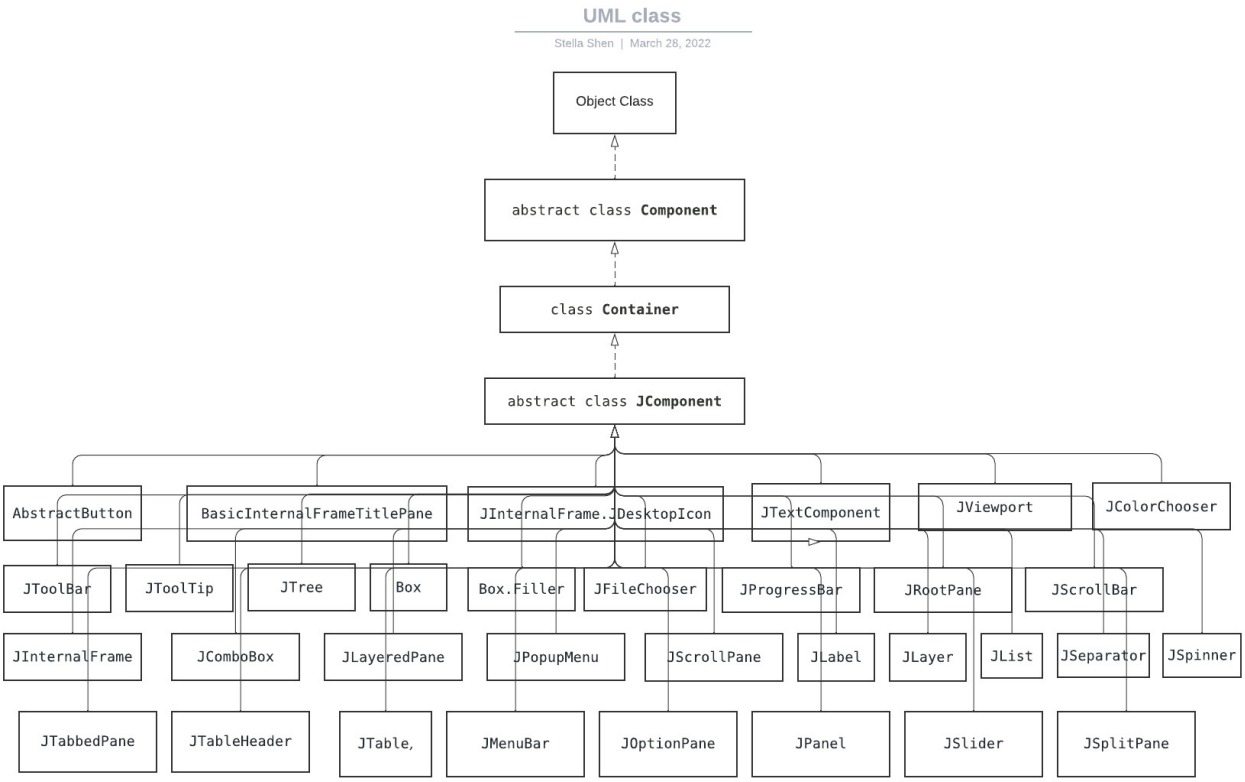
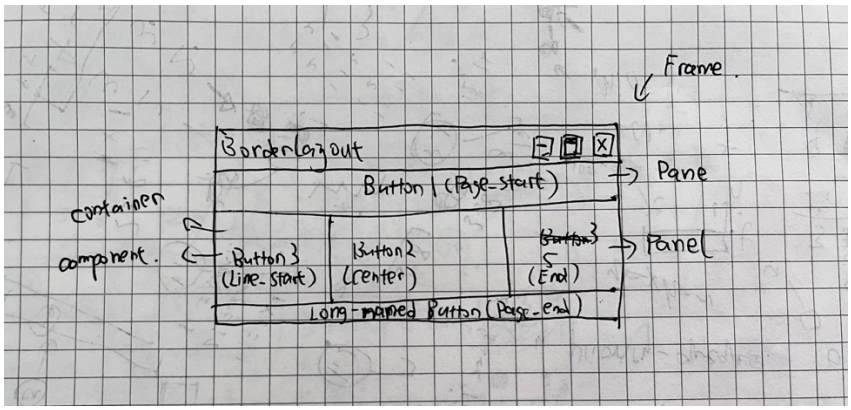
CS 5004 Module 9 Worksheet
Event-Driven Programming

Each worksheet is to help you remember and understand the materials contained in each module so that you can get the most out of your learning experience. We start by asking questions that are covered in the module but will also ask you to apply the knowledge in new ways. By taking the time to answer each question carefully using your own thoughts and words, these worksheets can serve as the basis for review for the more formal assessments in this class.

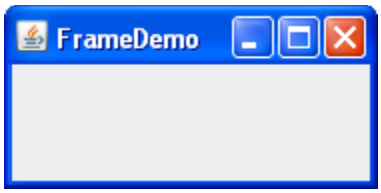
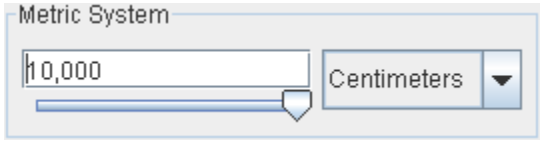
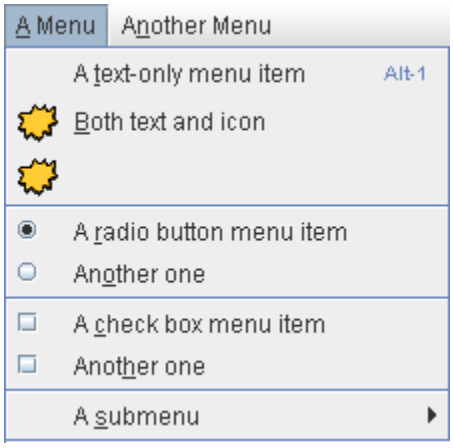
1. Using this link to the Java Class Libraries, draw a UML class diagram that shows the `JComponent` class and all of its subclasses. ***You do not need to include any fields or methods in any of the classes.***

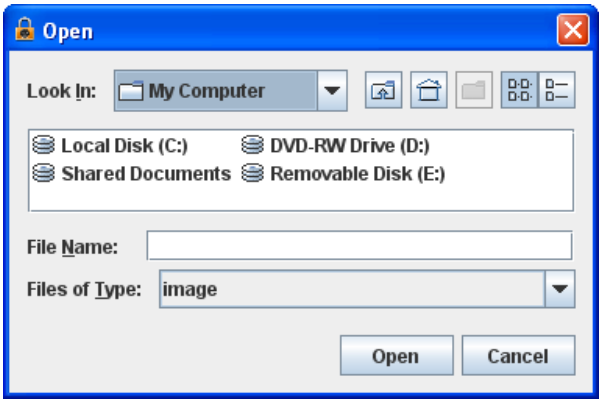
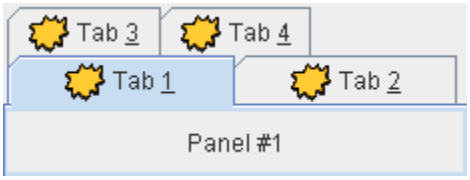
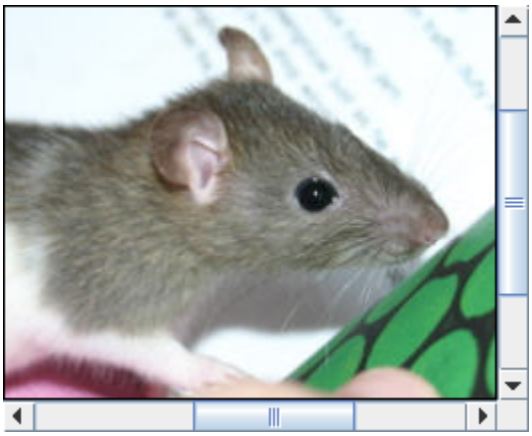


2. Using this Visual Guide to Layout Managers, hand draw the BorderLayout clearly labeling each area.



3. Using this Visual Guide to Swing Components, name each of the following GUI components and ***use your own words*** to give a one sentence description.

Component	**Name + Description** (using your own words)
	This is the Frame of GUI components. The frame is like a window, and it has three buttons at the top right corner that functions as getting small, getting big, and exit the window.
	This is a container of GUI components. This is an entity that is capable of containing the centimeters prefix number by dragging the bar under the text box, or entering the number in the text bar.
	This is a container of GUI components. It is capable of containing the menu choices for users.

	I am not sure what is this picture. I guess this is the panel of the pane. It looks like just a picture or logo, and there is no any interactions with user (ie. Users are not prompt to enter or click something).
	This is the pane of the GUI component. This pane contains almost everything in the GUI components, such as containers, panels, components and the frame. User can enter in the file name box and choose the file type. And user can click the open or cancel button.
	This is the component of the GUI components. It can provide some functionality for user to change to different tab.
	This is the container of the GUI components. It contains a picture of a mouse.

4. What classes do you need to use in order to add a menu to your program?

We can use the class JMenuBar, which is a subclass of JComponent, to add a menu to our program. The JMenu class and JMenuItem class could also add a menu to our program.

5. Using your own words, explain the difference between a JTextField and a JTextArea?

From my understanding , the main difference between JTextField and JTextArea in is that a JTextField allows entering a single line of text in a GUI application while the JTextArea allows entering multiple lines of text in a GUI application.

6. For each of the following components and user activity, indicate what event object and what Listener interface is involved with each:

Component	**User Activity**	**Event Object**	**Listener Interface**
JButton	Clicking the button	Press mouse button while hovering over a component	MouseListener
JTextField	Pressing enter key	user can enter text via the keyboard	ActionListener
JTextArea	Pressing enter key	user can enter text via the keyboard	ActionListener
JRadioButton	Selecting radio button	when the selected radio button is armed, pressed, selected, or released	ItemListener
JCheckBox	Selecting checkbox	an item that can be selected or deselected, and which displays its state to the user	ItemListener
JComboBox	Selecting an item	lets the user choose one of several choices, can have two very different forms.	ItemListener
JList	Selecting an item	List selection events occur when the selection in a list or table is either changing or has just	ListSelectionListener

		changed.	
Any	Pressing or releasing mouse buttons	The mouse button selects some components of the program	MouseListener
Any	Moving or dragging the mouse	when the user uses the mouse (or a similar input device) to move the onscreen cursor	MouseListener

7. What methods need to be implemented to implement a MouseListener?

MouseListener defines five methods which we must implement:

- mouseClicked(MouseEvent e)
- mouseEntered(MouseEvent e)
- mouseExited(MouseEvent e)
- mousePressed(MouseEvent e)
- mouseReleased(MouseEvent e)