

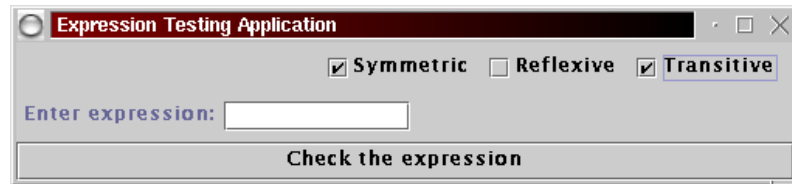
Tutorial #5 (for week 8 - Feb 27, 2004)

24th February 2004

Q1: Examine the Java/Swing code below. Draw a diagram showing the resultant display, and give a brief description of the function of the code. (In what environment would it be run? What does it look like? What does it do?).

CODE LISTING	Converter.java
<pre>public class Converter extends JApplet { JPanel Panel1, Panel2, Panel3; JSlider Slider1, Slider2; JButton WriteButton; JTextArea textArea; JLabel label1; int width1=0, width2=0; Double realwidth; static final double a=20,b=0.87,c=1.32,d=22.25; public Random rand = new Random(System.currentTimeMillis()); JComponent contentPane; private double DoCalc(){ return a+(b*width1)+(c*width2)+(d*rand.nextDouble()); } public Converter() { Panel1 = new JPanel() {}; Panel2 = new JPanel() {}; Panel3 = new JPanel() {}; Slider1 = new JSlider (JSlider.HORIZONTAL,0,100,width1) {}; Slider1.addChangeListener(new ChangeListener() { public void stateChanged(ChangeEvent evt) { JSlider source = (JSlider) evt.getSource(); width1 = (int)((JSlider)evt.getSource()).getValue(); realwidth = new Double(DoCalc()); label1.setText(realwidth.toString()); } }); Slider1.setMajorTickSpacing(20); Slider1.setMinorTickSpacing(5); Slider1.setPaintTicks(true); Slider1.setPaintLabels(true); Panel1.add(Slider1); Slider2 = new JSlider (JSlider.HORIZONTAL,0,100,width2) {}; Slider2.addChangeListener(new ChangeListener() { public void stateChanged(ChangeEvent evt) { JSlider source = (JSlider) evt.getSource(); width2 = (int)((JSlider)evt.getSource()).getValue(); realwidth = new Double(DoCalc()); label1.setText(realwidth.toString()); } }); Slider2.setMajorTickSpacing(20); Slider2.setMinorTickSpacing(5); Slider2.setPaintTicks(true); Slider2.setPaintLabels(true); Panel1.add(Slider2); WriteButton = new JButton("Write result"); WriteButton.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { realwidth = new Double(DoCalc()); label1.setText(realwidth.toString()); textArea.append(width1+" "+width2+" "+realwidth.toString()+"\n"); } }); contentPane = new JPanel(); contentPane.setBackground(Color.red); contentPane.setLayout(new BorderLayout()); contentPane.setBorder(BorderFactory.createEmptyBorder(5,5,5,5)); contentPane.add(Panel1, BorderLayout.CENTER); Panel2.add(WriteButton); textArea = new JTextArea(12, 30); textArea.setEditable(false); JScrollPane scrollPane = new JScrollPane(textArea, JScrollPane.VERTICAL_SCROLLBAR_ALWAYS, JScrollPane.HORIZONTAL_SCROLLBAR_ALWAYS); Panel2.add(scrollPane); contentPane.add(Panel2, BorderLayout.SOUTH); label1 = new JLabel(" "); label1.setOpaque(true); label1.setBackground(Color.white); Panel3.add(label1); contentPane.add(Panel3, BorderLayout.NORTH); realwidth = new Double(DoCalc()); label1.setText(realwidth.toString()); } public void init() { Converter converter = new Converter(); setContentPane(contentPane); contentPane.setVisible(true); } }</pre>	

Q2: Write the Java/Swing code for a small application with three checkbuttons, a text entry box and a button with a label, laid out as shown in this image. No functionality need be included.



Q3: Your employer wishes you to develop an application to provide an on-line help desk function to staff distributed around Asia. The help desk application will provide instant text messaging, chat and voice chat and searchable access to a database.

- (a) Give at least two arguments/reasons/justifications as to why you *should* implement this application as a Java applet.
- (b) Give at least two arguments/reasons/justifications as to why you *should not* implement this application as a Java applet.

Q4: When programming using Java it is common to use threads. Give two plausible examples of the use of threads in Java, not taken from the notes given in class. For each example, briefly describe it and state the need for the thread as opposed to just coding it in-line. You may draw your examples from your own experience.

(Note that these questions are taken from last year's exam...)