Distributed Collaboration - Assignment 2: Tele Pointers

Date Assigned: September 6, 2012

Completion Date: September 14, 2012

Objectives:

- Understand the nature of a window system and graphics
- Implement a useful collaboration tool: A Telepointer

1-User Frame Pointer

Implement a pointer in each frame of your 1-user GUI. This is a graphical shape displayed in the frame that can be dragged to change its position. The exact shape is up to you – it can be, for instance, an arrow or a circle.

N-User Tele Pointer

Couple of the telepointer in corresponding frames created for different users. This means that the pointers in corresponding frames of different users have the same position relative to their frames. The positions should be synchronized as a pointer is dragged. You can assume that a single user manipulates a telepointer at any time.

Extra Credit

If there are N users in the IM session, create N telepointers, one for each user.

Technology Needed

There are many ways to implement telepointers. Here is one way to do so. Use Swing rather than AWT components. For example, use JFrame and JTextField instead of Frame and TextField. Associate each frame with a glass pane, draw the pointer in it, and listen to appropriate mouse events to drag the pointer.

Read up on Java graphics. There are several tutorials for it – just search on the web. You need to understand the paint() and repaint() methods and the operations on instances of Graphics.

Read up on glass panes. I used the following tutorial to understand them:
http://weblogs.java.net/blog/joshy/archive/2003/09/swing_hack_3_ov.html

This tutorial does not address the fact that if you register with a glass pane a listener for some type of events (KeyEvent, MouseEvent) then those events are not dispatched to the components covered by the glass pane. For this assignment you can ignore this problem. However, if you have time, you can look at two different ways to address this problem: re-dispatching the event to the covered components or registering listeners for a lower- level event (AWTEvent). See the following links:

http://weblogs.java.net/blog/alexfromsun/archive/2006/09/a_wellbehaved_g.html

http://docs.oracle.com/javase/tutorial/uiswing/components/rootpane.html

http://www.java2s.com/Code/Java/Swing-JFC/Showhowaglasspanecanbeusedtoblockmouseandkeyevents.htm

Read up on how to write a mouse and mouse motion listener. Look, for instance, at:
http://docs.oracle.com/javase/tutorial/uiswing/events/mousemotionlistener.html

Submission

By midnight September 14, submit, via a private or public Piazza message, a link to a YouTube video showing your tele-pointers in action.