CS 334
Fall 2007

Due: Friday September 7, 11:59PM

Assignment 1—Digital Images and GUIs

In a nutshell

Implement a simple application that loads, modifies, and saves an image.

Details

1. Image loading/saving
   - Use a standard non-lossy image format (e.g. tiff http://www.libtiff.org/).
   - Let user specify image name for loading and saving.
2. Image modification
   - Let the user draw segments on the image using the mouse.
   - The segment should be drawn in software, one pixel at the time.
   - Left-click for the start point, right-click for the end point.
3. Graphical user interface (GUI)
   - One button to show the empty window and one to quit the application.
   - One button to load and one to save the image.
   - Tree number-input-boxes to specify the (R, G, B) color of the segment.
   - Use any library you want (e.g. FLTK http://www.fltk.org/)

Extra credit

1. Attempt only after you complete required work.
2. Draw rubber band as the user moves mouse to select segment endpoint (1%).
3. Color segment by interpolating color linearly from one endpoint to the other (1%).
4. Reduce the image to its most representative k colors, where k is an input parameter (2%).
5. Anything else that provides a compelling visual experience (x%).

Turn in

Turn in via WebCT an archive with:
- The source code, including project/workspace/makefiles; code should compile, use relative paths
- All non-standard libraries (archive size should be <50MB)
- Image to load, saved modified image.
- A short REPORT.{pdf|doc} file that describes your user interface, the extra credit completed, and that includes the original and modified images.