Lab #4: Compression (Huffman)

In this lab you are to construct a Huffman codec. At the course website there is an image called golfcore.ppm. You are to write C-code to compress and decompress this file. Compressed data must be stored to a file in a manner that facilitates decompression.

The program may be written under linux using gcc or under Windows using Visual C++. There does not need to be any graphical user interface, but the user should be able to select the filename.

Besides the image, the Huffman codec should be tested on a text file (your choice) and binary executable (your choice). Comparing to the RLE and LZW codecs, which of the three codecs performs best for each file type? Which is fastest or slowest?

ECE 4680 students are to work in 2-person teams, as assigned in class and email. ECE 6680 students are to complete the lab individually.

This lab is due by the due date given at the course website. Grading will be determined via demonstration. The lab TA will be available for demonstrations in the lab (Riggs 304) at the times posted at the course website. If you need to arrange an alternate demonstration time, work it out with the TA.

You must also submit your C-code (as an attachment) to ece_assign@clemson.edu. Use as subject header ECE4680-1,#4 (or ECE6680-1,#4). This email is due by midnight of the due date. For teams, only one person need sumbit.

Work for the Huffman codec must be completed by each team, and each person on a team must contribute. If it is determined that a piece of work has been copied, all parties involved will receive zero credit. If it happens twice, the offending parties will fail the course. Please protect your work!