CS 410/510 Introduction to Multimedia Networking, Fall 2015
Homework #3
Assigned: Oct. 7, 2015
Due: BEGINNING OF CLASS Monday. October 12, 2015.
Turn in as hardcopy
We will be going over the homework solutions in class so no late homework will be accepted

1. Suppose we have the ideal stereo audio signal of 16-bit samples and a sampling rate of 44,100 Hz. Further, suppose we have a process that converts this data into the u-law format. What is the effective compression ratio of this process?

2. How does one generate blue using CMY filters?

3. Suppose we have a 24 MP image (6000x4000). We would like to compare the storage requirement for tuples (e.g., straight RGB storage) versus a single number that is an index to a color tuple (e.g., how GIF represents images).

   (a) Assuming 24-bit RGB values, how much memory would be required to represent the image using straight tuples?

   (b) Suppose we have a color table representation, where the index points to the color value (remember, the color table needs to store the actual RGB values). What is the total memory needed to represent the color table and represent the image, if the index is 8-bits? 12-bits? 16-bits? and 20 bits? There is one answer for each.

   (c) For the 8, 12, 16, and 20-bit indexes above, what is the maximum number of colors that can be represented.