MSU CSC 325, Spring 2016
Lab Exercise. Modify a BMP image file
Apr. 8, 2016

This exercise uses file I/O and bit operations with image files in the BMP file format. Use the provided code **Lab11Provided.cpp** which demonstrates several operations. The input and output filenames are hardcoded. In order to see your work, you'll need to double-click the BMP output file and display it.

The class **`Frame`** is a single image. The essential data is a 2-dimensional vector of **`PixelColor`** objects. Each **`PixelColor`** object is a triplet of Red, Green, and Blue colors, represented by integer values in a range of 0..255.

1. Compile and run the provided code.
   - g++ -std=c++11 BMP_Provided.cpp
   - a (no filename argument)
   - double-click on the BMP output file, "output.bmp"
   - The input file of Martha has been vandalized with four solid rectangles


2. Insert code so that the output BMP format image has been "horizontally flipped," by adding a function to the **`Frame`** class, called from **`Main( )`** .

3. Create an output BMP format image in which the reddish color of the sweater has been changed to bluish. You will need to decide what ***range*** of pixel colors should be considered "red" and how to change the Red, Green, Blue components of that color so that the color appears "bluish."
Reference: http://htmlcolorcodes.com/color-chart/

4. Create an output BMP format image which highlights vertical edges in the image. Basically, across each row of pixels, determine whether two neighboring pixels are "different" colors. You will need to decide what it means for pixel colors to be different from each other. If the pixels are different color, the pixel output at that position is white. If not, the output is black. Your output may look something like the image below.
Reference: http://htmlcolorcodes.com/color-chart/