CS162 - Programming Assignment 8 - Image Generator

The purpose of this assignment is to give you some practice working with multidimensional arrays and writing to an output file.

Overview

This program will have you create a simple PPM image file.

- create the file in memory (storing in in a multidimensional array)
- write the file to a disk file
- view it using irfanview or gimp (you'll need to download one of those) to verify it's correct.
  - irfanview is an image viewer. Fairly small download.
  - gimp is an image editor. Much large download.

Details

The format of a PPM image file is described here: http://en.wikipedia.org/wiki/Netpbm_format#PPM_example

Your image should be at least 200 pixels wide by 300 pixels tall (and not square), and must contain some kind of pattern consisting of at least 4 colors. For example you could simply do the following:

- the top third of the image could be red
- the middle third green,
- the bottom third blue
- a yellow 50x50 circle or square in the middle.

Your program will create the image in memory, storing it in a multidimensional array. Each pixel consists of 3 color values (red, green, and blue), and each of those color values can be from 0-255. So you could use a three-dimensional array declared as follows:

```
const int WIDTH=200;
const int HEIGHT=300;
const int COLOR=3; //0=red, 1=green, 2=blue

unsigned char image[WIDTH][HEIGHT][COLOR];
```

Or you could choose to use a two-dimensional array of structs, with each struct consisting of a red, green, and blue value. And/or maybe you'll create and image class. The choice is yours.

Things to keep in mind about arrays

- Arrays are always passed to functions by reference; no & required.
- You can pass one row of a two-dimensional array to a function that will then receive it as a single dimensional array. Again, it's passed by reference and no & is required.
- When things are passed by reference and are not going to be changed), you should put **const** in front of the parameter declaration.
- Arrays can be big, and the stack might not be big enough to hold it, so if it doesn't fit on the stack you can move it to the heap by making the array variable static (put the word static before it).

Very Important Stuff

All programs should follow the class's coding conventions.
Submit the following:

- A zip file containing all the source files you created and your executable