

Lab 8: Intro to PPM

CPSC 2310 – Spring 2024

Due Date: Monday, November 18, 2024 @ 11:59 PM

**Overview:**

You are going to write a program that will read the header and pixel values of a ppm image, ignore all comments from the header then write the image back out to another ppm file minus the comments.

I will provide a file named ppmUtil.h that will contain two structs, one to represent the pixels of a ppm image and one to represent the data that makes up the header of a ppm image. You will need to create several functions.

I will provide one or more images for testing. Each image will have a variety of comments throughout the header. I will also provide 1 image that has no comments in the header. This will allow you to easily test your base code of reading in and writing out an image.

Your program should be able to ignore the comments from each of the ppm files provided with comments. Your program should read the header information and the pixel values of the image, storing each. Then use the stored information to create a new ppm image with no comments in the header.

You will use **fscanf and fprintf** when reading and writing the **header** information.

You are required to use **fread and fwrite** when reading and writing the **pixel** **data**.

You will implement your functions in ppmUtil.c provided.

You will implement the driver in ppmDriver.c provided.

The driver should have minimal amount of code in it.

It should create and open the needed file pointers.

It should create a header\_t and a pointer of type pixel\_t.

The driver should call a function to **read** the data from an image.

The driver should also call a function to **write** the data to an image.

The driver should also call a function to give the dynamically allocated memory back to the OS and close the file pointers.

You will need several functions for this project(some mentioned above).

Functions should be small and do very specific task. Rule of thumb I was taught is: if all of the lines of code in your function cannot be seen on your screen, without scrolling, your function is doing to much, break it up. Points will be deducted if any of your functions are doing to many tasks.

At a minimal you will need functions that do the following:

A function that reads the header information **from** a file.

A function that reads pixel values **from** a file. You are required to use **fread** to read the pixel values from the input file (a .ppm file). This only requires one call to **fread.** You have access to all information needed to read all pixel values with one call to fread. Points will be deducted if you use multiple calls to fread.

A function that writes the header information **to** a file.

A function that writes pixel values **to** a file. You are required to use **fwrite** to write the pixel values to the output file (a .ppm file). There should be only one call to fwrite. Points will be deducted if multiple calls to fwrite are used.

A function that dynamically allocates memory for the pixel data.

A function that returns, to the system, the dynamically allocated memory.

A function that checks for and ignores comments in the ppm header.

The following files are provided for you:

Input4.ppm (contains no comments)

PoohTest.ppm (has comments)

PoohWComments.ppm (has comments)

CommentTest2.ppm (has comments)

CommentTest.ppm (has comments)

**Submission Information:**

**You will need to zip your files and submit them to canvas.**