

John Sullivan

CSC 412

Assignment 03

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Assignment 03 Report

Design Choices

For my design, I chose to put all my utility functions for this program into one file, called `utilities.c/utilities.h`. The reason I chose to do this was because it seemed more lightweight to be able to have 12-15 lines of code for my main programs such as `gray.c` and then have it call to functions in my utilities library in order for it to perform the requested operations. I personally chose to represent my 1D raster as an array of unsigned `char*`, because it seemed like the math to index through the array was a bit more manageable and easier to read and understand than playing with `int*`. For creating a new output path, I used a linux-only library called `libgen.h`. Really, the only function I used in this library was the `basename(str path)` function. What this function did for me was, I was able to extract an image name such as `'clown.tga'` from an absolute path easily by calling this function, to which I could just trim the remaining `.tga` and create my new output file from this. I think that the way I designed my program makes it extremely easy to read and understand what each part of the source code will do.

Limitations

I believe that it would be hard to find some limitations for my program, as I've implemented quite a bit of error checking. Maybe in a couple of spots you might be able to break my program by putting in an extra `'/'` character in a file path argument, but I've added many checks for those as well. One limitation my program does have is, that if you give it a file path with spaces in it, then you'll have to surround the file path with quotes. Generally, this is the case for a command line argument anyway, so would you really call that a limitation for my program? I suppose so. If you run a utility program by itself without using a bash script that I provided, then if you don't specify an existing output directory, the program won't make your new file. Each of my utility programs also have a check to make sure you are entering the correct number of arguments, so you couldn't break that either. But, I bet if you were to enter some alphabetic characters as a crop input for the coordinates portion, my program may act funny because I did not implement a check for that. All in all, I spent about 35 hours or more on this assignment in total, so I don't think it will be easy to identify any real limitations for this program or my scripts.