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CPSC-25

15 May 2025

 Final Project Write up

The program that I made for my final programming project was one that reads in the data from a png and outputs a recreation of the png as ascii characters into the console. The first image is a flow chart for an algorithm that reads through the png data and stores the rgb hex data. It uses i+40 to skip over hex values that are not associated with rgb hex values for the heart.png image used. The second image is a flow chart that takes an 8x8 selection of pixels and sends them to the mean\_pixel\_average\_luminance function, stores that value in the average\_luminance two-dimensional array, and finally stores an ascii character in the ascii\_art array based on the value stored in the average\_luminance array when applied to the symbolArray. The final image is a flow chart for getting the average luminance of the 8x8 pixel selection. This algorithm outputs the mean value for the 8x8 pixel selection. The Big-O time of the first image’s algorithm is n^2, the Big-O time of the second image’s algorithm is n^4, and the Big-O time of the third image’s algorithm is n^2. The data structures that were used in the creation of this program were arrays, vectors, and an array of structs. One step where I got stumped with the algorithm was when trying to take an 8x8 selection of pixels and store their average luminance and to store them without overwriting previously stored luminance values. I found that by using the modulus operator when storing the values to help prevent out of bounds errors and to prevent overwriting other luminance values. For the next version of the program, I would want to make it able to read in all chunk types rather than the 5 that it can currently handle.

A diagram of a flowchart

AI-generated content may be incorrect.

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A diagram of a diagram

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