

Design Document
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CS 135 Final Project

Data

Image- 2D array of predetermined size

File pointers for file containing the image

UserChoice- int

FileName- char string of predetermined size

Height- int

Width- int

How it Works

The user will be displayed a menu. If the user chooses to load a new image the program will ask the user for a file name. The program will then open the file and save the image to an array. If the user chooses the display option, the program will display the image that was previously displayed in the 2D array. If user chooses the edit option from the first menu, they then get displayed a new menu with all the different things they can edit about the image. Every time the user edits the image, the new version is then displayed to the user. After every new iteration of the edited image, the user will be prompted if they want to save their image to a file of their choice. If the user selects yes, then they are asked for the file name. After the program grabs the name of the file, the image is saved to the file and the user is then returned to the beginning menu.

Functions

Main()

Data: Array for the image. Variables for the users choice, width, and height

Functionality: Displays user first menu, contains the functions of that will start depending on which choice the user selects from the menu

loadImage()

Input Parameters: int image 2D array, pointers to height and width variables

Returned Output: None

Functionality: asks user for a file. Opens file. Reads and stores the brightness values into the image 2d array. Updates the width and height variables using the dimensions read from the file

displayImage()

Input Parameters: int image 2D array, int width, int height

Returned Output: None

Functionality: Displays the saved image using the brightness levels stored in the image 2D array so that it prints the correct characters

editImage()

Input Parameters: int image 2D array, pointers to height and width variables

Returned Output: None

Functionality: displays a new menu to the user prompting them to chose from the options to crop, dim, brighten, and rotate 90 degrees. After user selects the option they want, the correct following function will perform

cropImage()

Input Parameters: int image 2D array, pointers to height and width variables

Returned Output: None

Functionality: prompts user for the new dimensions and coordinates they want to crop the image to. Updates the image 2D array with the new image. Updates the width and height variables.

dimImage()

Input Parameters: int image 2D array, int height and width variables

Returned Output: None

Functionality: decreases the brightness of every pixel with a brightness greater than 0 by 1. Updates the image 2D array with the new image

brightenImage()

Input Parameters: int image 2D array, int height and width variables

Returned Output: None

Functionality: increases the brightness of every pixel with a brightness less than 5 by 1.
Updates the image 2D array with the new image

rotateImage()

Input Parameters: int image 2D array, pointers to height and width variables

Returned Output: None

Functionality: would rotate the image by 90 degrees. Then updates the image 2D array with the new image

saveImage()

Input Parameters: int image 2D array, int height and width variables

Returned Output: None

Functionality: prompts user for a file name. writes the image into the file