Design Document
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2D Array Image Editor

Data:

ImageFile - File with Image pre-made on it.
char 2D-Array - which copies the image on the file or takes in user input.
Int Choice - records the user's menu inputs and uses it to decide which menu option to use.
Char brightness - 2D Array which holds the brightness values for the image array.

User Experience:

User boots up the program and is presented with a menu that gives 4 options. Load a new image, display the current image, edit the current image, and exit the program. Depending on the user's input, the program makes a decision on which route to use. The new image option reads a file that the user can edit and creates a 2-D array that copies the contents and size of the original image in the file. Displaying the current image takes the stored values for the 2-D array and prints it in the terminal. Choosing to edit the current image presents the user with 4 more options: crop, dim, lighten, and rotate the image.

Cropping the image allows the user to choose 2 points on each axis of the array and confine the image to those points. Lightning and dimming the image simply change the density of the characters used to make up the image, making the image appear lighter and darker. Finally rotating the image will rotate the characters in the 2-D array clockwise. The new image will display after each of these edits.

Choosing to exit the program ends the program.

Functions:

menu()
Returned Output: choice on which menu option the user wants. (new image, display current, edit current, exit).
Functionality: Display options to user and receive input from user.

menu()
Returned Output: choice on which menu option the user wants. (save a new image and /or return to the menu).
Functionality: Display options to user and receive input from user.

new_image()
Input Parameters: ImageFile, 2D array

Returned Output: 2d array which is a copy of the image in the file.
Functionality: to transfer the information from the file to an array.

display_image()
Input Parameters: 2D array
Returned Output: none
Functionality: display the array in the correct form in the console.

crop()
Input Parameters: 2D array
Returned Output: 2D array
Functionality: to change the column and row number for the array (only smaller)

dim()
Input Parameters: 2D array, brightness array
Returned Output: 2D array after some change
Functionality: to change the character value up by one

brighten()
Input Parameters: 2D array, brightness array
Returned Output: 2D array after some change
Functionality: to change the character value down by one

rotate()
Input Parameters: 2D array
Returned Output: altered 2D array
Functionality: to modify the order of the row and column information in order to make the image rotate 90*

save_image()
Input Parameters: 2D array, Image File
Returned Output: nothing
Functionality: Save the 2D array back into the file.