Alexus Rowe

Erin Keith

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Final Project Design

Main Function Algorithm:

1. Initialize variables for the current image and file name
2. Display the main menu
3. Prompt the user for input
4. Based on the user's choice, execute the corresponding function
5. Repeat until user chooses to exit

Additional Functions:

1. Load Image:

1. **Parameter(s):** file pointer
2. Prompt the user for the file name
3. Attempt to open the file and read the contents with NULL condition included
4. Store the image data in an 2D array
5. Close the file
6. Return the loaded image

2. Display Image:

1. **Parameter(s):** 2D Array
2. Define the function to display the current image
3. Iterate over the image data and map brightness values to characters
4. Print the characters to the screen to represent the image

3. Edit Image:

1. **Parameter(s):** 2D Array
2. Display the editing menu
3. Prompt the user for input
4. Execute the corresponding editing operation based on user choice
5. Update the image data according to user choice

4. Crop Image:

1. **Parameter(s):** 2D Array, indexes for cropping
2. Prompt the user for the indexes of the cropping area
3. Crop the specified indexes from the original image
4. Return the cropped image

5. Adjust Brightness:

1. **Parameter(s):** 2D Array
2. Iterate over the image data and increment/decrement brightness values
3. Ensure that brightness values stay within the valid range with a do while or if condition
4. Return the adjusted image

6. Rotate Image:

1. **Parameter(s):** 2D Array
2. Define the function to rotate the current image by 90 degrees.
3. Create a new image with dimensions swapped
    a. width becomes height
    b. height becomes width
4. Iterate over the original image data and map pixels to new positions in the rotated image
5. Return the rotated image

7. Save Image:

1. **Parameter(s):** 2D Array, file pointer
2. Prompt the user for a file name to save the image
3. Open the file in write mode and write the image data
4. Close the file once writing is complete