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LE/CSSD 1201 M

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Pixel Craft Project Report

PixelCraft.java

Description: This project has given us the opportunity to understand how digital images are shown and how one can manipulate its pixels to produce various image effects. This was done through many algorithms including iterative and recursive methods. By utilising classes and inheritance, it has helped design and create software that can manipulate an image to the desired image effect. The documentation walks the reader throughout the project.

Classes:

Pixel Craft: It parses the command line arguments and calls the appropriate converter to process the input image. It also handles exceptions and print error messages when necessary.

Converter: a base class for the “converter” classes to inherit from.

Grayscale: inherits from the Converter class and converts image to grayscale.

Rotate: inherits from the Converter class and rotates an image 90 degrees clockwise.

Blur: inherits from the Converter class and applies a simple blur effect to the image.

CheckerBoard: inherits from the Converter class and converts the image to a black and white checkerboard pattern.

Flip: inherits from the Converter class and horizontally flips the image by swapping the outermost pixels.

RecursiveMirror: inherits from Converter class and recursively draws a smaller duplicate image on top of the original image using the Graphics2D class.

WhiteFrame: inherits from the Converter class and converts all the edge pixels to white creating a border that is 10 px thick.

Binary: If the outputImage's ARGB value is more than or equal to 0xFF7F7F7F, the ARGB value is set to white and otherwise it is set to black.

Self Assessment:

Efua: I completed the Converter class, Flip class, CheckerBoard Class, RecursiveMirror class, and WhiteFrame class.

Atheen:

I completed the rotate class, blur class, grayscale class and the binary class.