USEME File:

Steps to run JAR file.

1. Extract project folder.

2. Inside project folder open res folder.

3. Create a new folder somewhere in your machine

4. Copy the following files from res folder to your newly created folder:

a. Copy .jar file

b. Copy snow.ppm

c. Copy script.txt

5. Now open command line terminal inside and type the following commands.

1. To run the program in script file mode using jar

a. cd <Absolute\_Path\_Of\_Your\_Newly\_Created\_Folder>

b. java -jar ./Assignment6.jar -file ./script.txt

This will create all the images in the same folder.

2. To run the program in interactive text mode using jar

a. cd <Absolute\_Path\_Of\_Your\_Newly\_Created\_Folder>

b. java -jar ./File\_Name.jar -text

This will allow you write commands interactively.

3. To run the program in GUI mode using jar

a. cd <Absolute\_Path\_Of\_Your\_Newly\_Created\_Folder>

b. java -jar ./ File\_Name.jar

This will allow you to perform IME operations via GUI application.

Note: Make sure you are in the right directory.

GRIME: Graphical Image Manipulation and Enhancement

How to use GRIME GUI java application

GRIME GUI application is a simple image editing program that allows you to perform basic image manipulations using the GUI interface created using the java swing library. To use the program, follow these steps:

1. Open the GRIME GUI application using the above-mentioned steps via JAR file.
2. To Load an image into the application. You can do this by clicking the "File" Menu button in the top left corner of the frame in the Menu bar and then click on “Load” button -> this will display an Open Dialog Box inside the application window frame -> now navigate to the file you want to Load or just type the image file location in the File Name text area and then click on “Open” button on the Dialog Box. Click on “Cancel” button instead of “Open” button to cancel the Load Operation.
3. If you load the correct image file which is supported by the GRIME application then you will see the image that you loaded in the image panel which is below the Menu Bar. You will also see the Histogram of that image which is used to visualize the distribution of color or intensities in an image.
4. Now After Loading the Image ->Choose the operation you want to perform on the image. You can do this by clicking the appropriate button on the button panel which is displayed in the bottom of the GUI window. There are total 8 buttons which handles all the operations supported by GRIME application.
5. The buttons are “Flip”, “Greyscale-Component”, “Filter”, “Color Transform”, “Dither”, “Brighten”, “RGB-Split”, RGB-Combine.
6. The detailed information of what buttons support what all operations is provided below.
7. To Save the image file after performing all your desired IME operations, Follow these steps->
   1. Click on the "File" Menu button in the top left corner of the frame in the Menu bar and then click on “Save” button.
   2. This will display a Save Dialog Box inside the application window frame -> now navigate to the location where you want to save your file or just type the image file location in the File Name text area and then click on “Save” button on the Dialog Box to Save the image in that location.
   3. Or you can Click on “Cancel” button instead of “Save” button to cancel the Save Operation.
8. If you want to exit the program you can either click on “File”->” Exit” button on the Menu Bar or you can just click on “X” button on the top left corner of the GRIME application window.
9. You can also Resize the GRIME application window.
10. The image panel is also scrollable to support large images.

Operations Supported by Different Buttons -:

* Load: Loads an image file into the application.
* Brighten: Brightens the image by the specified value.
* Flip: Apply the specified flip type (horizontal, vertical) to the image that is being worked on.
* Greyscale: Converts the image to the choice of components offered by Greyscale Components Offered are ->” red-component, green-component, blue-component, value-component, intensity-component, luma-component”.
* RGB split: Splits the image into its red, green, and blue components.
* RGB combine: Combines the red, green, and blue components into a single image.
* Filter: Apply the specified filter type (blur, sharpen) to the image.
* Transformation: Applies the specified transformation type (sepia, greyscale) to the image.
* Dithering: Applies a dithering effect to the image.
* Save: Saves the image to a file.

Examples

Here are some examples of how to use GRIME GUI Operations:

* To load the image "Koala.ppm" into the application and brighten it by 150, you would click the "Load" button, select the "Koala.ppm" file click on open button, after successful loading-> click the "Brighten" button, enter "150" in the input value dialog box, and click the "Ok" button.
* To flip the image "Koala.ppm" vertically, you would click the " flip" button and then select vertical-flip option inside the dialog and click on Ok button.
* To convert the image "Koala.ppm" to grayscale -value, you would click the "Greyscale-Component" button and then select value-component option inside the dialog and click on Ok button
* To split the image "Koala.ppm" into its red, green, and blue components, you would click the "RGB split" button and save the three files which were split to your desired file location.
* To combine the red, green, and blue components of the image "Koala.ppm" into a single image, you would click the "RGB combine" button, then load three image components files one by one, To display the image formed after combining the files.
* To sharpen the image "Koala.ppm", you would click the "Filter" button and select sharpen option from the Dialog.
* To apply the sepia transformation to the image "Koala.ppm", you would click the “Color Transform" button, select the "sepia" option, and click the "Ok" button of the Dialog.
* To apply a dithering effect to the image "Koala.ppm", you would click the "Dither" button.

For Running the Program using Script and Interactive mode follow the below instructions:

The following script commands are supported by the image processing application:

load:

Syntax: load <filename> <image-name>

Example: load images/Koala.ppm Koala

Description: Loads the specified image file into the application with the given image name.

brighten:

Syntax: brighten <value> <source-image> <output-image>

Example: brighten 150 Koala Koala-brightened

Description: Brightens the source image by the specified value and saves the output to the specified output image name.

To darken the image, use a negative value.

vertical-flip:

Syntax: vertical-flip <source-image> <output-image>

Example: vertical-flip Koala Koala-vertical

Description: Flips the source image vertically and saves the output to the specified output image name.

horizontal-flip:

Syntax: horizontal-flip <source-image> <output-image>

Example: horizontal-flip Koala Koala-horizontal

Description: Flips the source image horizontally and saves the output to the specified output image name.

greyscale:

Syntax: greyscale <component-type> <source-image> <output-image>

Example: greyscale red-component Koala Koala-greyscale-red

Description: Converts the source image to grayscale using the specified component type (red, green, blue, intensity, value, luma)

and saves the output to the specified output image name.

rgb-split:

Syntax: rgb-split <source-image> <output-red> <output-green> <output-blue>

Example: rgb-split Koala Koala-R Koala-G Koala-B

Description: Splits the source image into its red, green, and blue components and saves them as separate output images.

rgb-combine:

Syntax: rgb-combine <output-image> <red-image> <green-image> <blue-image>

Example: rgb-combine Koala-combine Koala-R-bright Koala-G Koala-B

Description: Combines the red, green, and blue images into a single output image.

sharpen:

Syntax: sharpen <source-image> <output-image>

Example: sharpen Koala Koala-sharp

Description: Sharpens the source image and saves the output to the specified output image name.

blur:

Syntax: blur <source-image> <output-image>

Example: blur Koala Koala-blur

Description: Blurs the source image and saves the output to the specified output image name.

transformation:

Syntax: transformation <transformation-type> <source-image> <output-image>

Example: transformation sepia Koala Koala-sepia-trans

Description: Applies the specified transformation type (sepia, greyscale) to the source image and saves the output to the specified output image name.

dither:

Syntax: dither <source-image> <output-image>

Example: dither Koala Koala-dither

Description: Applies a dithering effect to the source image and saves the output to the specified output image name.

save:

Syntax: save <filename> <source-image>

Example: save images/Koala-greyscale-red.ppm Koala-greyscale-red

Description: Saves the specified source image to the specified output filename.

Conditions:

1. All input filenames and image names should be valid and exist in the application's working directory.

2. The output filename should not match any existing filenames in the working directory, otherwise, it will be overwritten.

3. Commands that require a source image should be preceded.