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Media Programming: Web Technologies Lab 01

Exercise A1-1

Histogram

- a) Download the file histogram.zip from moodle. Unzip it.
- b) Enter the directory histogram and open index.html. You may need a local web server to do it. If you are using Python 3, you can start a local web server by the command python -m http.server. See https://developer.mozilla.org/en-US/docs/Learn/Common_questions/set_up_a_local_testing_server.
- c) The application is intended to calculate histograms of images. You can load an image by clicking the button Browse..., select a width of bins of the histogram, and the application automatically shows three histograms, for the red, green, and blue channels, respectively. For example, Fig. 1 shows the image lena_klein.jpg, with its brightness being 0, and the histograms with a width of bins of 16. We can see that the red channel in this image is considerably more intensive than the green and blue ones.
- d) Extend the file histogram.js to achieve the following:
 - When an image is loaded in the application, the histograms are automatically generated and displayed
 - When the user changes the value of the brightness slide bar, then the current value is displayed as a number, and the image is updated accordingly
 - When the user clicks the button Restore, then the original image is displayed, and the brightness set back to 0
 - When the user changes the brightness, clicks Restore, or changes the value of Bin width, then the histograms should be updated automatically
- e) The current GUI is very primitive. Improve it.

Notes

- Use the library Chart.js https://www.chartjs.org/ to generate the chart.
- You may need to know something about ImageData of the HTML5 canvas API. See https://developer.mozilla.org/en-US/docs/Web/API/ImageData

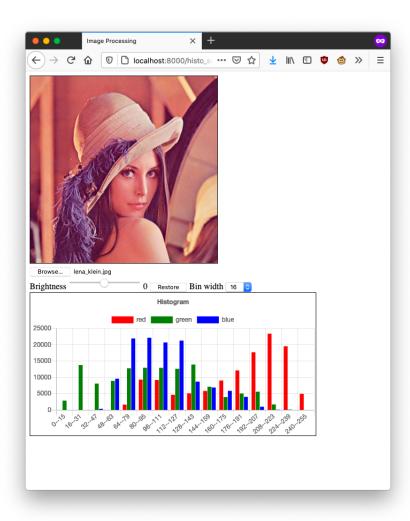


Figure 1: Screenshot