

Lab lecture exercises – Week 5

In the stub for today you will find in addition to this text (given as **lab05.pdf**), a coloured image of the School of Computer Science building (**ComputerScience.ppm**), which you can display using **gimp**, for instance.

Furthermore you find a Java class **PPMImage.java**, which can be used to transform the colour image into a grey scale image. Lastly, there is a class stub, called **PGMImage.java** which we use to manipulate the grey scale image. As usual, create a suitable new Java project and import the two Java classes (into the **src** directory).

Also import the **ComputerScience.pgm** file into the folder of the project, that is, *above* the **src** and **bin** folders.

The plan for today is to write four methods that manipulate the grey scale image files:

1. **public PGMImage crop()**, a method that crops the left upper half of an image.
2. **public PGMImage darken()**, a method that takes the image and produces the same image, but every pixel value is reduced so that the image looks much darker.
3. **public PGMImage invert()**, a method that inverts the grey scale in a picture so that dark goes to bright and vice versa.
4. **public PGMImage shrink(int factor)** shrinks the grey scale picture by the given factor. That is, **factor** × **factor** many pixels are averaged and replaced by a single pixel.