1. Project 03-02A: Modification of Project 03-02

**Histogram Mapping**

(a) Write a computer program for computing the histogram of an image. The program should also accept a list of one or more intensity pairs (input intensity, output intensity) that define knot points of a piecewise linear TTC for modifying the image.

(b) Implement a piecewise linear TTC algorithm to modify the image according to the transform curve defined by the input pairs.

(c) Open the Salonika_dark.png image from the "7_overhead" section of the class web page "images" link. Transform that image with your program, using the input transform points <0,0>, <38,157>, <115,244>, <255,255> to define the piecewise linear mapping.

As a minimum, your report should include the original image, a plot of its histogram, a plot of the histogram transformation function, the enhanced image, and a plot of its histogram. Use this information to explain why the resulting image was enhanced as it was.

1. (Alternate). If the image display tool you usually use already has a linear TTC mapping function, or does not have an image histogram equalization function, you may substitute Project 03-02 from the textbook project list for this modified problem.