Introduction

In this exercise you will do some simple things with Numpy arrays and plot them in various ways using Matplotlib.

Steps:

1. Create a two-dimensional array of 100 by 200 random numbers (drawn from a distribution of choice). Look at the documentation of the numpy.random module for efficient ways to generate this random data.
2. Use one of the functions in pyplot to show this distribution as a two-dimensional, color-coded image.
3. Change the way your arrays is displayed from color-coded to gray-scale.
4. Reshape the array to a one-dimensional array, and create (i.e. plot) a histogram of the values in the array created for point 3. Does the histogram look like the distribution you chose?
5. Create a 2-dimensional numpy array that contains samples from 'sin(x) * sin(y)' and plot this like you plotted the random data of step 1.
6. Now take the array created in step 5 and replace all negative values with 0. Plot also this array.