CIS 402: Problem Set 3

Directions for Submission

E-mail your answers to me at ajp9@cornell.edu. The subject of your message should be “CIS402 PS3,” and the body of the message should contain your answers. Some mailers can format messages using HTML or RTF. Please turn this feature off and send your message using plain text. If for some reason you cannot send your message as text, you may attach your answers as a text file.

Essential Knowledge–Please give a brief answer (1-2 sentences) for each

1. You have a matrix of data C with values ranging from 1 to 6. You want to use color to indicate the values, with low values displayed as red, high values displayed as green, and smooth transitions in between. How would you create such a colormap? You’ve been invited to present this work to the Cornell trustees, who are mostly old, rich men. Why might the colors you’ve picked be inappropriate for this audience?

2. You just finished installing Windows XP. After sending your full name, SAT scores, passport number, and DNA sample to Microsoft, you are all set to do your Matlab homework. Unfortunately, XP deleted the code for surf. Describe what changes you need to make to the surface created by pcolor(X,Y,Z) and the axes to make the output duplicate the results of surf(X,Y,Z).

3. The command pcolor with flat or faceted shading produces a series of colored rectangles. What three handle graphics properties determine the color of a rectangle, and to what object(s) do these properties belong?

Programming: Self-Motivation

For this problem set, I’m giving you the choice between choosing your own programming assignment and working through the one below. If you decide to choose your own, here’s what you must do:
First, pick a problem (it must involve Matlab graphics). This should be something interesting to you. Figure out what you want to do and send me a brief e-mail by 5 PM Wednesday, 10/23 describing what you’re doing. I will then tell you whether or not this is acceptable.

Second, solve your problem. Your solution should be a function which accepts some data, produces graphical output, and returns handles to any objects created. The more general this function is, the better; however, I will accept functions designed to produce a specific visualization so long as it is a particularly interesting visualization (Note: this policy is somewhat less strict than what I described in class). You must send me three things:

1. The function.

2. An example problem consisting of a .mat file containing a small data set which illustrates the utility of your function. You should also include a sentence or two describing what your function does and how to use the example.

3. An JPEG representing the best output from your function. This doesn’t have to be the same as your example.

Finally, I would like you to show off your function to the class on the last day. Cookies for everyone!