Homework 6
Due: 3/1/2018

- Assignments are due at the beginning of class on the due date.

- Any Matlab/R files are to be submitted as .m or .R files via Moodle (with a corresponding run/driver file if necessary).

- Each file must be uploaded individually. Zipped files will not be graded.

- Show all work and provide discussion where needed in order to receive full credit.

1. The 'data.m' file contains information regarding the population of the U.S. from 1970 to 2000. Use the data set to complete the following parts. Submit your code, but also combine your results and discussion in a neat, organized document.

   a. Plot the data.

   b. Compute the Lagrange interpolating polynomial; plot the polynomial on top of the data.

   c. Smooth the polynomial using a divided difference table to determine the degree. Write out the smoothed model. Plot the smoothed model on top of the results from parts a and b.

   d. Predict the population in March of 1921. Show all work regarding how you arrive at your prediction.

   e. Would you use any of these models to predict the population in 2020? Why or why not?