Exercise 3 Chi-square test

1. Open the file *normtemp.mat* (downloadable from the course web site). The file contains a set of measurements of body temperature taken on healthy people. The three columns in the dataset are temperature, gender, and heart rate. We will need only the first column.

   Copy the first column (temperature in degrees Fahrenheit) into a separate variable:

   tempF=normtemp(:,1)

   If you are challenged by Fahrenheit degrees, like me, you can convert the temperature to degrees C:

   > tempC = (tempF - 32) * 5/9

   The variable tempC will now contain a column of measurements in degrees Celsius.

2. Find the mean and standard deviation. We will need to have these numbers handy, so let's store them in separate variables (I will use here the temperatures in Fahrenheit (tempF), but you can do the same with your variable tempC):

   meanF=mean(tempF)
   stdF=std(tempF)

3. Bin the data into 11 bins.

   hist(tempF,11)

4. Perform a chi-square test to check if the distribution conforms to normal.

   [h,p,stats]=chi2gof(tempF,'nbins',11)

   See MATLAB help for the format of the 'chi2gof' command. The variables in square brackets store the command's output. The keyword 'nbins' followed by the number of bins tells MATLAB that your are dealing with a histogram with 11 bins. Note the values of the probability *p* and chi-square. Try with a different number of bins.