**Assignment #4** – Data analysis and plotting – 10/01/2024 – **Due: 10/10/2024**

Create a script with the following components\*

1. Load in the “data\_for\_assignment4.mat” file
   1. It should contain 3 variables:
      1. **hwydata**: a matrix of highway accident data for each state plus DC
      2. **statelabels**: a vector of strings that identify the state for each row of **hwydata**
      3. **variablelabels**: a vector of strings that identify the data in each column of **hwydata**
2. Which state had the highest number of accidents (“TrafficAccidents”), and how many were there?
   1. Hint: the max() function can give you 2 outputs
3. Which state had the highest ratio of accidents to total drivers (“LicensedDrivers\_thousands\_”), and what was the ratio?
4. Which state had the highest ratio of accidents to total population (“TotalPopulation”) *in thousands* (i.e. number of accidents per 1k residents), and what was the ratio?
5. Visualize the data using the plot() function in the following way
   1. Plot the number of accidents (y-axis) vs the total population *in thousands* (x-axis)
   2. On the same figure, plot the number of accidents vs the number of drivers
   3. Add axis labels, a title, and a legend (check the “legend()” function)
6. Visualize the data using the scatter() function (look at the documentation!) in the following way:
   1. Place a marker at the latitude and longitude of each state (“CentroidLongitude” and “CentroidLatitude”)
      1. Hint: it should look vaguely like the United States
   2. The size of the marker should represent the total number of accidents in that state
   3. The color of the marker should represent the ratio of accidents to population
   4. Add axis labels and a title

\* Note1: **bolded** items are variables that should be present in the MATLAB workspace after running the script

\* Note2: for components that have a question associated with them, create a comment containing your answer after the line(s) of code that got the answer (for example, x = 7^2 + 2; # the data type is ‘double’)