Name: _____ Section: _____
Exam2. Part2. 911 Calls. Let's finish this! ☺

In part 2, create a main code AND another function that analyzes the data previously filtered on Friday. Remember we only have 55minutes today, of which you should save 5 to peacefully & correctly zip and submit. This zip WILL INCLUDE the excel sheets, which you must <u>close</u> <u>before</u> you zip. They're also big files, so the zip will take time to zip AND to upload. DO NOT MISS THE SUBMISSION OR DO THIS IN THE LAST 5 SECONDS: "You snooze, you loose." As usual, submit many times if you want for peace of mind. All basic requirements as usual (30pts). No crash (5pts). Fixed Friday (5pts).

Re-download the excel files online. I've cleaned up a little more, and you now have 911 calls for Baltimore, MD as well.

The <u>requirements</u> are as follows. NO IF and NO LOOPS.

MAIN CODE:
A message box welcomes the user (3pts). After the user clicks OK to proceed (2pts), a browser opens to let user pick a file (3pts). The program will upload the raw data from the file chosen (5pts), then pass it to the function you wrote Friday (5pts). This will allow the user to pick a specific 911 call type, which will return the data as specified Friday. Last, call a final programmer-defined (requirements below) function will analyze the data in order to create two figures (5pts).

ADDITIONAL PROGRAMMER-FUNCTION:
This function is responsible for visualizing the data selected from Friday. There will be two figures:
- Figure1: will show the location of each 911 call, using the latitude and longitude. There will be a dynamic title showing the type of call selected, as well as the state's 2 letter abbreviation.
- Figure2: will show a bar graph of the count of responses types. This will also have a dynamic title showing the total number of calls.

Specifically:
- (5pts) this function has NO return values
- (5pts) this function has 4 parameters: the name of the Excel sheet chosen, and the 3 return-values from Friday
- (7pts) full documentation expected, (5pts) comments, (5pts) spacing and indenting, (3pts) suppress outputs, (3pts) variable names, (5pts) proper function name

For figure 1: slice the state's two letter abbreviation from the filename – they will always be located at the end of the filename (3pts). Use this as the argument of the `usamap();` function. This will let MATLAB focus only on the state studied (3pts). Load the 'coast.mat' file (built-in file) so you get the `lat`, `long` variables of the coast of all continents on Earth (3pts). Using `plotm()`, plot the latitudes and longitudes of the coast (3pts) – no need to zoom in on anything, let the usamap() do its job. Slice and convert to matrices your own latitudes and longitudes (6pts) before calling `plotm()` again to plot them; use a marker and a color of your choice but no lines (3pts). (Note: the `hold on;` method is necessary here (3pts)). Create a dynamic title that displays the type of call selected and the state's 2-letters (3pts).

For Figure2: Create a new figure (3pts). There are only 3 types of responses: 'GONE ON ARRIVAL', 'NECESSARY ACTION TAKEN', and 'UNFOUNDED'. Count how many of each kind happened in the data passed to the function (6pts). Use a `bar()` graph to show each count together (5pts). Create a dynamic title that shows the total amount of 911 calls (3pts). Finally, change the 'xticklabel' so it shows words instead of the number 1, 2 and 3. This can be done using the `set()` function, called below the bar() graph as follows: `set(gca, 'xticklabel', { });` the last argument is the cell array of strings, in the order of your bar data (hardcoded-nothing fancy) (3pts).
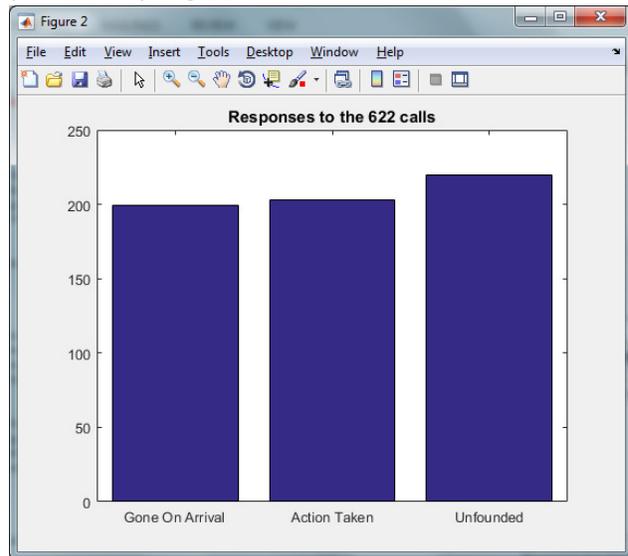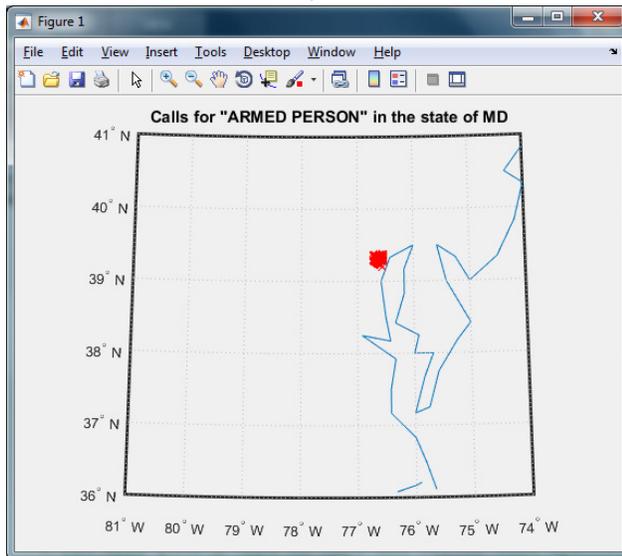
Between the two figures, create a `pause()` of 1 second (2pts).

The next page shows my two figures. Feel free to modify slightly as usual your titles, etc..

Example: File Calls_911_LA.xlsx used, analyzing "Ambulance Request".
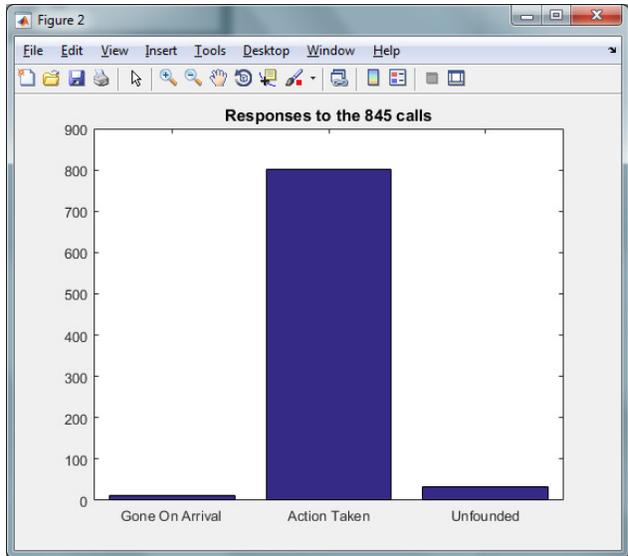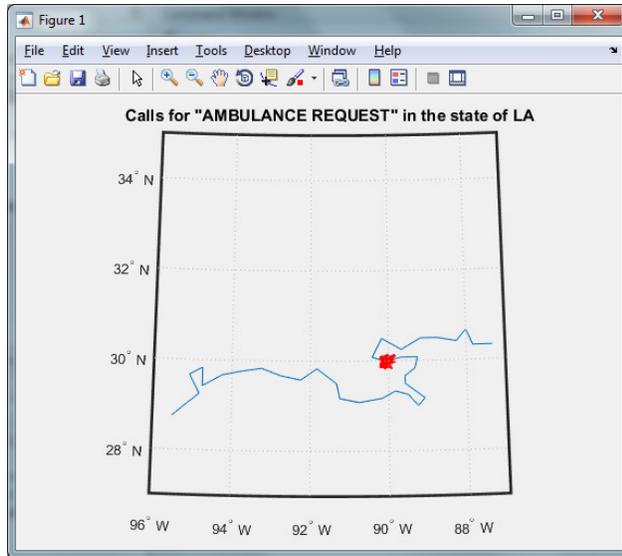
Example: File from Baltimore, Maryland, analyzing "Armed Person"

*Disclaimer: while all the LA data is real, from data.gov, part of the MD data was randomly generated.. However, the MD original file was over 1,000,000 rows which took over 2minutes to load…. ugh