Homework 4
Due September 26 in class
20 points

Note: For this and all future assignments, please use good programming style. Comment your code. Use meaningful variable names. Use variables whenever a value is not simply a fixed constant in an equation. Separate logical sections of your code using %%. I trust that you will not search online for web-published algorithms that solve some of these problems.

Q1. Write your own Matlab code to replicate the operation performed by the Matlab find() command. Remember that find() takes an array of values and returns an array with the indexes of the non-zero elements. Don’t write a function (we haven’t talked about those yet). Just write it as a script. You can assume that the array of values is one-dimensions (technically an nx1 or 1xn array in Matlab). You may need to check the documentation for the find() command and try it out to make sure you understand well what it does so you can replicate its basic operation.

Q2. Write Matlab code that will create a stem-and-leaf plot. I bet that some of you do not know what that is. So Google “stem and leaf plot” (Wikipedia has a fairly clear explanation).

Assume that you have a one-dimensional array called data. For testing purposes, assume it has the following values:

mydata = [68 47 63 76 44 64 81 66 106 68 72 72 46 75 49 84 88];

I want you to first create the appropriate data structure for holding the stem and leaf plot; some data structure are better than others for a problem like this.

Then print the stem and leaf plot using appropriately formatted fprintf() commands.

Your printed output should look like the stem and leaf plot shown on the Wikipedia page.

```
  4 | 4 6 7 9
  5 |
  6 | 3 4 6 8 8
  7 | 2 2 5 6
  8 | 1 4 8
  9 |
 10 | 6
```

I may try running your code using a different set of data, so make sure to test it using other data values; definitely make sure it runs with other sets of positive whole numbers. For full credit, it should also run with data sets such as:

mydata2 = [-23.678758, -12.45, -3.4, 4.43, 5.5, 5.678, 16.87, 24.7, 56.8];

**Unexcused late assignments will be penalized 10% for every 24 hours late, starting from the time class ends, for a maximum of two days, after which they will earn a 0.**