Matlab Demonstration (10/14/2013)

How to generate file names

Suppose you have two files in the folder

```
>> ls

.                springs.nodes
..               springs.trusses
```

and your `filename` variable is set to `'springs'`. The way you can generate 'spring.nodes' is the same as you would be concatenating two vectors:

```
>> filename = 'springs'

filename =

springs

>> [filename, '.nodes']

ans =

springs.nodes
```

Reading files

Now we are ready to write the script that reads the file `springs.nodes`, which I save as `readfile.m`:

```
fid = fopen([filename, '.nodes']);
contents = fscanf(fid, '%f', [2 inf]);
fclose(fid);
contents = contents';
```

Note that the fscanf fills the matrix column-by-column. That is two we read a "$2 \times \infty$" matrix (in practice that means that we read the entire file into a $2 \times N$ matrix) and then transpose it.

If we now run this script we will get

```
>> readfile
>> contents

contents =

    1.0000         0
         0         0
         0    0.5000
         0         0
    1.0000         0
```

Getting data from the file contents

Next, if we want to save the 2nd column into a vector `fext`, we do

```
>> fext = contents(:,2)

fext =

         0
         0
    0.5000
         0
         0
```

Another helpful function is `size`, which gives both or one of the two dimensions of the matrix:

```
>> size(contents)

ans =

     5     2

>> size(contents,1)

ans =

     5
```

Plotting numbers and text

For the record, today we did this:

```
hold on; plot(0,0,'o','markersize',12); text(0,0,'1'); hold off;
```

but we also noticed that the output was not too pretty.