Matlab Exercises for Week II

(Due: Tuesday, Feb 3)

Arrays can be entered on Matlab in the following way:

- `x=[1,2,3,4]` Assigns the 1×4 row vector to `x`.
- `x=[1;2;3;4]` Assigns the 4×1 column vector to `x`.
- `A=[1,2;3,4;5,6]` Assigns the 3×2 matrix to A.

Exercises

1. Try the following Matlab commands first, then describe what `randperm(N)` will do:

   ```
   randperm(4)    randperm(5)   randperm(10)
   ```

2. What do the commands `length` and `size` return? Try the following:

   ```
   x=rand(6,1);
   length(x)
   size(x)
   x=x';
   length(x)
   size(x)
   ```

3. When do we use the commands `zeros`, `eye`, `rand`? To answer, try the following:

   ```
   A=zeros(10,5)   B=eye(4)   C=rand(5,4)
   ```

4. What does each of these do: `a:b` and `a:b:c`? To answer, try the following first:

   ```
   1:5   1:0.5:5   5:-1:0   sqrt(2):0.5:pi
   ```

5. What does `linspace(a,b,c)` do? Try the following first:

```
linspace(1,5)   linspace(1,5,20)   linspace(sqrt(2), pi, 5)
```

6. `ceil`, `round`, and `floor` are three ways to round off a number to an integer. Use Matlab's `help` feature to figure out the difference between the three commands.

7. Read Appendix A about accessing submatrices to help answer the following question: If C is a 5×4 matrix, what will `C([3,4],[1:3])` produce? If you're not sure, try it with a specific 5×4 matrix.