ESC 251 **HW 15** **Due: Oct. 6**

Remember to indent the bodies of your IF-THEN statements and looping structures.

For this assignment you need to load a data file. This file has two columns. It is easier to do the assignment if you extract each of these columns into their own variables.

```
load hw15.dat
x = hw15(:,1);
y = hw15(:,2);
```

(12 pts) The file `hw15.dat` contains a table of values for some function $y = f(x)$. Write a script that will use linear interpolation to estimate the value of y when $x^* = 1.33, 1.52, 1.74$.

a) You should only have one script that does this for all three x^* values.

b) Your script should work by itself. The only numbers you should be hard-coding are the requested values of x^*. You should be doing a search for where these are located in the table and not manually looking up these positions/values yourself.

c) Your estimates y^* should have the same precision as the values of y in the table. Don't worry about significant figures in the calculation as a whole. Just use the `round` function (see `help round`) to round the value of y^* to the necessary number of digits.

d) This is a table of $y = e^x$. For each x^*, compute the relative error in the associated value of y^*. Comment on the size of your relative errors.