**Econ 4010 Homework 2**

**DUE: Tuesday, September 18 (in class)**

The data file house.csv and R file house.R can be copied from Blackboard. The R file gives some example R code to get you started. The data file contains 14 observations on single family homes in the University City community of San Diego. The variables are:

price = sale price in thousands of dollars

sqft = square feet of living area

bedrms = number of bedrooms

baths = number of bath rooms

1. Use OLS to estimate the equation: pricei = β0 + β1sqfti + εi. Report the summary statistics for the regression results. What are the estimated values of β**0** and β1?

2. Does the coefficient estimate of β1 obtained in qu. 1 seem reasonable (sign and magnitude - explain)?

3. Is the coefficient β1 in qu. 1 statistically significant at the 10%, 5% or 1% level? What is the interpretation of this coefficient?

4. Construct 95% and 99% confidence intervals for the regression coefficient β1 in qu. 1. Report the values of each, as well as create a plot of each.

5. Create a new variable called s1000 which converts sqft into thousands of square feet (i.e. divide by 1000). Re-estimate the equation in 1. using s1000 instead of sqft. How do the results compare with those in qu. 1?

6. Estimate the equation: pricei = β0 + β1sqfti + β2bedrmsi + β3bathsi + ε. Provide the regression summary results and indicate which coefficients are statistically significantly different from zero at the 10%, 5% and 1% levels.

7. How do the results from qu. 6 compare with those obtained in 1? Do the results match up with your theoretical and intuitive economic reasoning? Explain.

8. For the regression estimated in qu. 6, plot actual and predicted values on one graph, and residuals on another.

9. What is the mean of the residuals from this OLS regression? What is the sum of the residuals from this OLS regression? Are these the values you would expect?

10. Is the coefficient on baths (β3) statistically significant? What is the interpretation of the coefficient on baths?

**Provide a listing of your R code used to generate the results above (single spacing is sufficient). DO NOT include R code anywhere else in your homework. Failure to do so will result in a 25% decrease in your homework grade.**