Econ 301   **Bilkent University**
Econometrics   **Department of Economics**

Lab Exercise 5and Homework

A real estate economist analyzing the factors those contribute to the price changes in the real estate market. He collected data on two similar neighbourhoods, one bordering a large university and one that is a neighbourhood about 10 kilometres from the university. Data consists of 1000 observations and is reported in Table 9-1.xls. The data file consists of the following variables:

$PRICE_t = $ House prices given in \$'s

$SIZE =$ Number of square feet of living area,

$AGE_i = $ Age of the house,

$UTOWN_i = 1$ for houses near the university, 0 otherwise,

$POOL_i = 1$ for houses with a pool, 0 otherwise,

$FPLACE_i = 1$ for houses with a fireplace, 0 otherwise.

The economist specifies the regression equation as:
Equation I:
$$PRICE_t = \beta_1 + \beta_2 SIZE_i + \beta_3 AGE_i + \delta_1 UTOWN_i + \delta_2 POOL_i + \delta_3 FPLACE_i + u_i$$
   a) State the expected signs of the coefficients and give economic reasons for these signs.
   b) Which coefficients are statistically significant?
   c) What is the base regression and which group of houses does it describe?
   d) By how much do the houses depreciate per year? Is this statistically significant?
   e) Test the hypothesis that either fireplace, or pool, or location has a positive impact on prices. (Test the variables individually)

Equation II:
$$PRICE_t = \beta_1 + \beta_2 SIZE_i + \beta_3 AGE_i + \beta_4 SIZE^2 + \delta_1 UTOWN_i + \delta_2 POOL_i + \delta_3 FPLACE_i + u_i$$

   f) If you modify the above regression to have a quadratic relation between house prices and the size of the houses does the fit improve?
   g) What is the estimated marginal effect of size (SIZE) on the price of the house?
In your homework, in addition to the written answers and eviews output, you should complete the following table:

Dependent Variable: Price

Regressor	(1)	(2)
Intercept	X.XXX (t-stat)	
SIZE		

AGE		
AGE^2		
UTOWN		
POOL		
FPLACE		
SIZE*UTOWN		
POOL*UTOWN		
SIZE*AGE		
R^2		
Adjusted R^2		
F-stat		
(Prob)		
N		

The numbers in brackets are the t-statistics of the relevant coefficients