1. (Problem 16.54) A university placement director is interested in the effect that grade point average (GPA) and the number of university activities listed on the resume might have on the starting salaries of this years graduating class. He has collected these data for a sample of 10 graduates: (Data is in file xr16054).

   a. Determine the multiple regression equation and interpret the partial regression coefficients.

   b. Dave has a 3.6 grade point average and 3 university activities listed on his resume. What would be his estimated starting salary?

   c. Estimate the standard error for the model.

2. Consider the part of the data (only first 4 data points) of the above problem: (data below)

Graduate	(Thousands)	Average	Activities
1	40	3.2	2
2	46	3.6	5
3	38	2.8	3
4	39	2.4	4

   (a) Write down the multiple linear model for this problem and input the data and write down the equation.

   (b) Write down the X-Matrix for this data (4 graduates).

   (c) Write down the X' matrix (transpose) for this data.

   (e) Write down the $X'X$ matrix for this data.

   (d) Write down the Y-vector for this data.

   (f) Write down the $X'Y$ vector for this data.

   (g) Write down the equation $X'X\beta = X'Y$ vector for this data (β vector is unknown) and solve for β vector.

3. (Problem 4.6). Earnings of Mexican street vendors. Detailed interviews were conducted with over 1,000 street vendors in the city of Puebla, Mexico, in order to study the factors influencing vendors incomes (World Development, February 1998). Vendors were defined as individuals working in the street, and included vendors with carts and stands on wheels and excluded beggars, drug dealers, and prostitutes. The researchers collected data on gender, age,

hours worked per day, annual earnings, and education level. A subset of these data appears in the accompanying table.

(a) Write a first-order model for mean annual earnings, E(y), as a function of age (x_1) and hours worked (x_2).

(b) Find the least squares prediction equation on the printout shown below.

(c) Interpret the estimated β coefficients in your model.