Examples for Chapter 7 Stat286

1. Meddicorp Company sells medical supplies to hospitals, clinics and doctor’s offices. The company currently markets in three regions of the United States: the South, the West and the Midwest. These regions are each divided into smaller sales territories. Data for Meddicorp is contained in file: **MEDDICORP8.csv.** In the data, SALES are in thousands of dollars, ADV and BONUS are in hundreds of dollars. The variable MKTSHR is the market share currently held by Meddicorp in each territory. The variable COMPET is the largest competitor’s sales (in thousands of dollars) in each territory. The variable REGION is coded to indicate the region in which each territory is located:

South=1, West=2, and Midwest=3

Build a model that predicts sales.

1. What kind of model are you going to get if you use the predictor REGION directly in the linear model?
2. Get the full model with dummy variables. (No interaction terms)
3. Use the model selection technique to find the best model.
4. The data **diamond.csv** contains the carat, color, clarity, certification information and the price of some diamonds. Your project is to build a model that predict price from those variables. (Source: *Journal of Statistics Education*)
5. BigTex Services is undergoing scrutiny for a possible wage discrimination suit. As consulting statistician hired by the corporate lawyer, you are to examine data on BIGTEX employees to further investigate the charges. The data set **BIGTEX7.csv** contains the following variable: (Source: Applied Regression Analysis by Dielamn)

SALARY: monthly salary for each employee

YEARS: years with the company

POSITION: position with the company. Coded as the following:

1=manual label

2=secretary

3=lab technician

4=chemist

5=management

EDUCAT: amount of education completed. Coded as

1=high school degree

2=some college

3=college degree

4=graduate degree

GENDER: coded as

0=female

1=male

What would you conclude from the data? Should the BIGTEX be worried about possible wage discrimination charge? Why or why not?