

## Practice Problem 26

Use the data set of "93Cars.xls" from online text to answer the following questions

1. If in a multiple regression model, we want to use "DrType" as an independent variable, then how many dummy variables should we create? Why?

(Notice: "DrType" = 0 if the car is rear wheel drive; =1 if the car is front wheel drive; =2 if the car is all wheel drive. )

Then, we would like to run a multiple regression based on the following model:

$$\text{MaxPr}_i = \beta_0 + \beta_1 * \text{CityMPG}_i + \beta_2 * \text{HwayMPG}_i + \beta_3 * \text{HP}_i + \beta_4 * \text{Domestic}_i + \varepsilon_i$$

Where:

MaxPr: maximum price

CityMPG: City MPG of the car

HwayMPG: Highway MPG of the car

HP: The horsepower of the car

Domestic: whether the car is domestic or imported. =1 if domestic;=0 if imported.

Answering the following questions using this model.

2. Run the multiple regression for the above model, write down the estimated equation, and interpret each coefficient, as well as the intercept.

3. What is Multiple R? Is it meaningful in our case? Why?

4. Interpret the  $R^2$ .

5. What is the formula used calculating adjusted-  $R^2$ ?

6. What is the difference between the  $R^2$  and the adjusted-  $R^2$ ?