In this assignment you will explore data that consists of data on 138 cars that were taken from *Road and Track's "The Complete '99 Car Buyer's Guide"*. The variables in this data set are:

PRICE:	price in dollars (US),
WEIGHT:	weight in pounds,
CITY:	mileage (miles per gallon) in city driving,
DISP:	displacement in cubic centimetres,
COMP:	compression ratio as value to 1,
HP:	horsepower at 6300 rpm,
TORQ:	torque at 5200 rpm,
TRANS:	transmission (1 = automatic, 0 = manual),
CYL:	number of cylinders.

The data set can be obtained from the "Data Sets" page of the STATS 330 Web page or from the STATS330 folder on the "U:drive" of "My Computer" in the Advanced Lab or in the Undergrad Laboratories. To read this file into *R* use:

```
>c99.df<-read.table("file.name",row.names=1,header=T)
```

For this assignment you are to investigate the relationship between mileage in city driving and the other variables. To do this, you need to identify a suitable model that relates CITY to the other variables.

Your assignment should consist of two parts. The first part should be a report that contains:

1. an executive summary,

2. a description of the variables in the dataset,

3. a predictive model for CITY and a discussion of what your model indicates about the way CITY is related to the other variables

4. an evaluation of the precision of predictions from the model and a discussion of the limitations of the model.

The second part of your assignment is a statistical appendix that explains to the marker what you did. Do not include output for all the things you tried. An explanation of what you did with a few key pieces of evidence (plots and/or output) will suffice. Your statistical appendix should contain the following:

1. An explanation of why you chose the model that you did along with key pieces of supporting evidence.

3. Any outliers, high leverage and influential points should be identified and the impact of these observations on the fitted model should be discussed.

This assignment should be handed in to the appropriate box in the basement of the Maths/Physics building by the SMIS Resource Centre, by 4pm on Friday, 30 August.