Homework4

## Chapter 3 8a-c, 9a-f, 10a-h

## R Markdown

## 8a

library(“ISLR”)

lm.fit <- lm(mpg ~ horsepower, data = Auto) summary(lm.fit)

## 8b

attach(Auto) plot(mpg~horsepower, main =" MPG vs Horsepower“, xlab =” Horsepower“, ylab =”MPG“) abline(coef = coef(lm.fit), col =”red")

## 8c

par(mfrow=c(2,2)) plot(lm.fit)

## 9a

pairs(Auto)

## 9b

cor(Auto[1:8])

## 9c

fit2 <- lm(mpg ~ . - name, data = Auto) summary(fit2)

## 9c1

There is a correlation between the predictors and response, whihc would make it seem like the predictors are accurate.

## 9c2

They all seem to be influential.

## 9c3

Cars become more fuel efficient each year.

## 9d

par(mfrow = c(2, 2)) plot(fit2)

## 9e

fit3 <- lm(mpg ~ cylinders \* displacement+displacement \* weight, data = Auto[, 1:8]) summary(fit3)

## 9f

par(mfrow = c(2, 2)) plot(log(Autompg) plot(sqrt(Autompg) plot((Autompg)par(mfrow = c(2, 2)) plot(log(Autompg) plot(sqrt(Autompg) plot((Autompg)

## 10a

?Carseats head(Carseats) str(Carseats) lm.fit = lm(Sales ~ Price+Urban+US, data= Carseats) summary(lm.fit)

## 10b

When the price increases the sales decrease.

## 10c

sales = a x price \* urban + b

## 10d

urban

## 10e

lm.fit2 = lm(Sales ~ Price+US, data= Carseats) summary(lm.fit2)

## 10f

These models are not statistically relevant.

## 10g

confint(lm.fit2)

## 10h

par(mfrow=c(2,2)) plot(lm.fit2)