**Question 1**

auto <- read.table(choose.files(), header=TRUE, sep=",")

attach(auto)

CLMINSUR1 <- (CLMINSUR==1)

SEATBELT1 <- (SEATBELT==1)

ATTORNEY1 <- (ATTORNEY==1)

CLMSEX1 <- (CLMSEX==1)

a.)

model1 <- lm(LOSS ~ CLMINSUR1 + SEATBELT1 + ATTORNEY1 + CLMSEX1 + factor(MARITAL) + CLMAGE)

summary(model1)

e.)

model2 <- lm(LOSS ~ CLMINSUR1 + SEATBELT1 + ATTORNEY1 + CLMSEX1 + factor(MARITAL) + CLMAGE + CLMSEX1\*CLMAGE)

summary(model2)

qt(0.975, 1081)

f.)

NewData <- data.frame(ATTORNEY1=TRUE, CLMSEX1=TRUE, MARITAL=2, CLMINSUR1=FALSE, SEATBELT1=FALSE, CLMAGE=35)

predict(model2, NewData, interval="confidence", level=0.95)

g.)

predict(model2, NewData, interval="confidence", level=0.95)

**Question 2**

class <- read.table(choose.files(), header=TRUE, sep=",")

attach(class)

a.)

model1 <- lm(Test3 ~ Gender + GPA + GradSchl + ClassRow + siblings + countries + jobs + tattoos + pets + HW3)

summary(model1)

step(model1)

modelB <- lm(Test3 ~ GPA + jobs + HW3)

summary(modelB)

b.)

GPA2 <- GPA^2

jobs2 <- jobs^2

HW32 <- HW3^2

modelB2 <- lm(Test3 ~ GPA + jobs + HW3 + GPA2 + jobs2 + HW32)

summary(modelB2)

anova(modelB)

anova(modelB2)

qf(.95, 3, 66)

c.)

NewData <- data.frame(Gender='Female', GPA=3.23, GradSchl='no', ClassRow=2, siblings=1, countries=2, jobs=2, tattoos=0, pets=3, HW3=85)

predict(modelB, NewData, interval="prediction", level=0.95)

NewData1 <- data.frame(Gender='Female', GPA=3.23, GPA2=3.23^2, GradSchl='no', ClassRow=2, siblings=1, countries=2, jobs=2, jobs2= 2^2, tattoos=0, pets=3, HW3=85, HW32=85^2)

predict(modelB2, NewData1, interval="prediction", level=0.95)

d.)

rstandard <- rstandard(modelB)

leverages <- hatvalues(modelB)

par(mfrow=c(1,2))

hist(rstandard)

hist(leverages)

e.)

rstandard

f.)

leverages

g.)

modelB3 <- lm(Test3 ~ GPA + jobs + HW3, subset=-c(20,26,40))

summary(modelB3)

h.)

library(Rcmdr)

cor(cbind(GPA, jobs, HW3))

vif(modelB)

i.)

model2 <- lm(Test3 ~ factor(Laptop))

summary(model2)

l.)

model3 <- lm(Test3 ~ factor(Laptop) + HW3 + GPA)

summary(model3)