**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES**

**ITA 0443 - STATISTICS WITH R PROGRAMMING FOR REAL TIME PROBLEM**

**DAY 4– LAB MANUAL Part 2**

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**LOGISTIC REGRESSION ANALYSIS IN R**

Exercise

5. Create a logistic regression model using the “mtcars” data set with the information given

below.

The in-built data set "mtcars" describes different models of a car with their various engine

specifications. In "mtcars" data set, the transmission mode (automatic or manual) is described

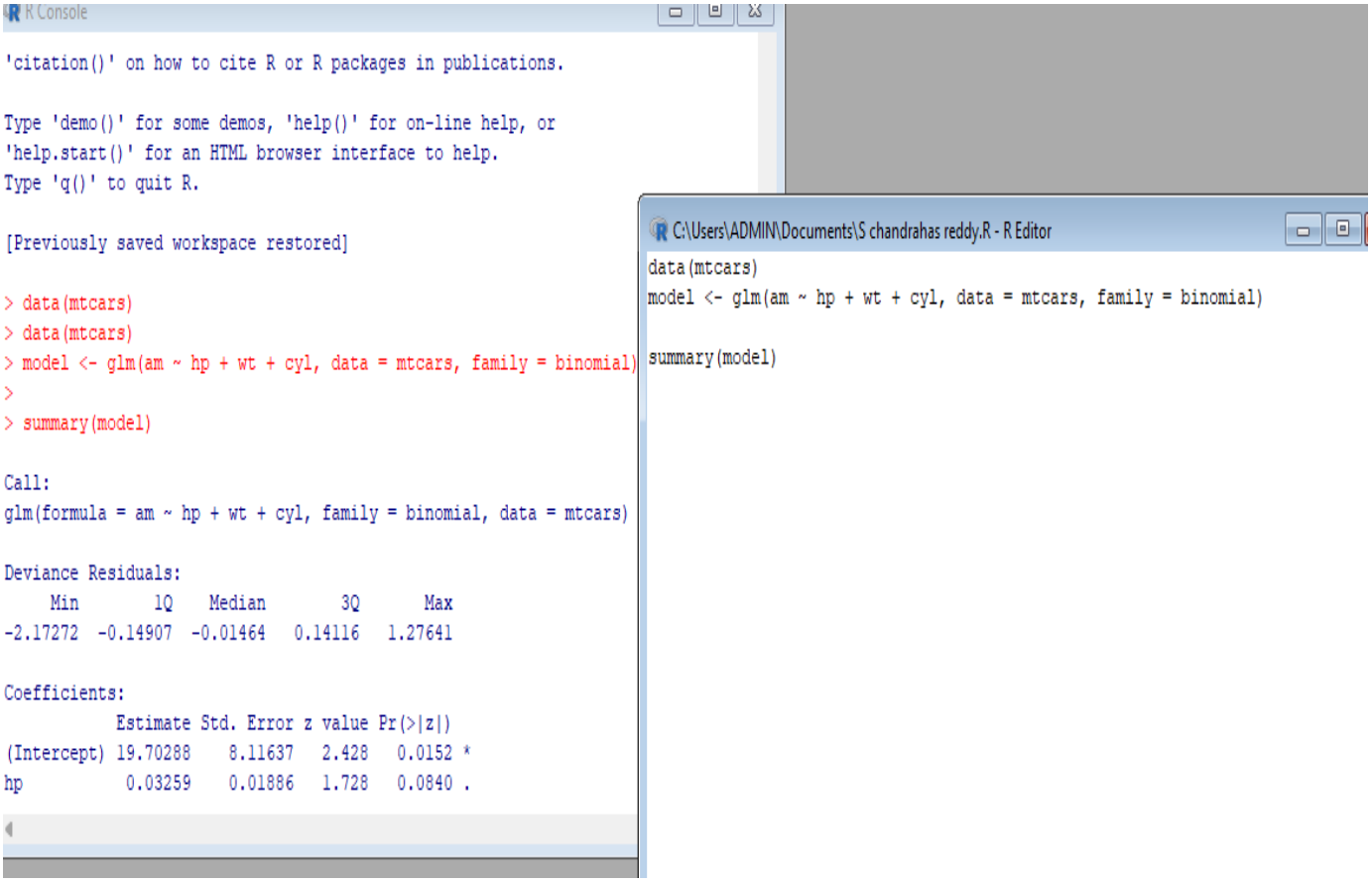
by the column am which is a binary value (0 or 1). Create a logistic regression model

between the columns "am" and 3 other columns - hp, wt and cyl.

A)data(mtcars)

model <- glm(am ~ hp + wt + cyl, data = mtcars, family = binomial)

summary(model)




**POISSON REGRESSION ANALYSIS IN R**

Exercise :

6. Create a Poisson regression model using the in-built data set “warpbreaks” with

information given below.

In-built data set "warpbreaks” describes the effect of wool type (A or B) and tension (low,

medium or high) on the number of warp breaks per loom. Consider "breaks" as the response

variable which is a count of number of breaks. The wool "type" and "tension" are taken as

predictor variables.

A)

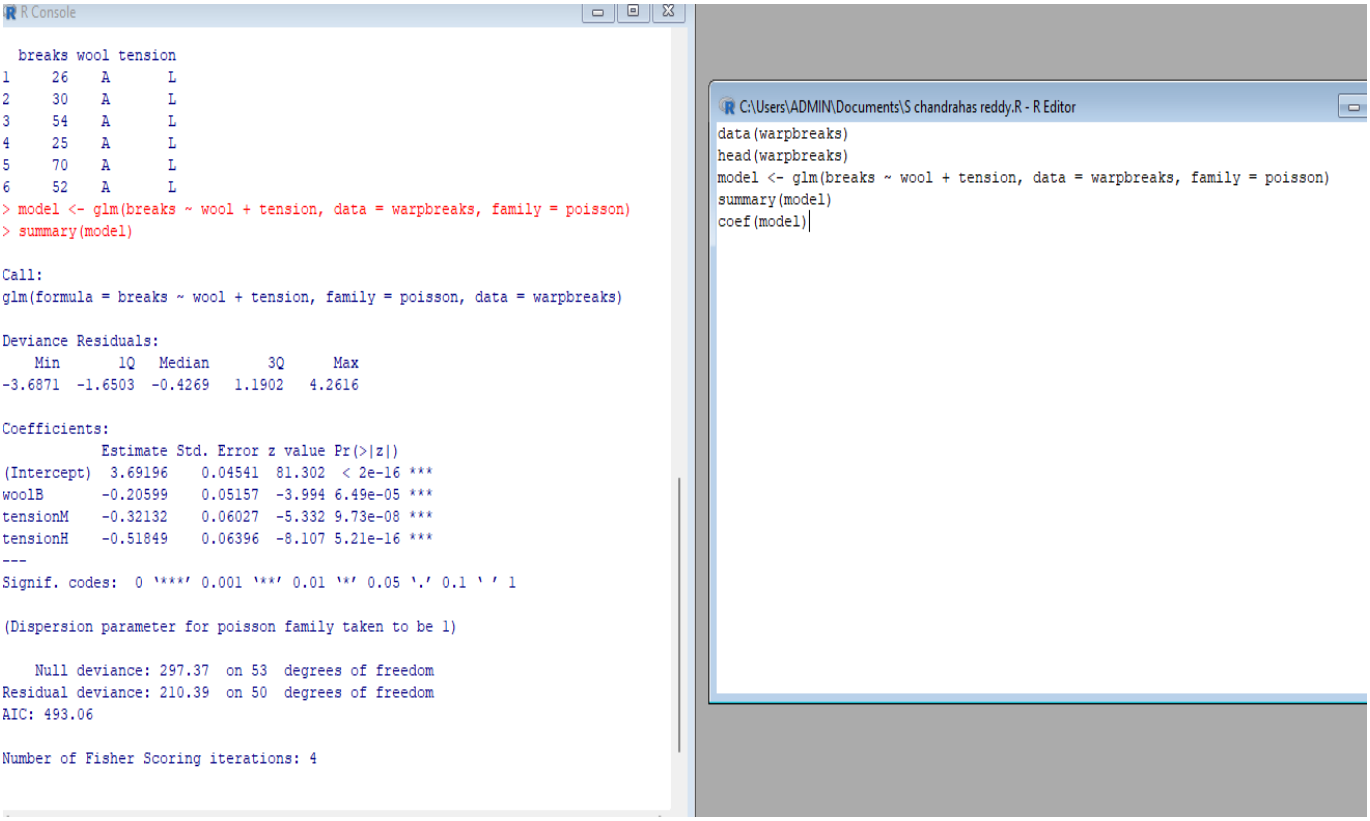
data(warpbreaks)

head(warpbreaks)

model <- glm(breaks ~ wool + tension, data = warpbreaks, family = poisson)

summary(model)

coef(model)


R Console
breaks wool tension
1 26 A L
2 30 A L
3 54 A L
4 25 A L
5 70 A L
6 52 A L
> model <- glm(breaks ~ wool + tension, data = warpbreaks, family = poisson)
> summary(model)
Call:
glm(formula = breaks ~ wool + tension, family = poisson, data = warpbreaks)
Deviance Residuals:
Min 1Q Median 3Q Max
-3.6871 -1.6503 -0.4269 1.1902 4.2616
Coefficients:
Estimate Std. Error z value Pr(>|z|)
(Intercept) 3.69196 0.04541 81.302 < 2e-16 ***
woolB -0.20599 0.05157 -3.994 6.49e-05 ***
tensionM -0.32132 0.06027 -5.332 9.73e-08 ***
tensionH -0.51849 0.06396 -8.107 5.21e-16 ***
---
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(Dispersion parameter for poisson family taken to be 1)
Null deviance: 297.37 on 53 degrees of freedom
Residual deviance: 210.39 on 50 degrees of freedom
AIC: 493.06
Number of Fisher Scoring iterations: 4
C:\Users\ADMIN\Documents\S chandrahas reddy.R - R Editor
data(warpbreaks)
head(warpbreaks)
model <- glm(breaks ~ wool + tension, data = warpbreaks, family = poisson)
summary(model)
coef(model)