EX.NO:7 **REGISTER NO:210701290**

DATE:

IMPLEMENT LINEAR AND LOGISTIC REGRESSION

AIM:

To implement Linear and Logistic Regression.

PROGRAMCODE:

Linear Regression:

```
#Sample data
heights<-c(150, 160, 165,170, 175, 180, 185)
weights<-c(55,60, 62,68,70, 75, 80)
#Create a data frame
data<-data.frame(heights,weights) #
Fit a linear regression model
linear_model<-lm(weights~heights,data=data) #
Print the summary of the model
print(summary(linear_model))
#Plotting the data and regression line
plot(data$heights, data$weights,
main="LinearRegression:Weightvs.Height", xlab =
"Height (cm)",
ylab = "Weight (kg)",
pch=19,col="blue") #
Add regression line
abline(linear_model,col="red",lwd=2)
```

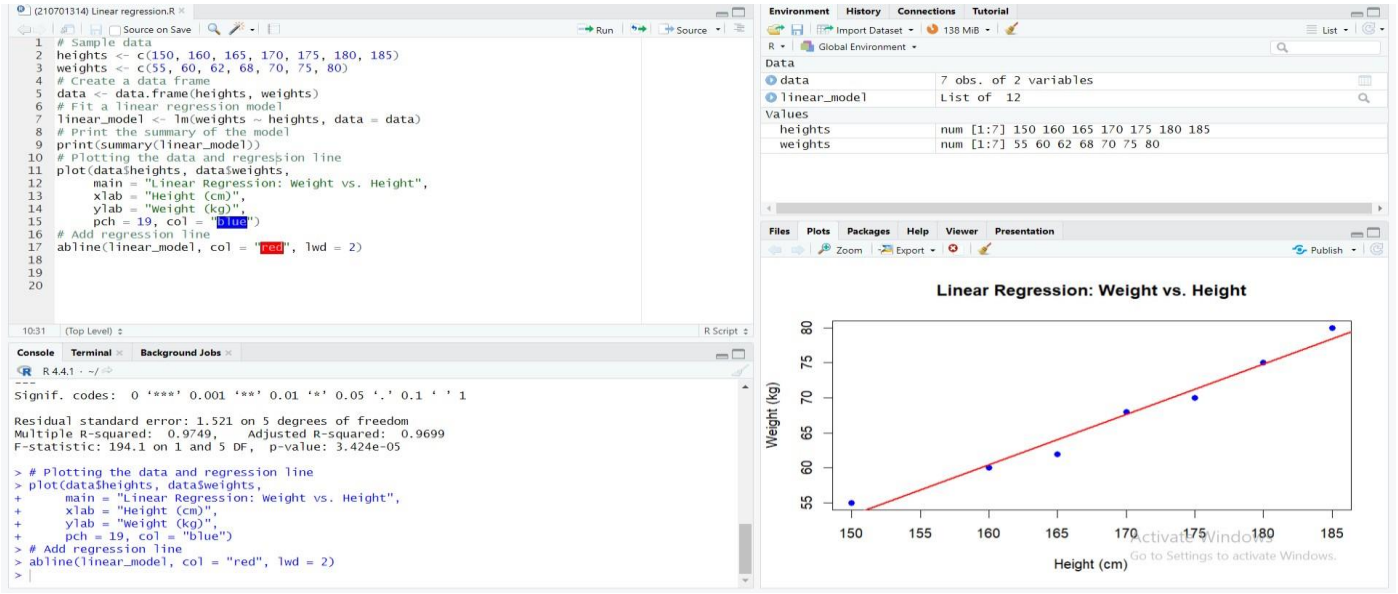
Logistic Regression:

```
#Load the dataset
data(mtcars)
#Convert 'am' to a factor (categorical variable)
mtcars$am<-factor(mtcars$am,levels=c(0,1),labels=c("Automatic","Manual")) # Fit
a logistic regression model
logistic_model<-glm(am~mpg,data=mtcars,family=binomial) #
Print the summary of the model
print(summary(logistic_model))
#Predict probabilities for the logistic model
predicted_probs<-predict(logistic_model,type="response") #
Display the predicted probabilities
print(predicted_probs)
#Plotting the data and logistic regression curve
plot(mtcars$mpg, as.numeric(mtcars$am) - 1,
main="LogisticRegression:Transmissionvs.MPG", xlab =
"Miles Per Gallon (mpg)",
ylab="ProbabilityofManualTransmission", pch
= 19, col = "blue")
```

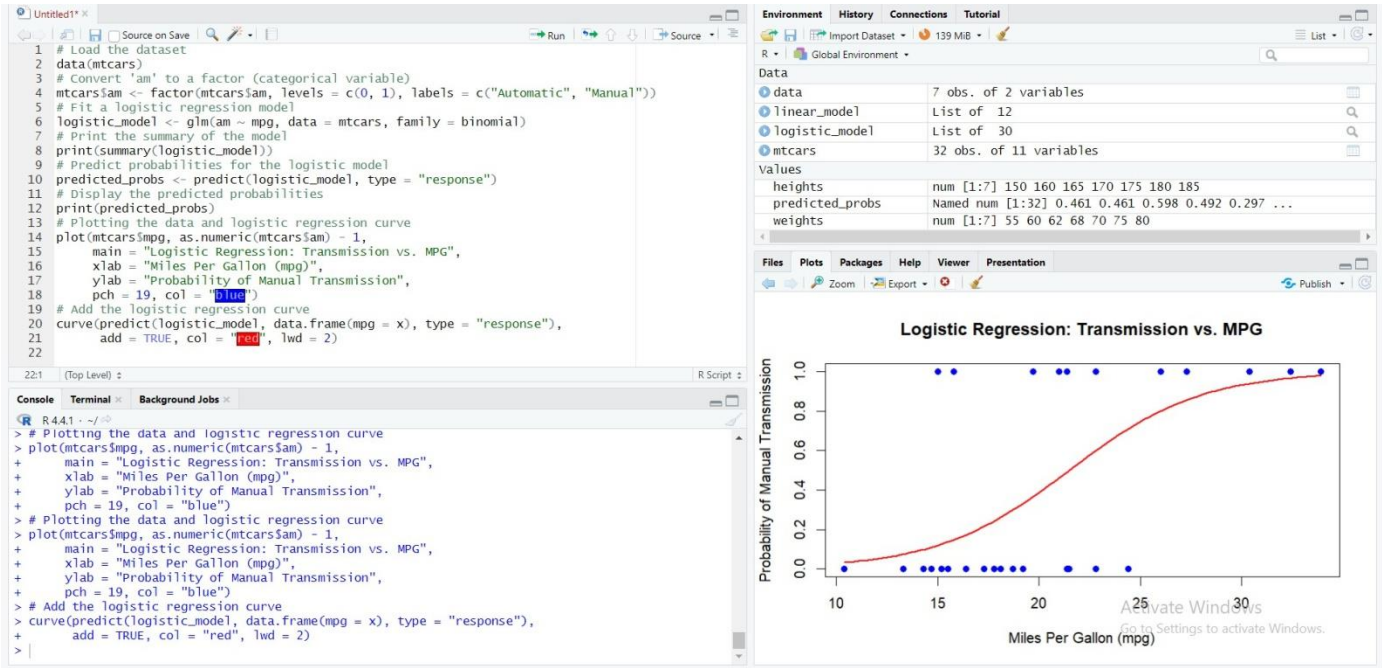
#Add thelogisticregression curve
curve(predict(logistic_model,data.frame(mpg=x),type="response"), add =
TRUE, col = "red", lwd = 2)

OUTPUT:

Linear Regression:



Logistic Regression:



RESULT:

Thus the implementation of Linear and Logistic Regression done successfully.