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| **EX.NO:7 REGISTER NO:210701307**  **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.

