

Exp.No: 7b**IMPLEMENT LINEAR AND LOGISTIC REGRESSION****AIM:**

To write an R code to implement logistic regression.

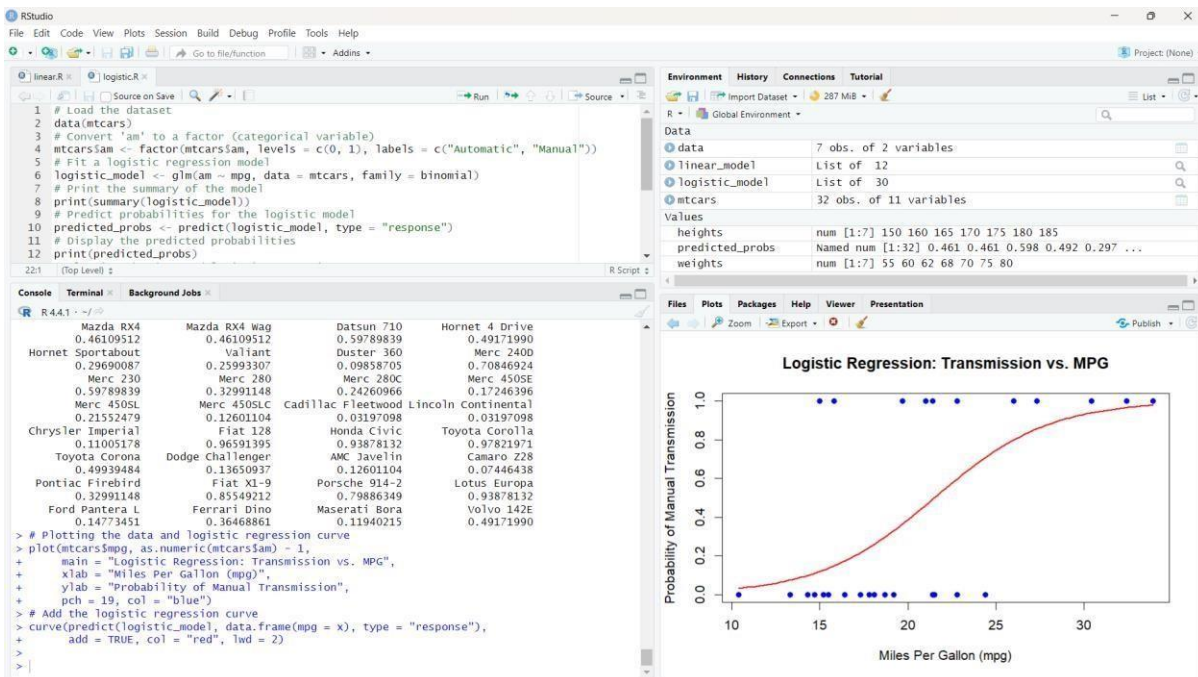
PROCEDURE:

1. Create sample data for heights and weights, fit a linear regression model, and plot the data with the regression line.
2. Use the sample data to create a data frame for the regression model.
3. Fit the linear regression model using the `lm()` function and display the summary.
4. Plot the data points and add the regression line using the `plot()` and `abline()` functions.
5. Load the `mtcars` dataset, convert the 'am' variable to a factor, fit a logistic regression model using the `glm()` function, and plot the probabilities.

PROGRAM CODE:**Program code:**

```
# Logistic Regression data(mtcars) mtcars$am <- factor(mtcars$am, levels = c(0, 1),  
labels = c("Automatic", "Manual")) logistic_model <- glm(am ~ mpg, data = mtcars,  
family = binomial) print(summary(logistic_model))
```

```
# Plotting Logistic Regression predicted_probs <-  
predict(logistic_model, type = "response") print(predicted_probs)  
plot(mtcars$mpg, as.numeric(mtcars$am) - 1, main = "Logistic  
Regression: Transmission vs. MPG", xlab = "Miles Per Gallon  
(mpg)", ylab = "Probability of Manual Transmission", pch = 19,  
col = "blue") curve(predict(logistic_model, data.frame(mpg = x), type  
= "response"), add = TRUE, col = "red", lwd = 2)
```

OUTPUT:**RESULT:**

Thus the R program to implement Linear and Logistic Regression has been executed and verified successfully.