Ex.No:7 Date:	IMPLEMENTATION OF LOGISTIC REGRESSION

AIM:

To write the implementation of logistic regression.

PROCEDURE:

1. Logistic regression is used to predict the class of individuals based on one or multiple predictor variables (x).
2. It is used to model a binary outcome, that is a variable, which can have only two possible values: 0 or 1, yes or no, diseased or non-diseased.
3. Logistic regression belongs to a family, named *Generalized Linear Model* (*GLM*), developed for extending the linear regression model to other situations.
4. Other synonyms are *binary logistic regression, binomial logistic regression* and *logit model.*
5. Logistic regression does not return directly the class of observations. It allows us to estimate the probability (p) of class membership. The probability will range between 0 and 1.

PROGRAM:

```
input=mtcars[,c("am","cyl","hp","wt")]

am.data=glm(formula=am~cyl+hp+wt,data=input,family = binomial)

print(summary(am.data))
```

RESULT:

Thus the implementation of logistic regression was executed and verified successfully.

OUTPUT:

```
Call:
glm(formula = am ~ cyl + hp + wt, family = binomial, data = input)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.17272  -0.14907  -0.01464  0.14116   1.27641

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept) 19.70288    8.11637  2.428  0.0152 *
cyl          0.48760    1.07162  0.455   0.6491
hp           0.03259    0.01886  1.728   0.0840 .
wt          -9.14947    4.15332  -2.203  0.0276 *
---
Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 43.2297 on 31 degrees of freedom
Residual deviance: 9.8415 on 28 degrees of freedom
AIC: 17.841

Number of Fisher Scoring iterations: 8
```