Lab 3

Practice Questions on Simple Linear Regression and Multiple Linear Regression

Q1. This question involves the use of simple linear regression on the Auto data set.

a) Use the lm() function to perform a simple linear regression with mpg as the response and horsepower as the predictor. Use the summary() function to print the results. Comment on the following :
  i. What is the line of best fit?
  ii. Is the relationship between the predictor and the response positive or negative?
  iii. What is the R2 value and what do you infer from that?

b) Plot the response and the predictor. Use the abline() function to display the least squares regression line.

c) What is the predicted mpg associated with a horsepower of 98? What are the associated 95 % confidence and prediction intervals?

Q2. This question involves the use of multiple linear regression on the Auto data set.

a) Use the lm() function to perform a multiple linear regression with mpg as the response and all other variables except name as the predictors. Use the summary() function to print the results.

b) Which predictor appears to have a statistically significant relationship to the response?

c) What does the coefficient of the year variable suggest?