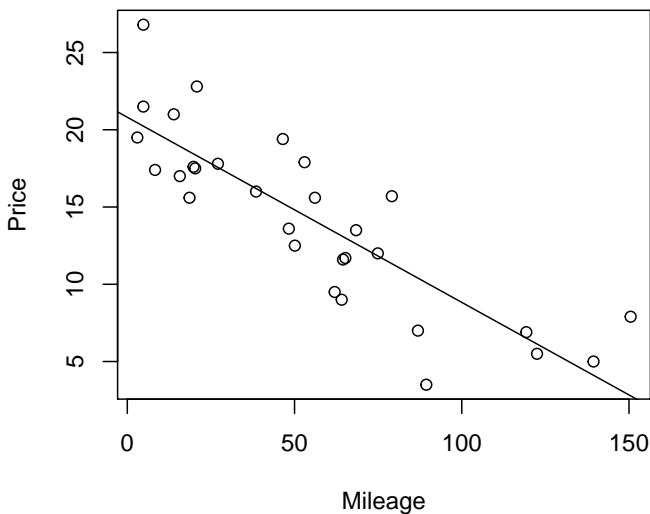


Activity 8: Simple Linear Regression
STAT 310, Spring 2023

The following scatter plot shows the association between price (in \$1,000s) and mileage (number of miles driven in 1,000s) for a sample of 30 used Honda Accords in 2017. Also provided below is the output from fitting a simple linear regression model in R.



Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	20.8096	0.9529	21.84	< 2e-16 ***
Mileage	-0.1198	0.0141	-8.50	3.06e-09 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.085 on 28 degrees of freedom

Multiple R-squared: 0.7207, Adjusted R-squared: 0.7107

F-statistic: 72.25 on 1 and 28 DF, p-value: 3.055e-09

(a) Describe the association between price and mileage.

(b) What are the explanatory and response variables for the linear regression model?

- (c) Write the equation for the least squares line.
- (d) What is the predicted price for a used Honda Accord that has been driven 50 thousand miles?
- (e) Interpret the slope.
- (f) Interpret the intercept.
- (g) Calculate the residual for a car, in this data set, that costs 3.5 thousand dollars, and has been driven 89.4 thousand miles.
- (h) Interpret the R^2 .