

MULTIPLE LINEAR REGRESSION

Background: Examine the Dataset cars.csv. Using uni-variant linear regression, the CO2 emissions can be predicted from either the Weight or the Volume of the car. But, what if we want to use both weight and volume to predict the CO2 emissions.

Solution: Multiple Linear Regression

Simple
Linear
Regression

$$y = b_0 + b_1 * x_1$$

Multiple
Linear
Regression

$$y = b_0 + b_1 * x_1 + b_2 * x_2 + \dots + b_n * x_n$$

Questions: Use cars.csv to:

1. Predict the CO2 emissions of a car with a new data point, new value for weight and volume. **E.g.** 2300Kg and 1300 cm³.
2. Find out the value of the coefficients and its importance. **E.g.** Value of b_1, b_2 for x_1 , (Weight) and x_2 (Volume).
3. Keep one variable the same and test if the predicted value is correct as per the coefficient calculated. **E.g.** Increase the weight of the car by 1000kg (that is 3300kg) and keep the volume the same (1300 cm³). See if the predicted CO2 emission is correct.