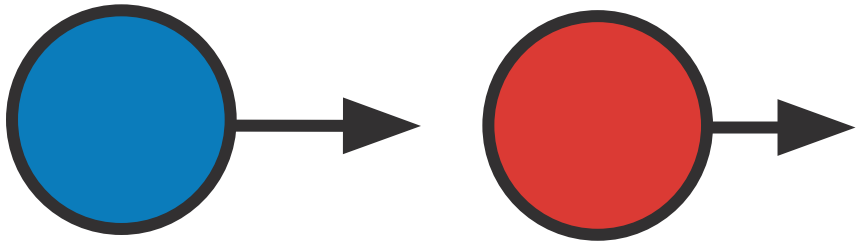
Artificial Neural Networks

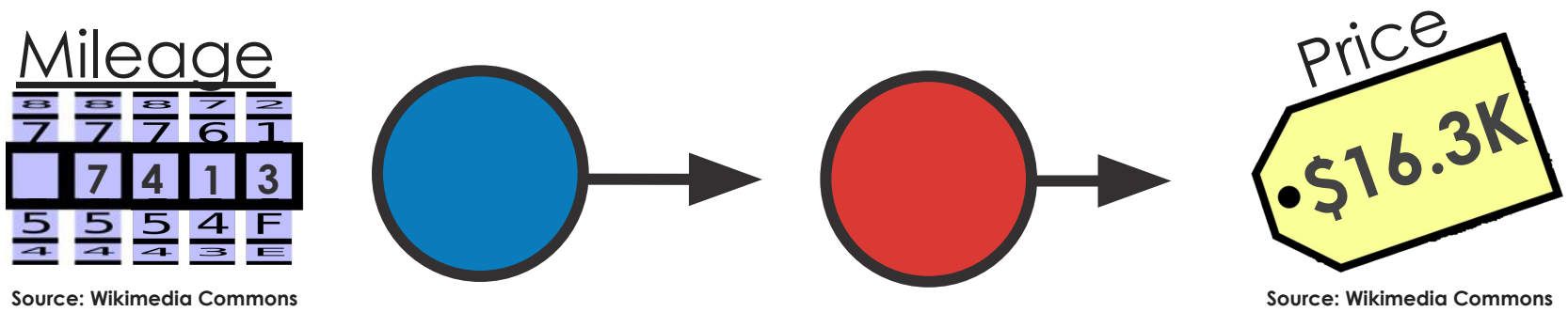
Regression

Deep Learning Pre-Work

Example



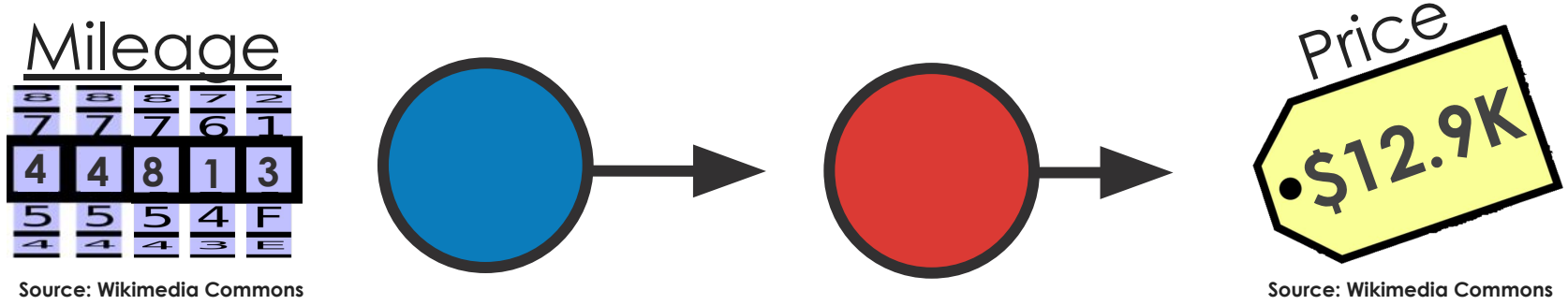
Example



Source: Wikimedia Commons

Source: Wikimedia Commons

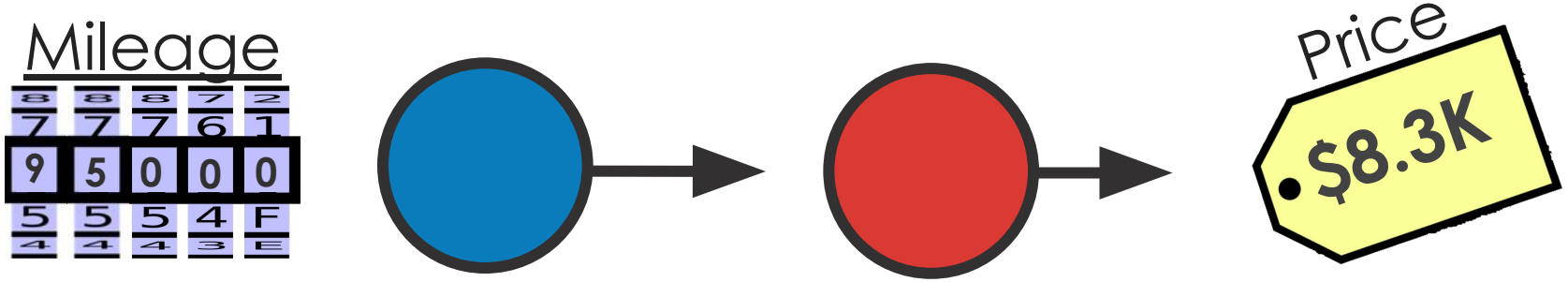
Example



Source: Wikimedia Commons

Source: Wikimedia Commons

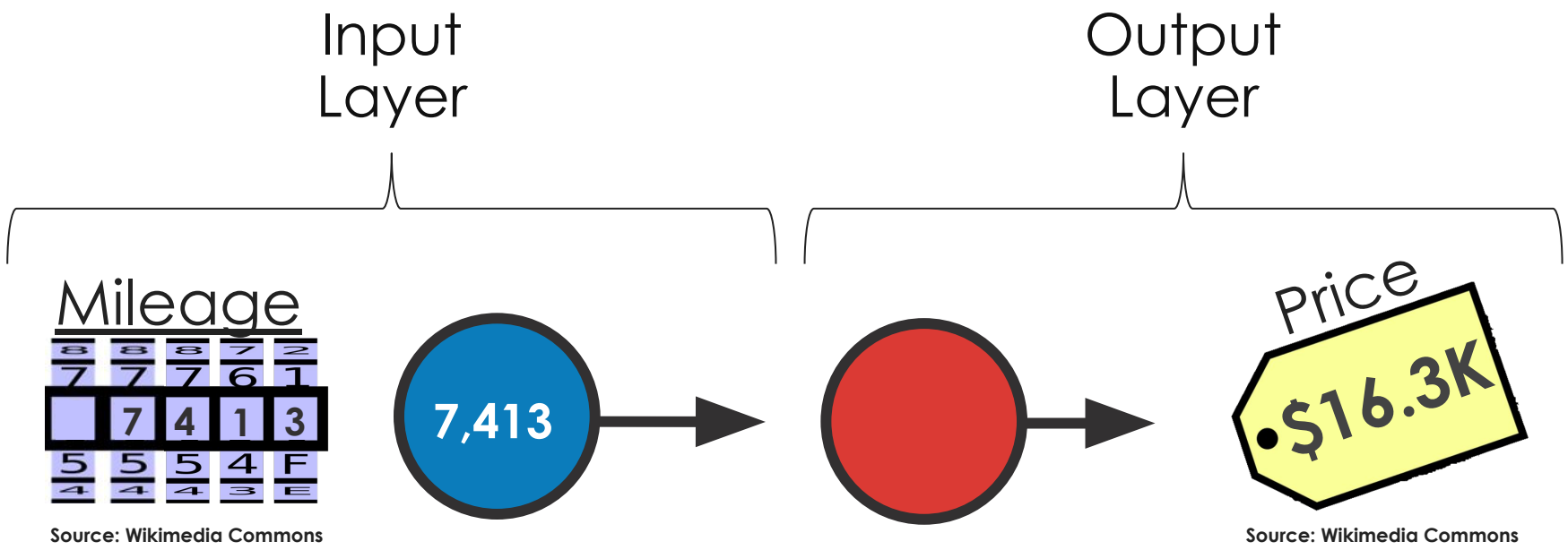
Example



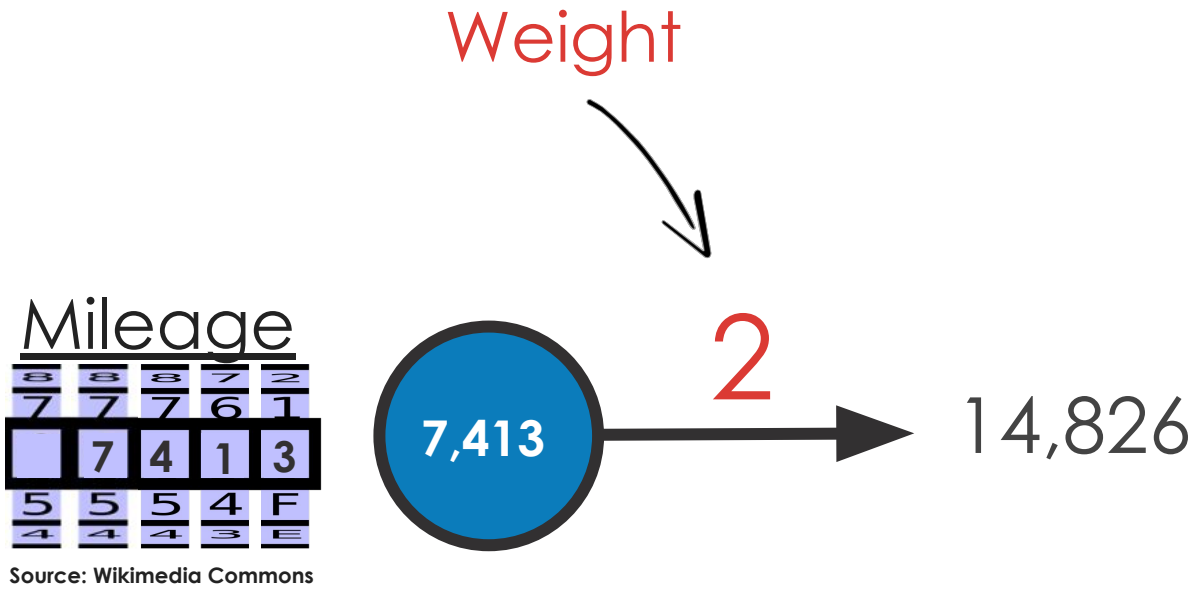
Source: Wikimedia Commons

Source: Wikimedia Commons

Input/Output Layers



Weights

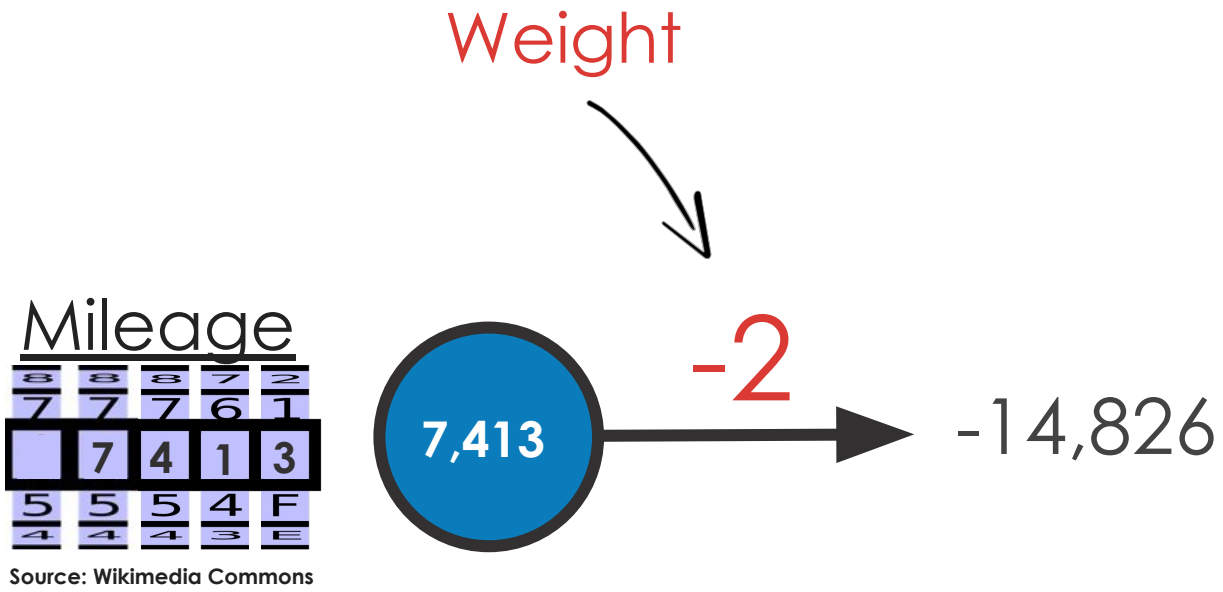


Source: Wikimedia Commons

Equation

X*Weight

Weights

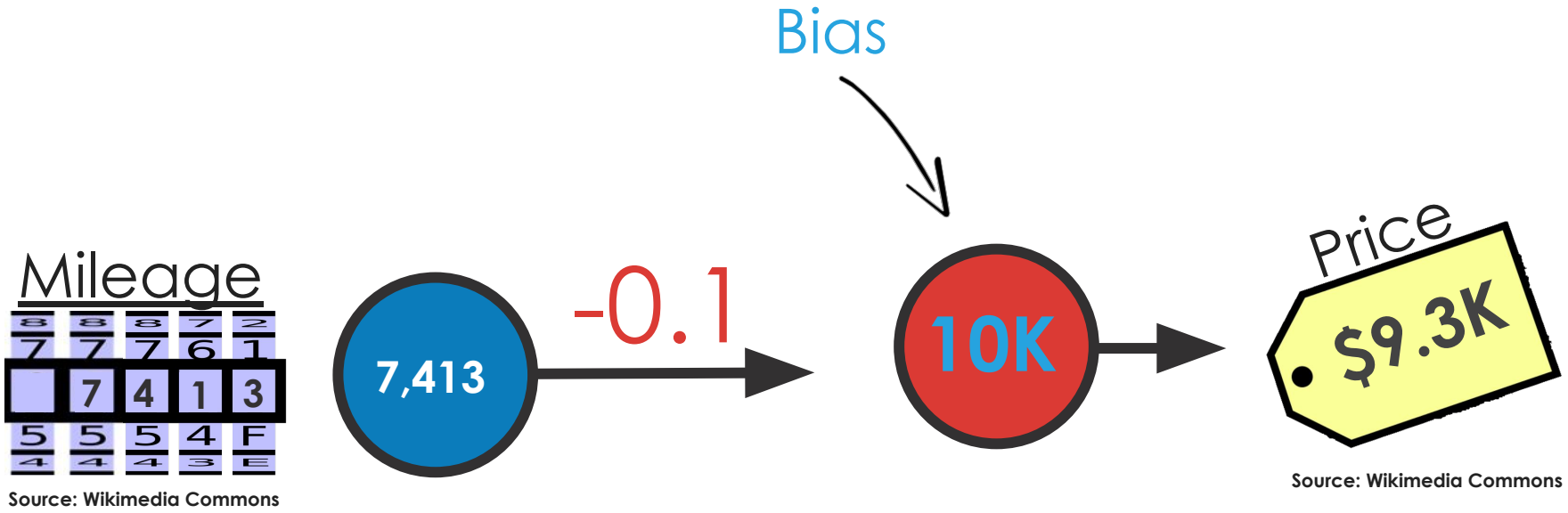


Source: Wikimedia Commons

Equation

X*Weight

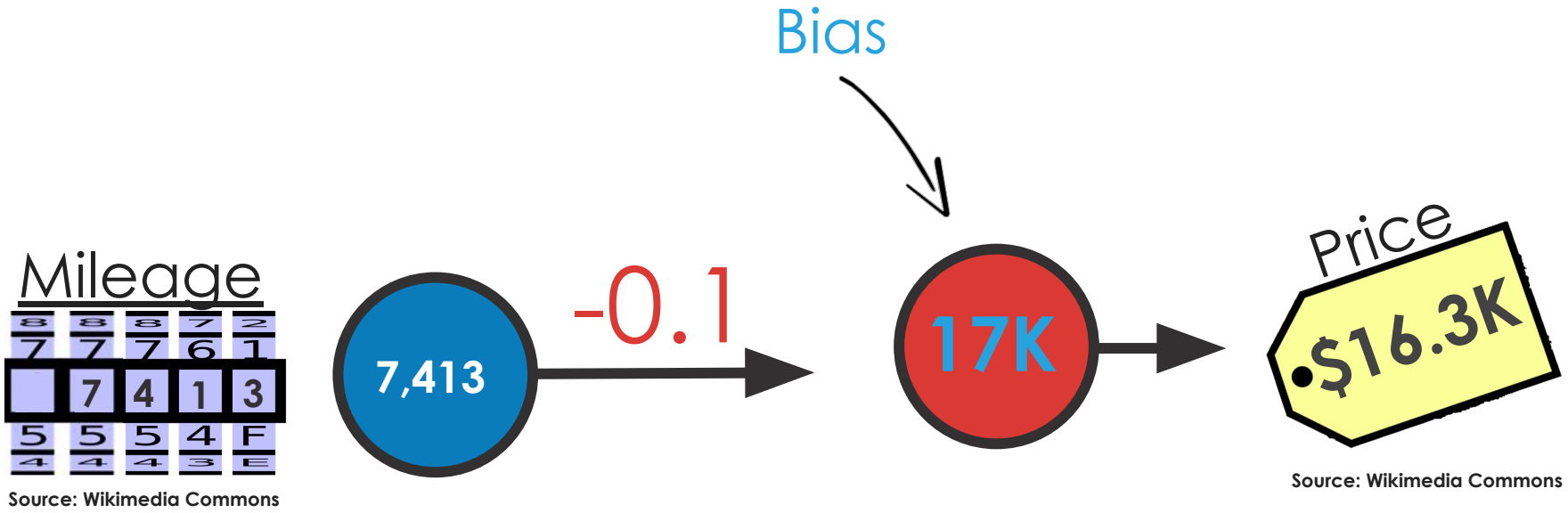
Biases



Equation

X*Weight + Bias

Biases

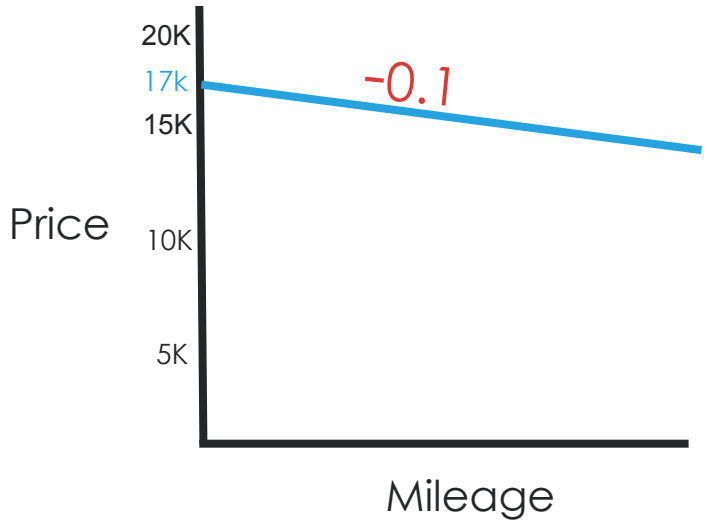


Equation

X*Weight + Bias

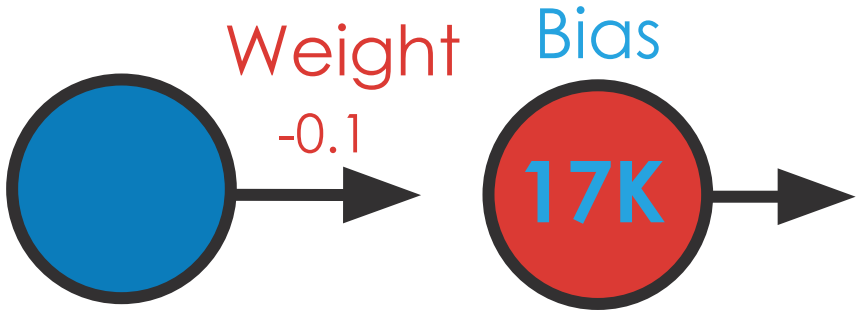
Linear Regression

$\hat{Y} = X*\text{Slope} + \text{Y-intercept}$



ANN

$\hat{Y} = X*\text{Weight} + \text{Bias}$



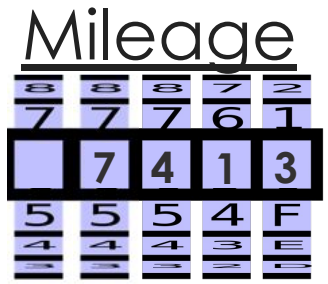
Forward Propagation

Source: Wikimedia Commons

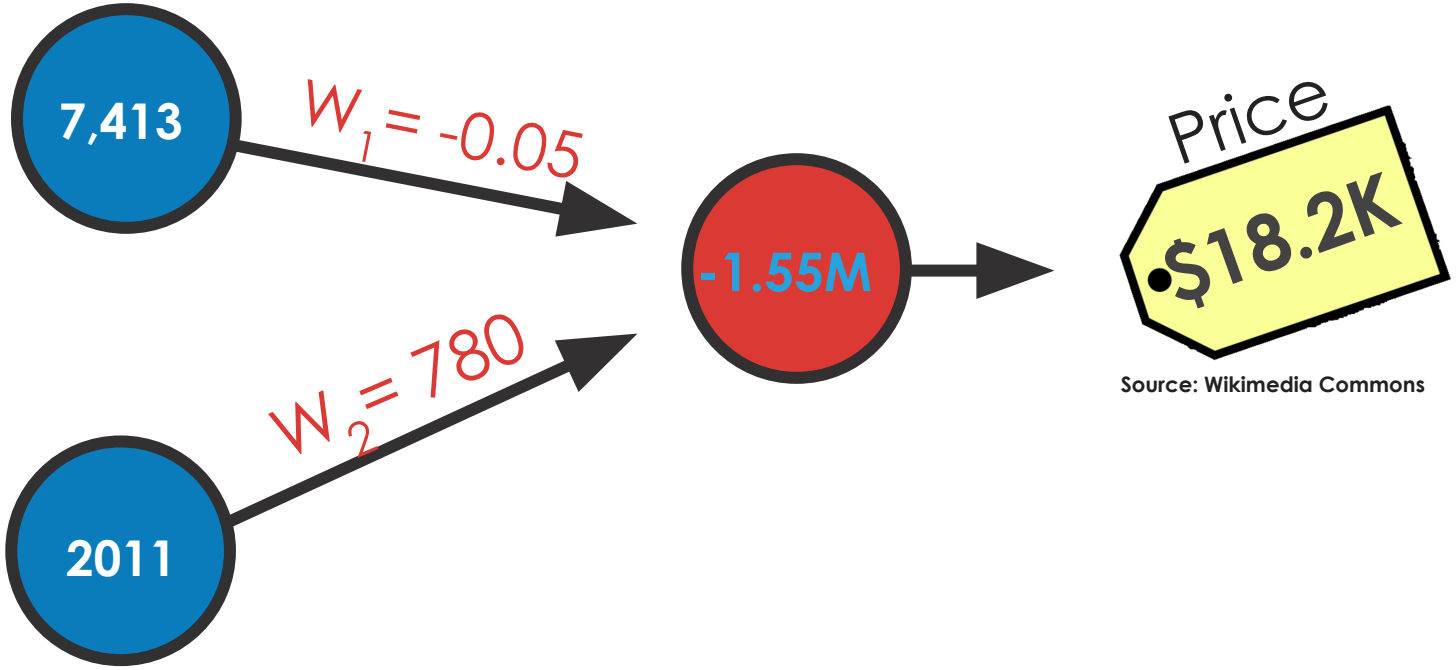
Source: Wikimedia Commons

Source: Wikimedia Commons

Multiple Input Neurons



Source: Wikimedia Commons



Source: Wikimedia Commons

Year

2011

Equation

$$X_1 * \text{Weight}_1 + X_2 * \text{Weight}_2 + \text{Bias}$$