

*\*Supervised learning is where you have input variables ( $x$ ) and an output variable ( $Y$ ) and you use an algorithm to learn the mapping function from the input to the output.  
The goal is to approximate the mapping function so well that when you have new input data ( $x$ ) that you can predict the output variables ( $Y$ ) for that data.*

*Unsupervised learning is where you only have input data ( $X$ ) and no corresponding output variables. The goal for unsupervised learning is to model the underlying structure or distribution in the data in order to learn more about the data.\**



