**Regression**

Regression tasks can be divided into two main groups: Those that only use one feature to predict the target, and those that use more than one feature for that purpose. To give you an example, let’s consider the house task above. If you want to predict a house’s price only based on its squared meters, you will fall into the first situation (one feature), but if you are going to predict the price based on its squared meters, its position, and the livability of the surrounding environment, you are going to fall into the second group for multiple features.

**Simple Linear Regression**: Simple linear regression is one that has one dependent variable and only one independent variable. If “income” is explained by the “education” of an individual, then the regression is expressed in terms of simple linear regression as follows:

Income= b0+ b1\*Education+ e

**Ordinary Least Squares:** Ordinary least squares (OLS) [regression](https://builtin.com/data-science/regression-machine-learning) is an optimization strategy that helps you find a straight line as close as possible to your data points in a [linear regression](https://builtin.com/data-science/linear-regression) model. The OLS method is used to estimateβ0 and β1. The OLS method seeks to minimize the sum of the squared residuals. This means from the given data we calculate the distance from each data point to the regression line, square it, and the sum of all the squared errors together.

**Multiple Linear Regression:** One of the most common types of [predictive analysis](https://www.simplilearn.com/what-is-predictive-analytics-article) is multiple linear regression. This type of analysis allows you to understand the relationship between a continuous dependent variable and two or more independent variables. The independent variables can be either continuous (like age and height) or categorical (like gender and occupation). It's important to note that if your dependent variable is categorical, you should dummy code it before running the analysis.

Assumptions of MLR:

* A **linear relationship** should exist between the Target and predictor variables.
* The regression residuals must be **normally distributed**.
* MLR assumes little or **no multicollinearity** (correlation between the independent variable) in data.