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Logistic Regression

Logistic Regression is one of the basic and popular algorithms to solve a classification problem. It is named 'Logistic Regression' because its underlying technique is quite the same as Linear Regression. The term "Logistic" is taken from the Logit function that is used in this method of classification.

Logistic regression is the appropriate regression analysis to conduct when the dependent variable is dichotomous (binary). Like all regression analyses, logistic regression is a predictive analysis. It is used to describe data and to explain the relationship between one dependent binary variable and one or more nominal, ordinal, interval, or ratio-level independent variables.

three main types of logistic regression:

- Binary logistic regression : Binary logistic regression is used to predict the probability of a binary outcome, such as yes or no, true or false, or 0 or 1.
- Multinomial logistic regression : Multinomial logistic regression is used to predict the probability of one of three or more possible outcomes, such as the type of product a customer will buy, the rating a customer will give a product, or the political party a person will vote for.
- Ordinal logistic regression : is used to predict the probability of an outcome that falls into a predetermined order, such as the level of customer satisfaction, the severity of a disease, or the stage of cancer.

Logistic regression works in the following steps:

- Prepare the data
- Train the model
- Evaluate the model
- Use the model to make predictions

The formula of logistic regression and linear regression is similar so that the curves in the example image are also drawn slightly similar. Logistic function is also commonly called sigmoid function so the graph of a sigmoid function is as shown below It squeezes a straight line into an S-curve.