Logistic Regression

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Logistic regression is machine learning algorithm used for binary classification

The outcome is measured with a variable in which there are only two possible outcomes. It is used to predict a binary outcome (1 / 0, Yes / No, True / False) given a set of independent variables.
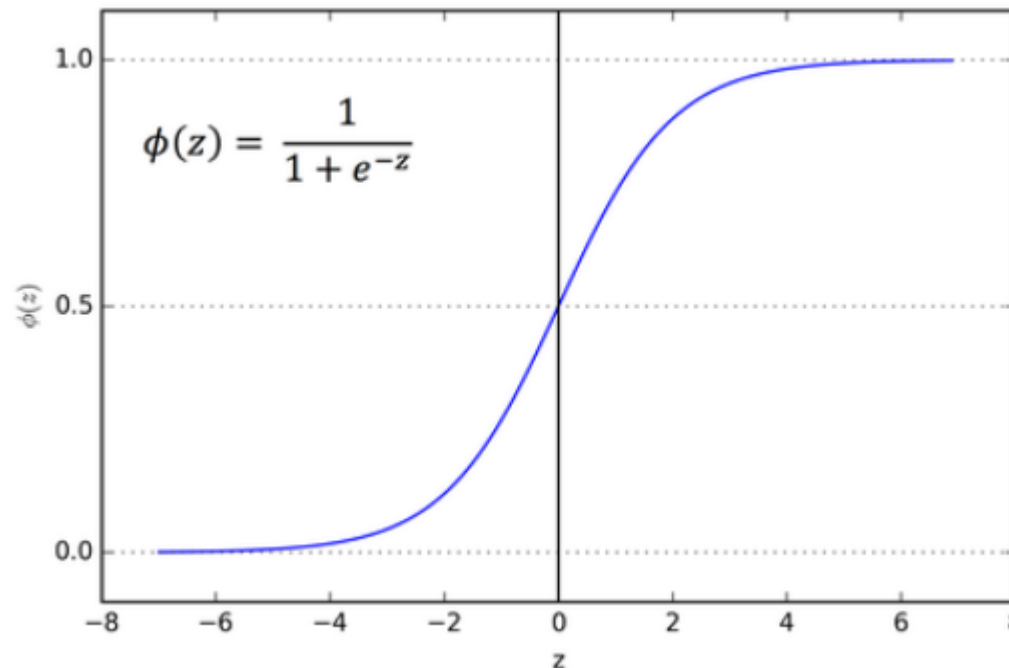
Applications

➢ Spam Detection : Predicting if an email is Spam or not

➢ Credit Card Fraud : Predicting if a given credit card transaction is fraud or not

➢ Health : Predicting if a given mass of tissue is benign or malignant

➢ Marketing : Predicting if a given user will buy an insurance product or not

➢ Banking : Predicting if a customer will default on a loan

Sigmoid/logistic function

In logistic regression, the goal is to determine a mathematical equation that can be used to predict the probability of event

The sigmoid/logistic function is given by the following equation.

$$\phi(z) = \frac{1}{1 + e^{-z}}$$

Sigmoid/logistic function