LOGISTIC REGRESSION

- Logistic regression is a statistical and machine learning technique for classifying records of a dataset based on the values of the input fields.

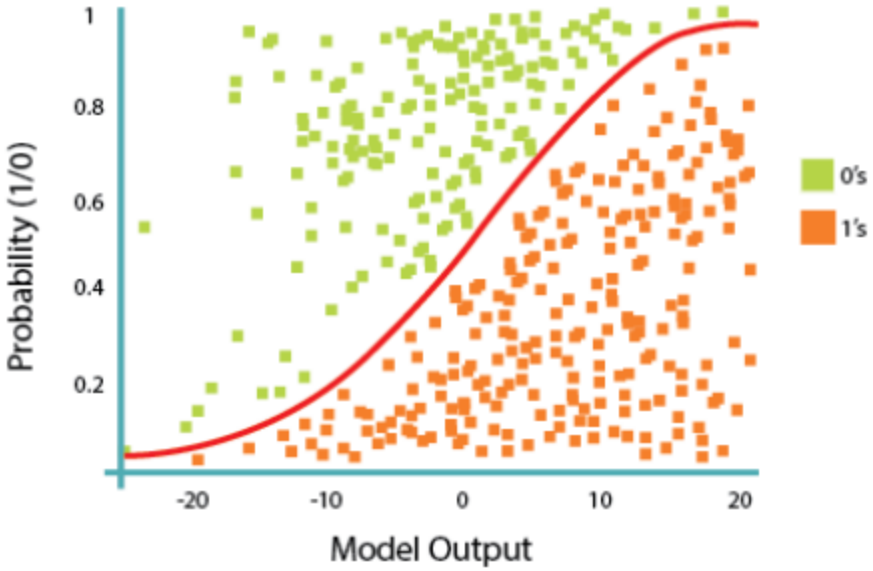
- Logistic regression is analogous to linear regression but tries to predict a categorical or discrete target field instead of a numeric one. In linear regression, we might try to predict a continuous value of variables such as the price of a house, blood pressure of a patient, or fuel consumption of a car. But in logistic regression, we predict a variable which is binary such as yes/no, true/false, successful or not successful and so on, all of which can be coded as zero or one.

- In logistic regression independent variables should be continuous. If categorical, they should be dummy or indicator coded. This means we have to transform them to some continuous value.

- Logistic regression can be used for both binary classification and multi-class classification.

- In a marketing context, we can use it to predict the likelihood of a customer purchasing a product or halting a subscription as we've done in our churn example. We can also use logistic regression to predict the probability of failure of a given process, system or product. We can even use it to predict the likelihood of a homeowner defaulting on a mortgage. These are all good examples of problems that can be solved using logistic regression.

- Logistic Regression passes the input through the logistic/sigmoid and then treats the result as a probability:


Probability (1/0)
1
0.8
0.6
0.4
0.2
-20
-10
0
10
20
Model Output
0's
1's