CHAPTER 20

Logistic Regression

Logistic regression is a supervised machine learning algorithm developed for learning classification problems. A classification learning problem is when the target variable is categorical. The goal of logistic regression is to map a function from the features of the dataset to the targets to predict the probability that a new example belongs to one of the target classes. Figure 20-1 is an example of a dataset with categorical targets.

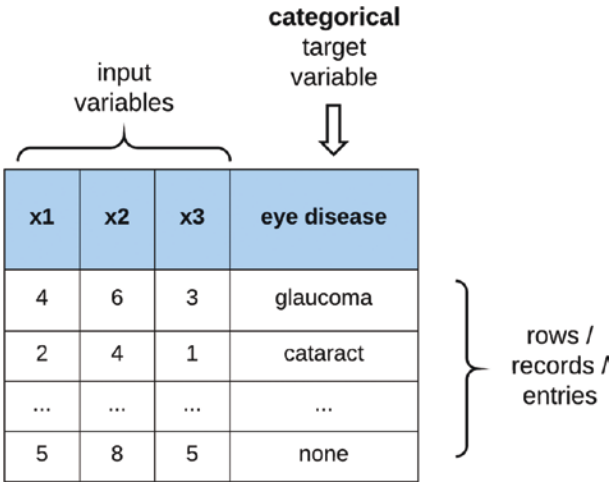

Figure 20-1. *Dataset with qualitative variables as output*

Why Logistic Regression?

To develop our understanding of classification with logistic regression and why linear regression is unsuitable for learning categorical outputs, let us consider a binary or two-class classification problem. The dataset illustrated in Figure 20-2 has the output y (i.e., eye disease) = {disease, no-disease} is an example of dataset with binary targets.

E. Bisong, *Building Machine Learning and Deep Learning Models on Google Cloud Platform*,
https://doi.org/10.1007/978-1-4842-4470-8_20