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Predicting bank marketing success during a period characterized by financial instability

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Abstract

In this thesis we use two different models for predicting the success of bank telemarketing campaigns to sell long-term deposits. The data set is related to a Portuguese bank which were collected from 2008 to 2010, hence effects of the financial crisis are included. The data set consists of 20 predictor variables and a response which represents success or failure of selling a long-term deposit to the client. An undersampling of the data set was needed since it was imbalanced with mostly failures as realizations. The models in question are the group lasso for logistic regression and classification trees. We mainly use the prediction error on a test data set (20 performance, but the interpretability of the model is also an important property. Both models acquire similar results of 72 classification tree presents the best overall results. The classification tree reveals several key variables in selling long-term deposits (e.g. Euribor rate) while the group lasso can not validate important features. While the group lasso has several interesting and useful properties, further research on the method is needed to decrease its limitations.

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