Case Study

Predicting the success of a bank marketing campaign

2021.AI

Client

A major bank has performed a number of marketing campaigns and wants to predict whether the targeted customers will subscribe to a specific financial product

Format

Please provide a report with descriptions of your findings and code used to obtain the result. The format is open and could be e.g. a notebook, markdown or powerpoint/document supported by your code.

Background

The bank would like to optimize its marketing campaigns to target only the customers who have the highest propensity to buy a financial product and thus reduce the marketing costs.

Goal

The goal is to train a classifier model which will predict whether a specific customer will subscribe to a financial product.

Data

- 3 years of accumulated data on customers' response to marketing campaigns
- 41188 observations
- 20 variables
- 5.4 MB

Data enrichments

Feel free to engineer additional features to enrich the current dataset. However, this is not expected, but should be seen as an opportunity

Case solution - deliveries

1. Data preprocessing

The dataset contains a number of explanatory features which can help predicting the target variable. The candidate should process these features so that they can be used to train a classifier. Additional features may be engineered to increase the performance of the model.

2. Machine learning model training

Select and train one or several classifiers to obtain the best possible performance. Explain your choice of model(s) and your approach for training them in the fastest and most efficient way. Explain what the most important features are and why.

3. Model's performance evaluation

Present an evaluation of the model(s)'s performance and justify your choice of performance metric(s).

4. Release model in production

Write a module for serving the prediction model as a REST API using an appropriate library and showcase how calling this API would work in practice.

Case solution - what we look for

The good solution will:

- Demonstrate a good understanding of how to work with data and challenges related to the problem
- Demonstrate knowledge of machine learning models and how to apply a lean approach to model development
- Contain well written and organized and lean production ready code
- Demonstrate the technical abilities to deploy a model in production including the required automations, apis, etc. and show that it works

Important Note:

- We expect the candidate to spend **4-6 h** on this assignment. It is preferable to solve one problem properly and only outline the strategy for the other parts.

Final note

Good luck

The case problem is deliberately kept open allowing you to focus on the things you find most interesting.

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