Data Science Technical Exercise

Predicting customer subscription

You'll find below an assignment to help us understand how you work. There are two core parts: completing the technical exercise and then presenting / reviewing your approach.

Problem Statement

A bank performed a marketing campaign to track and predict the user behaviour. The marketing campaign was based on phone calls in order to assess if the product (bank term deposit) would be subscribed ('yes') or not subscribed ('no').

Implementation

1. Perform EDA on the training data (train_file.csv). Describe relevant findings.

2. Implement and evaluate different machine learning based models on the training dataset (train_file.csv) to predict the target and compare the performance on the different models.

3. Persist the final model, and create a streamlined loading and inference mechanism, so that it can be used and integrated into other systems. No specifications given, thus follow your experience.

4. Produce the predictions on the test data (test_file.csv), and save them in a separate file (predictions.csv).

Notes

- Make sure to document and discuss different approaches you have evaluated, and which one you have decided to follow.

- Your project must be structured and documented so that it is easy to onboard to and collaborate on. You can decide what should be documented, and what you want to discuss during discussion of your implementation in a call or live.

- Make sure your work is reproducible.

Questions

These questions should be answered as part of the implementation. Exceeding the list is optional but allows you to get bonus points.

1. What relationships did you find between variables?

2. How did you select the best model? What other approaches are possible?

3. Which features where most important to predict the target? Discuss your approach and possible alternatives.

Dataset

Provided are 2 datasets

- **train_file.csv:** Input features **and** the target feature (y)
- **test_file.csv:** Input features **only**

Submission:

For correct submission, please create a repository with your preferred GIT provider, and share the link to the repository per Email. Email submission of work files will be blocked by the mail-server, thus will not be successful.