

Znallia bank, outbound optimization

Please use Python as the developing language, and submit your code or notebook (e.g., Jupyter) before the face-to-face interview. Your solution will be the base for discussion there.

Scenario

"Znailla Bank", a subsidiary within the Znailla Group (a multinational insurance group, also having presence in the banking industry) offers a term deposit product.

Since 2 years, Znallia Bank has invested massively in reaching out to its portfolio of existing customers (those with already a current account), and had done so through a call center campaign: each customer was called and offered the product.

For doing so, they have been running a process which selects a subset of their customer portfolio every week, and the list is sent to the call center to be actioned.

So far the campaign had a positive impact, but given the significant cost of the call (~8€) and Znallia's strive towards process optimization, the management has decided to investigate how to use Analytics to improve the costs of the process.

The head of Marketing has asked whether it would be possible to reduce the number of calls by predicting the "wasted calls" (calls to non-converting customers).

Specifically, he asks how many calls can be saved, given that he wants to lose as little business as possible.

Your task

You are in charge of building a Machine Learning pipeline to identify customers that should be called within the weekly cohort, and giving a recommendation about how much the calls should be reduced.

To do so, you are given access to a dataset (consider bank-additional-full.csv, available at <https://archive.ics.uci.edu/ml/datasets/Bank+Marketing>), containing the history of calls and conversion. The client is particularly interested in:

- How you frame the problem for training
- Identifying which are the drivers of conversion
- What would be your recommendation for the proposed action (cut the number of calls)

How you would frame the problem for prediction, supposing to get a "test/prediction set" of new customers every week.

The head of Marketing adds the following pieces of information:

- Each new contract will generate ~80€ profits over its lifetime
- No new contract would have been signed without the call (it's the only advertising way). Also, we can assume that if a customer didn't buy with the call, he will not buy at any time.