Estimating Client Response to Marketing

Project Proposal

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# Introduction

## Background of the Problem:

Economic data for the customers is available to a bank. If we combine it with the social indicators and history of the customers, we can predict the success of a particular advertisement campaign. There is a potential to gain insights that can greatly help multitudes of decisions that need to be made in designing such a campaign.

In this particular project, I intend to solve this problem and predict whether a particular

Campaign will be successful to a customer with particular socio-economic attributes or not. Along with the primary goal of binary classification, we can find secondary qualitative insights about specific sections of societies that might respond to a specific type of marketing technique or a specific product.

## Who is it useful for?

### Direct Use -

**Marketing Managers!**

For this general category of questions, we can apply similar models to solve a variety of marketing questions. So, the target customer can be a marketing manager of any organization that is looking to optimize its marketing techniques. In this particular case, it will be management and marketing professionals in the concerned bank.

### Indirect Use -

**Customers**

Along with these direct beneficiaries, such studies can help indirectly in 2 ways -

1. Lesser spam for the customers who are not interested in the advertised service / product
2. Better reach to customers who find the advertised service / product useful.

# Components of the Problem

## Data

The data I’m using for this project belongs to the archives of UCI’s machine learning repository. It contains data compiled from a bank’s databases to predict the success of a telemarketing campaign on the bank’s existing customers. (The dataset has 41188 instances)

The attributes that will help us in predictions can classified into 3 categories - bank’s client data, social and economic context attributes and other campaign specific attributes. Here is a list of all 20 attributes available in the data -

#### Bank Client Data:

1. age (numeric)
2. job : type of job (categorical)
3. marital : marital status (categorical)
4. education (categorical : hierarchical)
5. default: has credit in default? (categorical: binary)
6. housing: has housing loan? (categorical: binary)
7. loan: has personal loan? (categorical: binary)

#### Other Campaign Specific Attributes

1. contact: contact communication type (categorical)
2. month: last contact month of year (categorical)
3. day\_of\_week: last contact day of the week (categorical)
4. duration: last contact duration, in seconds (numeric)
5. campaign: number of contacts performed during this campaign and for this client (numeric, includes last contact)
6. pdays: number of days that passed by after the client was last contacted from a previous campaign (numeric; 999 means client was not previously contacted)
7. previous: number of contacts performed before this campaign and for this client (numeric)
8. poutcome: outcome of the previous marketing campaign (categorical)

#### Social and Economic Context Attributes

1. emp.var.rate: employment variation rate - quarterly indicator (numeric)
2. cons.price.idx: consumer price index - monthly indicator (numeric)
3. cons.conf.idx: consumer confidence index - monthly indicator (numeric)
4. euribor3m: euribor 3 month rate - daily indicator (numeric)
5. nr.employed: number of employees - quarterly indicator (numeric)

## To-Do



## Project Deliverables

1. This document(s) explaining approach of the project

2. Presentation created on this project

3. Python code / notebook for data extraction with comments and details

4. Python code / notebook for data visualization

5. Python code / notebook for data science