Bank Marketing

##### **Objective**

The marketing team of the bank has data related to direct marketing campaigns of the previous year. The marketing campaigns were based on phone calls. Often, more than one contact with the same client was required, in order to assess if the product would be ('yes') or not ('no') subscribed. The bank conducted a similar marketing campaign this year too and stored the data related to each phone call.

Imagine you are hired as a Data Scientist in a bank in Portugal. The bank manager decided to take your help and understand whether

**a client would subscribe to the product or not.**

You are required to build a Machine Learning Model that would predict if a customer will subscribe to the product or not. Here the product is nothing but a

**term deposit**

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##### **Data Description**

**# bank client data:**

**age:**

 Age of the client

**job:**

 Type of job

**marital:**

 Marital status of the client

**education:**

 Highest education of the client

**default:**

 Has credit in default?

**balance:**

 The amount in the client’s bank account in the bank

**housing:**

 Whether the client has housing loan or not

**loan:**

 Whether the client has any personal loan or not

**# related to the last contact of the current campaign:**

**contact:**

 Contact communication type

**month:**

 Last contact month of the year

**day\_of\_week:**

 Last contact day of the week

**duration:**

 Last contact duration in seconds. Important note: this attribute highly affects the output target (e.g., if duration=0 then y='no'). Yet, the duration is not known before a call is performed. Also, after the end of the call y is obviously known. Thus, this input should only be included for benchmark purposes and should be discarded if the intention is to have a realistic predictive model.

**# other attributes:**

**campaign:**

 number of contacts performed during this campaign and for this client

**pdays:**

 number of days that passed by after the client was last contacted from a previous campaign

**previous:**

 number of contacts performed before this campaign and for this client

**poutcome:**

 outcome of the previous marketing campaign

**# Output variable /**

**Target variable:  
subscribe:**we check whether the client has subscribed to the term deposit or not?  
- 0 implies NOT subscribed  
- 1 implies subscribed