**Graduation project proposal**

**Data topic**: Bank Marketing

**Source**: <https://archive.ics.uci.edu/ml/datasets/Bank+Marketing>

**Objective:**

The data is related to direct marketing campaigns of a Portuguese banking institution.

The marketing campaigns were based on phone calls. Often, more than one contact to the same client was required, in order to access if the product (bank term deposit) would be ('yes') or not ('no') subscribed.

**Description:**

1. **17 columns & 45211 rows**
2. **Columns:**

**1 - Age** (numeric)  
**2 - Job :** type of Job

**3 - Marital** : marital status

**4 – Education  
5 - Default:** has credit in default? (categorical: 'no','yes','unknown')  
**6 - Housing:** has housing loan? (categorical: 'no','yes','unknown')  
**7 - Loan:** has personal loan? (categorical: 'no','yes','unknown') **8 - contact**: contact communication

**9 - month:** last contact month of year

**10 - day**: last contact day of the week  
**11 - duration:**  last contact duration, in seconds (numeric)

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.

**12 - campaign:** number of contacts performed during this campaign

**13 - pdays:** number of days that passed by after the client was last contacted **14 - previous:** number of contacts performed before this campaign and for this client (numeric)  
**15 - poutcome:** outcome of the previous marketing campaign

**16- y** - has the client subscribed a term deposit? (binary: 'yes','no')

**ML Model Type: Classification**

**Target: has the client subscribed a term deposit? or not**

**Data Analysis questions and Insights:**

* **What is the outcome achieved from the historical data?**
* **What is the marital status of customers deposited in the bank before?**
* **What is the education of customers deposited in the bank before?**