**Bank marketing campaigns dataset analysis # Opening a Term Deposit**

It is a dataset that describing Portugal bank marketing campaigns results.  
Conducted campaigns were based mostly on direct phone calls, offering bank client to place a term deposit. If after all marking affords client had agreed to place deposit - target variable marked 'yes', otherwise 'no'.

1. **bank client data:**

\*1 - age (numeric)

\*2 - job : type of job (categorical: "admin.","blue-collar","entrepreneur","housemaid","management","retired","self-employed","services","student","technician","unemployed","unknown")

\*3 - marital : marital status (categorical: "divorced","married","single","unknown"; note: "divorced" means divorced or widowed)

\*4 - education (categorical: "basic.4y","basic.6y","basic.9y","high.school","illiterate","professional.course","university.degree","unknown")

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")

**related with the last contact of the current campaign:**

8 - contact: contact communication type (categorical: "cellular","telephone")

\*9 - month: last contact month of year (categorical: "jan", "feb", "mar", …, "nov", "dec")

\*10 - day\_of\_week: last contact day of the week (categorical: "mon","tue","wed","thu","fri")

\*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").

**other attributes:**

\*12 - campaign: number of contacts performed during this campaign and for this client (numeric, includes last contact)

\*13 - 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)

\*14 - previous: number of contacts performed before this campaign and for this client (numeric)

15 - poutcome: outcome of the previous marketing campaign (categorical: "failure","nonexistent","success")

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

1. Missing Attribute Values: There are several missing values in some categorical attributes, all coded with the "unknown" label. These missing values can be treated as a possible class label or using deletion or imputation techniques.