The data is related to the bank's direct marketing activities. The aim is to predict whether customers will accept promotions.

**Input variables:**

# bank client data:

1 - age (numeric)

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

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

4 – educational\_background (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 - mortgage: has housing loan? (categorical: "no","yes","unknown")

7 - ploan: has personal loan? (categorical: "no","yes","unknown")

# related with the last contact of the current campaign:

8 – contact\_type: 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 - span: 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.

# other attributes:

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

13 – passed\_days: 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\_contact: number of contacts performed before this campaign and for this client (numeric)

15 – previous\_outcome: outcome of the previous marketing campaign (categorical: "failure","nonexistent","success")

# social and economic context attributes

16 – emp\_var\_rate: employment variation rate - quarterly indicator (numeric)

17 – cons\_price\_idx: consumer price index - monthly indicator (numeric)

18 – cons\_conf\_idx: consumer confidence index - monthly indicator (numeric)

19 - euribor3m: euribor 3 month rate - daily indicator (numeric)

20 – employee\_number: number of employees - quarterly indicator (numeric)

**Output variable (desired target):**

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

There are several missing values in some categorical attributes, all coded with the "unknown" label.