**PROJECT- Python for Data Science**

**PROBLEM STATEMENT:**

The problem is that the Bank Marketing campaigns of a Portuguese banking institution need to identify the factors that cause the customers to tend to take the subscription, as well as Bank Marketing campaigns of a Portuguese banking institution need to identify the reasons behind the customer which make them not take the subscription.

**Aim:**

You aim to Determinate/Analysis factors for the subscription and non-subscription. Using the ITP and NPV techniques find the below questions.

**DATASET DESCRIPTION:**

**Bank Marketing:** 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 with the same client was required to assess if the product (bank term deposit) would be (or not) subscribed.

**DATA DICTIONARY:**

1 - age (numeric)

2 - job : type of job (categorical:

"admin.","unknown","unemployed","management","housemaid","entrepreneur", "student","bluecollar","self-employed","retired","technician","services")

3 - marital : marital status (categorical: "married","divorced","single"; note: "divorced" means

divorced or widowed)

4 - education (categorical: "unknown","secondary","primary","tertiary")

5 - default: has credit in default? (binary: "yes","no")

6 - balance: average yearly balance, in euros (numeric)

7 - housing: has a housing loan? (binary: "yes","no")

8 - loan: has personal loan? (binary: "yes","no")

- related to the last contact of the current campaign:

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

10 - day: last contact day of the month (numeric)

11 - month: last contact month of year (categorical: "jan", "feb", "mar", ..., "nov", "dec")

12 - duration: last contact duration, in seconds (numeric)

- other attributes:

13 - campaign: number of contacts performed during this campaign and for this client (numeric,

includes the last contact

14 - P-days: number of days that passed by after the client was last contacted from a previous

campaign (numeric, -1 means client was not previously contacted)

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

16 - poutcome: outcome of the previous marketing campaign (categorical:

"unknown","other","failure","success")

- output variable (desired target):

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