Study case
Machine Learning

Customer churn

Context

The firm wishes to support a major player in the telecommunications sector in its customer loyalty management.
This player entrusted us with a sample of its data and your project manager agreed with the client on two simple objectives that you will find in the minutes of the kick-off meeting of the mission, in appendix 1.
During the meeting, the client gave us a complete description of the variables which is available in appendix 2.
A presentation will have to be made quickly to your project manager in order to prepare the one to be made to the client.

Objectives & Expected Approach

As a Machine Learning consultant, your objective is to prepare an approach and elements of answers to address the client's problem. To do so, your data science know-how will have to be applied on the basis of the data provided. At the end of your preparation time, you will be expected to provide a summary of your work on the following points:

Presentation of the context and the need

Proposed global work approach

First elements of results obtained

Next steps and avenues for further development

The preparation time is 2 hours.

Appendix 1

Report of the kick-off meeting of the mission

Mission Objectives:

- Understand what characteristics of a customer influence their potential termination
- Predict whether a customer will terminate their contract

The first elements of answers on these problems will have to be quickly presented before going deeper into more complex use cases.

Customer's note

The business has told us that the number of services (telephone, internet, streaming, firewall...) to which a customer has subscribed is a determining factor in the cancellation rate. We have offered to verify this information.

Description of the data

The sample provides characteristics of many customers, with various information such as:

- Social characteristics (gender, marriage, age group, etc.)
- Contract characteristics (age, price, payment method)
- Information on telephone, internet and software equipment

Appendix 2

Description of available data

Feature name	Feature description
Unnamed: 0	index
CustomerID	Client's unique identifier
Gender	Sex
SeniorCitizen	If a client is an old people or not
Partner	If the client is in a relationship or not
Dependants	Does the client have any dependents? (child etc…)
Tenure	Contract's age
Phoneservice	Has a telephone or not
MultipleLines	Has a client multiple telephone number or not
InternetService	Has internet acces and the quality of it
OnlineSecurity	The client has suscribed to the firewall service
OnlineBackup	The client has suscribed to the back-up service
DeviceProtection	The client has suscribed to the device protection service
TechSupport	The client has suscribed to the techsupport service
StreamingTV	Does the client watch TV
StreamingMovies	Does the client watch movies
Contract	Contract modality (month to month, one year…)
PaperlessBilling	Paper invoice or not
PaymentMethod	Payment methods
MonthlyCharges	Monthly price of the subscription
TotalCharges	Total price paid since the beginning of the contract
Churn	Churn