iFood CRM Data Analyst Case

iFood is the lead food delivery app in Brazil, present in over a thousand cities.

Keeping a high customer engagement is key for growing and consolidating the company's position as the market leader.

Data Analysts working within the data team are constantly challenged to provide insights and value to the company through open scope projects. This case intends to simulate that.

In this case, you are presented a sample dataset, that mocks metainformation on the customer and on iFood campaign interactions with that customer.

It is your challenge to understand the data, find business opportunities & insights and to propose any data driven action to optimize the campaigns results & generate value to the company.

This case aims to evaluate your Data skills and knowledge for two possible roles:

Data Analyst Business:

- Perform robust exploratory analysis, rich with business insights & data driven proposals to add value to the company and have strong communication skills to influence the decision making

Data Advanced Analytics

- Perform robust exploratory analysis, using advanced analytics tools and statistical methods to generate data products to optimize business results (predictive & clustering models, for example)

Have clear focus on which role you want to perform @ iFood and focus your energy to excel in the most relevant topics for it.

Below you will find the case description and more details of what we expect as your solution. **Please, read carefully till the last page.**

Once completed, you may submit your full solution to ifoodbrain_hiring@ifood.com.br with the subject: **iFood DA/DArq Case Solution / "Candidate Name"**. On normal circumstances, we should give a response within a week.

Be creative & have fun.

The Company

Consider a well-established company operating in the retail food sector. Presently they have around several hundred thousand registered customers and serve almost one million consumers a year. They sell products from 5 major categories: wines, rare meat products, exotic fruits, specially prepared fish and sweet products. These can further be divided into gold and regular products. The customers can order and acquire products through 3 sales channels: physical stores, catalogs and company's website. Globally, the company had solid revenues and a healthy bottom line in the past 3 years, but the profit growth perspectives for the next 3 years are not promising... For this reason, several strategic initiatives are being considered to invert this situation. One is to improve the performance of marketing activities, with a special focus on marketing campaigns.

The marketing department

The marketing department was pressured to spend its annual budget more wisely. The CMO perceives the importance of having a more quantitative approach when taking decisions, reason why a small team of data scientists was hired with a clear objective in mind: to build a predictive model which will support direct marketing initiatives. Desirably, the success of these activities will prove the value of the approach and convince the more skeptical within the company.

The objective

The objective of the team is to build a predictive model that will produce the highest profit for the next direct marketing campaign, scheduled for the next month. The new campaign, sixth, aims at selling a new gadget to the Customer Database. To build the model, a pilot campaign involving 2.240 customers was carried out. The customers were selected at random and contacted by phone regarding the acquisition of the gadget. During the following months, customers who bought the offer were properly labeled. The total cost of the sample campaign was 6.720MU and the revenue generated by the customers who accepted the offer was 3.674MU. Globally the campaign had a profit of -3.046MU. The success rate of the campaign was 15%. The objective is of the team is to develop a model that predicts customer behavior and to apply it to the rest of the customer base. Hopefully, the model will allow the company to cherry pick the customers that are most likely to purchase the offer while leaving out the non-respondents, making the next campaign highly profitable. Moreover, other than maximizing the profit of the campaign, the CMO is interested in understanding to study the characteristic features of those customers who are willing to buy the gadget.

The data

The data set contains socio-demographic and firmographic features about 2.240 customers who were contacted. Additionally, it contains a flag for those customers who responded the campaign, by buying the product.

Feature	Description
AcceptedCmp1	1 if costumer accepted the offer in the 1st campaign, 0 otherwise
AcceptedCmp2	1 if costumer accepted the offer in the 2nd campaign, 0 otherwise
AcceptedCmp3	1 if costumer accepted the offer in the 3rd campaign, 0 otherwise
AcceptedCmp4	1 if costumer accepted the offer in the 4th campaign, 0 otherwise
AcceptedCmp5	1 if costumer accepted the offer in the 5th campaign, 0 otherwise
Response (target)	1 if costumer accepted the offer in the last campaign, 0 otherwise
Complain	1 if costumer complained in the last 2 years
DtCustomer	date of customer's enrollment with the company
Education	customer's level of education
Marital	customer's marital status
Kidhome	number of small children in customer's household
Teenhome	number of teenagers in customer's household
Income	customer's yearly household income
MntFishProducts	amount spent on fish products in the last 2 years
MntMeatProducts	amount spent on meat products in the last 2 years
MntFruits	amount spent on fruits in the last 2 years
MntSweetProducts	amount spent on sweet products in the last 2 years
MntWines	amount spent on wines in the last 2 years
MntGoldProds	amount spent on *gold* products in the last 2 years
NumDealsPurchases	number of purchases made with discount
NumCatalogPurchases	number of purchases made using catalogue
NumStorePurchases	number of purchases made directly in stores
NumWebPurchases	number of purchases made through company's web site
NumWebVisitsMonth	number of visits to company's web site in the last month
Recency	number of days since the last purchase

Table 1: Meta-data table

Deliverables

The following are the **minimum** required deliverables:

1. **Explore the data** – be creative and pay attention to the details. You need to provide the marketing team a better understanding of the characteristic features of respondents;
2. Create and describe **a customer segmentation** based on customers behaviors;
3. Create and describe a **predictive model (classification)** which allows the company to maximize the profit of the next marketing campaign.

What we expect as your solution to be submitted:

1. A detailed and well-organized **notebook** (or equivalent code file) to be presented to technical stakeholders.
2. A Power Point (or similar tool) **presentation** to be presented **to business stakeholders.**

You may use any programming language for this assignment (we use **python**).

Simplicity and awareness of what is going on is preferred over implementations of complex algorithms which you do not master.

If your solution satisfies our minimum criteria, you should be invited to a technical/business presentation. Solutions that do not satisfy our criteria, but that show potential, will be invited for a feedback short (30 min) meeting.

You should receive a response within 1-2 weeks from the case submission.

If there any questions, please do not hesitate to contact us.