

PROFILES BASED ON THE MAJORITY OF CLIENTS WHO ACCEPT OR NOT THE CREDIT CARD OFFER

Variables	Accept credit card	Not accept credit card
<i>Reward</i>	'Air Miles'	'Cash Back'
<i>Mailer type</i>	Postcard	Letter
<i>Income level</i>	Medium	Medium
<i>Nº bank accounts open</i>	1	1
<i>Overdraft protection</i>	No	No
<i>Credit rating level</i>	Low	High
<i>Nº credit cards held</i>	2	2
<i>Nº homes owned</i>	1	1
<i>Household size</i>	3-4	3-4
<i>Homeowner</i>	Yes	Yes
<i>Average balance</i>	Below (total average)	Above (total average)

PROFILES BASED ON 'INCOME LEVEL', 'AVERAGE BALANCE' AND 'CREDIT RATING'

Profiles	Nº clients
Medium Low Target	4.161
Medium High Target	3.851
Non Classifiable	3.234
Low Target	2.535
Medium Target	2.504
High Target	1.656
Highest Target	33

PATTERNS AND COLUMN ANALYSIS (based on SQL queries):

Columns that have the same patterns in the majority of the clients from the two profiles ('Yes' and 'No' offer acceptance):

- **NUMBER OF OPEN BANK ACCOUNTS:** (one bank account - non-credit)

In general, the vast majority of customers tend to have only one bank account whether they accept the offer or not. It also follows the same pattern when we compare it to the variables 'credit_rating' and 'income_level'.

- **NUMBER OF CREDIT CARDS HELD:** (2 credit cards)

Whether or not they accept the credit card offer, the two groups have a similar pattern of two credit cards per client.

- **NUMBER OF HOMES OWNED:** (1 house)

The vast majority of customers only own one house. Neither stands out that those with a 'high' income level have a higher number of homeownership.

- **HOUSEHOLD SIZE:** (3-4 people)

In general, it maintains a normal distribution (most families have 3 or 4 people).

Looking at the histogram from this variable, it is interesting to note that in those who accept the credit card offers, there is a more uniform distribution in families with 'high' income levels, whereas in the other income levels most of them follow the general trend (3 or 4 people). Therefore, those families would have more purchasing capacity to be able to maintain a greater number of individuals.

- **HOMEOWNER:** (yes)

In general, almost twice as many customers have their own house (both 'yes' and 'no' profiles). Although a very few of the clients with 'high' income level which do not own their home, has a lower proportion compared with the ones with 'low' income level.

Compared with the 'household_size' variable, there is no difference between owning or not (general trend).

- **OVERDRAFT PROTECTION:** (no)

In general, the vast majority do not have protection in the event of an overdraft.

- **Yes:** compared with 'credit_rating' and 'income_level' variables, we can see that there are very few 'high' level clients that have overdraft protection, which is why most of them are 'medium'. This would mean that having more purchasing capacity, the tendency to run out of money is much lower than in the 'medium' and 'low' levels. However, the ratio between 'yes' and 'no' clients for card acceptance is smaller at 'high' than at 'medium' level.

- **No:** it follows the same pattern as those who accept it, although with more customers in the 'medium' level.

Columns that have different patterns in the two profiles:

- **REWARD:** (yes: 'air miles'; no: 'cash back')

First of all, all the clients have a reward.

- **Yes:** There is a uniform trend that customers who accept a credit card choose 'air miles' as a reward.
- **No:** Those who do not accept the credit card offer, prefer the 'cash back' option. Therefore, it could be assumed that they prioritise money more (direct impact on the customer) than on another type of reward (indirect impact).

By relating this variable to others such as 'credit_rating' or 'income_level', they follow the same pattern in the two profiles described in above the document.

- **TYPE OF MAIL:** (yes: 'postcard'; no: 'letter' - although almost tied with postcards)

The difference between a postcard and a letter is that the information contained in the postcard is on its own format; while in the letter, the information is inside an envelope. Therefore, in the world of marketing, the postcard has a more direct impact on the customer than the letter. Usually, when customers receive propaganda letters, they tend to throw them unopened to see the content.

In general, there are almost half of the postcards and letters (a little bit above the postcards).

- **Yes:** 2/3 of those clients prefer postcards rather than letters (it follows the same trend compared to the variables 'credit_rating' and 'income_level').
- **No:** there is a little more demand for letters, but it is practically around 50/50%. However, the ones who choose postcards outweigh those who prefer letters in comparison to 'credit_rating' and 'income_level'.

- **INCOME LEVEL:** medium level is the mode (medium: 50%, high: 25% and low: 25%).

- **Yes:** compared with the column 'credit rating', there is an inconsistency in the general perception that the clients who have more income should have a higher credit rate. However, it is not like this in this case ('high' level: minority class).
- **No:** they follow the general tendency caused the difference ('medium' level: majority class).

- **CREDIT RATING LEVEL:** in general, there is a uniform pattern between levels (1/3 of clients for each).

- **Yes:** it follows the inconsistency seen in the income level column (the clients with more income have a lower level. That is why, it is difficult to think that the bank would be interested in investing with those clients because of their lack of trustworthiness).
 - **No:** it happens the opposite (mode: 'high' level, although almost tied between the three of them) - perhaps the bank could be more interested in rewarding those with an alternative reward instead of a credit card to get more benefits.
- **AVERAGE BALANCE:** (average from Q1, Q2 and Q3, not Q4): different pattern between yes and no:
 - **Yes:** compared with 'income_level', there are almost no differences between them, but the 'high' level has the lowest average and is below the total average. Regarding 'credit rating', clients with 'low' rates are the ones with the highest average and above the total average, whereas the ones with 'high' rates are below the total average.
 - **No:** compared with 'income_level', the ones with 'high' income have a higher average and are above the total one, whereas compared with 'credit_rating' the ones with 'high' level are above the other ones.
- Relation between 'credit_rating', 'overdraft_protection' and 'average_balance':
- **Yes:** the average balance from the 'low' credit rating level is higher than the ones with 'high' level (even if they have overdraft protection or not).
 - **No:** the ones with 'high' levels have a higher average than the clients with 'low' and 'medium' then don't accept the credit card offer and have no overdraft protection.