Introduction to Finance for Data Scientists

Lending Game: Results in Round 1

Simulation of profits

Recall that for each loan application, your team is in competition with two other teams, which have different information sets than yours. The identity of the two teams that compete with you are different for each loan application. For example, if you are a type 1 lender (i.e., you have variable 'digital1' for new applications), for each loan application one of your competitor is a type 2 lender (i.e., has variable 'digital2') and the other is a type 3 lender (i.e., has variable 'digital3'). Because three teams are type 2 lenders (call them 2a, 2b and 2c) and three teams are type 3 lenders (call them 3a, 3b and 3c), I simulated the market by randomizing the identify of your competitors for each loan application over the nine possible situations (your competitors may be 2a and 3a; 2a and 3b; 2a and 3c; etc.) I also randomized loan applicants' types, that is, the lender for which each loan applicant is ready to pay 2% extra to borrow from this lender.

Detailed results

The detailed outcome of the market is in the dataset Stage1_Diagnostic_xx.csv. It contains the 100,000 loan applications. The variables in the dataset are (if you are a type 1 lender):

- id: Loan identifier.
- own: Interest rate offered by your team.
- competing2: Interest rate offered by lender 2.
- competing3: Interest rate offered by lender 3. Missing interest rate means no offer.
- borrowertype: =1,2,3 indicates the lender for which the borrower is ready to pay 2% extra.
- accepted: =1 if the borrower takes your loan offer; =0 if the borrower does not take your loan offer. Note that you can reconstruct this variable using the information about the three interest rates and the borrower's type.
- default: =1 if the borrower defaults on the loan; =0 if the borrower repays the loan.
- profit: Your profit on this loan. The profit if your loan offer is accepted is equal to interest rate times 10,000 if the borrower repays, and to negative 10,000 if the borrower defaults.

League table

The table below shows the market shares and the profits and losses (P&L) of all the teams participating to the game. The market share for each team is calculated as the market share on all loans for which it competes. The P&L for each team is the profit summed over all the loans made by the team.

	Market share	P&L
Math-Aris-Theo	19.8%	6,723,674
TOTK	4.5%	4,361,934
Loan Rangers	29.6%	-1,420,609
Debit Suisse	13.8%	-1,902,382
Lendingues	39.7%	-2,755,407
Gasp-Etie-Lola	36.7%	-3,820,016
Lehman Bros	40.9%	-15,448,729
Loans 'R' Us	39.5%	-44,381,609
The Mathrisk Reloaned	63.3%	-125,129,226

Stage 2

As you can see from the results of stage 1, the game is quite difficult and it is challenging to make profits. So keep the team's spirits up and take stage 2 as an opportunity to learn from the experience of stage 1 and improve your strategy!

Your task now is to review your strategy and make offers to a new batch of loans. See the guidelines of the game for the detailed instructions. The simulation of profits in stage 2 will be done in exactly the same way as in stage 1. Good luck ☺