Credit Risk Model - Predictive Analytics for Bank Loan Default

Client Profile (Under NDA)

Client is a growing Indian Bank company. The Bank has a rapidly growing customer base and offers many services to it is customers. The Bank offers attractive Fixed Deposits to its customers. The Bank also had and attractive portfolio of Loans offerings.

The Business Challenge

Loan Distribution was a principal offering of the Bank. The major earnings of the Bank come from Loans disbursed and the interest earned. The Bank offered personal and company loans. The Bank wanted to reduce the credit risk and the defaults in loan repayment.

Canspirit Consulting Predictive Analytics Approach

We proposed predictive analytics solution to measure the probability that a debtor will default. Our objective was to include the score of probability for defaulting as a key component in getting the loans. The score was used to as a measure for credit risk of the potential loan customer.

After analyzing the business problem, our focus was on two model types to measure the credit risk:

- Logistic Regression
- Decision Trees

A sample data of Model Scoring and Evaluation to decide which Model to select

Algorithms	Accuracy	Precision	Recall	F-Score
Logistic Regression	0.92	0.947368	0.72	0.818182
Boosted Decision Tree	0.91	0.9	0.72	0.8
Decision Forest	0.92	0.947368	0.72	0.818182

Technologies and Tools

- R
- R Studio
- dplyr for data preprocessing

Challenges and Solutions

- The customer did not have a single source of truth, so combing data from various sources was a challenge.
- Client did not have the relevant data columns so our Business and Data Analyst team worked closely at client location to identify sources from where we can get the data.

Business Benefits

- The Bank saw the credit risk model as an opportunity to improve the speed of loan processing.
- The loan evaluation and distribution was more scientific than heuristic based.
- The Bank was able to move higher into the technology value chain
- After implementation Bank that would be able to reduce the number of loan defaults
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Bottom Line

Canspirit Consulting leveraged its Data Science, Big data and machine learning skills to build a robust credit risk model and analytics road map.

For a discussion on how we can help you grow your business, email us now at: info@canspirit.ai