Using Artificial Intelligence and Machine Learning to Identify Potential Loan Defaulters

The Client

This automobile loan company is based out of the United States of America. With over 140 million dollars in annual revenue, they help customers find a loan for the purchase of an automobile. With ease, transparency, and seamless processes they provide services that make purchasing an automobile feasible.

The Challenge

The company provided loans to its clients, but often faced the challenge of having loan defaulters.

There were three key challenges in their model:

- It was hard to identify customers who might default on their loans.
- The defaulting of loans caused the customer's profits to go down and reduced investor trust.
- The employees of the company had challenges in collecting money from defaulters.

Our Approach

We carefully assessed the problem and identified a technology-driven solution that could potentially increase the probability of identifying a loan defaulter. We suggested that we get started with a POC after we understood what they were going through. Having seen success, we were called to execute the project across the firm.

In completing the project across the firm, we worked with multiple business units that handled collections in different ways. Having identified patterns, we created a model that predicted loan defaulters.

How did We do This?

The short answer: Application of the right technology to the right needs.

We worked collaboratively with the client's teams. This was crucial to understand the various processes that were being followed internally for making decisions on how to identify a potential defaulter. We built an AI and ML model that could more accurately predict who would be a potential loan defaulter. The AI and ML model could be used across the company.

We fine-tuned the model until it could self-learn and fine-tune itself to ensure that employees across the company experienced higher productivity and ease of use.

Engagement Highlights

- Building a Machine Learning model that was more likely to predict customers who were likely defaulters.
- The Machine Learning system was built to be agile, make weekly predictions, and self-learn to fine-tune its models.
- The data considered from loan application data, loan history, payment history, and email/call history were also of critical usage.
- Leveraged Graviton2 for majority of the production workload.

What Tools did We Use?

- Python
- TensorFlow - Linear Classification
- Scikit-Learn
- Imbalanced-learn
- Pandas
- Numpy

Contact Us

USA | Costa Rica | India

info@feuji.com

What were the Key Business Results?

Reduction of

22%

in the collection effort

About

8.5%

increase in the collection revenue

ML model

Self-learn and self-fine-tune

Estimated

positive impact of

USD 600,000

per year

The most important thing we realized during this project was that AI and ML were extremely powerful if we put them into practice for the right purposes. Over a period of time, we turned this into an agile model that allowed for iterations and improvements over time.