

- A ML model or some other mathematical model that takes available data and generates a basic score predicting loan repayment.

Pravesh Agarwal
Oct 19, 2021

Project proposal; 2022

Partner:

BetterFi, CDFI and 501c (3), is a non-profit justice enterprise lender seeking to end predatory lending on the South Cumberland Plateau through affordable consumer loans and financial coaching. It is currently run by 2 full-time employees with a yearly budget of \$120,000.

As a non-profit, its sources of funding include:

- Donations
 - Grants: federal, foundations, individuals, general public,
 - Earned revenue from loans
-

- A ML model or some other mathematical model that takes available data and generates a basic score predicting loan repayment.

Pravesh Agarwal
Oct 19, 2021

BetterFi Internal Score Model Project/ BISM

Project Background: BetterFi provides loans to clients who generally have a bad credit history. At the moment, BetterFi employees get as much data as they can about their clients, and use that data to make a guesstimate decision on whether to provide loans to their clients. Such decision-making leads to inconsistent decisions along with potential for bad judgement due to not accurate evaluation of available data.

Objective: The partner intends to establish a metric to measure reliability of payment and drag down delinquency rate, by anticipating the likelihood of BetterFi's clients repaying their loans.

Project Goal: To create a model that generates a loan repayment score. The model would take data gathered by BetterFi on its clients and prospective clients as its input.

Connection of project to partner's mission: A successful project would allow BetterFi to make more accurate predictions on loans repayment. Lending to more people would allow BetterFi to help more people get out of predatory lending.

Synopsis of data assets/needs

Two datasets are identified as key necessities to build a model and generate a score on a client.

1. Demographic data has been collected, anonymized and is available for immediate use.

- A ML model or some other mathematical model that takes available data and generates a basic score predicting loan repayment.

Pravesh Agarwal

Oct 19, 2021

2. **Transaction data:** Few years' worth of transaction data is available but due to improper data collection by the client's previous database system, it lacks several key variables on loan repayment such as "missed payments", "actual payments" and more. Upon an initial screening, it is determined that these data cannot be used to create a model that would generate

The Prospective partner has shifted to a new database system (October, 2021). This system is collecting transaction and repayment data going forward. In June of 2022, DataLab will have transaction data spanning 8 months (October, 2021 – End of May, 2022). Preliminary hypothesis is that this data will be enough to allow DataLab to create an MVP.

Timeline to data acquisition

Data is collected by BetterFi on each of its clients. To date, BetterFi has made 110 loans for 68 clients and plans to increase its loans and clients in near future. Data is available and Ready to be used in a datalab project?

Possible roadblocks for MVP

- Data lacking enough anonymity and potentially producing legal issues
- Lack of credibility in the score generated by the model.
- Hard to generate a good score due to the small dataset.
- Communication barrier between BetterFi and Datalab interns leading to misunderstandings.

Description of MVP

- A ML model or some other mathematical model that takes available data and generates a basic score predicting loan repayment.

Pravesh Agarwal
Oct 19, 2021

Beyond MVP possibilities

1. Improving the model to continuously take new client data
2. Adding a feedback loop to the model to take new data and generate better score
3. Internal Dashboard for BetterFi Use
4. Client-facing dashboard

Additional Comments

- Agreed to fund one data lab intern at \$4000
- MVP would be considered a success if a model produces a repayment prediction score with trustable credibility.