1st Annual Analytics "Crossroads Classic":

Teachers Credit Union Branch Cash Model

Kaggle Contest Write-up

1. Description

Despite the growing push in the financial industry to provide almost fully digital platforms, there remains a tremendous need for physical locations to provide full-service assistance and great customer service. At Teachers Credit Union, we strive to make every interaction between our members and team members as seamless as possible. One tremendous consideration in financial member service is having enough cash on hand at a branch to serve the member's needs. On the surface, this may seem like a simple math problem. However, throw in weekly deliveries, costs of special/urgent deliveries, the economy, special community events, and ebbs and flows of members' financial needs, and you have a much less "simple" problem to solve.

The problem becomes more complex as our organization adds new locations with unique needs, new members, different cash-on-hand limits, and ever changing regulations with regards to banking and cash management. Teachers Credit Union (TCU) is committed to being the best in-store member service experience it can be, and it starts with the logistics of providing enough cash. We operate 60 branches across Indiana and Michigan, with over 300,000 members interacting with us both digitally and in-person.

TCU is challenging the Indiana Crossroads Classic student community to build a model that more accurately forecasts branch cash. The current method of ordering cash involves team members viewing how much cash is on hand, comparing that to last year at this time, and estimating the need for the next week. We're excited to see how machine learning could better ensure that the amount of cash on hand accurately reflects the amount that members need in a given week. Caution! Too much cash-on-hand will put you over the branch's cash limit, but not enough cash will cause an expensive "special order" in between normal deliveries. We want our team members to feel confident that what is predicted is reasonable and a good starting point for their weekly order.

2. Evaluation

- *Metric: SMAPE. More details on the Kaggle Website (opens on January 4th, 2021)*
- *What we want:*
    - Predictions that are a "starting point" for Branch teams to use to order cash for the next week(s)
        - How much cash will be used next week in total
        - Do we anticipate any significant increases/decreases in usage?
    - Accuracy important, precision not important
    - Predictions broken down by branch, accuracy across all branches, emphasis on larger branches (cost-wise)

3. Teams
   - Two divisions:
     - "Undergraduate" – Undergraduate Student Teams **only**
     - "Open" – Open to both Graduate and Undergraduate Student Teams
   - Teams must consist of up to 4 people
     - "Solo" entries are **not** allowed

4. Prizes
   - All prizes are total amounts *per team*
   - Open Division
     - 1st Place: $7,000
     - 2nd Place: $3,000
   - Undergraduate Division
     - 1st Place: $3,500
     - 2nd Place: $1,500

5. Timeline
   - Monday, January 4, 2021 - Competition begins
   - Monday, January 11, 2021 - Deadline to enter the competition or to form a team
   - Monday, January 18, 2021 - Final submission deadline
   - Monday-Wednesday, January 25-27, 2021 - Winners announced

Shortened "Teaser" Announcement in November:

We are pleased to announce a Datathon, co-sponsored by the University of Notre Dame, Purdue University, Indiana University, Butler University, and Teachers Credit Union, for university students of all levels (who are currently enrolled at one of the aforementioned schools) during the January 4th-January 18th term. The competition, hosted on Kaggle, will be comprised of two divisions: one "Undergrad" division for Undergraduate teams only and one "Open" division for both Undergraduate and Graduate teams. Teams must consist of 2-4 people. Cash prizes will be announced at a later date. Sharpen those predictive modeling skills and get ready to welcome Data into your quarantine bubble!