**Group 4 Poster Project – Milestone 2**

**Introduction:**

As our economy and corporations begin to operate in a global context, there have been increasing efforts to retain customers. Frequent acquisition and loss of customers is defined as customer churn and has been a particular area of focus in data science. It is important to businesses as “it is directly tied to firm profitability” (retention futility article). The costs of keeping a customer are usually less than the costs of recruiting new customers (customeralwaysright source). This is why it is becoming increasingly important to use data science techniques and advanced analytics to predict which customers are vulnerable to leaving. It can be difficult to differentiate between customers who will respond to interventions and those who will not. In addition, excessive customer turnover can be a sign of potential fraudulent activity. This is complicated by the fact that technology can serve two purposes to become closer to customers as well as alienate them (customeralwaysright source).

There is also the risk of customer churn on customers that were won back after churning originally. This makes the situation even more complex to further analyze. (investigating customers repeat churn behavior source). There are multiple fields to study in this; some organizations use predictive modeling by studying customer behavior while others focus on more traditional demographics (behavioral attributes and financial churn prediction source).

Traditionally, the data science technique of k-means clustering is used to determine risk of customer churn (clustering prediction techniques source). However, there are other methods available to help predict this risk. In some instances, other methods like decision tree analysis are more valid and the field continues to become more diverse.

The risk can be more than financial; in certain insurance industries, customer churn can signify loss of critical healthcare coverage and can significantly impact a person’s health. Therefore, it benefits us all both economically and personally to obtain further insight into customer churn, its prediction, and its avoidance (if at possible). This project aims to critically evaluate the current state of customer churn and customer behavior in the financial and insurance industry, propose a data science framework and algorithm to ascertain customer churn, and reflect on the future direction of this field.

**Conclusion:**

Customer churn for any company is expensive but it is especially expensive in the customer service area. The financial and insurance sector has a large amount of competition and with new digital only institutions coming into the area the amount of competition has only grown. The biggest reason sighted for leaving a bank was “poor service” and high fees. The high fees are the result of profitability and each institution attempts to show its value by offering the most economic service for the customer while remaining profitable. The poor service was the driver for 56% of the individuals that changed banks (Reducing customer churn for banks and financial Institution). Financial institutions and insurance companies struggle with customer churn as the institutions do not usually see the customer leaving before they have closed all their account and left. Normally, they never get a chance to try and attempt to retain the customer.

It is important for service companies to understand how to predict customer churn and identify those customers before they leave. Usually, high value customers are easy to find and resolve but the middle to lower value customers need to be identified. The longer a person stays with a company the more likelihood of them being a profitable customer; this increases customer lifetime value (CLTV). In our analysis, we ran linear regression models and visualized our input data to help determine what key inputs would help determine correct traits and demographic information to better understand what customer are good candidates for preventive attrition.

**Conclusion Version for Poster:**

Customer churn in the financial and insurance sector is high. Companies struggle to identify customers who are likely to leave before they have left. Surveys are not frequent enough and a poor service might not show up on a survey. To increase customer lifetime value (CLTV), banks need to understand the correct behavioral attributes and build predictive models using new and traditional data science techniques like k-means or spatio-temporal algorithms (Behavioral attributes and financial churn prediction). This helps in selecting the correct behavioral traits based on transactions and other demographic behaviors to identify customer churn and determine if a customer is a good candidate to be retained.

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