Predicting Customer Churn in Banking Using Machine Learning

Business Case

McGill University, Desautels Faculty

INSY695-075

Enterprise Data Science & Machine Learning

Attrition in Banking:

Within the hyper-competitive banking landscape, customer retention serves as a fundamental pillar of long-term success and profitability. However, a significant and costly threat looms: customer churn, the phenomenon of customers migrating to competitors. Industry reports reveal a stark reality – acquiring new customers can be five to 25 times more expensive than retaining existing ones (Harvard Business Review, 2014). This cost disparity underscores the crucial need to proactively identify individuals at risk of churn and implement targeted retention strategies.

By leveraging predictive analytics and machine learning, banks can gain valuable insights into customer behavior and identify early signs of churn. This empowers them to proactively intervene with personalized offers, improved service experiences, and targeted loyalty programs, fostering deeper customer relationships and ultimately preventing churn.

The financial impact of customer churn extends far beyond simple acquisition costs. Studies reveal that a mere 5% increase in customer retention can boost profits by 25% to 95% (Source: Harvard Business Review, 2014).

Predictive Power of Machine Learning:

Predicting customer churn using machine learning (ML) offers a powerful solution to combat this costly issue. By analyzing vast amounts of customer data and identifying patterns indicative of potential churn, banks can gain a proactive edge.

***

About the Data:

The provided sample data, containing various attributes of bank customers including demographics, financial behavior, and account activity, presents a valuable foundation for building an ML model to predict future churn. By leveraging this data's insights, we can unlock critical knowledge about customer behavior and develop a predictive model to identify those at risk of leaving.

Key Goals:

- Develop an ML model with reasonable accuracy in predicting customer churn using provided sample data.
- Identify key features contributing to churn predictions, providing initial insights into potential risk factors.
- Quantify the potential impact of churn prediction on customer retention through metrics like uplift modeling or simulated interventions.

Source: Frederick Reichheld, & Thomas Teal. (2014, October). The value of keeping the right customers. Harvard Business Review. Retrieved from https://hbr.org/2014/10/the-value-of-keeping-the-right-customers