
EVALUATING CUSTOMER CHURN ANALYSIS VIA DATA MINING

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ABSTRACT

Customer churn, which occurs when customers stop using a company's products or services, represents a significant challenge for businesses in sectors like banking, telecommunications, and insurance. Retaining customers is crucial for long-term profitability, as acquiring new customers often incurs higher costs than keeping existing ones [1]. To address this issue, companies are increasingly turning to data mining techniques to predict customer churn and devise proactive retention strategies [2].

Customer churn is influenced by various factors, including customer behavior, service usage, satisfaction levels, and external market conditions[3]. Predictive analytics offers a powerful approach to identifying at-risk customers before they leave. Commonly used methods for churn prediction include Logistic Regression, Classification models, Artificial Neural Networks, and a range of machine learning algorithms such as decision trees, support vector machines (SVM), and clustering techniques[4][5]. These methods help businesses process large datasets, identify patterns, and make informed decisions about which customers may churn[6].

In this study, we aim to enhance the understanding of customer churn in the banking sector by applying a combination of data mining techniques. While previous research has focused heavily on industries like telecommunications and retail[7], fewer studies have explored churn prediction specifically within banking[8]. This study fills that gap by employing a diverse set of methods, including Logistic Regression, Artificial Neural Networks, and machine learning models, to evaluate their effectiveness in predicting customer churn in banking[9].

Our approach distinguishes itself from existing research in two key aspects. First, we provide a detailed comparison of different data mining techniques to assess their performance in identifying at-risk customers in the banking industry[10]. Second, we focus on understanding the specific drivers of churn within this sector, offering banks practical insights to not only predict but also address the root causes of customer attrition. By applying and comparing multiple techniques, this research provides a comprehensive evaluation, empowering banks to improve their customer retention strategies through data-driven insights.

Keywords Customer churn · Data mining · Machine learning · Banking

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