**CUSTOMER CHURN PREDICTION USING MACHINE LEARNING**

**ABSTRACT**

Customer relations is of utmost importance for industries that directly provide goods and services to the people. The goodwill of the customers is what keeps the company up and running in many of the sectors such as telecom, banking, educational institutions, etc,. Various aspects like competitors, novel and innovative business models and enhanced services are increasing the cost of customer acquisition. In such a fast set-up, service and goods providers have realized the importance of retaining the on-hand customers. Thus, establishing and maintaining good customer relations is the key for success of a company in today’s modern world of business.

Banking is one of the highly competitive sectors where customer relations is of utmost importance for any bank. Each customer is considered as a customer for life by the banks. Home Loans are typically the longest relationship with any customer for the bank. Statistics and some of the top leading banks prove that customers are more sophisticated, and they need some offers and boosts to continue their relationship with the organization. The term “Customer Churn” refers to the state in which the customer or the subscriber stops involving in business transactions with a company or a service provider. To deal with the concept of customer churn, many organizations both big and small use machine learning to predict at what rate the customer churn might happen and based on the customer churn rate, the company comes up with a scheme or offer to hold on to their on-hand customers.

We predict the customer churn rate, using Machine Learning models which will indicate whether a customer will leave the bank or not based on many factors, this in turn will help the bank in knowing which category of customers generally tend to leave the bank. Further the banks can bring in exciting offers so that it can retain its customers. In this predictive process popular models such as logistic regression, decision trees, random forest and other boosting techniques have to be used to achieve a decent level of accuracy, for the banks to rely on so that they can clearly predict which customer may leave next based on customer data available.

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