INNOVATION PHASE

Customer Churn Prediction Project

Date	**10-10-2023**
Team ID	**1288**
Project Name	**Customer Churn Prediction**

Introduction

The aim of this project is to impart an extensively analysis of the design and innovation strategies for the build-up of a machine learning predictive model to fond the churn and attrition rate of an organization. A precise house churn rate prediction is important in organization. This project goal is to make use of innovative approaches to enhance the accuracy of the predictive model.

Problem Statement

Customer Churn Prediction problem statement states to find the factors affecting customer retention and reduce customer attrition by understanding the patterns and reasons behind customers leaving. Churn rate prediction becomes complex when to find its accuracy. The factors needs to consider were customer demographics, usage behaviour, and historical interactions. The main goal is providing a precise churn rate by incorporating all the factors.

Design and Innovation Strategies

Data Collection

Innovation: Comprehensive Data Gathering

In data collection we used advance level web surfing techniques and gathered diverse dataset to get the customer information such as their product purchasing details, feedback list and historical interactions.

Factors like customer needs, product quality and periodic feedback analysis helps to improve prediction accuracy.

Data Pre-processing

Innovation: Natural Language Processing Technique

Natural Language Processing techniques are used to pre-process data that are in the form of text like feedback and service and it provides valuable insights.

K-Nearest Neighbours and Random Forest algorithm is used to the handle the missing values in the dataset.

Model Selection and Training

Innovation: Ensemble Learning

The Ensemble learning techniques includes the Gradient Boosting, Random Forest, decision Tree. These model helps in increasing the accuracy of the prediction.

Some other model we used were Bayesian logistic regression and Support Vector Machine.

By combining these model that incorporates the ensemble model with others which results in the better outcome.

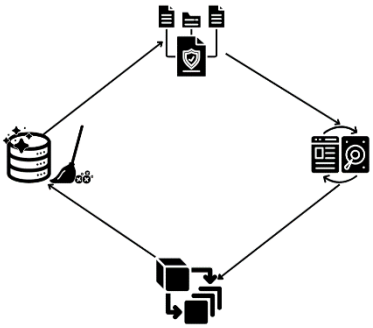
Visualization

Innovation: IBM Cognos Platform

Visualization is the process of showcasing the output from the predictive model in a predefined chart or graph.

There are lots of visualization types like pie chart, scatter plot, bar chart, histogram, etc., in common line chart is mainly used for churn rate prediction.

DATA GATHERING



DATA PRE-PROCESSING

ML MODEL

VISUALIZATION

4. Conclusion

The customer churn prediction project is a integrated approach that shows the challenges of predicting churn rate accurately. By innovative strategies such as comprehensive data collection, Natural Language Processing, ensemble learning and IBM Cognos platform this project goal is to develop a reliable model. This model will help to find the churn and attrition rate of an organization accurately. Through a combination of technologies and techniques we like to provide a complete and best solution for customer churn prediction.