Business Understanding(CRISP-DM) for Customer Churn Prediction Challenge For Azubian

BUSINESS-DRIVEN INSIGHTS:

OPTIMIZING CUSTOMER RETENTION THROUGH PREDICTIVE CHURN ANALYSIS FOR EXPRESSO TELECOM

1. Business Objective:

Objective: Develop a machine learning model to predict the likelihood of each customer "churning" (becoming inactive and not making any transactions for 90 days).

Purpose: Enable Expresso Telecom to proactively identify customers at risk of leaving and implement targeted retention strategies to improve customer loyalty and reduce churn rates.

2. Stakeholders:

Expresso Telecom Management Team: Responsible for strategic decision-making and resource allocation based on churn prediction insights.

Marketing Department: Utilizes churn predictions to design and implement targeted marketing campaigns to retain at-risk customers.

Customer Service Team: Leverages churn predictions to prioritize and personalize interactions with customers, addressing their concerns and enhancing satisfaction.

Our Data Analytics Team: Responsible for developing, deploying, and maintaining the churn prediction model.

3. Success Criteria:

Reduce Churn Rate: Achieve a measurable reduction in churn rate by accurately predicting and proactively addressing customer churn.

Model Performance: Achieve a high Area Under the Curve (AUC) score as the evaluation metric, indicating the effectiveness of the churn prediction model.

Business Impact: Enhance customer retention, increase revenue, and improve overall customer satisfaction and loyalty.

4. Data Understanding:

Data Sources: Historical customer transaction data from Expresso Telecom's databases, including customer demographics, usage patterns, transaction history, and churn status.

Exploratory Data Analysis (EDA): Conduct comprehensive EDA to explore the dataset, understand data quality, distributions, and relationships between variables. Identify potential features relevant to churn prediction.

5. Data Preparation:

Data Cleaning: Handle missing values, remove duplicates, and correct errors in the dataset to ensure data quality and reliability.

Feature Engineering: Create new features or transform existing ones to capture relevant information for churn prediction, such as customer tenure, average transaction value, and frequency of interactions.

Feature Selection: Identify key features that are likely to influence churn behavior based on domain knowledge and insights gained from EDA.

6. Modeling:

Model Selection: Choose appropriate machine learning algorithms for churn prediction, such as logistic regression, decision trees, or gradient boosting.

Model Training: Train predictive models using historical customer data, and optimize model parameters to maximize predictive performance.

Model Evaluation: Assess model performance using the Area Under the Curve (AUC) metric, validating the model's ability to distinguish between churn and non-churn instances.

7. Evaluation:

Business Impact Assessment: Evaluate the potential impact of using the churn prediction model on reducing customer attrition and improving retention.

Model Performance Review: Validate model results against business objectives and stakeholder expectations, ensuring alignment with success criteria.

Scalability and Robustness: Assess the scalability and robustness of the model for deployment in production environments.

8. Deployment:

Model Integration: Integrate the churn prediction model into Expresso Telecom's operational systems, ensuring scalability, reliability, and real-time prediction capabilities.

Monitoring and Maintenance: Implement monitoring processes to track model performance, detect drift, and ensure timely updates and maintenance as needed.

Documentation and Knowledge Transfer: Document model architecture, deployment procedures, and maintenance protocols for knowledge transfer and future reference.

By following the CRISP-DM methodology and customizing it to the specific requirements of Expresso Telecom's customer churn prediction challenge, the project team can effectively address business objectives, engage stakeholders, and deliver actionable insights to mitigate customer churn and drive business growth.