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Assignment No - 1

Use Case: Customer Churn Prediction in Telecom Industry

Data

Data Sources:

- Customer subscription records from telecom service providers.
- Call detail records (CDR) and network usage data.
- Customer support interaction logs.
- Social media sentiment analysis data (if applicable).

Data Issues:

- **Missing Data:** Some customers may have incomplete records due to inconsistent data entry.
- **Imbalanced Data:** The dataset may have significantly more loyal customers than churned ones, leading to biased predictions.
- **Duplicate Records:** Multiple records for the same customer can skew results.
- **Outliers:** Extreme usage patterns (e.g., a customer with an exceptionally high number of calls) may impact model performance.
- **Data Privacy:** Sensitive customer data must be anonymized to comply with data protection regulations.

Types of Data:

- **Numerical Data:** Call duration, monthly bill amount, number of calls, and data usage.
- **Categorical Data:** Customer subscription plan, contract type, payment method, and customer segment.
- **Time Series Data:** Historical records of customer interactions and payments.
- **Text Data:** Customer support chat transcripts and social media feedback.

Problem Statement

The telecom industry faces a significant challenge in retaining customers due to high competition and evolving consumer demands. Churn, or customer attrition, leads to revenue loss and increased marketing costs to acquire new customers. The goal of this project is to develop a predictive model that can identify potential churners based on their usage behavior, payment history, and service complaints.

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By analyzing customer interaction data and engagement metrics, telecom companies can take proactive measures, such as offering personalized discounts or improving customer service, to enhance customer retention. The predictive model will leverage machine learning techniques to classify customers as "Likely to Churn" or "Loyal Customers," helping the company optimize retention strategies.

THANKYOU