PREDICTIVE ANALYTICS FOR CUSTOMER CHURN IN SUBSCRIPTION-BASED TELECOM SERVICES: A CASE STUDY OF BUM TELECOMS COMPANY

1. Business Context

BUM Telecoms Company is one of The Gambia's leading telecommunications providers, offering mobile voice, data, and subscription-based internet services. In recent months, BUM Telecoms has observed a gradual decline in the number of active subscribers, particularly among long-term prepaid and postpaid customers. The competitive landscape, including new promotional offers and improved service bundles from competitors, has increased customer switching behavior. To maintain profitability and customer loyalty, BUM Telecoms seeks to leverage data analytics to better understand and predict customer churn.

2. Stakeholders

Chief Marketing Officer (CMO): Interested in identifying at-risk customers for retention campaigns.
Customer Retention and Loyalty Team: Uses churn insights to design incentives and targeted offers.
Data Analytics Department: Responsible for developing predictive models and analyzing churn trends.
Senior Management: Requires summarized insights to inform business strategy and revenue forecasting.

3. Business Problem

BUM Telecoms is facing an increasing churn rate among its subscription-based customers, leading to revenue loss and higher acquisition costs. Currently, there is no systematic approach to detect which customers are likely to cancel or switch to competitors. This limits BUM Telecoms' ability to deploy proactive retention strategies.

4. Data Science Problem

Develop a predictive model that identifies customers at high risk of churning based on historical usage patterns, subscription details, and customer service interactions. The model should classify customers as "likely to churn" or "likely to stay," enabling targeted retention campaigns.

5. Objectives

- Build a churn prediction model using customer data such as usage frequency, billing records, and complaint logs.
- Identify the key behavioral and demographic factors contributing to customer churn.
- Provide actionable insights to the marketing team for personalized retention strategies.

6. Success Criteria / KPIs

Model accuracy ≥ 85% on validation data.

- Receiver Operating Characteristics (ROC)-Area Under the Curve (AUC) ≥ 0.90 for churn classification.
- Ability to identify the top 10% of high-risk customers for intervention.
- Reduction in monthly churn rate by at least 5% after model deployment.

7. Constraints

- Limited access to customer demographic data due to privacy regulations such as GDPR/PIPEDA
- Historical data availability has been restricted to the past 12 months.
- Project timeline: 6 weeks for model development and validation.

8. Assumptions

- Customer behavior remains consistent over the observation period.
- Missing or incomplete data can be imputed accurately.
- The churn definition (e.g., customer inactive for 90 days) reflects actual business churn.
- Marketing actions can be applied to customers identified by the model without delay.

9. Final Problem Statement

BUM Telecoms Company is experiencing an increase in customer churn across its subscription-based services, threatening long-term profitability. The goal of this project is to develop a data-driven churn prediction model capable of identifying high-risk customers with at least 85% accuracy. Using behavioral, transactional, and interaction data, the model will support BUM Telecoms' marketing and retention teams in designing targeted campaigns to improve customer loyalty and reduce churn within 6 weeks timeframe.