**Project Title: Customer Churn Prediction for Safaricom**

**Project Description**

In today’s highly competitive market, customer retention is crucial for sustaining growth and profitability. This project aims to develop a predictive model that identifies customers at risk of churning for Safaricom, one of the leading telecommunications companies in Kenya. By leveraging data analytics and machine learning techniques, the project seeks to provide actionable insights to improve customer retention strategies.

**Objectives**

* **Data Exploration**: Analyze customer data to understand patterns and factors contributing to churn.
* **Feature Engineering**: Create meaningful features from the raw dataset to enhance model performance.
* **Model Development**: Train various machine learning models to predict customer churn and identify the most significant predictors.
* **Model Evaluation**: Assess model performance using appropriate metrics and validate the model with unseen data.
* **Deployment**: Build a user-friendly web application using Streamlit to enable stakeholders to input customer data and receive churn predictions.

**Data Sources**

The dataset used for this project consists of customer information, including demographics, subscription details, payment methods, and historical churn status. The data is collected from Safaricom's customer database and cleaned for analysis.

**Technologies Used**

* **Programming Languages**: Python
* **Libraries**: Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn, Streamlit
* **Tools**: Jupyter Notebook for exploratory data analysis, version control with Git

**Results**

The project successfully identifies key drivers of customer churn and provides a predictive model that can be utilized by Safaricom to implement targeted retention strategies. By addressing the factors contributing to churn, Safaricom can improve customer satisfaction and reduce turnover rates.

**Future Work**

Future enhancements could include:

* Incorporating additional data sources for a more comprehensive analysis.
* Exploring advanced machine learning techniques such as ensemble models and deep learning.
* Implementing feedback loops to continually update and refine the model based on new customer data.

**Conclusion**

This project demonstrates the power of data analytics and machine learning in making informed business decisions. By accurately predicting customer churn, Safaricom can take proactive measures to retain valuable customers, ultimately driving growth and enhancing customer loyalty.