Title: Recommendation System for Safaricom Products and Subscriptions

Executive Summary:

In this proposal, we present a recommendation system that leverages machine learning to suggest cheaper and more affordable subscriptions to Safaricom customers. By analyzing customer information, product details, usage patterns, and pricing, the system aims to provide personalized recommendations to enhance customer satisfaction and optimize subscription choices.

With the rapid growth of Safaricom's customer base and the availability of various subscription plans, it becomes crucial to assist customers in selecting the most suitable and cost-effective options. The proposed recommendation system utilizes advanced machine learning algorithms to process and analyze vast amounts of data to generate tailored suggestions for each customer.

By considering factors such as individual usage patterns, budget constraints, and service requirements, the system aims to help Safaricom customers find subscription plans that align with their needs while offering significant cost savings. This personalized approach will improve customer satisfaction by ensuring they have access to the services they require at competitive prices.

The recommendation system will be built on a robust data infrastructure that integrates customer data, product information, and pricing details. Machine learning models will be trained on historical data to identify patterns and preferences, allowing for accurate predictions and personalized recommendations. The system will continuously adapt and refine its suggestions based on customer feedback and evolving market dynamics.

Implementing this recommendation system has the potential to drive customer loyalty and increase Safaricom's market competitiveness. By delivering tailored recommendations, customers will feel valued and supported in making informed decisions regarding their subscriptions. Additionally, the system can contribute to cost optimization for both customers and Safaricom by identifying plans that offer similar services at lower prices.

Overall, the proposed recommendation system has the potential to revolutionize the way Safaricom customers choose and manage their subscriptions. By harnessing the power of machine learning, it will provide personalized and cost-effective recommendations, enhancing customer satisfaction and loyalty while optimizing the company's subscription offerings.

Project Background:

Project Background:

Safaricom, in collaboration with Moringa School, has launched the Safaricom Digital Academy, which focuses on data engineering. As part of this program, we aim to develop a recommendation system for Safaricom's products and subscriptions. This initiative aims to improve customer experience and help customers make informed decisions about their subscriptions.

Safaricom is a leading telecommunications company in Kenya, providing a wide range of services to millions of customers. The company offers various products and subscriptions, including mobile data plans, voice packages, SMS bundles, and value-added services such as M-PESA, the mobile money transfer and payment platform.

With a strong customer base and a diverse portfolio of products, Safaricom faces the challenge of ensuring that customers are subscribed to the most suitable and cost-effective plans based on their individual needs. The company recognizes the importance of enhancing customer satisfaction and optimizing subscription choices to meet the evolving demands of its customer base.

To address these challenges, Safaricom has recognized the potential of leveraging data engineering and machine learning techniques to develop a recommendation system. This system will analyze customer data, product information, and pricing details to provide personalized recommendations to customers. By understanding customers' usage patterns, budget constraints, and preferences, the system can suggest subscriptions that offer better value for money and better align with their specific needs.

To develop this recommendation system, the Safaricom Digital Academy, in partnership with Moringa School, will leverage the available Safaricom data and resources. Safaricom possesses a vast amount of customer data, including historical usage patterns, subscription details, customer demographics, and transactional information. This data, combined with Moringa School's expertise in data engineering and machine learning, provides a strong foundation for building an effective recommendation system.

The Safaricom Digital Academy aims to empower aspiring data engineers and equip them with the skills and knowledge required to solve real-world challenges faced by Safaricom. Through this collaboration, the academy students will work closely with Safaricom mentors and utilize the available data to develop a robust recommendation system.

By leveraging the vast amount of readily available Safaricom data, the project team can gain valuable insights into customer behavior, subscription preferences, and pricing structures. This data-driven approach will enable the development of a recommendation system that is accurate, reliable, and tailored to Safaricom's customer base.

Ultimately, the goal of this project is to enhance the customer experience by providing personalized and optimized subscription recommendations. By leveraging data engineering and machine learning techniques, Safaricom aims to improve customer satisfaction, increase the adoption of cost-effective plans, and foster long-term customer loyalty. The collaboration with Moringa School's Safaricom Digital Academy reflects Safaricom's commitment to innovation and its dedication to providing value-added services to its customers.

Problem Statement:

Safaricom customers may be subscribed to products and subscriptions that are not cost-effective or aligned with their usage patterns and budgets. This leads to potential inefficiencies in terms of customer spending and satisfaction. There is a need for a system that analyzes customer data,

product information, and pricing to recommend more affordable and suitable subscriptions to customers.

Currently, Safaricom offers a wide range of products and subscription plans to cater to the diverse needs of its customer base. However, customers often struggle to navigate through the various options and find the most cost-effective and suitable plans for their specific requirements. This can result in customers being subscribed to plans that are either too expensive for their usage patterns or do not provide the necessary features they need.

Moreover, customers' needs and preferences can change over time, and they may not be aware of new subscription options that better align with their evolving requirements. This lack of awareness and guidance can lead to suboptimal subscription choices and unnecessary spending.

Additionally, customers may not have a clear understanding of their own usage patterns and how they correlate with different subscription plans. Without insights into their usage behavior, customers may continue with plans that do not adequately meet their needs or offer them the best value for their money.

To address these challenges, there is a need for a system that leverages customer data, product information, and pricing details to analyze and recommend more affordable and suitable subscriptions. By analyzing historical usage patterns, customer preferences, and pricing structures, the system can identify subscription plans that offer better value for money and better align with customers' specific needs and budget constraints.

Such a system would empower Safaricom customers with personalized recommendations that take into account their individual usage patterns, budgetary considerations, and desired features. By providing clear and relevant subscription suggestions, customers can make more informed decisions, optimize their spending, and access services that better meet their requirements.

Ultimately, the goal is to enhance customer satisfaction, reduce unnecessary spending, and improve the overall customer experience. By addressing the problem of suboptimal and misaligned subscriptions, Safaricom can strengthen customer loyalty, increase customer retention, and foster a positive brand image as a provider that genuinely cares about its customers' needs and financial well-being.

Proposed Solution:

We propose developing a recommendation system using machine learning algorithms to analyze customer data, product information, and pricing. The system will compare the customer's current subscription with available products, considering factors such as pricing, resources awarded, expiry date, and budget. If a more cost-effective and resource-rich subscription is identified, the system will recommend it to the customer.

Value:

The development of a recommendation system for Safaricom's products and subscriptions holds significant value for both the company and its customers. By leveraging data engineering and machine learning techniques, this project aims to bring forth several key benefits:

i. Improved Customer Experience: The recommendation system will enhance the overall customer experience by providing personalized and tailored subscription recommendations. Customers will no longer have to navigate through a wide range of options to find the most suitable plans for their needs. Instead, they will receive targeted suggestions based on their usage patterns, preferences, and budget constraints. This personalized approach will save customers time and effort while ensuring they have subscriptions that best align with their requirements.

ii. Cost-Effectiveness: Many Safaricom customers may be subscribed to products and subscriptions that are not cost-effective or aligned with their actual usage patterns. The recommendation system will analyze customer data, product details, and pricing information to suggest more affordable and suitable subscriptions. By optimizing subscription choices, customers will be able to save money and make informed decisions about their subscriptions, resulting in increased satisfaction and loyalty.

iii. Informed Decision-Making: The recommendation system will empower Safaricom customers to make informed decisions about their subscriptions. By providing detailed insights into their usage patterns, the system will enable customers to understand their data consumption, voice calling habits, and messaging needs. With this information, customers can select plans that precisely match their requirements, avoiding unnecessary costs and ensuring that they have the right subscriptions for their usage patterns.

iv. Business Growth and Retention: The implementation of an effective recommendation system has the potential to drive business growth for Safaricom. By offering personalized recommendations and optimizing subscription choices, the company can increase the adoption of cost-effective plans and attract new customers. Additionally, by enhancing customer satisfaction and loyalty, Safaricom can improve customer retention rates and reduce churn, thereby strengthening its market position and driving revenue growth.

v. Collaboration and Innovation: The collaboration between Safaricom and Moringa School's Safaricom Digital Academy reflects a commitment to collaboration and innovation. By leveraging Moringa School's expertise in data engineering and machine learning, Safaricom aims to develop cutting-edge solutions to real-world challenges.

The development of a recommendation system for Safaricom's products and subscriptions brings immense value by improving the customer experience, driving cost-effectiveness, enabling informed decision-making, fostering business growth, and promoting collaboration and innovation. By leveraging data-driven insights and advanced technologies, Safaricom aims to stay at the forefront of the telecommunications industry and continue providing valuable services to its customers.

Attributes of the Training Data:

Products List: The training data will include a comprehensive list of Safaricom's products and subscriptions. This list will encompass various plans, packages, and offerings available to customers, including data bundles, voice call packages, messaging packages, and other related services.

Usage of Resources by Customers: The training data will capture information about how customers utilize different resources provided by Safaricom, such as data, voice minutes, and messages. It will include details on the amount of data consumed, the duration of voice calls, and the number of messages sent by each customer.

Customer Purchasing History: The training data will incorporate the purchasing history of Safaricom customers, including their previous subscriptions, plan changes, and any upgrades or downgrades they have made over time. This information will provide insights into customers' preferences, usage patterns, and their propensity to switch between plans.

Resources Awarded: The training data will contain details about resources awarded to customers through promotions, bonuses, or loyalty programs. This may include additional data, bonus minutes, or free messaging services that customers have received as part of special offers or rewards.

Budget Constraints: The training data will consider the budget constraints of customers. This information will reflect the maximum amount they are willing to spend on their subscriptions or the specific budget limits they have set for themselves.

Expiry Dates of Awarded Resources: The training data will include the expiry dates associated with the resources awarded to customers. This information is crucial for ensuring that the recommendation system takes into account the validity period of any bonuses or additional resources when suggesting suitable subscriptions.

Amount Charged to the Customer for the Subscription: The training data will record the actual amount charged to customers for their subscriptions. This data will enable the system to analyze the pricing structure and identify cost-effective options for customers based on their usage patterns and budget constraints.

The training data will encompass various other attributes that capture relevant information about Safaricom's products, customer behavior, and subscription details. By analyzing these attributes in combination, the recommendation system will be able to generate personalized and optimized subscription recommendations for Safaricom customers.

Objectives:

Offer value for money by recommending superior and more affordable subscriptions.

Improve customer satisfaction by suggesting subscriptions that align with their usage patterns and budget.

Optimize Safaricom's product offerings based on customer preferences and needs.

Enhance customer retention and loyalty by providing personalized recommendations.

Scope:

The recommendation system will focus on analyzing customer data, product information, and pricing within the Safaricom ecosystem. It will consider factors such as customer usage, resources awarded, budget, and purchasing history. The system will not have a graphical user interface but will provide recommendations through an automated process.

Workplan:

Deliverables	Activities	End date

Deliverable 1	Business understanding and objective setting:
	  i. Understand Safaricom's product offerings, customer data, and subscription details.
	  ii. Define the objectives and metrics for the recommendation system.
		19th May 2023

Deliverable 2	Data collection and preparation
	
	  i. Gather customer data, product information, and pricing data.
	  ii. Clean and preprocess the data for analysis.
		TBC

Deliverable 3	Model development and evaluation
	
	  i. Develop machine learning models to compare customer subscriptions with available products.
	  ii. Train and evaluate the models using historical data.
		TBC

Deliverable 4	Recommendation system implementation	**TBC**

| | i. Integrate the developed models into a recommendation system.
ii. Test the system's functionality and accuracy. | |

Conclusion:

The proposed recommendation system aims to provide Safaricom customers with personalized and cost-effective subscription recommendations. By analyzing customer data, product information, and pricing, the system will suggest alternative subscriptions that offer more resources, better pricing, and suitable expiry dates. Implementing this system has the potential to enhance customer satisfaction, optimize product offerings, and improve overall customer experience.

This proposal has been submitted by:

1. Geoffrey Kiplangat Korir.   2. Emmanuel Odenyire Anyira