Business Intelligence: GreenLeaf Microfinance Bank Customer Performance

GreenLeaf Microfinance Bank is a fast-growing financial institution dedicated to empowering individuals, small businesses, and communities through accessible and innovative financial solutions. Established to bridge the gap between traditional banking and underserved populations, the bank offers savings, loans, and tailored financial products that promote financial inclusion. Over the past five years, GreenLeaf has expanded its customer base across key regions, focusing on customer satisfaction, transparency, and sustainable growth. The institution continues to leverage data-driven strategies to understand customer behaviour, improve service delivery, and strengthen long-term relationships.

The goal of this analysis is to uncover insights through customer behaviour in-order to support the institution's strategic decision-making.

Objectives

1. **Customer Growth Analysis:** Measure how the customer base has developed over the five-year period, identifying trends and periods of significant growth or decline. Track the number of new customers acquired each year and determine what percentage they contribute to overall growth.
2. **Transaction Trends:** Analyze the volume and value of transactions over time to evaluate business performance.
3. **Segmentation Analysis:** Compare performance across customer categories like regions, products, RFM system, etc.

Understanding the Data

This is a hypothetical data generated by me using python to mimic a regular microfinance bank in Nigeria. It covers a period of seven years in total starting from 2018. However, transactions were simulated to start from 2020 and run through 2025. It has 1 million rows

The dataset consists of three tables which are described as follows:

Accounts_info

This is the table that consists of the account information of customers. It consists of:

AccountOpenDate: which is account opening date

CustomerID: customer ID

ProductType: Product Type

Branch: the branches

Customer_info table

Consists of the following customer's information:

Customer_ID: customer ID

Age: age of customers

Open_date: account opening date

Transactions_info

Consists of transactions information carried out by customers and is as follows

CustomerID: customer's ID

TransactionDate: date for each transaction

Amount: amount transacted

Data Preparation and Transformation

- I used Excel to clean the dataset. Then went on to use Power Bi to transform it.
- Imported the data into Power Bi
- Converted the date columns into proper date type and were converted to date table for time intelligence analysis.
- Also, branches were categorized into regions according to the banks regulations using the switch() function.

Region = SWITCH(true(), 'accounts_info (2)'[Branch] IN {"PH Town", "Anambra Akwa","Enugu North"}, "South", 'accounts_info (2)'[Branch] IN {"Kano Central","Kaduna KD","Abuja Garki"}, "North", "West")

Columns and Measures

Customer Growth

- Created a "New Customer"

New Customer= DISTINCTCOUNT('accounts_info (2)'[CustomerID])

- Generated "previous Customer"

prev Customers = CALCULATE(DISTINCTCOUNT('accounts_info (2)'[CustomerID]),DATEADD(Date_table[Date],-1,YEAR))

- Built the "Customer Growth Rate"

Customer Growth Rate = DIVIDE(

[New customer] - [prev Customers],

[prev Customers])

Insight: there is a steady decline in customer growth by aprox. 2% over the 5-year period. The bank experienced a rapid 9% increase (from about 155,000 customers in 2018 to about 169,000 in 2019) in customer growth in 2019, which was followed by a subsequent 0.5% increase by 2020. Ever since 2020, the growth has stagnated.

Transaction analysis

- Created a regional classification column of the branches using switch() function
- Created the Total Amount measure of each customer over the duration

TotalAmount = CALCULATE(SUM(transactions_info[Amount]),ALLEXCEPT(transactions_info,transactions_info[CustomerID]))

- Created a Quarterly and Monthly columns
- Created Frequency column to calculate the total number of times each customers carried out a transaction

Frequency = CALCULATE(COUNTROWS(transactions_info), ALLEXCEPT(transactions_info,transactions_info[CustomerID]))

Insights: monetary transactions held steady at about 383 billion naira per year while transactions quantity held up at about 4m transactions each year as well. However, quarter one and two experiences more transactions than the rest. Also, PH, Enugu, and Ibandan experiences the largest number of transactions respectively. Likewise, Asset Financing, Micro-loans and Savings products are leading the highest number of transactions respectively.

Segmentation Analysis

- Created the Recency calculation measure named Recency_cal_measure used in calculating the recency measure

resency_cal_Measure = CALCULATE(MAX(transactions_info[TransactionDate]), ALLEXCEPT(transactions_info,transactions_info[CustomerID]))

- Generated Recency, Frequency, Monetary(RFM)

Recency = DATEDIFF([resency_cal_Measure], DATE(2025,7,30),DAY)

Frequency = CALCULATE(COUNTROWS(transactions_info), ALLEXCEPT(transactions_info,transactions_info[CustomerID]))

MonetaryRanking = SWITCH(TRUE(),[TotalAmount]<=16000,1,[TotalAmount]<=32000,2,[TotalAmount]<=48000,3,[TotalAmount]<=64000,4,5)

- Created the RFM Ranking

*RFM = ([RecencyRanking]*100) + ([FrequencyRanking]*10)+ ([MonetaryRanking])*

RFM_Ranking = SWITCH(TRUE(),[RFM]>=444,"Best Customers",[RecencyRanking]>=4 && [FrequencyRanking]>=4,"Loyal Customers", [MonetaryRanking]>=4, "Big Spenders", [RecencyRanking] && transactions_info[FrequencyRanking]<=2, "Risk","Others")

- Also generated the Activity Score and Activity Ranking

*ActivityScore = (transactions_info[RecencyRanking]+transactions_info[FrequencyRanking]+transactions_info[MonetaryRanking])/15 *100*

Insight: from the segmentation analysis, there are about 4k loyal customers, 7k big spenders and about 18k customers at the risk of being churned due to inactivity over a long period of time. Also, the Southern region has the highest customer database followed by the North and then the West. The activity score segmentation has shown that between the customers at risk of churning, about 9k customers have already churned while the remaining are at the verge of doing the same.

Key Insights/Findings

- The Institution's customer base declined by 2% over the 5-year period
- South region has the largest customer base
- There is a relatively steady transaction activity over the duration
- PH, Enugu, and Ibadan has the most active customers respectively
- While Asset Financing, Micro-loans and Savings products are the most active
- There are approx. 4k loyal customers, 7k big spenders
- Approx. 10k customers at the risk of being churned while approx. 9k customers are churned over the duration.

Business Recommendations

- Customers who are at risk of being churned should be engaged vigorously in order to ensure that they are retained. They should be encouraged to transact with the bank.
- The bank should expand their marketing in all regions especially in the West so as to recruit new customers and boost customer growth.
- The banks products should be upgraded/redesigned to make the more attractive and competitive in the market. Marketers are to be encourage to promote products that are underperforming.
- Outstanding customers (Loyal customers and Big Spenders) can be appreciated to encourage better performance from other customers.

Conclusion

This analysis demonstrates how data can guide customer growth and regional strategy. By leveraging Python, Power Bi and Excel, I am able to simulate and transform raw data into actional insights that can support strategic business decisions.