TECHNICAL DOCUMENT

INTRODUCTION

The purpose of this document is to provide a detailed overview of the analysis conducted on a loan platform dataset and the development of a dashboard to visualize the key insights and findings. The loan platform dataset consists of various factors such as loan applicant information, loan amount, approval status, loan default history, home ownership type, credit score and other relevant features that affect loan decisions.

This analysis aims to explore trends and patterns in loan approval rates, understand the relationship between applicant features and loan approval outcomes, find the main determinants of loan approval and present these findings in an interactive dashboard for data driven decision making.

Problem Statement

Traditional financial institution or organization faces several challenges in the loan application and approval process:

- **Bias and Inefficiency in Loan Approval Decisions**: There is a need to ensure that loan approval decisions are made in an unbiased and data-driven manner. Applicants from different demographics, income levels, and geographic locations may be subject to varied approval rates, and understanding these patterns is crucial to fair decision-making.
- **Lack of Data-Driven Insights**: The institution may have limited visibility into the trends and patterns that drive loan approval rates. Without a robust analytical framework, decision-makers might have to make loan approval decisions based on informal, unreliable or outdated methods.
- **Predictive Capability**: Existing systems may lack the ability to predict loan approval outcomes accurately, relying only on basic criteria. The need for a predictive model to assess new loan applications in real time can improve operational efficiency and customer satisfaction.
- **Complex Data Visualization**: Given the large and diverse nature of the loan approval data, stakeholders may struggle to access and interpret key trends efficiently.

All these challenges can be easily resolved with the inclusion of proper data analysis

Proposed Solutions

To address the problems outlined, the following solutions will be implemented:

- **Exploratory Data Analysis (EDA)**: By conducting a thorough EDA, patterns, trends, and correlations between applicant characteristics and loan approval outcomes will be identified. This will help in understanding the underlying factors influencing approval decisions, enabling data-driven conclusions and actions.
- **Interactive Dashboard**: An interactive, user-friendly dashboard will be developed to visualize key metrics, trends, and predictive insights. The dashboard allows users to explore loan approval trends

across different demographic segments, enabling better decision-making. Dynamic filtering features make it easy for stakeholders to view data at various levels.

- **Bias and Equity Assessment**: Insights will be provided into potential demographic biases in the loan approval process, allowing the institution to monitor and mitigate discriminatory trends, ensuring that the process is fair and equitable.
- **Real-time Loan Approval Prediction**: The developed predictive model can be integrated into real-time systems to assist loan officers in evaluating new applications, increasing efficiency and improving the overall customer experience.

These proposed solutions will provide a comprehensive framework to address the identified problems, resulting in a more transparent, efficient, and data-driven loan approval process.

This analysis will be providing answers to the following questions;

1. Who are the target customers?

2. Who are the customers with the highest loan approvals?

3. What is the approval to denial rate?

4. What are the top selling loan products?

5. How many people applied for each loan product?

6. What is the impact of age on loan status?

7. What is the impact of home ownership on loan status?

8. What is the impact of educational qualification on loan status?

9. What is the impact of credit score on loan requests?

10.What are the major reasons why people applied for a loan (Loan Intent)?

DATASET OVERVIEW

Data source: The dataset used was sourced from Kaggle.com. Direct link to dataset; https://www.kaggle.com/datasets/zeyadmohamadezzat/loan-approval-dataset

About Dataset

This dataset provides information about people applying for loans, including details on their personal background, finances, and loan specifics. It's meant to help us better understand how different personal

factors impact whether a loan gets approved. The data includes things like the applicant's age, income, home ownership status, job history, and credit score, along with loan details such as the loan amount, interest rate, and purpose. It also shows whether the loan was approved or denied.

Features in the dataset:

1. Person age: The applicant's age.

2. Person income: How much the applicant earns annually, in naira.

3. Person home ownership: Whether the person owns, rents, or has a mortgage on their home.

4. Person employment length: How long the person has been employed.

5. Loan intent: The reason for applying for the loan (e.g., EDUCATION, MEDICAL, VENTURE, DEBT CONSOLIDATION, PERSONAL).

6. Loan amount: The amount of money the applicant is requesting for the loan, in USD.

7. Loan interest rate: The interest rate on the loan.

8. Loan percent income: The percentage of the applicant’s income being requested as a loan.

9. Cb person default on file: Whether the applicant has defaulted on any previous loans (Y/N).

10.Cb person credit history length: The length of the applicant's credit history, in years.

11.Loan status: The outcome of the loan application (0 = Denied, 1 = Approved).

12.Person Education: The type of educational qualification the applicant has (e.g, Masters, Doctorate, High school etc.)

Data Cleaning Process

After downloading the existing dataset from kaggle, the data was cleaned using Microsoft Excel. The data cleaning process is highlighted below

1. All blank spaces were removed
2. All duplicate values were highlighted and deleted using conditional formatting
3. The top row was freeze to aid easy navigation within the dataset
4. Maintained all the words in each column on PROPER casing
5. The loan status column was replaced appropriately with all **0’s** represented as **Denied** and all the **1’s** represented as **Approved**
6. Additional column to contain customer id was generated to serve as a primary key
7. The amount column was formatted to represent data in Naira currency

The dataset was properly cleaned and maintained on a standard excel table before carrying out the analysis.

ANALYTICAL APPROACH

This analysis involves a comprehensive process to source, analyse and present findings on the key determinants of loan approval based on applicant's information. The following steps outline the analytical approach used in this analysis.

Exploratory Data Analysis

Exploratory Data Analysis (EDA) was used to uncover insights into factors influencing loan approvals, detect patterns in approved and denied applications, and guide the creation of predictive models.

1. Understanding the Data

The first step in EDA is getting familiar with the dataset. The dataset includes the following types of data:

Applicant Information: Personal details such as age, gender, education, income level, homeownership status, etc.

Loan Details: Loan amount, loan intent (e.g., personal, education, medical, mortgage), interest rate, loan term, etc.

Application Outcome: Whether the loan was approved or denied, typically represented as a binary variable (approved or denied).

Financial History: Credit score, past loan repayment history, etc.

2. Data Cleaning and Preprocessing

Before performing EDA, it is important to handle missing values, inconsistencies, and errors in the data.

Duplicates: We Identified and removed any duplicate records to avoid biased analysis.

Outliers: Detection and handling of outliers, especially in numeric variables like income, loan amount, and credit score, which might affect the results.

3. Data Visualization

Visual representation of data helps uncovers patterns, trends, and relationships.

Univariate Analysis: Charts were used to analyze the distribution of individual variables.

Loan Approval Status: Which shows the distribution of approved vs. denied loans to get a sense of approval rates.

Income: This displays income distributions across applicants, checking for skewness or outliers.

Age: The age distribution of applicants and its correlation

4. Identifying Anomalies and Trends

During the exploration phase, anomalies or trends were checked in the data that could inform decision-making or raise red flags.

Outliers: The applicants with suspiciously high credit scores, low income, or other inconsistent data points that could affect loan approvals.

5. Building Initial Hypotheses

The insights from EDA to build hypotheses about the factors influencing loan approval. For example:

Higher income applicants with no previous loan defaults and high credit scores are more likely to have their loans approved.

Certain demographic factors may correlate with higher approval rates.

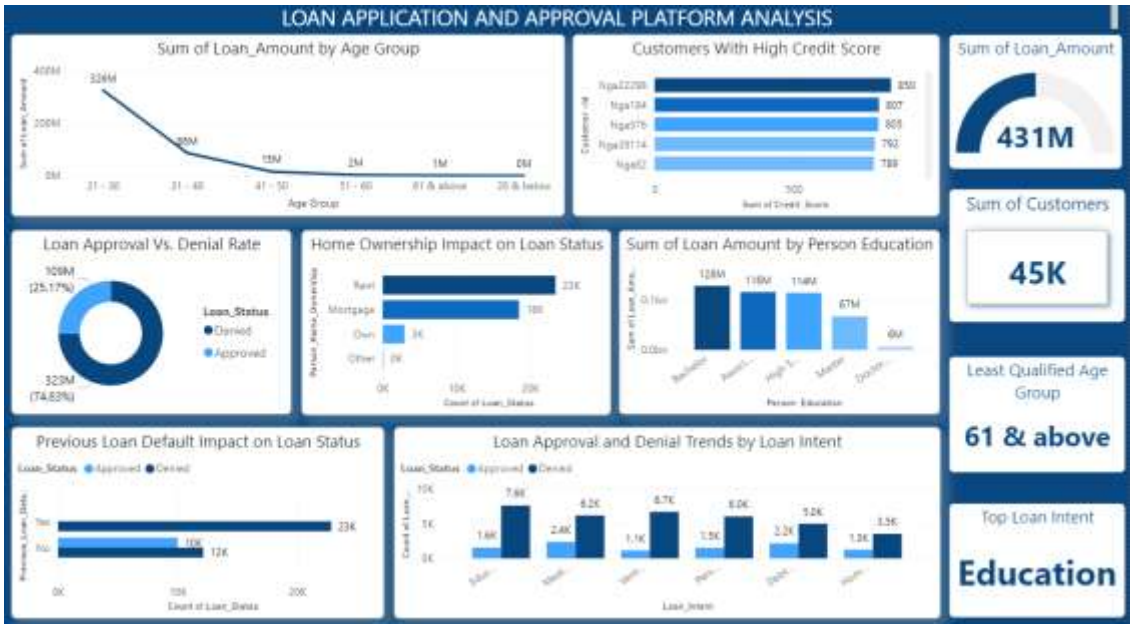
Applicants with a history of default or low credit scores may be more likely to be rejected.

These hypotheses can guide further modeling, hypothesis testing, and refinement of predictive models.

Tools for exploratory data analysis; **Power Bi** was used in the analysis

DASHBOARD

DASHBOARD DESIGN



Dashboard description

The visualization was carried out using predominantly Power BI as a tool for data analysis and visualization. While making use of Power BI for analysis and visualization, a deep analysis was carried out and this helps to show insights on how loans can be approved.

The dashboard focuses on the major importance on why loans can either be approved or denied. It also assists in showing us the key determinant of loan acquisition; like previous loan default, credit score, gender, loan intent, the educational level of those who applied for the loan, the age, the total income of applicants, the total amount of loan requested, e.t.c.

The first chart on the dashboard, which is the line chart, with the title "Sum of Loan Amount by Age Group, was able to show the age groupings, the sum of loan amount requested by various age groups.
The second chart on the dashboard showed the customers with the highest credit score and lowest credit score.
For a loan to be finalized and approved, a good credit score and history is very vital. Why? Because this is an investment, this is a business, no one will want to run at a loss. If a new customer wants to apply for a loan and has a bad credit score or history, this will hinder such a person's loan from being approved because such a person can't be trusted to always repay their loan on time as at when due.
The third chart on the dashboard is a Pie Chart, and it showed the approval vs denial rate. The total number of approved loans on an average is 25.17% which stands at 109M. While the total number of denial rates stands at an average of 74.83% at 323M.
In all, it shows that the loan denial rate was on the high side considering the total amount of loan that was requested.

The fourth chart on the dashboard showed the impact of home ownership on loan status. We can see that people who own rented apartments requested for a loan the most, which stands at 23k, followed by those who live in mortgage houses with a total number amounting to 18k, while people who live in their own houses requested for loan the least, with the total amounting to 3k.

The fifth chart on the dashboard showed the sum of loan amount by person's education. This means that, people who fall under the category of Bachelor's Degree requested the highest loan.
Followed by Associates which amounted to 116M of total loan amount requested by that category.
High School was not left out of the list, with a total loan amount requested totaling to 114M.
Master's degree was closely behind high school with the total amount of loan requested by Master's degree was 67M.
Doctorate degree takes the least of the loan amount requested totaling 6M.

The sixth chart on the dashboard showed the previous loan default impact on loan status. On this particular one, it shows the impact of previous loan default on loan approval. Applicants with previous loan default have none of their loans approved.

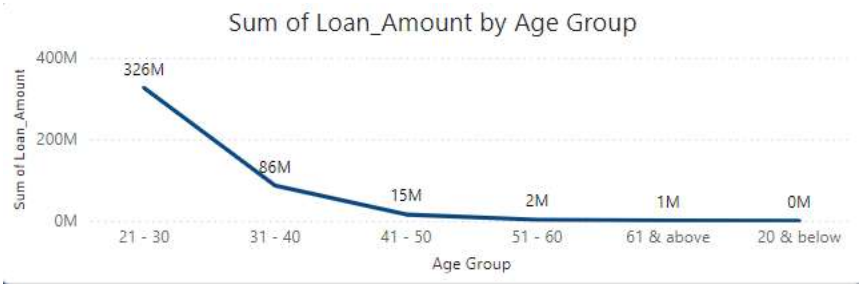
Now, let's take a look at the **last chart** on our visualization. The chart shows loan approval and denial trends by loan intent.
In this aspect, it showed the relationship between loan intent and approval status**.** The highest loan intent captured was Education. Looking at the education loan requested, it had a huge denial rate as against the approved rate. The total denial rate stood at 7.6k while the approved rate stood at 1.6k. Medical loans have the highest approval rate.
Home Improvement takes the least on the loan intent by the customers. It had a total denial rate of 3.5k as against the total amount of approved rate which stood at 1.3k.

In essence, below a loan is requested, one should be able to know the intent on what you need the loan for. Looking at the loan intent, we can confirm that everyone's loan intent or reason is quite different from another.
In the same line, a good credit score is required for a loan to either be approved or denied.

Regardless, one's loan can also be denied because of other reasons that might not be stated.
The work type would also determine if such person after collecting the loan would be able to keep up with the refund of said loan with the interest accrued to that loan.
It is also paramount that one should pay back loans requested to keep a clean credit score and history, because any customer with a bad credit score or history will have difficulty getting their loan approved.

CHARTS DESCRIPTION

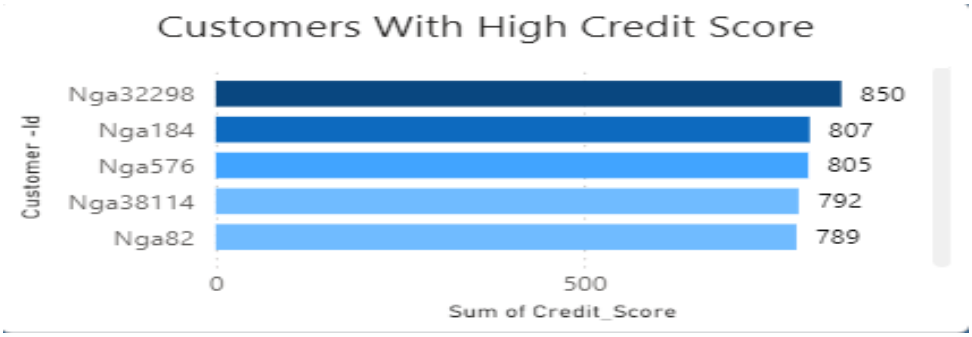
SUM OF LOAN AMOUNT BY AGE GROUP



The line chart presents the relationship between loan amounts requested and age groups. The overall trend starts with an upward movement in loan amounts from younger to middle-aged individuals (21-30), then shifts to a downward trend starting at 31-40, and continues through the older groups. The downward trajectory shows that younger age groups are more likely to request loans, while older groups request comparatively less.

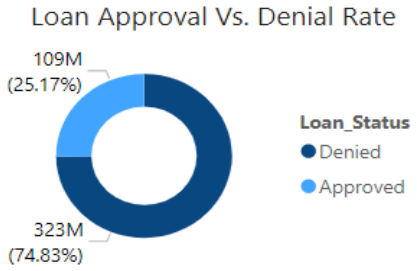
The report highlights a strong interest in loans among individuals in the **21-30** age group, this suggests that this segment may represent a key demographic for loan providers. The reasons for the decline in loan amounts in older age groups should be further investigated to gain a deeper understanding of the broader financial behavior of different age segments.

CUSTOMERS WITH HIGH CREDIT SCORE



The report shows a group of customers with exceptionally high credit scores, with Nga32298 leading the pack. The data could suggest that these individuals are highly reliable from a creditworthiness standpoint, and they represent a desirable customer segment for financial services. The relative proximity of the next few customers in the rankings (Nga184, Nga576, Nga38114, and Nga82) indicate a strong pool of creditworthy customers who fall just below the top-tier category. This is valuable for understanding the demographic of financially stable individuals.

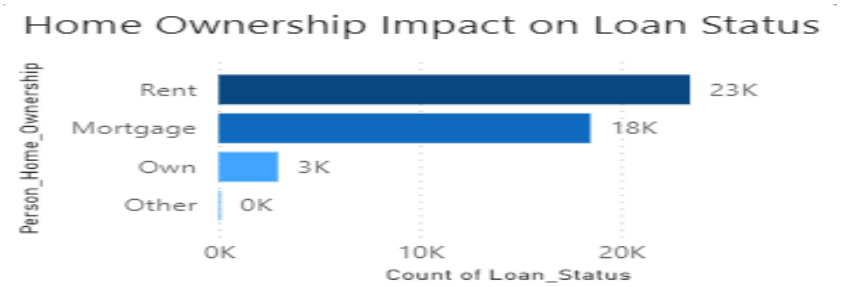
LOAN APPROVAL VS DENIAL RATE



This report shows the contrast between loan approvals and loan denials. A significant portion of loan applications 74.83%(323M) were denied, it happens that the approval process is highly selective or stringent. In contrast, only 25.17% (109M) of applicants were approved. The imbalance indicates that securing a loan is difficult, with far fewer applicants meeting the criteria of the loan approval.

This report points to stricter lending standards, higher economic risks, or more cautious risk management by lenders.

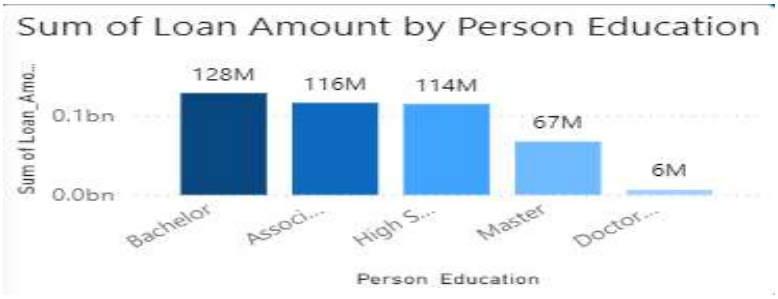
IMPACT OF HOME OWNERSHIP ON LOAN STATUS



The chart illustrates the relationship between home ownership status and loan count. Individuals who rent have the highest loan count status at 23,000 loans, this indicates a strong link between renting and loan activity.

Mortgages holders follow with 18,000 loans, suggesting that owning a home with a mortgage involves significant loan activity. Interestingly, those who own their homes have the lowest loan count with only 3,000 loans, this may be due to fewer loan requests or fewer loan approval in this group. While Other home ownership statuses show no recorded loans.

SUM OF LOAN AMOUNT BY PERSONS EDUCATION



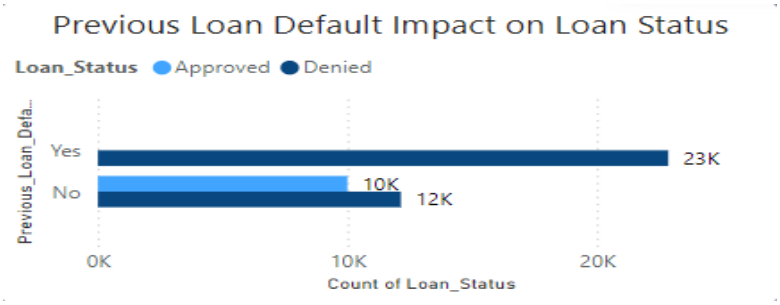
This chart displays the total loan amount distributed across different education levels.

- Bachelor's degree holders have the highest total loan amount at $128 million, indicating a strong correlation between this education level and higher loan amounts.
- Associate degree holders follow closely with $116 million, suggesting a similar but slightly lower loan amount trend.
- High school graduates have a total loan amount of $114 million, showing that even without higher education, significant loan amounts are still recorded.
- Master's degree holders have a lower total loan amount at $67 million, potentially reflecting fewer applicants in this category or lower borrowing needs.

- Doctorate degree holders have the lowest loan amount of $6 million, which could indicate a smaller group of borrowers or a lower reliance on loans for individuals with this level of education.

This report highlights how education levels relate to the total loan amounts, with higher education levels generally corresponding to larger loan sums, but with notable variation across different degrees.

PREVIOUS LOAN DEFAULT IMPACT ON LOAN STATUS



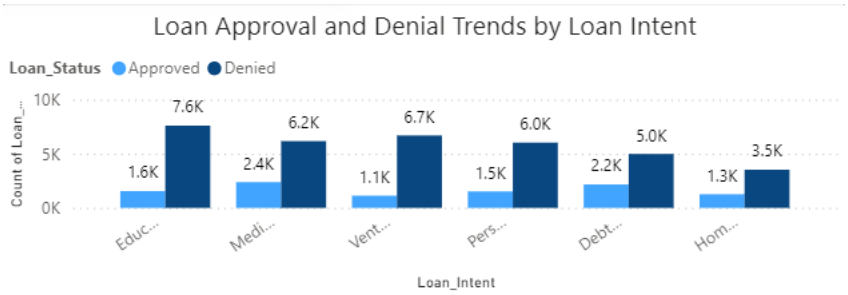
This chart examines the relationship between previous loan defaults and current loan approval or denial.

Applicants with a previous loan default **(Yes)**: Out of 23,000 applicants, all were denied loans, with no approvals, this indicates that a history of loan default strongly influences the likelihood of a denial.

Applicants without a previous loan default **(No)**: This group had 10,000 approved loans and 12,000 denied, showing that while the majority were still denied, a significant portion was approved, highlighting a less stringent approach for those without prior defaults.

This data indicates that previous loan defaults have a major impact on loan approval decisions, with a clear tendency for applicants with a default history to be denied.

LOAN APPROVAL AND DENIAL TRENDS LOAN BY INTENT



This chart illustrates the trends in loan approvals and denials across various loan intents. Each category shows the number of loans approved and denied, highlighting a clear pattern of more denials than approvals.

- Education loans: Out of 9.2k total applications, 1.6k were approved, while 7.6k were denied.
- Medical loans: There were 8.6k total applications, 2.4k were approved and 6.2k were denied.
- Motor vehicle loans: For this category, 1.1k loans were approved, while 6.7k were denied, out of 7.8k total applications.
- Personal loans: Of 7.5k applications, 1.5k were approved, and 6.0k were denied.
- Debt consolidation loans: In this category, 2.2k loans were approved, and 5.0k were denied out of 7.2k applications.
- Home improvement loans: There were 1.3k approved and 3.5k denied out of 4.8k total applications.

The data reveals a consistent trend across all loan intents, with the number of denials consistently outnumbering approvals. This suggests that, regardless of the loan intent, a larger portion of applicants are being denied loans, indicating potentially stringent approval criteria or a higher risk associated with these loan requests.

KEY INSIGHTS

Key Findings:

- We looked at 45,000 loan applications.
- The total amount requested in loans was 431 million.
- Nga32298 had the highest credit score at 850.
- Looking at age groups:

    - People aged 21-30 requested the most money in loans (336 million).
    - People aged 61 and above requested the least (1 million).
- Analyzing loan approvals and denials:
    - 74.83% of applications were denied, which amounts to 323 million.
    - 25.17% of applications were approved, totaling 109 million.
- Examining home ownership:
    - Most applicants (23,000) were renters.
    - The fewest applicants (3,000) were homeowners.
- Analyzing education and loan amounts:
    - People with Bachelor's degrees requested the most money (128 million).
    - People with Doctorates requested the least (6 million).
- Analyzing loan purposes:
    - Education loans had the highest total amount requested. However, the approval rate was lower than average, with only 1.6k approved for every 7.6k applications.
    - Home Improvement loans had the lowest total amount requested. The approval rate was also lower than average, with only 1.3k approved for every 3.5k applications.
- Examining loan defaults:
    - 23k applications were denied because the applicant had defaulted on a previous loan.
    - 12k applications were denied for other reasons, even though the applicant had no previous loan defaults.
- Analyzing loan approvals by loan intent:
    - Education loans had the highest number of applicants.
    - Medical loans had the highest approvals.

OBSERVATIONS

From the analysis, it was observed that people within the age of 21-30 had the highest amount of loan requests. This shows that a lot of young people are interested in taking loans in order to meet their needs. A total of 365M in loan amount was requested by this particular age group and majority of the approved loans were for people within this age range. There was also a decline in the amount of loan requests and approvals for people within the age of 61 and above. This can be attributed to a number of reasons:

1 Customer may have exceeded the required age for loan request

2 Customer has poor credit score

3 Customers monthly income is low and may not be sufficient for interest payment

The loan approval to denial rate is 25.17% to 74.83%. Below is a breakdown of Approved Loans by age group:

Total sum of approved loans is **108,556,898** approximately 109M

Age 20 & below got 22,000naira

Age 21-30 got 83,081,761 approved

Age 31-40 got 20,495,446 approved

Age 41-50 got 3,835,102 approved

Age 51-60 got 794,514 approved

Age 61 & Above 328,075 approved

This further shows that the age group 21-30 got the highest approved loans of 83,081,761M.

The denial rate was higher than the approval rate.

Breakdown of Loan denial by age group;

A total of **322,557,967M** approximately 323M naira sum of loan was denied.

Age group 21-30 was denied 243,045,118M

Age 31-40 was denied 65,817,870M

Age 41-50 was denied 11,502,147M

Age 51-60 was denied 1,575,536M

Age 61 & above was denied 617,296M

This also shows that despite the age group 21-30 having the highest loan approval amount, it equally had the highest loan amount denied.

Education loans lead with 9.2k requests (Number of applicants), followed by Medical loans with 8.5k requests and Venture loans with 7.8k requests. This shows that a lot of applicants are students and that most people who applied for a loan did so to pay for their educational fees. But medical loans had the highest approval, this shows that if the loan intent is medical, it has higher chance of being approved.

Borrowers with a Bachelor's degree account for the highest total loan amount at 128M naira followed by Associate degree at 116M and then High school graduates at 114M. This shows that people who have a bachelor’s degree have a higher tendency of getting their loan request granted or approved.

From the analysis done, loan is most likely approved if home ownership is rent. This can be due to the fact that the data has higher applicants in the rent category than other categories. It can be concluded that home ownership type does not have so much impact on loan approval or denial.

From this analysis, out of the people who applied for Education loan, 1.6K was approved while 7.6K was denied.

For those who applied for Medical reasons, 2.4K was approved while 6.2K was denied.

For those who applied for Venture purposes, 1.1K was approved while 6.7K was denied.

While at the bottom we have those who applied for the purpose of Home Improvement, 1.3K was approved and 3.5K was denied.

This shows that though education loans have the highest number of people who requested for it, we can see that medical loans have the highest approval rate with a total of 2.4k as compared to Education loans which had a total approval count of 1.6k.

All the customers who had previous loan defaults had their loan requests denied. Not having a previous loan default can be considered as one of the major criteria a customer must possess before being granted a loan. From this analysis any default in previous loan repayment shows that the customer loan application will be denied and the loan will most likely be approved if the applicant has no previous loan default.

RECOMMENDATIONS

1. The age disparity in the loan application revealed that those with the age category of 21-30 applied for a total sum loan of 326 million against the age category of 61 and above who applied for just 1 million, it is then recommended that that the loan company should introduce age-based loan limit policy to bring about fair distribution of funds across the age categories. The recommendation aims are to prevent discrimination and ensure accessibility to financial opportunities for applicants irrespective of age disparities. Targeted product and service offers such as personal loans for life milestones should be offered to all the age groups as well as low interest student loans, financial education and support is also recommended for all the age groups.

2. If the case was Nga-32298 having the highest credit score of 850 where the loan applicants were 45,000 and the total sum applied for was 431 million, it is however recommended that the loan company should have a thorough evaluative review of the financial historicity of the applicant with the identification number Nga-32298 to ensure that the company is well-informed in its decision. The financial history should include the income stability and debt-to-income ratio of the applicant which will guide the loan company to mitigate any potential risks that may likely go with granting the loan to the applicant and the investigation will ensure that the loan granted is within the risk assessment criteria of the loan company. Our loan approval criteria should be based on a good credit score, hence

Our approved credit score can be set at 583.5, since that is the average. Meaning customers whose credit score falls below that value, will not be able to access loans.

3. There was 74.83% of applications denied that amounted to 323 million while 25.17% of applications were approved totalling 109 million, subsequently it is recommended that to increase the rate of approvals, there should be a review to improve credit risk assessment models, credit education and financial literacy support such as guidance on reducing debts, improving payment history and managing credit utilization. Also loan products for different credit levels should be implemented.

4. Most applicants (23,000) for home ownership were renters and the least applicants (3,000) were homeowners, inadvertently it is recommended that there should be tailored loan products such as personal loans or small home improvement loans for renters, addressing their need for flexibility without requiring homeownership as collateral. Also launching targeted online marketing campaigns that promote renter specific loans using platforms like social media, apps to reach their audience. While others can enjoy variable repayment terms such as income based repayments and flexible installment plans for other homeowners.

5. Bachelor's degree holders had the highest loan profile with (128 million), PhD holders had the least loan profile with (6 million), consequently it is recommended that Bachelor's degree holders request for large loans should focus on strategic debt management, budgeting, and exploring alternative loan options that fit their financial situation. For Doctorate holders, focus on leveraging their specialized roles, seeking out funding opportunities such as research grants, and ensuring they understand the best repayment plans available for their income levels. Financial education for both groups will ultimately help them make better decisions regarding loans and financial planning.

6. 23k applications were denied because the applicant had defaulted on a previous loan. 12k applications were denied for other reasons, even though the applicant had no previous loan defaults. It is therefore recommended that denied applicants that defaulted on a previous loan are advised to enroll in a loan rehabilitation program. These programs allow individuals to make a series of on-time payments, which can help restore their eligibility for new loans as well as Suggest applicants explore loan consolidation to combine multiple loans into one, which might improve their ability to manage payments and improve creditworthiness. Whilst the other applicants that were denied for other reasons should be

quizzed for a detailed explanation of why their loan was denied. This information will help them address any specific issues, whether related to income, credit score, or other factors.If the denial was due to credit issues (e.g., low credit score), applicants should focus on improving their credit by paying down existing debt, avoiding new credit inquiries, and addressing any outstanding negative marks on their credit report.

7. Education loans had the highest total amount requested. However, the approval rate was lower than average, with only 1.6k approved for every 7.6k applications. Home Improvement loans had the lowest total amount requested. The approval rate was also lower than average, with only 1.3k approved for every 3.5k applications. It is therefore recommended that applicants are encouraged to explore pre-qualification or pre-approval options before submitting a full application. This gives a clearer picture of their eligibility and the loan amount they may qualify for. Both education and home improvement loan applicants should also focus on improving their debt-to-income (DTI) ratio. A lower DTI ratio increases the chances of approval for both types of loans

LIMITATIONS TO ANALYSIS

Lack of Scoring Model

There is a space for "credit scores" in the dataset for the development of the loan application and approval app. However, there is no sufficient specificity and detailed factors that are potentially significant to assessing the creditworthiness of the loan applicant. This is what is termed "Granularity in Credit Score". To ensure sufficient information would bring about the "Score model. By this, potentialities for the differing information and interpretation about the borrower would lead to the accuracy of creditworthiness. The concept of scoring models such as VantageScore, FICO, Experian' PLUS Score, Equifax Credit Score, and TransUnion CreditVision Score necessitate putting the borrower into numbers using their lending and repaying histories to standardize the evaluation of their creditworthiness. It is apparent that without scoring models, the accuracy of the risks involved in the lending transaction will not be ascertained.

Insufficient Employment History

The analytical report of the borrower showed static values. It did not give data on income fluctuations and the historicity of their employment. To minimize risks, the trending income and employment history over time of the borrowers should be inclined.

Loan Intent Information Deficiency

Categorically, the loan intent in the data analysis for building the loan application and approval platform has the borrowers with educational intent, medical intent, and venture intent amongst others. However, the analysis did not make an explicit risk profile for each intent which would

have minimized losses. For example, there should be risk profile disparity for each intent which then implies that education intent should be different from medical intent and so forth.

CONCLUSION

Despite the potential limitations in the loan application and approval platform analysis, the analysis has been insightful for loan organizations to make data-centric decisions. The datasets which had 16 columns and 45001 rows evolved significant metrical analysis such as “age disparity” with the age category of 21-30 making a loan application for totalling 325 million. Another significant metric from the analysis showed Nga-32298 coming up with the highest credit score of 850. In all the analytical report showed that 45,000 people applied totalling 431 million. The analytical metric showed that 74.85% of applicants were denied loans amounting to 323 million with a number as low as 25.17% having approval with an approved sum of 109 million.

From the metrical analysis, it can be concluded that age disparity is a potential indicator for loan transactions. The category of 21-30, showed activeness in the loan application process, and what this implies to the loan companies is for them to create effective market-strategic dynamics for the younger demographic to access loans easily. The high volume of 45,000 applicants, coupled with the significant rate of loan denials, indicated a critical need for enhanced assessments of creditworthiness. The criticality of this disparity would promote a more balanced ratio between loan applications and approvals, ensuring financial inclusivity while maintaining risk management standards.