PREMIUM FINANCE AGREEMENT AND DATA ANALYSIS

1. Project Overview

This project focuses on analysing premium finance agreement data using Excel and Power BI. The objective is to summarise finance company performance, agreement status, and yearly loan trends.

2. Data Source

- Source Description and Timeline: gomask ai and 2025.
- Link : https://gomask.ai/marketplace/datasets
- Domain: Finance / Insurance Analytics.

3. Problem Statement

- To analyse premium finance agreement data to identify top finance companies based on total loan amount.
- To study the distribution of agreements based on their status (Active / Closed).
- To examine year-wise loan amount trends to understand changes in finance activity over time.
- To provide summary insights that support basic financial decision-making.

4. Attribute Details

S. No	Attributes Name	Data Types	Description
1	Agreement Id	Integer, String	Unique Id for Each Agreement.
2	Finance Company Id	Integer, String	Id of the finance company
3	Finance Company Name	Sting	Name of the finance company.
4	Finance Company Street Address	String, Integer	Street address of the finance Company.

5	Finance Company City	String	City.
6	Finance Company State	String	State
7	Finance Company Postal code	Integer	Postal Code.
8	Finance Company Country	String	Country.
9	Borrower Id	String, Integer	Unique Id of the Borrower.
10	Borrower Name	String	Name of the Borrower.
11	Name of Address	String, Integer	Address of the Borrower
12	Borrower city	String	City
13	Borrower State	String	State
14	Borrower Postal Code	Integer	Postal Code
15	Borrower Country	String	Country
16	Insurer Id	String, Integer	Id of the Insurance Company.
17	Insurer Name	String	Name of the Insurer.
18	Insurer Street Address	String, Integer	Insurers Address
19	Insurer City	String	City.
20	Insurer State	String	State.
21	Insurer Postal Code	Integer	Postal Code.
22	Insurer Country	String	Country.
23	Policy Number	String	Insurance Policy Number.
24	Loan Amount	Integer	Loan Amount issued to the Borrower.

25	Interest Rate	Integer	Interest Charged to the Borrower.
26	Payment Frequency	String	How often the borrower pays money (Monthly, Quartely, etc).
27	Number of payments	Integer	Total times the Borrower pays.
28	First Payment Due Date	Date	Date of the First Payment.
29	Last Payment Due Date	Date	Date of the Last Payment.
30	Agreement Start Date	Date	Start date of the Agreement.
31	Agreement End Date	Date	End date of the Agreement.
32	Lender Notice Sent	String	whether a Lender Notice was sent (True, False).
33	Lender Notice sent Date	Date	Date the Notice was Sent.
34	Insurer Payment Date	Date	Date the Insurer made the Payment.
35	Insurer Payment Amount	Integer	Amount paid by the Insurer.
36	Agreement Status	String	Current Status of the Agreement (Active, Completed, Pending, defaulted).
37	Created at	Date	Record Creation Date.
38	Updated at	Date	Last Update Date.
39	Lender Notice Status	String	Payment sent or not sent.

40	Agreement Duration	Integer	Agreement Duration Date.

5. Tools & Technologies

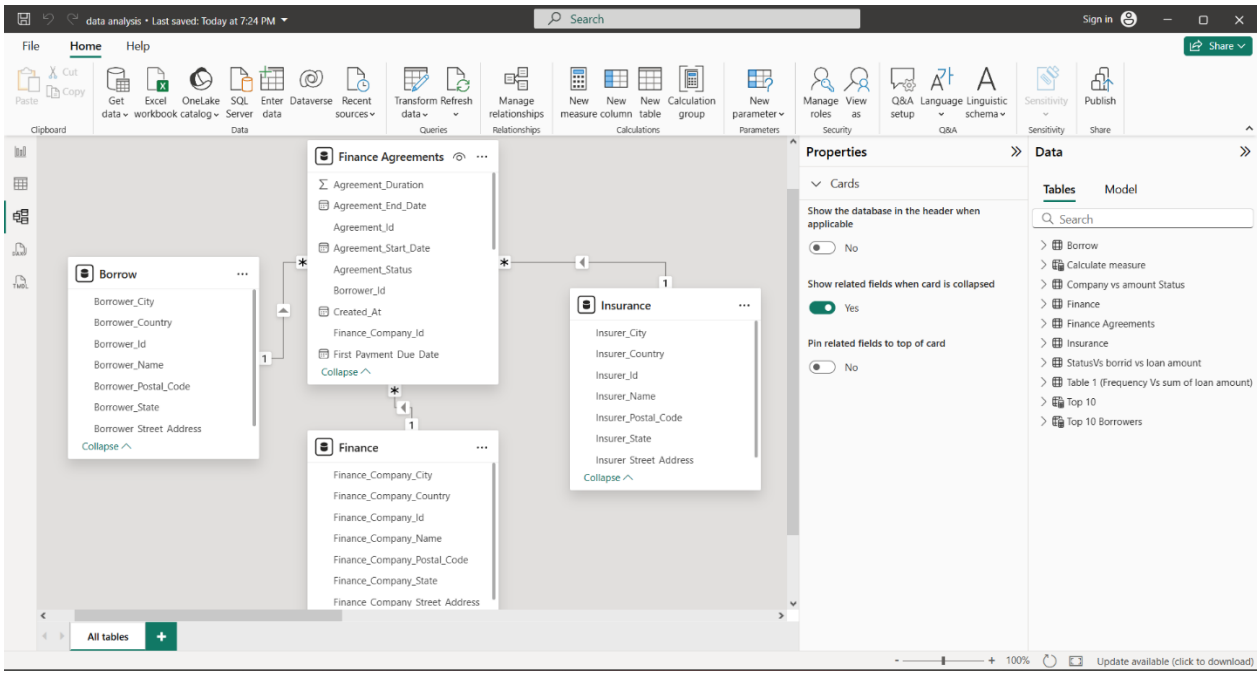
- Excel – Data cleaning and Pivot Tables.
- Power BI – Data modelling and visualization.

6. Data Preprocessing

- **Data Cleaning & Transformation:** Removed duplicates, handled missing values, standardized formats, and created calculated fields; applied filtering and sorting to focus on relevant records.
- **Pivot Table:** Generated Pivot Tables to summarize the data and derive initial insights.
- Convert the data into Fact and Dimensional Table.

7. Data Modeling

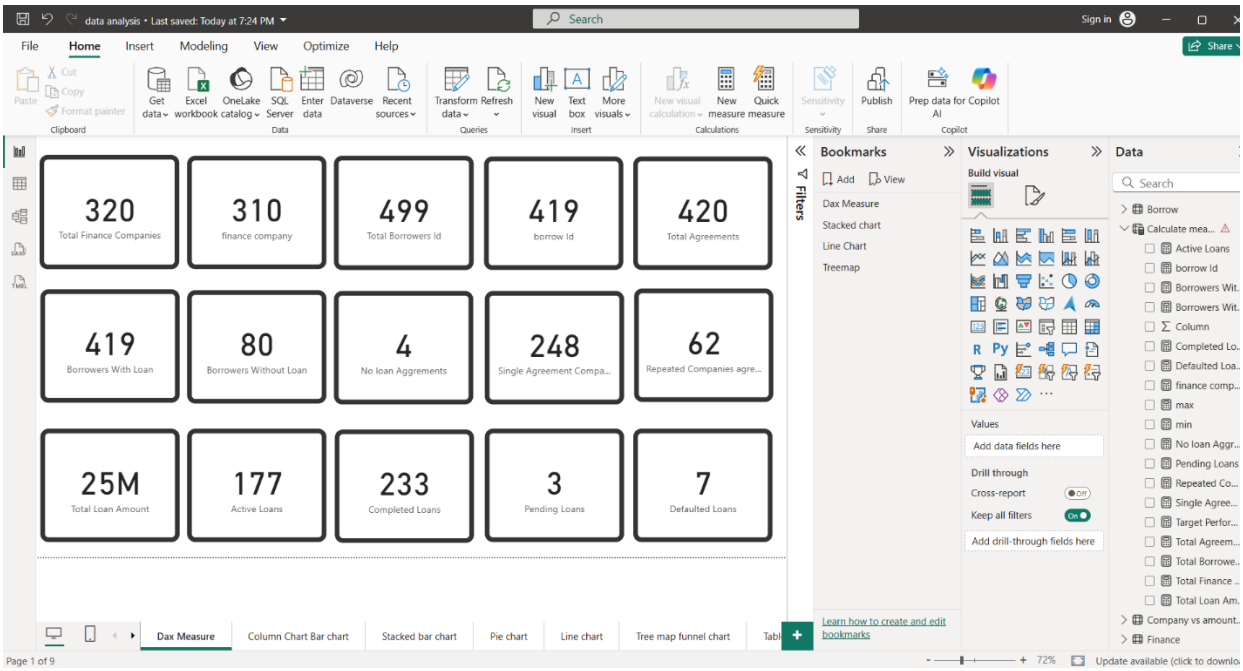
A structured star-schema–like data model was designed with Finance Agreements as the fact table and Borrow, Finance, and Insurance as dimension tables. Relationships were created based on IDs (Borrower Id, Finance Company Id, Insurer Id) to support DAX measures, KPIs, and interactive Power BI visuals.



8. Dax Formula

- Total Finance Companies = DISTINCTCOUNT(Finance[Finance_Company_Id])
- Fact table wise finance company = DISTINCTCOUNT('FinanceAgreements'[Finance_Company_Id])
- Total Borrowers Id = DISTINCTCOUNT(Borrow[Borrower_Id])
- borrow Id = DISTINCTCOUNT('Finance Agreements'[Borrower_Id])
- Total Agreements = DISTINCTCOUNT('Finance Agreements'[Agreement_Id])
- Borrowers With Loan = CALCULATE(DISTINCTCOUNT(Borrow[Borrower_Id]),FILTER(Borrow,CALCULATE(COUNT('Finance Agreements'[Agreement_Id])>0)))
- Borrowers Without Loan = CALCULATE(DISTINCTCOUNT(Borrow[Borrower_Id]),FILTER(Borrow,ISBLANK(CALCULATE(COUNT('Finance Agreements'[Agreement_Id])))))

- No loan Aggrements = CALCULATE(DISTINCTCOUNT('Finance Agreements'[Agreement_Id]),FILTER(VALUES('Finance Agreements'[Agreement_Id]),CALCULATE(SUM('Finance Agreements'[Loan_Amount]))=0))
- Single Agreement Companies Count = COUNTROWS (FILTER (VALUES (Finance[Finance_Company_Id]), CALCULATE (DISTINCTCOUNT ('Finance Agreements'[Agreement_Id])) = 1))
- Repeated Companies agreement Count = COUNTROWS (FILTER(VALUES('FinanceAgreements'[Finance_Company_Id]),CALCULATE (DISTINCTCOUNT('Finance Agreements'[Agreement_Id])>1)))
- Total Loan Amount = SUM('Finance Agreements'[Loan_Amount])
- Active Loans = CALCULATE(DISTINCTCOUNT('FinanceAgreements'[Agreement_Id]),'Finane Agreements'[Agreement_Status]="Active")
- Completed Loans = CALCULATE(COUNT('FinanceAgreements'[Agreement_Id]),'Finance Agreements'[Agreement_Status]="Completed")
- Pending Loans = CALCULATE(COUNT('FinanceAgreements'[Agreement_Id]),'Finance Agreements'[Agreement_Status]="Pending")
- Defaulted Loans = CALCULATE(COUNT('FinanceAgreements'[Agreement_Id]),'Finance Agreements'[Agreement_Status]="Defaulted")



Borrower Overview

The dataset contains **499 total borrowers**, out of which **419 borrowers** have taken loans, while **80 borrowers** currently do not have any loan. This indicates strong borrower coverage with scope for future loan conversion.

Agreement Analysis

A total of **420 loan agreements** are recorded. Among the finance companies, **248 companies** have a single agreement and **62 companies** have multiple agreements. Only **4 borrowers** do not have any loan agreements, indicating consistent participation across borrowers.

Loan Status Performance

The loan portfolio shows strong performance with **233 completed loans** and **177 active loans**. Only **3 loans** are pending, and **7 loans** have defaulted. The low number of pending and defaulted loans highlights effective loan management and credit control.

Financial Performance

The total loan amount across all agreements is approximately **₹25 million**. Despite the high loan volume, default cases remain minimal, demonstrating a financially stable and well-managed lending system.

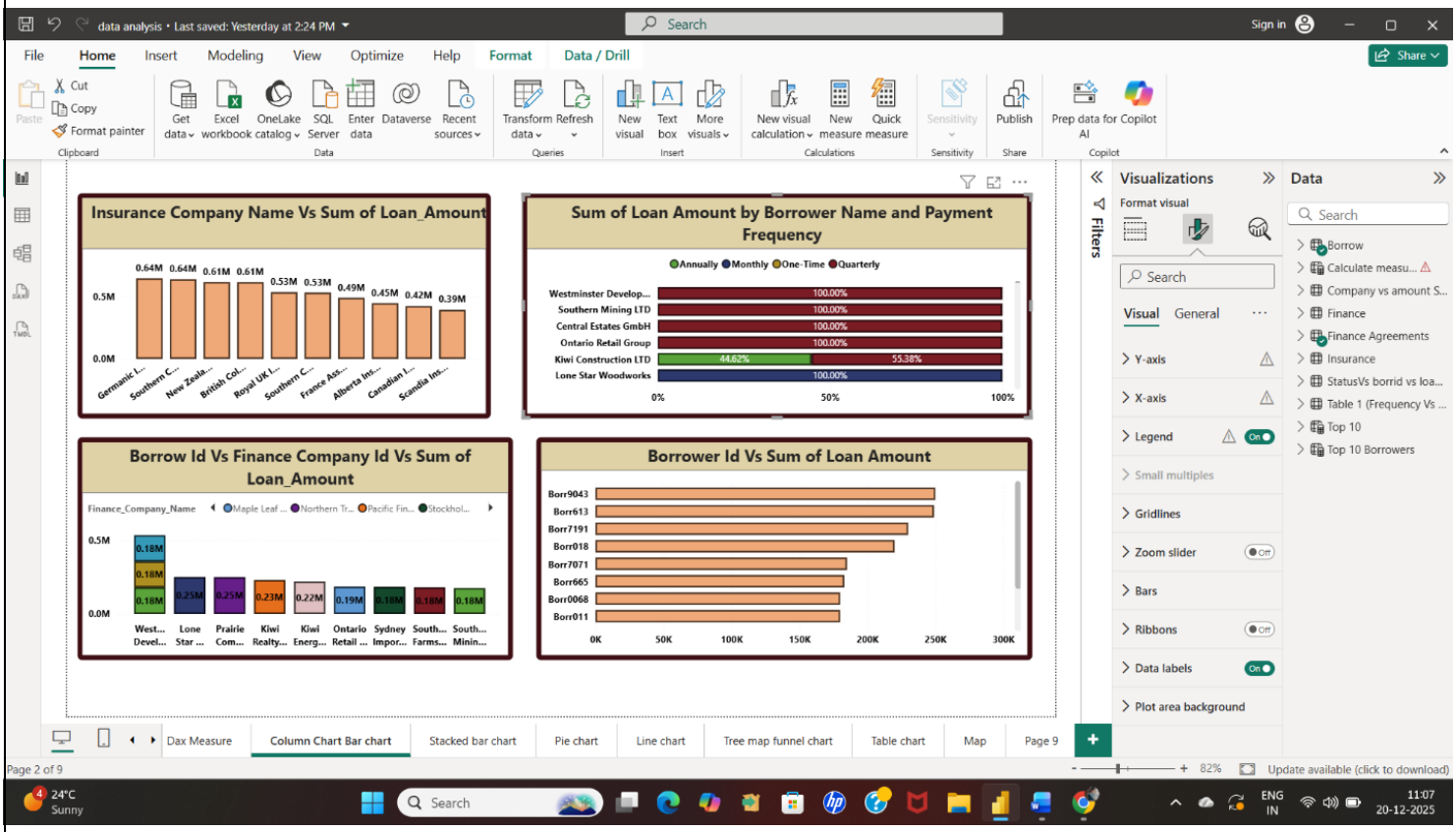
Finance Company Distribution

The dataset includes **320 finance companies**, of which **310 companies** are actively involved in lending. This wide distribution reduces dependency on a limited number of companies and ensures diversified financial exposure.

Key Business Insight

Overall, the analysis reflects a **healthy, low-risk, and scalable loan ecosystem** with high borrower participation, strong loan completion rates, and minimal defaults. The primary business opportunity lies in converting borrowers who currently do not have loans.

TOP 10 DETAILS



Insurance Company Name vs Sum of Loan Amount (Top 10 Insurance Companies)

The chart shows that loan amounts are unevenly distributed among the **top 10 insurance companies**. A few insurance companies contribute relatively higher loan amounts, while the remaining companies within the top 10 contribute comparatively lower loan values.

Insight:

This indicates that even among the top insurance providers, loan exposure is partially concentrated in a smaller subset, while overall exposure remains spread across multiple insurers, helping reduce concentration risk.

Sum of Loan Amount by Borrower Name and Payment Frequency

This visualization shows the distribution of loan amounts across borrowers based on payment frequency.

The analysis indicates that quarterly payment frequency accounts for the highest share of the total loan amount. For several borrowers, 100% of the loan amount is structured under quarterly payments, while in a few cases quarterly payments contribute more than half of the total loan amount, as reflected in the chart percentages.

Insight:

The strong dominance of quarterly payments highlights a borrower preference for periodic repayment structures, providing predictable inflows for lenders while maintaining repayment flexibility for borrowers.

Borrower ID vs Finance Company ID vs Sum of Loan Amount

The chart shows that individual borrowers are associated with multiple finance companies, contributing different loan amounts. Certain borrower–finance company combinations contribute higher loan values compared to others.

Insight:

Loan exposure is spread across multiple finance companies for each borrower, reducing dependency on a single lender and improving risk diversification.

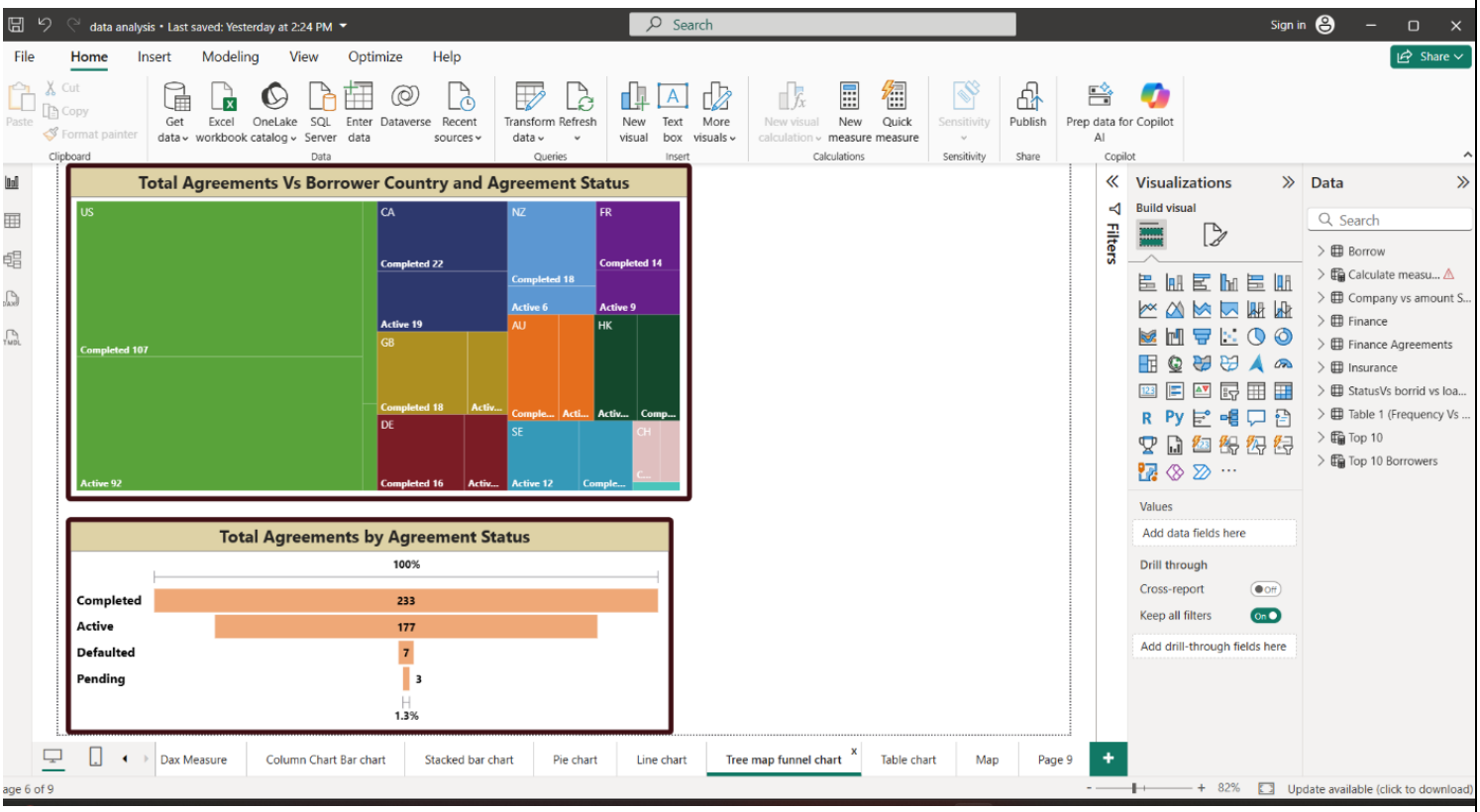
Borrower ID vs Sum of Loan Amount (Top Borrowers)

The top borrowers (e.g., Borr0943, Borr0613, Borr7191) have loan amounts reaching close to **₹250K–₹280K**, while the remaining top borrowers show gradually declining loan values.

Insight:

A small set of borrowers contributes significantly to the total loan portfolio, indicating high-value customer segments that require focused relationship management.

TREEMAP & FUNNAL CHART



Agreements by Borrower Country and Status (Tree Map)

The treemap visual shows the total number of agreements segmented by borrower country and agreement status.

- The United States has the highest number of agreements, with a significant share of both Completed and Active agreements.
- Canada, New Zealand, and France show moderate agreement volumes.

- Germany, United Kingdom, and Australia contribute at a medium level.
- Hong Kong, Switzerland, and Sweden have comparatively fewer agreements.

Insight:

Agreements are highly concentrated in developed countries, with the United States being the primary contributor.

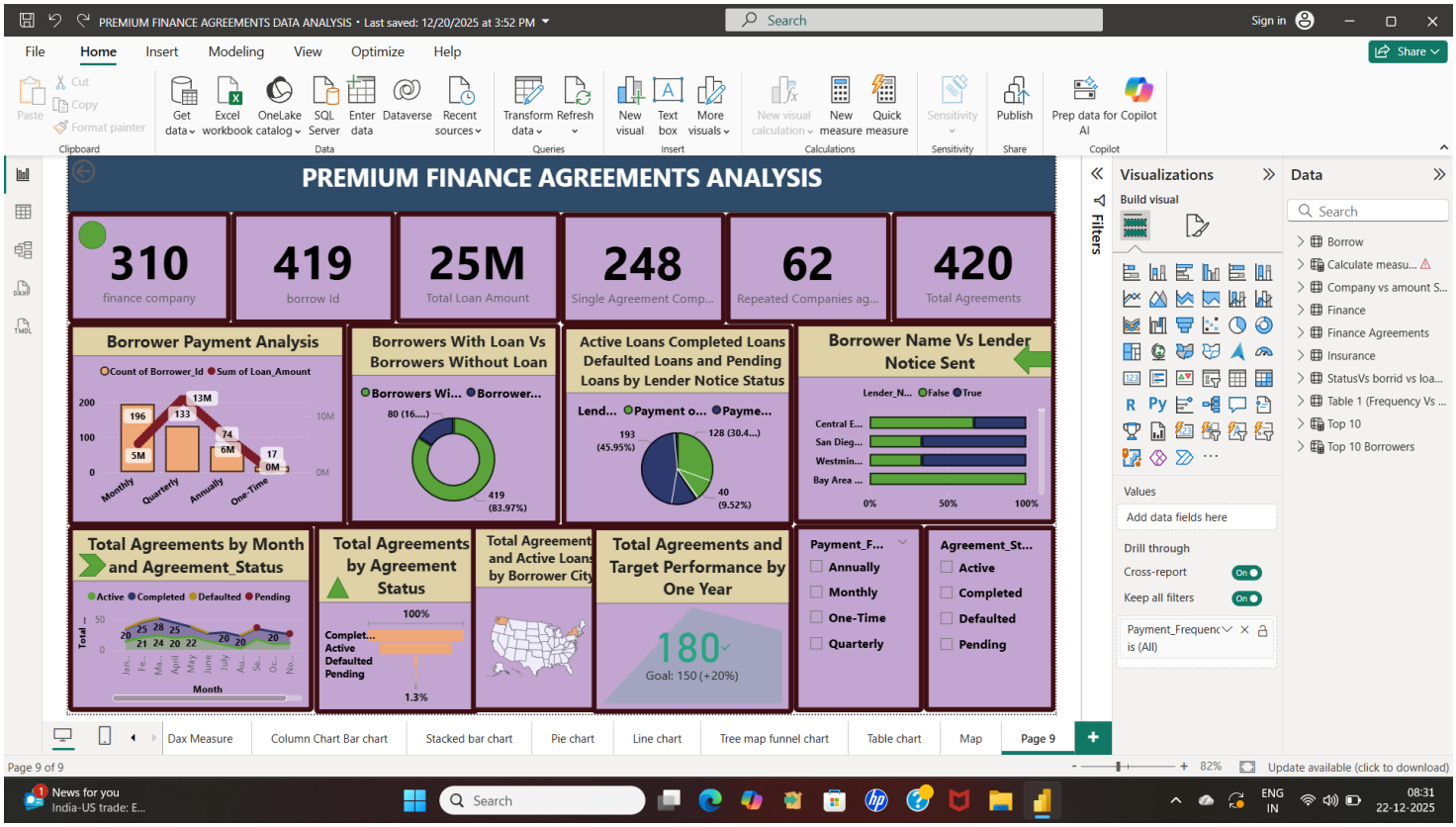
Agreement Status Progression (Funnel Chart Analysis)

- The funnel chart represents the flow of agreements across different stages of their lifecycle.
- The widest section of the funnel is **Completed agreements (233)**, indicating a high success and closure rate.
- **Active agreements (177)** form the next significant stage, showing a strong pipeline of ongoing agreements.
- A sharp drop is observed in **Defaulted agreements (7)**, reflecting minimal failures.
- **Pending agreements (3)** form the smallest stage, indicating quick processing and minimal delays.

Insight:

The funnel shape demonstrates efficient movement of agreements from active to completed stages, with very low drop-offs at the default and pending stages.

DASHBOARD



Overall Insights

The dashboard clearly communicates that the premium finance portfolio is stable, well controlled, and operating efficiently. The close match between the number of borrowers and agreements shows that most borrowers hold only one agreement, indicating controlled lending and limited exposure per borrower. Payment patterns are well structured, with installment-based repayments dominating the portfolio, which supports regular and predictable cash flow. The total loan exposure is spread across many borrowers, reducing concentration risk, while default levels remain very low, indicating strong credit screening and effective monitoring. In addition, overall performance has exceeded the defined target, showing that growth has been achieved without increasing portfolio risk. Overall, the dashboard mainly highlights agreement structure, repayment

behavior, portfolio health, and performance outcomes, rather than indicating any major risk or stress within the portfolio.

Descriptive Analysis (What is shown in the dashboard?)

- The dashboard shows a total of 419 borrowers and 420 agreements, indicating that almost every borrower holds only one agreement.
- Out of all companies, 248 companies have single agreements, while 62 companies have repeated agreements, showing that single-agreement companies form the majority.
- The total loan amount is 25 million, and this amount is distributed across all agreements, indicating diversified loan exposure.
- Payment frequency analysis shows that Quarterly payment mode has the highest number of agreements, followed by monthly and annual payment modes. One-time payments are very few.
- Agreement status distribution shows that Active agreements form the largest share, followed by Completed agreements. Defaulted and Pending agreements are very limited.
- The performance section shows 180 agreements achieved against a target of 150, which means the target has been exceeded by 20%.

Diagnostic Analysis (Why does the data look like this?)

- The small difference between the number of borrowers and agreements indicates that the company follows controlled lending practices and avoids giving multiple agreements to the same borrower.
- The dominance of single-agreement companies suggests that the business focuses more on acquiring new customers rather than depending heavily on repeat borrowing.

- Quarterly payment mode is preferred because it offers a balanced repayment structure, where payments are not too frequent like monthly and not too heavy like one-time payments.
- Low default and pending levels indicate strong borrower screening before loan approval and effective monitoring after loan disbursement.
- Although lender notices are issued in some regions, they have not resulted in higher defaults, which means notices are mainly used as reminder and control mechanisms.
- Exceeding the target reflects efficient sales execution and operational management.

Predictive Analysis (What is likely to happen next?)

- If the current trend continues, the portfolio is expected to remain stable with low credit risk.
- Quarterly payment mode is likely to continue as the most preferred repayment option.
- Some single-agreement borrowers may become repeat borrowers, which can increase the number of agreements without significantly increasing risk.
- Overall performance is expected to remain at or above the target level.

Prescriptive Analysis (What actions should be taken?)

- The company should focus on customer retention strategies to convert single-agreement borrowers into repeat customers.
- Quarterly payment plans should continue to be promoted, as they match borrower preferences.
- Regions with higher lender notice activity should be monitored regularly to prevent future payment issues.
- The existing credit assessment and follow-up processes should be maintained to keep default levels low.

Conclusion

The Premium Finance Agreements dashboard clearly indicates a healthy, stable, and well-managed loan portfolio. The close balance between the number of borrowers and agreements confirms controlled borrower exposure and disciplined lending practices. The dominance of quarterly installment payments reflects structured repayment behavior and borrower preference for manageable payment cycles. The very low level of defaulted and pending agreements indicates effective credit screening and consistent monitoring of repayments. Furthermore, achieving 180 agreements against a target of 150 shows that business growth has been achieved without increasing portfolio risk.Overall, the dashboard communicates strong portfolio control, stable repayment patterns, and positive business performance, confirming that the organization is operating in a low-risk and sustainable growth phase.