

**Data to Decisions Qlik Journey through
LendingClub Issued Loans Analysis (Qlik)**

Project Report

1. Introduction:

1.1 Overview:

The project, "Data to Decisions Qlik Journey through LendingClub Issued Loan Analysis," utilizes Qlik's powerful data visualization and analysis tools to extract valuable insights from LendingClub's loan dataset. As a leading peer-to-peer lending platform, LendingClub offers diverse loan products connecting borrowers with investors. Our analysis is centered on uncovering patterns, evaluating potential risks, and refining lending strategies for optimization. The project aims to provide actionable insights that enhance decision-making in the lending sector, aiming for improved business outcomes and informed strategic decisions.

1.2 Purpose:

This project aims to leverage Qlik's data analytics capabilities to enhance decision-making in peer-to-peer lending. By analyzing loan issuance trends and borrower behavior, it provides insights for strategic decision-making in loan categories and investment strategies. It also focuses on improving risk management by identifying key risk factors associated with different loans and borrower profiles. Ultimately, the project aims to optimize loan performance, improve repayment rates, and support efficient operations through actionable data-driven insights.

1.3 Technical Architecture:

The "Data to Decisions Qlik Journey Through LendingClub Issued Loans Analysis" project uses a straightforward setup to analyze data. It starts by collecting information from LendingClub about loans, such as loan amounts, interest rates, and borrower details. Extra data, like economic factors, can also be included. This data is then cleaned and prepared using Qlik's tools to make sure it's ready for analysis.

The prepared data is stored in Qlik's system, which organizes it for quick access. The Qlik Sense Server manages the data and creates visual charts and dashboards. These tools allow users to explore and understand the loan data through various visualizations. Interactive charts help users see trends and gain insights from the

data.

Security features ensure only authorized users can access the data. User authentication and permissions control who can see and use the data, and data policies make sure the information is accurate and meets regulations. Qlik Sense can be installed on local computers, in the cloud, or a mix of both, depending on what the organization needs. This setup helps collect, process, and visualize data efficiently, allowing users to make informed decisions based on the LendingClub loan data.

2 Define Problem/Problem Understanding:

2.1 Specify the business problem:

The problem is that the institution's lending strategy doesn't use enough information from LendingClub's loan data. This makes it difficult to understand how borrowers behave and what's happening in the market. As a result, they struggle to predict risks accurately, anticipate loan defaults, and adapt their lending rules to keep up with changes in the market.

2.2 Business Requirements:

The goal is to set up a strong data analytics system that extracts valuable insights from LendingClub's loan data. This system should help the financial institution understand how borrowers behave, pinpoint risky areas, accurately predict loan defaults, and be flexible enough for adjusting lending rules in real-time. It also needs to grow with the institution's needs, fit well with current systems, and be easy to put into action.

2.3 Literature Survey:

The review of literature looked deeply into how data analytics is used in peer-to-peer lending. It found that machine learning models like logistic regression, decision trees, and neural networks are great at predicting if loans will be paid back on time. Factors like borrower details (such as credit scores, income, and job status) and economic factors (like interest rates and the economy) have a big

impact on how loans perform. Tools like interactive dashboards and real-time data displays help people understand complex loan data better and make smarter decisions. Platforms like Qlik are known for their strong ability to handle and analyze financial data for thorough financial analysis.

3 Data Collection:

3.1 Collect the dataset:

The main dataset for this project contains detailed data about loans issued by LendingClub. The following data is in a website which is available for public access. <https://www.kaggle.com/datasets/husainsb/lendingclub-issued-loans>

The data which was used in Qlik Sense:

https://docs.google.com/spreadsheets/d/13-q5tTVNZRkEaXu5kkggTbwJjbbTla3K7/edit?usp=drive_link&ouid=111358713475466793192&rtpof=true&sd=true

3.2 Connect data with Qlik Sense:

The next step after collecting the data is to connect the data with Qlik Sense. Order to load your dataset into Qlik Sense, start by accessing the "Data load editor" within your Qlik Sense app and create a new connection. Upload the dataset, ensuring all fields are correctly recognized during the preview. After loading the data into Qlik Sense, connect related tables together to create a clear data structure. This helps Qlik Sense accurately analyze and display the data, making sure you get useful insights from it. Finally, use Qlik Sense's user-friendly interface to create a variety of visualizations like bar charts, line graphs, pie charts, and tables.

4 Data Preparation:

4.1 Prepare the data for visualization:

Preparing the LendingClub loan dataset for visualization in Qlik Sense involves several key steps. First, clean the data by filling in missing values, removing duplicates, and standardizing formats like dates. Next, transform the data by

encoding categorical variables into numerical ones, normalizing numerical values for consistency, and creating new features like loan-to-income ratios. Then, aggregate the data by grouping it by loan grade, purpose, or borrower location to identify trends. Validate the data to ensure accuracy and check for anomalies that could affect the analysis. These steps ensure the dataset is ready for visualization, enabling clear insights into loan performance and efficiency using Qlik Sense.

5 Data Visualizations:

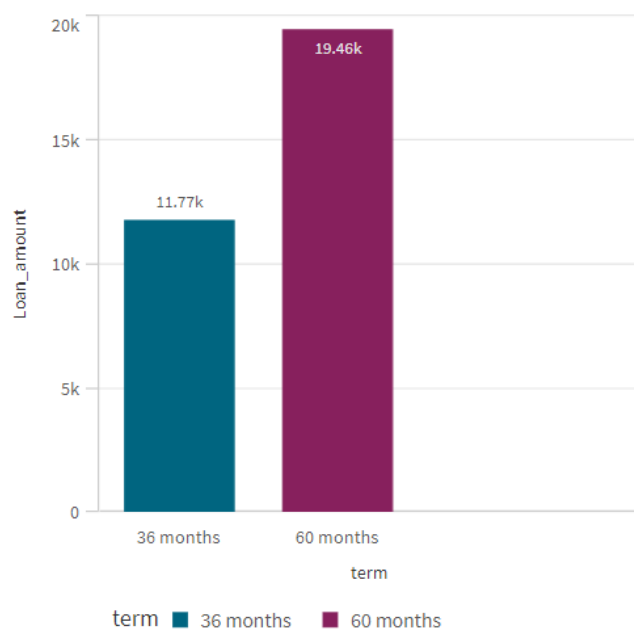
5.1 Visualizations:

Data visualization uses charts, graphs, and maps to simplify complex data, making it easier for users to grasp and analyze. It aims to reveal patterns and trends swiftly, aiding in better understanding and decision-making. The following are some examples of visualizations:

Loan Amount Analysis

This visualization shows the average loan amounts taken over different tenures like 36 months or 60 months.

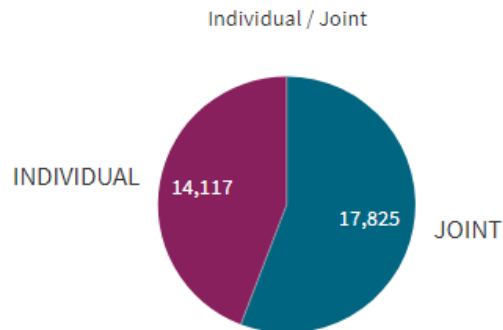
Average Loan Amount for the term



Average Loan Amount for the Account_Type

This visualization provides insight into how loan amounts vary across account types, helping to understand borrowing trends and patterns based on account characteristics.

Average Loan Amount for Joint Account/Individual Account



Total Loan Amount

This indicates the combined value of all loans issued, offering an overview of lending activity within a specified period or category.

Total Loan_amount
2,458,586,500

Total Number of Loan Accounts

This refers to the count of individual loan accounts issued within a specific period or category.

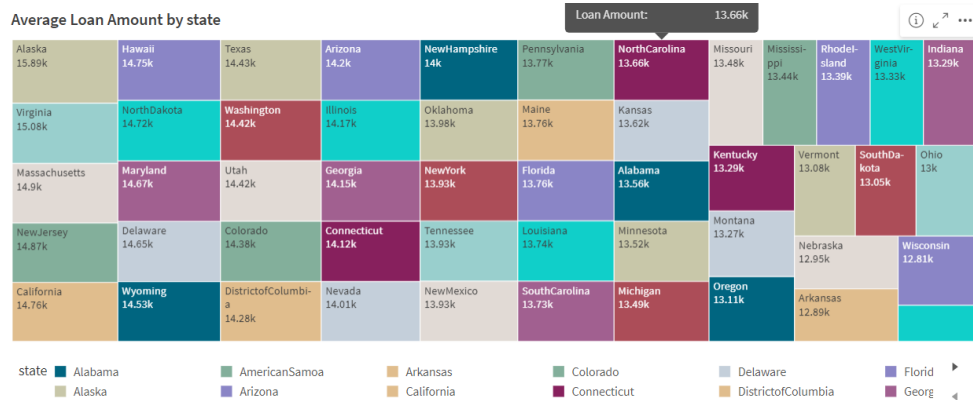
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Total Number of Accounts

174,120

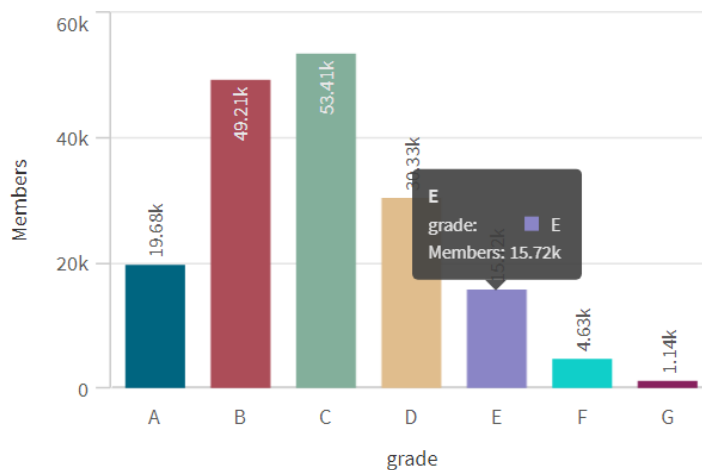
Average Loan Amount - State Wise

This refers to the average size of loans issued in different states or regions.



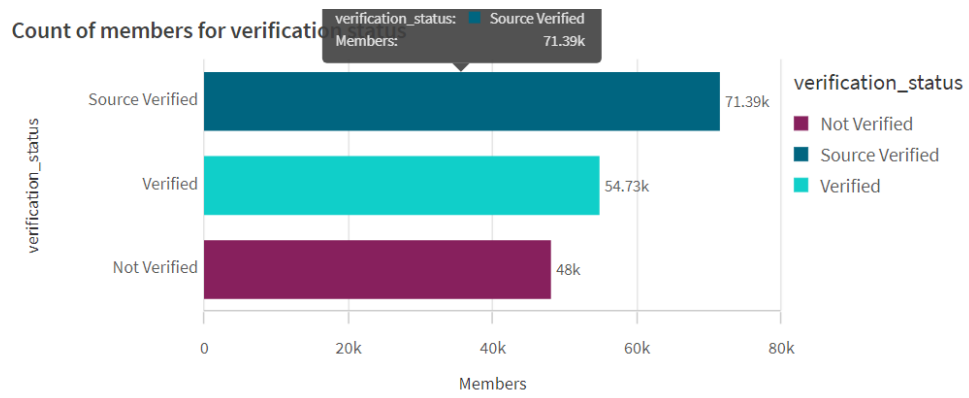
Grade Wise - Count of Members

This shows how many members fall into each loan grade category assigned by the lender.



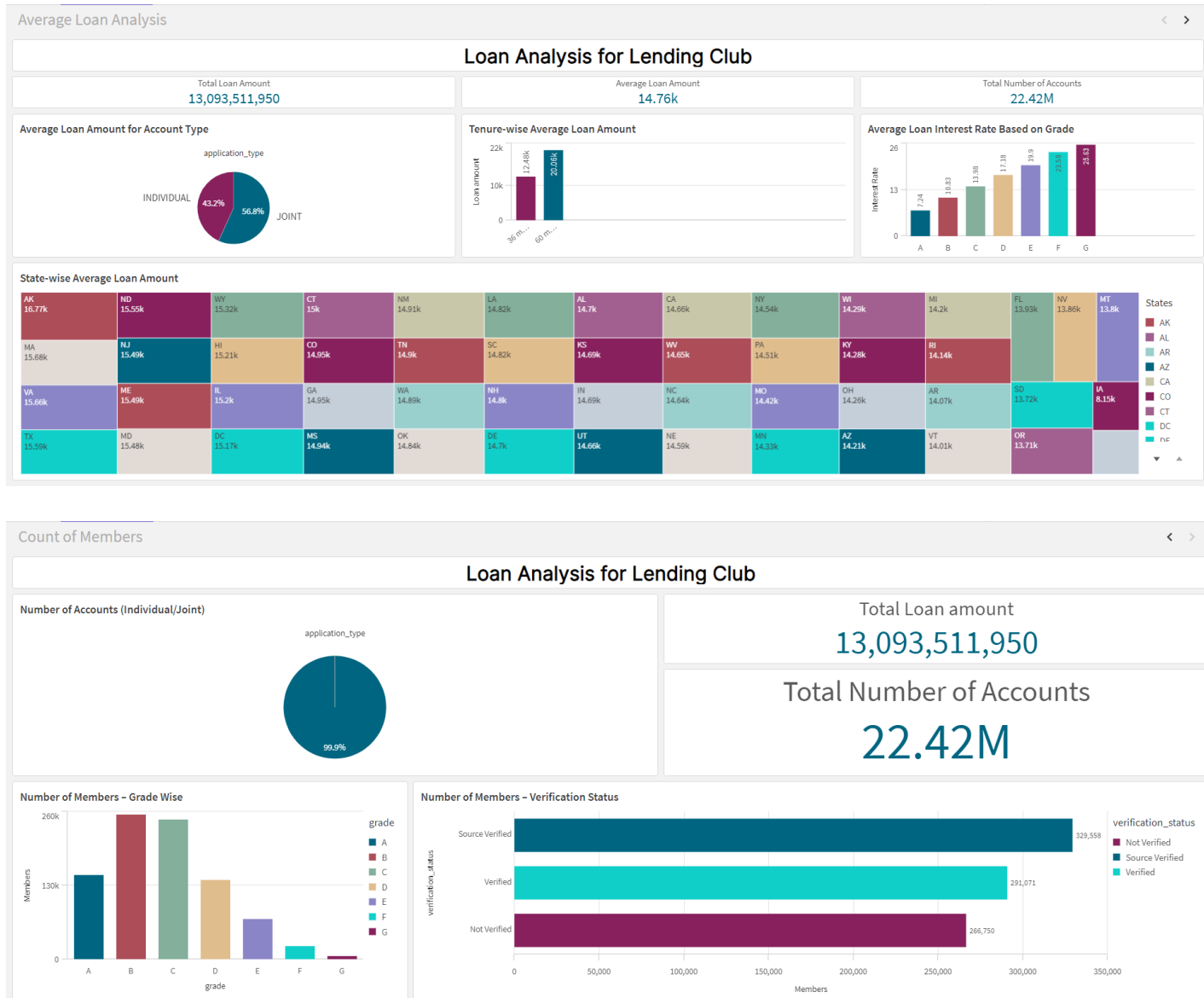
Verification Status

This describes whether a borrower's income and identity information has been verified by the lender.



6 Dashboard:

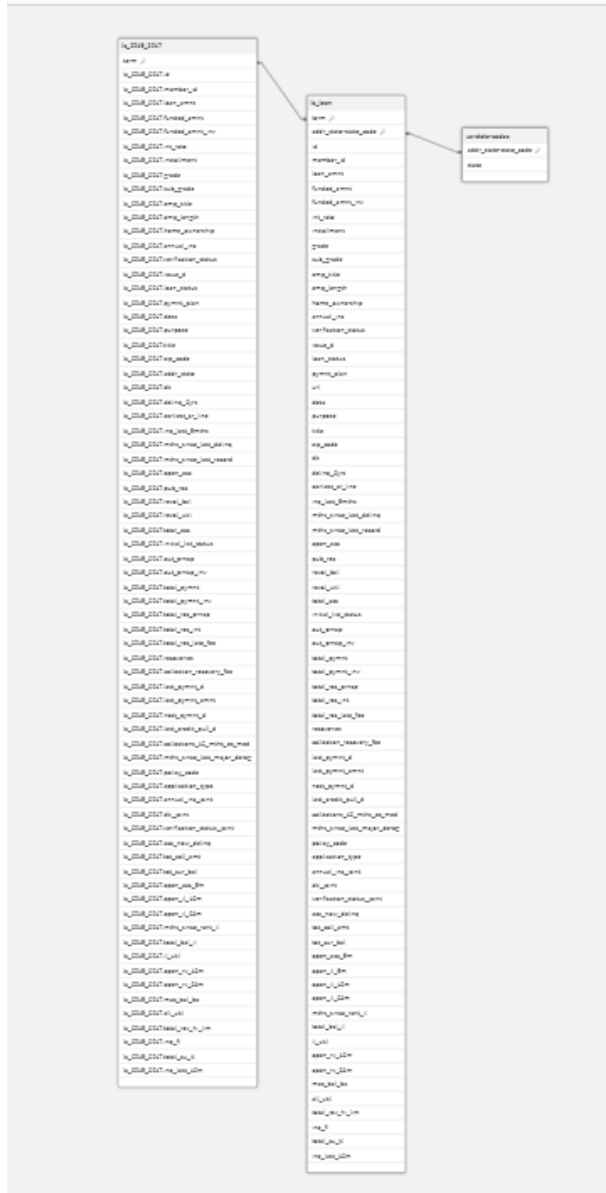
6.1 Responsive and Design of Dashboard:

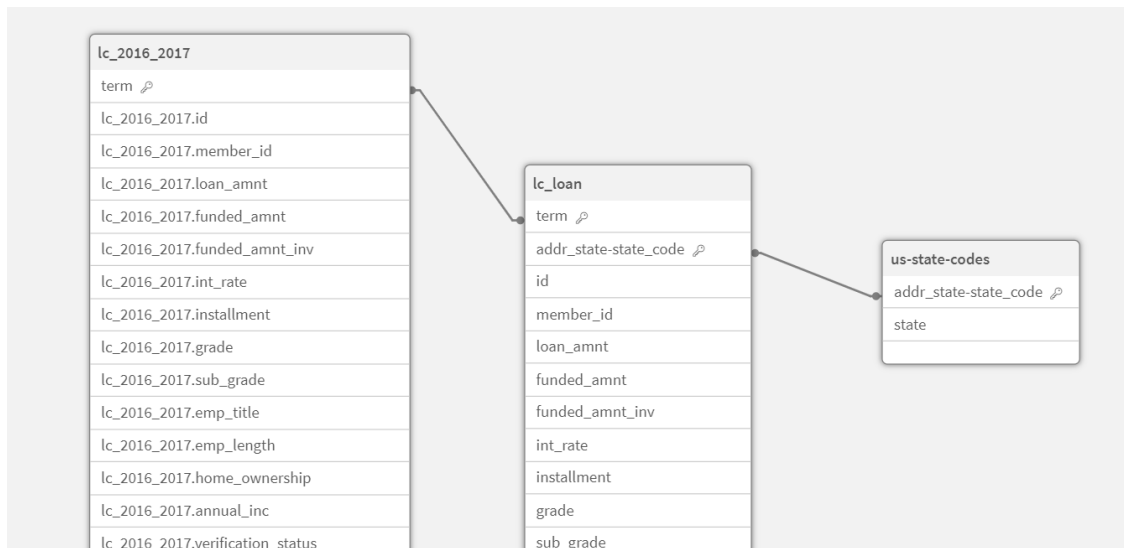


7 Performance Testing:

7.1 Amount of Data Rendered:

This describes the quantity of information displayed in a visualization or report, impacting the depth of insights gained. It influences the clarity and effectiveness of the analysis, guiding users in understanding the scope and complexity of the data presented.





7.2 Utilization of Data Filters:

"Utilization of Filters" means using settings or rules in a system to find and work with specific information, making it easier to focus on what's important for analysis or processing. Filters help narrow down data to only what meets certain requirements, making tasks more efficient and targeted.

The following example uses Pie charts, bar charts and tree map.

