

SME LOAN APPLICATION VOLUME & APPROVAL RATE DASHBOARD

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Abstract

The SME Loan Application Volume & Approval Rate Dashboard is designed to analyze and visualize small and medium enterprise loan application data in an interactive and user-friendly format. The system focuses on monitoring loan application volume, approval rates, rejection rates, loan amounts, processing trends, and applicant characteristics. Data such as application date, business type, requested loan amount, loan status, applicant location, credit information, and processing duration can be organized and processed for analysis. The dashboard presents important key performance indicators such as total applications, approved applications, rejected applications, approval rate, and total approved loan amount. Time-based analysis helps identify changes in application volume and approval performance across different periods. Loan amount and business-category analysis can be used to understand the distribution of financing requirements among SMEs. Approval and rejection trends provide insights into the overall performance of the loan application process. Interactive filters allow users to analyze applications based on date, business category, location, loan status, and other relevant attributes. Charts, graphs, tables, and KPI cards transform raw loan application data into meaningful visual insights. The dashboard can help financial institutions monitor lending performance, identify application trends, and understand approval patterns. Overall, the project demonstrates how data analytics and visualization can support efficient monitoring of SME loan applications and improve data-driven lending analysis.

I. Introduction

Small and Medium Enterprises (SMEs) play an important role in economic development and often require financial support to establish, operate, and expand their businesses. SME loans provide businesses with access to funds for purposes such as purchasing equipment, managing working capital, expanding operations, and meeting other financial requirements. Financial institutions receive a large number of loan applications, making it important to monitor application volume, approval rates, rejection rates, and loan amounts effectively. The SME Loan Application Volume & Approval Rate Dashboard is developed to provide an interactive platform for analyzing and visualizing loan application data. The system organizes information such as application dates, requested loan amounts, business categories, locations, loan status, and processing details. Key performance indicators such as total applications, approved applications, rejected applications, approval rate, and total approved loan amount can be displayed through dashboard cards. Time-based analysis helps identify changes in loan application volume and approval performance. Business-category and loan-amount analysis can provide insights into financing requirements across different SME segments. Approval and rejection trends can be visualized using charts, graphs,

and tables for easier interpretation. Interactive filters allow users to analyze applications based on dates, business categories, locations, and loan status. The dashboard reduces the effort required to manually examine large volumes of loan application records. It helps users monitor lending patterns and identify important changes in application and approval performance. Overall, the project demonstrates how data visualization and analytics can support efficient SME loan application monitoring and data-driven lending decisions.

II. Literature Survey

Previous studies on SME lending and loan application analysis have focused on understanding the financing requirements of small and medium enterprises and improving the efficiency of lending processes. Research indicates that access to appropriate financing is important for SMEs to maintain working capital, expand operations, purchase assets, and support business growth. Financial institutions therefore need to evaluate large numbers of SME loan applications while considering applicant characteristics, requested loan amounts, credit information, and repayment capacity. Effective analysis of historical loan application data can help institutions understand lending patterns and improve monitoring of the application process.

Several studies have examined loan approval and rejection patterns using applicant and business-related information. Factors such as business characteristics, credit history, income, requested loan amount, repayment capacity, and previous financial behavior can influence lending decisions. Analysis of approval and rejection records can help identify differences between applications and understand the overall performance of a lending portfolio. Approval-rate analysis is particularly useful for comparing lending outcomes across different periods, business categories, geographical regions, and loan-size groups.

Research on financial data analytics and credit risk assessment has increasingly explored statistical and machine-learning techniques for analyzing loan applications. These approaches can be used to identify patterns within historical application data and support credit evaluation. Predictive models may assist lenders in estimating the likelihood of approval or identifying applications that require additional assessment. However, analytical results depend strongly on the quality, completeness, and relevance of the underlying loan data.

Business intelligence and data visualization have also become important in financial decision-making. Dashboards can combine application volume, approval rates, rejection rates, loan amounts, and processing information into a centralized visual environment. Charts and KPI cards make it easier to identify changes in application activity and compare lending performance across different categories. Interactive filters can further allow users to examine specific time periods, business types, locations, loan statuses, and loan amounts without manually preparing separate reports.

Based on these developments, the SME Loan Application Volume & Approval Rate Dashboard provides a practical approach for combining loan application analysis and visualization. The dashboard can present total applications, approved and rejected applications, approval rates, loan amounts, and application trends in an organized

format. Such a system can help financial institutions monitor lending activity, understand approval patterns, identify significant changes, and support data-driven analysis. Overall, integrating SME loan data with interactive business intelligence techniques can provide a clearer understanding of loan application performance and support more efficient lending-process monitoring.

III. System Analysis

System analysis is an important stage in developing the SME Loan Application Volume & Approval Rate Dashboard for monitoring lending performance. The system focuses on analyzing loan applications, approval status, rejection status, requested loan amounts, and application trends. Loan application data is collected and organized into a structured dataset for further processing and analysis. Application volume is analyzed across different time periods to identify changes in loan demand. Approval and rejection rates are calculated to understand the overall performance of the lending process. Loan amounts are analyzed to identify the distribution of financing requirements among different applications. Business category and location-wise analysis can be used to compare application and approval patterns. Key performance indicators such as total applications, approved applications, rejected applications, and approval rate are displayed through dashboard components. Charts, graphs, tables, and KPI cards provide a simple visual representation of the loan data. Interactive filters allow users to analyze applications based on dates, loan status, business category, and other relevant attributes. The system helps users identify important patterns in SME loan applications and approval outcomes. Overall, the system provides a centralized approach for analyzing SME lending activity and supporting data-driven monitoring.

Existing System

The existing system for SME loan application monitoring commonly depends on spreadsheets, loan management systems, databases, and manually prepared reports. Loan applications are recorded with information such as applicant details, business category, requested amount, application date, and loan status. Financial institutions may use separate reports to monitor application volume and approval performance. Users generally review numerical records to determine the number of approved and rejected applications. Calculating approval and rejection rates may require repeated manual processing of application data. Comparing loan application trends across different periods can also be difficult when information is stored in multiple files. Analysis based on business category, location, or requested loan amount may require additional data preparation. Traditional reports often provide limited graphical representation of loan application information. Identifying sudden increases or decreases in application volume may therefore take additional time. Manual data processing can also result in calculation and data-entry errors. Loan application and approval information may not always be available in a single visual interface. Generating customized reports for different requirements can require additional effort. Therefore, a centralized dashboard can provide a more efficient approach for analyzing SME loan application volume and approval performance.

Disadvantages of Existing System

- Heavy dependence on spreadsheets and manual reports.
- Time-consuming analysis of loan application records.
- Limited visualization of application trends.
- Difficult to monitor approval rates quickly.
- Repeated calculations are required for approval and rejection rates.
- Difficult to compare different business categories.
- Loan application and approval information may be stored separately.
- Higher possibility of data-entry and calculation errors.
- Manual preparation of customized reports requires additional effort.
- Difficult to obtain a centralized view of lending performance.

Proposed System

The proposed system provides an interactive SME Loan Application Volume & Approval Rate Dashboard for analyzing lending-related information. The system collects loan application data containing application dates, requested loan amounts, business categories, locations, and loan statuses. The collected data is cleaned and organized into a structured format before analysis. Total applications are calculated to measure the overall volume of SME loan requests. Approved and rejected applications are analyzed to determine approval and rejection rates. Time-based analysis is performed to identify changes in application volume and approval performance. Loan amount analysis helps understand the distribution of financing requirements across applications. Business category and location-wise analysis can be used to compare application and approval patterns. KPI cards display important metrics such as total applications, approved applications, rejected applications, and approval rate. Charts, graphs, and tables provide visual representations of lending trends and performance. Interactive filters allow users to explore applications based on dates, categories, locations, loan status, and loan amounts. The dashboard helps users identify significant patterns and monitor changes in SME lending activity. Overall, the proposed system provides a centralized and visual platform for efficient loan application analysis and performance monitoring.

Advantages of Proposed System

- Provides centralized SME loan application analysis.
- Displays important lending KPIs clearly.
- Helps monitor total application volume.
- Provides approval and rejection rate analysis.
- Supports time-based application trend analysis.
- Enables business category-wise comparison.
- Supports location-wise loan application analysis.
- Provides loan amount distribution analysis.
- Reduces manual calculation and report preparation.
- Supports data-driven monitoring of lending performance.

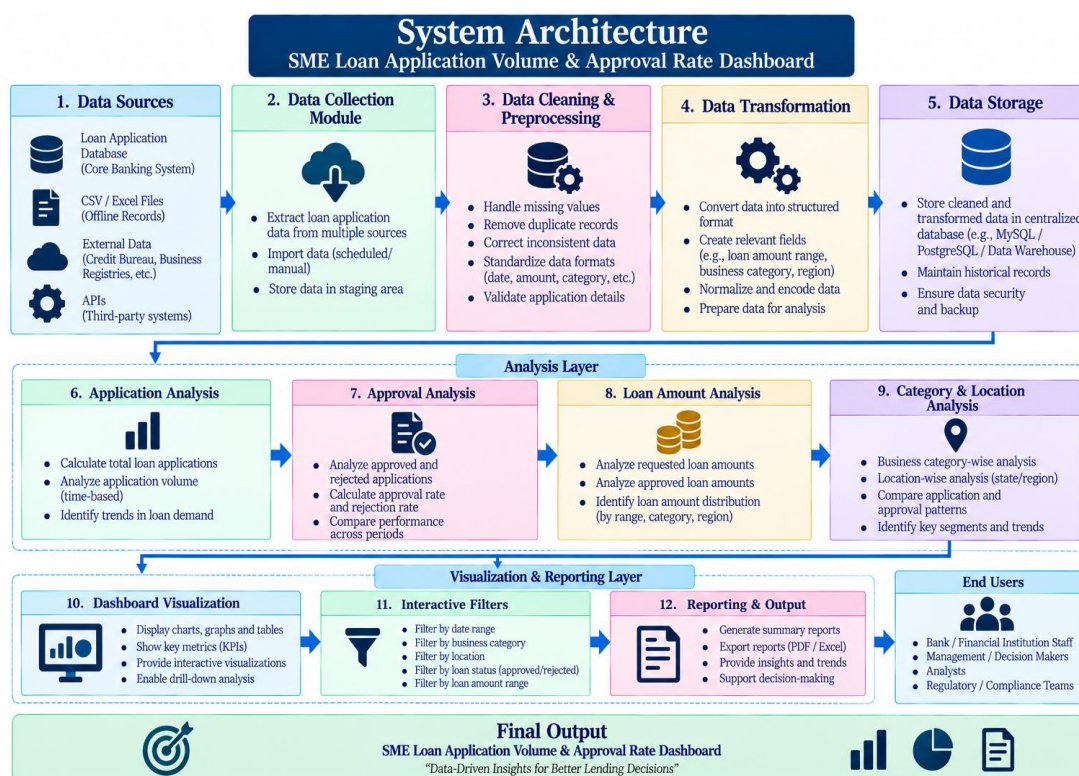
IV. Methodology

The methodology begins with collecting SME loan application data from available records or datasets. The collected data includes application dates, applicant or business information, requested loan amounts, business categories, locations, and loan

status. The dataset is examined and cleaned to remove duplicate, missing, or inconsistent records. Relevant fields are transformed into a structured format suitable for analysis. Total loan applications are calculated to determine the overall application volume. Approved and rejected applications are separated to calculate approval and rejection rates. Loan amounts are analyzed to understand financing requirements across different applications. The data is grouped by time period, business category, location, and loan status for detailed analysis. Appropriate charts, graphs, tables, and KPI cards are selected to represent the processed information. The dashboard is developed by connecting the prepared dataset with the required visualization components. Interactive filters are added to allow users to explore specific periods, categories, locations, and loan statuses. Finally, the dashboard is tested to verify the accuracy of calculations, visualizations, filters, and displayed loan application insights.

System Architecture

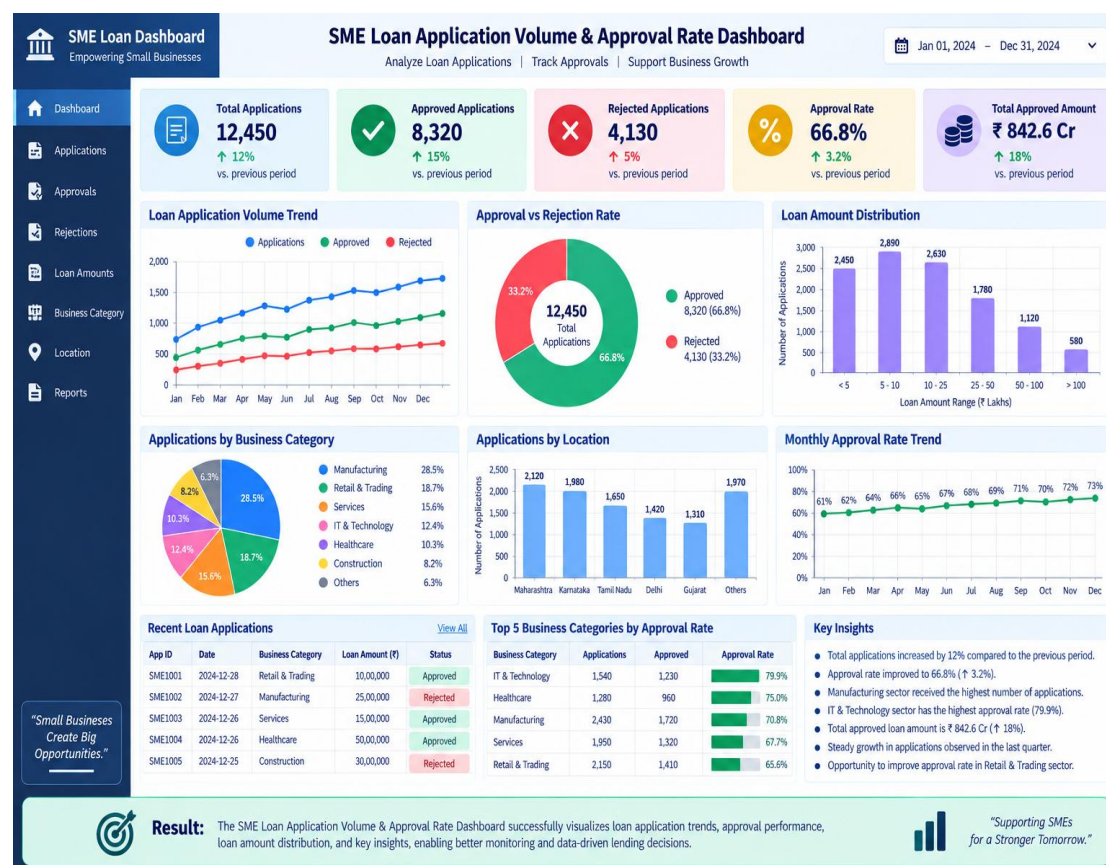
The system architecture represents the complete workflow of the SME Loan Application Volume & Approval Rate Dashboard from data collection to final visualization.



The process begins with the Loan Data Source, containing application details, dates, requested amounts, business categories, locations, and loan status. The Data Collection Module gathers the required loan application records from the available data source. The Data Cleaning Module removes duplicate, missing, and inconsistent records to improve data quality. The Data Transformation Module organizes the cleaned information into suitable fields and categories. The Application Analysis Module calculates total loan applications and analyzes application volume across different periods. The Approval Analysis Module evaluates approved and rejected applications and calculates approval and rejection rates. The Loan Amount Analysis

Module examines requested and approved loan amounts across different groups. The Category and Location Analysis Module compares lending patterns across business categories and geographical areas. The processed information is provided to the Dashboard Visualization Module for graphical representation. The KPI Module displays total applications, approved applications, rejected applications, and approval rate. The Interactive Filter Module allows users to explore data by date, category, location, loan status, and loan amount. Finally, the Reporting and Output Module presents charts, tables, trends, and summarized lending insights through the completed dashboard. Overall, the architecture follows the workflow **Loan Data → Data Collection → Data Cleaning → Data Transformation → Application Analysis → Approval Analysis → Loan Amount Analysis → Category & Location Analysis → Visualization → KPIs & Filters → Reports → Final Dashboard**.

V. Result and Output



VI. Conclusion

The SME Loan Application Volume & Approval Rate Dashboard successfully provides a centralized platform for analyzing SME loan application and approval data. The system organizes loan records based on application date, loan amount, business category, location, and loan status. Application volume analysis helps users understand changes in loan demand across different time periods. Approval and rejection analysis provides a clear view of lending outcomes and overall approval performance. Loan amount analysis helps identify the distribution of financing requirements among SME applicants. Business category and location-wise analysis

provides additional insights into lending patterns across different segments. Key performance indicators such as total applications, approved applications, rejected applications, approval rate, and approved loan amount provide a quick summary of performance. Charts, graphs, tables, and visual indicators make complex loan information easier to understand. Interactive filtering allows users to examine specific application periods, categories, locations, and loan statuses. The dashboard reduces the effort required for manual analysis and report preparation. Overall, the project demonstrates the usefulness of data visualization and analytics for monitoring SME lending performance. The proposed dashboard supports efficient analysis, better understanding of loan trends, and data-driven decision-making in the SME lending process.

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