



# Bank Loan Report Documentation

## 1. Project Overview

This project involves building an **interactive Bank Loan Report dashboard** that provides insights into loan applications, funded amounts, received amounts, interest rates, and borrower risk profiles. The solution was implemented using **SQL** for data extraction, cleaning, and workflow validation, and **Power BI** for visualization and reporting.

The dashboard consists of three key report pages: 1. **Summary Page** – High-level KPIs and loan performance overview. 2. **Overview Page** – Breakdown of loan amounts by month, state, term, length, purpose, and home ownership. 3. **Details Page** – Transaction-level loan data for deeper analysis.

The goal of this report is to enable banks and financial analysts to monitor loan performance, validate workflows, identify trends, and make data-driven lending decisions.

---

## 2. Tools & Technologies Used

- **SQL:** For data extraction, transformation, and validation.
  - **Power BI:** For dashboard creation, KPIs, and interactive visualizations.
  - **Excel/CSV:** Raw data source (if applicable).
- 

## 3. Data Sources

The dataset includes information on loan applications with fields such as: - Loan ID - Purpose - Home Ownership - Grade & Sub-grade - Issue Date - Loan Amount - Interest Rate - Installments - Loan Status (Fully Paid, Charged Off, Current) - Total Funded Amount - Total Amount Received

---

## 4. Dashboard Pages & Key Insights



### A. Summary Page

The summary page provides high-level KPIs: - **Total Loan Applications:** 38.6K - **Total Funded Amount:** \$435.8M - **Total Amount Received:** \$473.1M - **Total Interest Rate:** 12.0% - **Average DTI (Debt-to-Income):** 13.3% - **Good Loan Issued:** 86.18% (33.2K applications, \$370.2M funded, \$435.8M received) - **Bad Loan Issued:** 13.82% (5.3K applications, \$65.5M funded, \$37.3M received)

**Loan Status Breakdown:** - Fully Paid: 32,145 applications - Charged Off: 5,333 applications - Current: 1,098 applications

---



## B. Overview Page

This page provides trend and categorical analysis:

- **Amount Received by Month:** Shows monthly growth, peaking at \$58M in December.
- **Amount Received by State:** Geographic distribution of loans across U.S. states.
- **Amount Received by Term:** 36 months (\$178M, 37.7%) vs 60 months (\$295M, 62.3%).
- **Amount Received by Employment Length:** Highest for 10+ years (\$126M).
- **Amount Received by Purpose:** Debt consolidation (\$0.25B) is the top purpose.
- **Amount Received by Home Ownership:** Mortgage (\$238.47M) and Rent (\$201.82M).

---



## C. Details Page

The details page allows users to drill down into transaction-level data:

- Loan ID, Purpose, Home Ownership, Grade & Sub-grade
- Issue Date, Total Amount, Interest Rate, Installments
- Total Amount Funded and Received

This page supports **filtering by State, Grade, Loan Purpose, and Good vs Bad Loans**, making it useful for deep investigations.

---

## 5. Workflow Validation using SQL

- **Data Quality Checks:** Verified missing values, duplicates, and inconsistent records.
  - **Loan Status Validation:** Ensured that "Fully Paid," "Charged Off," and "Current" statuses match with received amounts.
  - **KPI Calculation Validation:** Cross-checked Power BI aggregations with SQL queries.
  - **Trend Validation:** Confirmed monthly and yearly summaries before visualization.
- 

## 6. Key Business Outcomes

- Identified that **86% of loans are good loans**, contributing positively to revenue.
  - Highlighted that **debt consolidation** is the major loan purpose.
  - Provided insights into **risk factors** such as high DTI ratios and charged-off loans.
  - Enabled **state-level and time-based tracking** of loan performance.
- 

## 7. Conclusion

This project demonstrates how **SQL and Power BI** can be combined to create a robust financial reporting solution. SQL ensured accurate workflow validation and reliable data, while Power BI enabled interactive dashboards for real-time insights. The Bank Loan Report can help stakeholders track performance, manage risks, and make informed lending decisions.