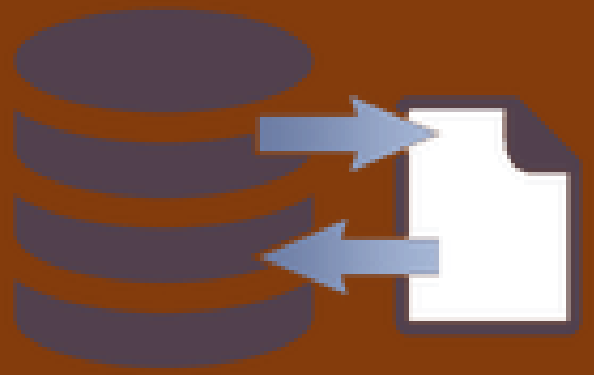
BANK LOAN ANALYSIS

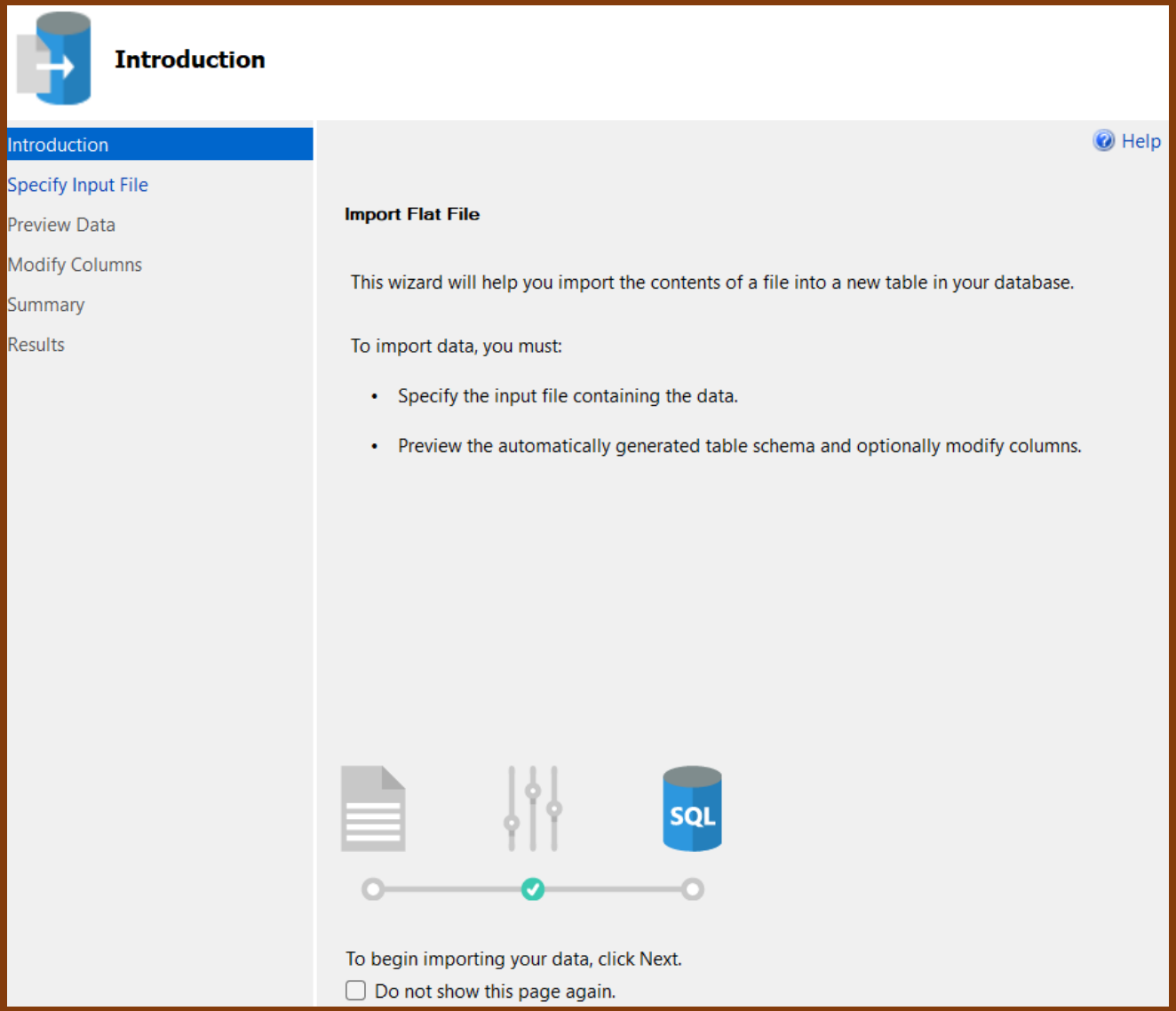
PART :-1

MySQL SERVER

MySQL SERVER

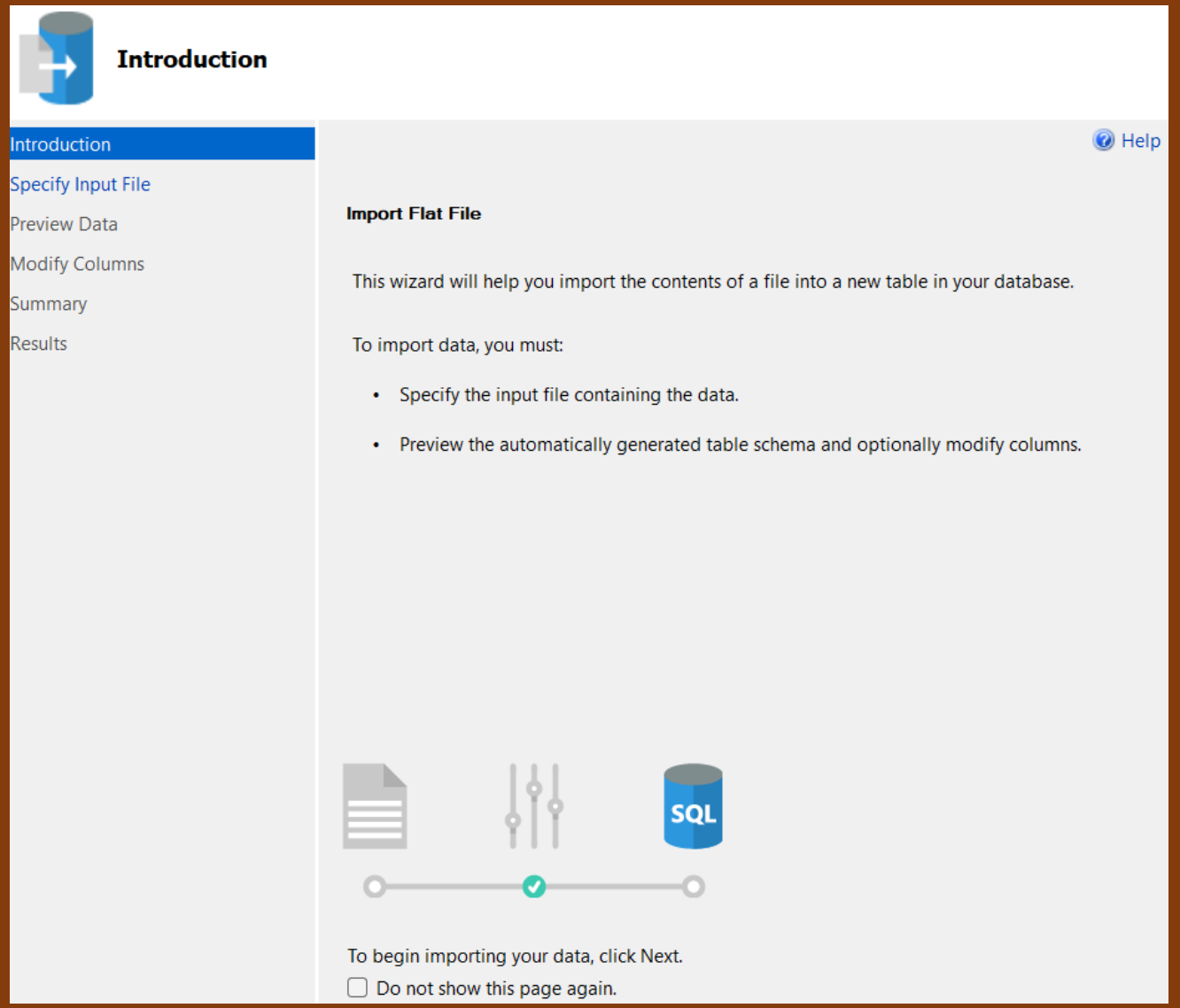
IMPORT DATA





MySQL SERVER

CREATING DB



MySQL SERVER

WRITING QUERIES

```
SELECT
    loan_status,
    COUNT(id) AS LoanCount,
    SUM(total_payment) AS Total_Amount_Received,
    SUM(loan_amount) AS Total_Funded_Amount,
    AVG(int_rate * 100) AS Interest_Rate,
    AVG(dti * 100) AS DTI
FROM
    bank_loan_data
GROUP BY
    loan_status
```

149 %

Results | Messages

	loan_status	LoanCount	Total_Amount_Received	Total_Funded_Amount	Interest_Rate	DTI
1	Fully Paid	32145	411586256	351358350	11.6410707918092	13.1673507557434
2	Charged Off	5333	37284763	65532225	13.8785749318289	14.0047328005517
3	Current	1098	24199914	18866500	15.0993260800947	14.7243442736843

FIRING SQL QUERIES TO SOLVE THE BUSINESS PROBLEMS

COMPARING RESULTS WITH POWER BI, TABLEAU and EXCEL

```
SELECT
    loan_status,
    COUNT(id) AS LoanCount,
    SUM(total_payment) AS Total_Amount_Received,
    SUM(loan_amount) AS Total_Funded_Amount,
    AVG(int_rate * 100) AS Interest_Rate,
    AVG(dti * 100) AS DTI
FROM
    bank_loan_data
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149 %

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You can use the data in any DB to fire queries. Queries used will remain same

BANK LOAN ANALYSIS

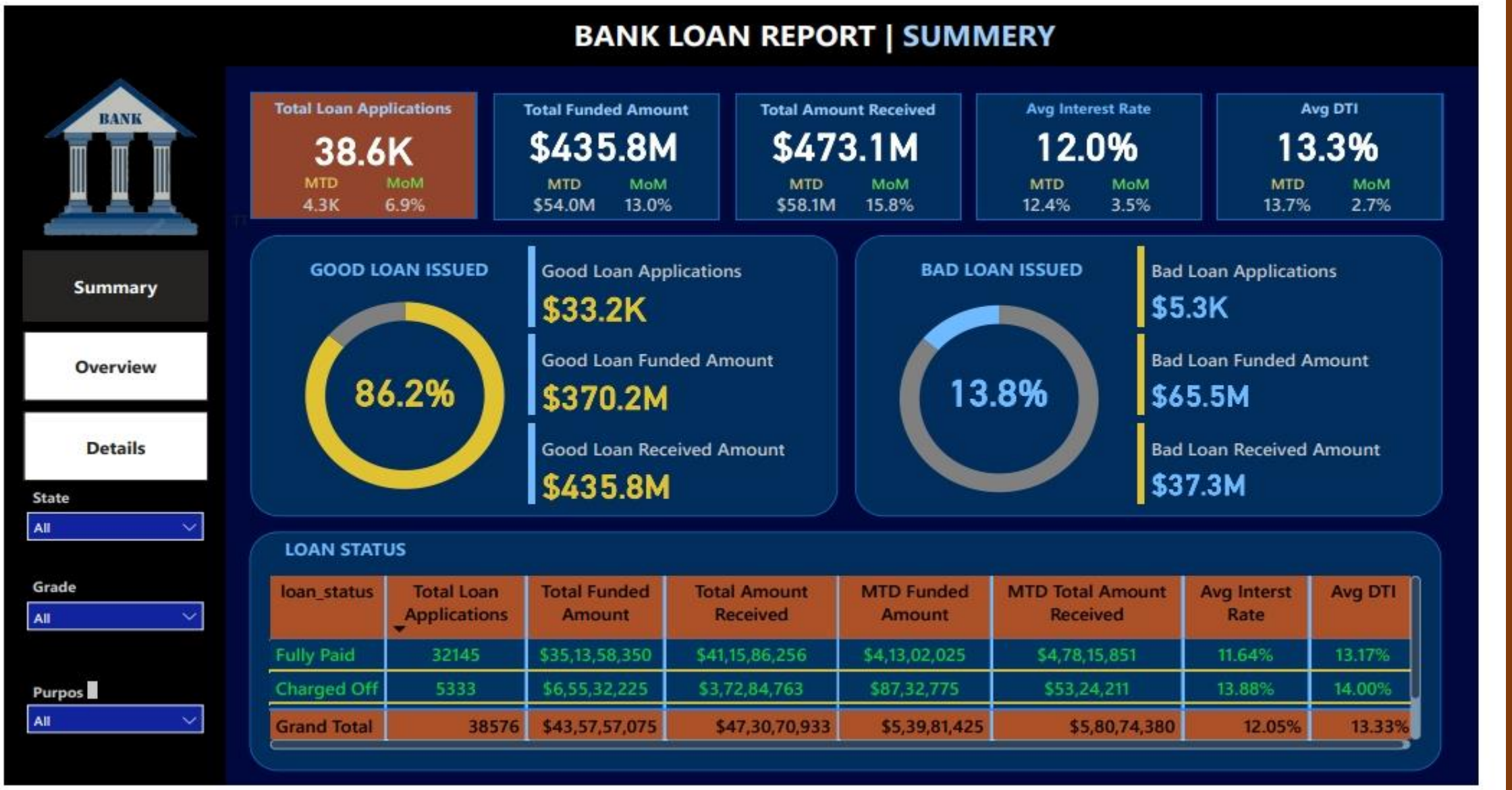
PART 2

POWER BI

POWER BI

CONNECTING TO MySQL SERVER

POWER BI


BANK LOAN REPORT | SUMMERY
BANK
Summary
Overview
Details
State
All
Grade
All
Purpos
All
Total Loan Applications
38.6K
MTD 4.3K
MoM 6.9%
Total Funded Amount
$435.8M
MTD $54.0M
MoM 13.0%
Total Amount Received
$473.1M
MTD $58.1M
MoM 15.8%
Avg Interest Rate
12.0%
MTD 12.4%
MoM 3.5%
Avg DTI
13.3%
MTD 13.7%
MoM 2.7%
GOOD LOAN ISSUED
86.2%
Good Loan Applications
$33.2K
Good Loan Funded Amount
$370.2M
Good Loan Received Amount
$435.8M
BAD LOAN ISSUED
13.8%
Bad Loan Applications
$5.3K
Bad Loan Funded Amount
$65.5M
Bad Loan Received Amount
$37.3M
LOAN STATUS
loan_status | Total Loan Applications | Total Funded Amount | Total Amount Received | MTD Funded Amount | MTD Total Amount Received | Avg Interst Rate | Avg DTI
Fully Paid | 32145 | $35,13,58,350 | $41,15,86,256 | $4,13,02,025 | $4,78,15,851 | 11.64% | 13.17%
Charged Off | 5333 | $6,55,32,225 | $3,72,84,763 | $87,32,775 | $53,24,211 | 13.88% | 14.00%
Grand Total | 38576 | $43,57,57,075 | $47,30,70,933 | $5,39,81,425 | $5,80,74,380 | 12.05% | 13.33%

POWER BI


BANK LOAN REPORT | OVERVIEW
BANK
Summary
Overview
Details
Select Measure
Total Loan Applic...
State
All
Grade
All
Good vs Bad Loan
All
Total Loan Applications
38.6K
MTD 4.3K
MoM 6.9%
Total Funded Amount
$435.8M
MTD $54.0M
MoM 13.0%
Total Amount Received
$473.1M
MTD $58.1M
MoM 15.8%
Avg Interest Rate
12.0%
MTD 12.4%
MoM 3.5%
Avg DTI
13.3%
MTD 13.7%
MoM 2.7%
Total Loan Applications by Month
2.3K 2.3K 2.6K 2.8K 2.9K 3.2K 3.4K 3.4K 3.5K 3.8K 4.0K 4.3K
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Total Loan Applications by state
Total Loan Applications by Term
36 months
60 months
10K (26.8%)
28K (73.2%)
Total Loan Applications by Employee Length
10+ years 8.9K
< 1 year 4.6K
2 years 4.4K
3 years 4.1K
4 years 3.4K
5 years 3.3K
0K 5K 10K
Total Loan Applications by Purpose
Debt consolidation 18K
credit card 5K
other 4K
home improvement 3K
major purchase 2K
small business 2K
0K 10K 20K
Total Loan Applications by Home Onership
RENT
18K
MORTGAGE
17K

POWER BI

BANK LOAN REPORT | DETAILS

Total Loan Applications	Total Funded Amount	Total Amount Received	Avg Interest Rate	Avg DTI
38.6K	$435.8M	$473.1M	12.0%	13.3%
MTD 4.3K, MoM 6.9%	MTD $54.0M, MoM 13.0%	MTD $58.1M, MoM 15.8%	MTD 12.4%, MoM 3.5%	MTD 13.7%, MoM 2.7%

Summary

Overview

Details

State: All

Grade: All

Good vs Bad Loan: All

ID	Purpose	Home Ownership	Grade	Sub Grade	Issue Date	Funded Amount	Interest Rate	Installment	Amount Received
989285	Debt consolidation	RENT	G	G1	11 October 2021	$35,000	0.23	981.45	$58,564
812976	Debt consolidation	MORTGAGE	G	G2	11 August 2021	$35,000	0.22	976.24	$58,480
972576	credit card	MORTGAGE	F	F5	11 October 2021	$35,000	0.22	973.64	$57,835
874599	Debt consolidation	MORTGAGE	G	G3	11 September 2021	$35,000	0.23	983.66	$56,849
768930	small business	MORTGAGE	F	F3	11 June 2021	$35,000	0.21	946.68	$56,663
674448	Debt consolidation	MORTGAGE	G	G2	11 February 2021	$35,000	0.20	936.66	$56,199
914211	Debt consolidation	MORTGAGE	F	F1	11 October 2021	$35,000	0.21	944.71	$55,907
772157	small business	RENT	G	G1	11 June 2021	$35,000	0.22	968.86	$55,769
1057770	Debt consolidation	MORTGAGE	E	E5	11 December 2021	$35,000	0.20	933.14	$55,139
833224	Debt consolidation	MORTGAGE	F	F2	11 August 2021	$35,000	0.21	939.41	$55,106
698163	home improvement	MORTGAGE	G	G2	11 March 2021	$35,000	0.20	936.66	$54,774
762870	Debt consolidation	OWN	E	E4	11 May 2021	$35,000	0.19	913.52	$54,746
768153	home improvement	MORTGAGE	F	F2	11 June 2021	$35,000	0.21	939.41	$54,715
1057239	Debt consolidation	RENT	E	E3	11 December 2021	$35,000	0.19	916.03	$54,427
1034299	credit card	MORTGAGE	E	E3	11 December 2021	$35,000	0.19	916.03	$54,287
1008529	Debt consolidation	MORTGAGE	E	E5	11 November 2021	$35,000	0.20	933.14	$54,182
733401	credit card	RENT	G	G4	11 April 2021	$35,000	0.21	951.21	$54,132

PROBLEM STATEMENT

DASHBOARD 1: SUMMARY

Key Performance Indicators (KPIs) Requirements:

1. **Total Loan Applications:** We need to calculate the total number of loan applications received during a specified period. Additionally, it is essential to monitor the Month-to-Date (MTD) Loan Applications and track changes Month-over-Month (MoM).
2. **Total Funded Amount:** Understanding the total amount of funds disbursed as loans is crucial. We also want to keep an eye on the MTD Total Funded Amount and analyse the Month-over-Month (MoM) changes in this metric.
3. **Total Amount Received:** Tracking the total amount received from borrowers is essential for assessing the bank's cash flow and loan repayment. We should analyse the Month-to-Date (MTD) Total Amount Received and observe the Month-over-Month (MoM) changes.
4. **Average Interest Rate:** Calculating the average interest rate across all loans, MTD, and monitoring the Month-over-Month (MoM) variations in interest rates will provide insights into our lending portfolio's overall cost.
5. **Average Debt-to-Income Ratio (DTI):** Evaluating the average DTI for our borrowers helps us gauge their financial health. We need to compute the average DTI for all loans, MTD, and track Month-over-Month (MoM) fluctuations.

PROBLEM STATEMENT

DASHBOARD 1: SUMMARY

Good Loan v Bad Loan KPI's

Good Loan:

1. Good Loan Application Percentage
2. Good Loan Applications
3. Good Loan Funded Amount
4. Good Loan Total Received Amount

Bad Loan

1. Bad Loan Application Percentage
2. Bad Loan Applications
3. Bad Loan Funded Amount
4. Bad Loan Total Received Amount

Loan Status Grid View

In order to gain a comprehensive overview of our lending operations and monitor the performance of loans, we aim to create a grid view report categorized by 'Loan Status.' By providing insights into metrics such as 'Total Loan Applications,' 'Total Funded Amount,' 'Total Amount Received,' 'Month-to-Date (MTD) Funded Amount,' 'MTD Amount Received,' 'Average Interest Rate,' and 'Average Debt-to-Income Ratio (DTI),' this grid view will empower us to make data-driven decisions and assess the health of our loan portfolio.

PROBLEM STATEMENT

DASHBOARD 2: OVERVIEW

CHARTS

1. **Monthly Trends by Issue Date (Line Chart):** To identify seasonality and long-term trends in lending activities
2. **Regional Analysis by State (Filled Map):** To identify regions with significant lending activity and assess regional disparities
3. **Loan Term Analysis (Donut Chart):** To allow the client to understand the distribution of loans across various term lengths.
4. **Employee Length Analysis (Bar Chart):** How lending metrics are distributed among borrowers with different employment lengths, helping us assess the impact of employment history on loan applications.
5. **Loan Purpose Breakdown (Bar Chart):** **W**ill provide a visual breakdown of loan metrics based on the stated purposes of loans, aiding in the understanding of the primary reasons borrowers seek financing.
6. **Home Ownership Analysis (Tree Map):** For a hierarchical view of how home ownership impacts loan applications and disbursements.

Metrics to be shown: 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received'

PROBLEM STATEMENT

DASHBOARD 3: DETAILS

GRID

Need for a comprehensive 'Details Dashboard' that provides a consolidated view of all the essential information within our loan data. This Details Dashboard aims to offer a holistic snapshot of key loan-related metrics and data points, enabling users to access critical information efficiently.

Objective:

The primary objective of the Details Dashboard is to provide a comprehensive and user-friendly interface for accessing vital loan data. It will serve as a one-stop solution for users seeking detailed insights into our loan portfolio, borrower profiles, and loan performance.

FUNCTIONALITIES YOU WILL LEARN

SQL – MySQL SERVER

- ✓ Creating Database
- ✓ Creating Table
- ✓ Select
- ✓ Datename
- ✓ Datepart
- ✓ Cast
- ✓ Decimal
- ✓ Month
- ✓ Hour
- ✓ Quarter
- ✓ Day
- ✓ Group by
- ✓ Order by
- ✓ Decimal
- ✓ Limit
- ✓ Count
- ✓ Distinct
- ✓ CTE
- ✓ Partition

POWER BI

- ✓ Connecting to SQL Server
- ✓ Data Cleaning
- ✓ Data Modelling
- ✓ Data Processing
- ✓ Power Query
- ✓ Date Tables
- ✓ Time Intelligence Func
- ✓ DAX
- ✓ Date Function
- ✓ Text Function
- ✓ Filter Function
- ✓ Calculate
- ✓ SUM/ SUMX
- ✓ Creating KPI's
- ✓ New Card Visual
- ✓ Creating Charts
- ✓ Formatting visuals
- ✓ Creating Functions
- ✓ Navigations