

DATA ANALYST PORTFOLIO PROJECT

BANK LOAN ANALYSIS

PART 1

MySQL





MySQL

IMPORT DATA



Table Data Import

Select File to Import

Table Data Import allows you to easily import CSV, JSON datafiles.
You can also create destination table on the fly.

File Path:

Browse...

< Back

Next >

Cancel



MySQL

CREATING DB



Table Data Import

Configure Import Settings

Detected file format: csv

Encoding: utf-8

Columns:

| <input checked="" type="checkbox"/> Source Column | Field Type |
|--|------------|
| <input checked="" type="checkbox"/> id | int |
| <input checked="" type="checkbox"/> address_state | text |
| <input checked="" type="checkbox"/> application_type | text |
| <input checked="" type="checkbox"/> emp_length | text |
| <input checked="" type="checkbox"/> emp_title | text |
| <input checked="" type="checkbox"/> grade | text |

| id | address_st... | application... | emp_length | emp_title | grade | home_own... | issue_date | last_credit... | last_pay |
|---------|---------------|----------------|------------|-----------------|-------|-------------|------------|----------------|----------|
| 1077430 | GA | INDIVIDUAL | < 1 year | Ryder | C | RENT | 11-02-2021 | 13-09-2021 | 13-04-2 |
| 1072053 | CA | INDIVIDUAL | 9 years | MKC Accou... | E | RENT | 01-01-2021 | 14-12-2021 | 15-01-2 |
| 1069243 | CA | INDIVIDUAL | 4 years | Chemat Te... | C | RENT | 05-01-2021 | 12-12-2021 | 09-01-2 |
| 1041756 | TX | INDIVIDUAL | < 1 year | barnes distr... | B | MORTGAGE | 25-02-2021 | 12-12-2021 | 12-03-2 |

< Back Next > Cancel



MySQL

WRITING QUERIES

```
156 • SELECT
157     loan_status,
158     COUNT(id) AS Total_loan_Application,
159     SUM(loan_amount) AS Total_Funded_Amount,
160     SUM(total_payment) AS Total_Amount_Received,
161     AVG(int_rate * 100) AS Average_Interest_Rate,
162     AVG(dti * 100) AS Average_Debt_to_Income_Ratio
163 FROM financial_loan
164 GROUP BY loan_status
165 ORDER BY loan_status DESC;
166
```


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

| | loan_status | Total_loan_Application | Total_Funded_Amount | Total_Amount_Received | Average_Interest_Rate | Average_Debt_to_Income_Ratio |
|---|-------------|------------------------|---------------------|-----------------------|-----------------------|------------------------------|
| ► | Fully Paid | 32145 | 351358350 | 411586256 | 11.641070773058658 | 13.167350754394164 |
| | Current | 1098 | 18866500 | 24199914 | 15.0993260473588 | 14.724344262295068 |
| | Charged Off | 5333 | 65532225 | 37284763 | 13.878574910931917 | 14.004732795799695 |

FIRING MySQL QUERIES TO SOLVE THE BUSINESS PROBLEMS

COMPARING RESULTS WITH POWER BI

```
156 • SELECT
157     loan_status,
158     COUNT(id) AS Total_loan_Application,
159     SUM(loan_amount) AS Total_Funded_Amount,
160     SUM(total_payment) AS Total_Amount_Received,
161     AVG(int_rate * 100) AS Average_Interest_Rate,
162     AVG(dti * 100) AS Average_Debt_to_Income_Ratio
163 FROM financial_loan
164 GROUP BY loan_status
165 ORDER BY loan_status DESC;
166
```

Result Grid |   Filter Rows: | Export:  | Wrap Cell Content: 

| | loan_status | Total_loan_Application | Total_Funded_Amount | Total_Amount_Received | Average_Interest_Rate | Average_Debt_to_Income_Ratio |
|---|-------------|------------------------|---------------------|-----------------------|-----------------------|------------------------------|
| ▶ | Fully Paid | 32145 | 351358350 | 411586256 | 11.641070773058658 | 13.167350754394164 |
| | Current | 1098 | 18866500 | 24199914 | 15.0993260473588 | 14.724344262295068 |
| | Charged Off | 5333 | 65532225 | 37284763 | 13.878574910931917 | 14.004732795799695 |

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

DATA ANALYST PORTFOLIO PROJECT

BANK LOAN ANALYSIS

PART 2

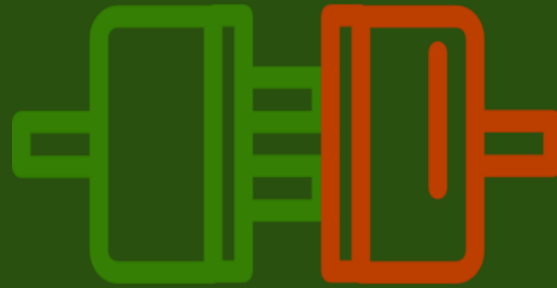
POWER BI





POWER BI

CONNECTING TO MySQL





BANK LOAN REPORT | SUMMARY



Menu

Summary

Overview

Details

Purpose

All

Grade

All

States

All

Total Loan Application

38.58K

MTD

4.3K

MOM

6.91%

Total Funded Amount

\$435.76M

MTD

\$54.0M

MOM

13.04%

Total Amount Received

\$473.07M

MTD

\$58.1M

MOM

15.84%

Average Interest Rate

12%

MTD

12.4%

MOM

3.47%

Average DTI

13.33%

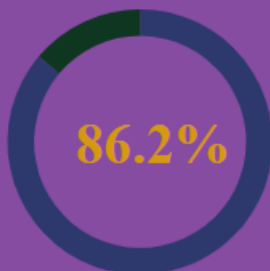
MTD

13.7%

MOM

2.73%

GOOD LOAN ISSUED



Good Loan Application

33.2K

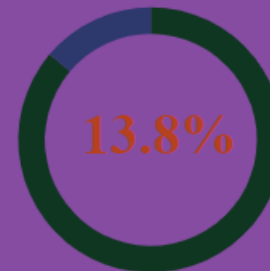
Good Loan Funded Amount

\$370.2M

Good Loan Amount Received

\$435.8M

BAD LOAN ISSUED



Bad Loan Application

5.3K

Bad Loan Funded Amount

\$65.5M

Bad Loan Amount Received

\$37.3M

LOAN STATUS

| Loan_status | Total Loan Application | Total Funded Amount | Total_Amount_Received | MTD Funded Amount | MTD Total Amount_Received | Avg Interest Rate | Avg DTI |
|-------------|------------------------|---------------------|-----------------------|-------------------|---------------------------|-------------------|---------|
| Fully Paid | 32145 | \$35,13,58,350 | \$41,15,86,256 | \$4,13,02,025 | \$4,78,15,851 | 12% | 13.17% |
| Charged Off | 5333 | \$6,55,32,225 | \$3,72,84,763 | \$87,32,775 | \$53,24,211 | 14% | 14.00% |
| Current | 1098 | \$1,88,66,500 | \$2,41,99,914 | \$39,46,625 | \$49,34,318 | 15% | 14.72% |
| Grand Total | 38576 | \$43,57,57,075 | \$47,30,70,933 | \$5,39,81,425 | \$5,80,74,380 | 12% | 13.33% |



BANK LOAN REPORT | OVERVIEW



Menu

Summary

Overview

Details

Select Measure

Total Loan Application

Good Vs Bad Loan

All

Grade

All

States

All

Total Loan Application

38.58K

MTD

4.3K

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Average Interest Rate

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12.4%

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3.47%

Average DTI

13.33%

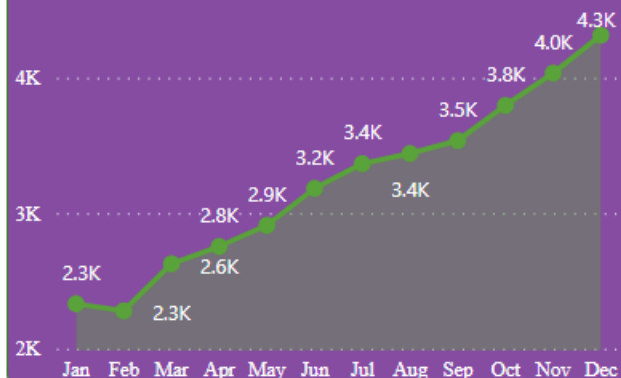
MTD

13.7%

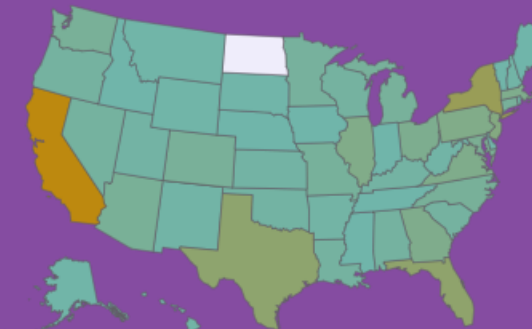
MOM

2.73%

Total Loan Application by Month

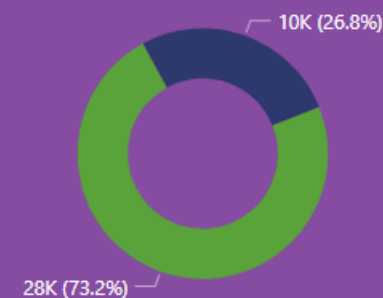


Total Loan Application by State

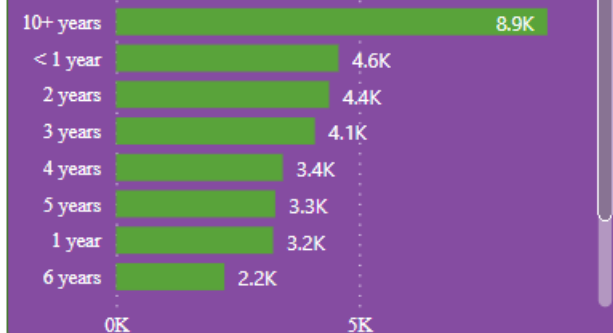


Total Loan Application by Term

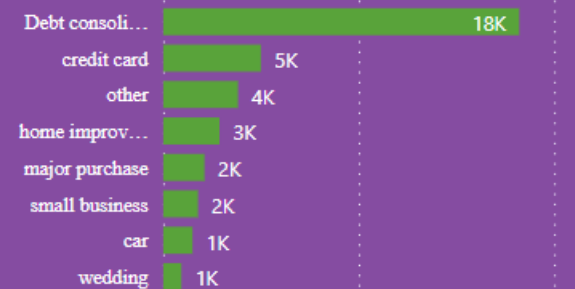
Term 36 months 60 months



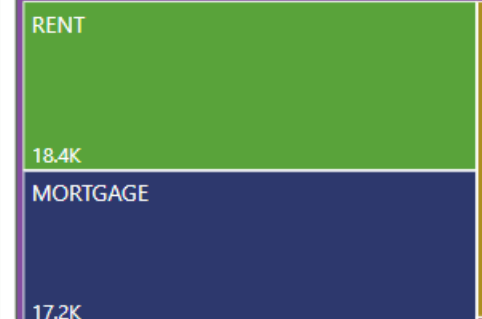
Total Loan Application by Employee Length



Total Loan Application by Purpose



Total Loan Application by home_ownership





BANK LOAN REPORT | DETAILS



Menu

Summary

Overview

Details

Good & Bad Loan

All

Grade

All

States

All

Total Loan Application

38.58K

MTD
4.3K

MOM
6.91%

Total Funded Amount

\$435.76M

MTD
\$54.0M

MOM
13.04%

Total Amount Received

\$473.07M

MTD
\$58.1M

MOM
15.84%

Average Interest Rate

12%

MTD
12.4%

MOM
3.47%

Average DTI

13.33%

MTD
13.7%

MOM
2.73%

| id | purpose | home_ownership | grade | sub_grade | issue_date | Total Funded Amount | Sum of int_rate | Sum of installment | Total_Amount_Received |
|-----|--------------------|----------------|-------|-----------|-------------------|---------------------|-----------------|--------------------|-----------------------|
| 55K | Debt consolidation | RENT | B | B4 | 09 August 2021 | \$25,000 | 0.12 | \$829.1 | \$29,330 |
| 56K | credit card | RENT | B | B5 | 08 May 2021 | \$7,000 | 0.11 | \$228.22 | \$8,216 |
| 57K | Debt consolidation | OWN | C | C2 | 10 March 2021 | \$1,200 | 0.13 | \$40.5 | \$1,458 |
| 57K | Debt consolidation | RENT | C | C3 | 09 November 2021 | \$10,800 | 0.14 | \$366.86 | \$13,208 |
| 59K | Debt consolidation | RENT | B | B3 | 08 April 2021 | \$7,500 | 0.10 | \$162.34 | \$5,844 |
| 59K | credit card | MORTGAGE | C | C5 | 09 September 2021 | \$3,000 | 0.14 | \$102.92 | \$3,705 |
| 61K | credit card | MORTGAGE | A | A5 | 10 February 2021 | \$4,000 | 0.08 | \$125.13 | \$4,452 |
| 61K | Debt consolidation | RENT | D | D2 | 10 February 2021 | \$5,600 | 0.15 | \$194.02 | \$6,475 |
| 62K | Debt consolidation | RENT | B | B1 | 10 April 2021 | \$3,200 | 0.10 | \$103.08 | \$3,414 |
| 65K | car | MORTGAGE | B | B1 | 09 August 2021 | \$4,000 | 0.11 | \$131.22 | \$2,755 |
| 66K | home improvement | MORTGAGE | C | C2 | 08 May 2021 | \$5,000 | 0.11 | \$87.19 | \$3,154 |
| 66K | Debt consolidation | RENT | B | B5 | 09 February 2021 | \$2,525 | 0.12 | \$84.12 | \$3,028 |
| 67K | Debt consolidation | MORTGAGE | C | C4 | 08 December 2021 | \$10,625 | 0.13 | \$360.43 | \$12,975 |
| 67K | Debt consolidation | RENT | B | B4 | 10 August 2021 | \$2,800 | 0.11 | \$61.57 | \$3,144 |
| 67K | Debt consolidation | MORTGAGE | D | D3 | 08 June 2021 | \$7,500 | 0.13 | \$253.58 | \$9,129 |
| 68K | Debt consolidation | MORTGAGE | A | A4 | 09 October 2021 | \$10,000 | 0.09 | \$316.11 | \$11,280 |
| 68K | small business | MORTGAGE | A | A3 | 10 February 2021 | \$3,000 | 0.07 | \$92.82 | \$3,342 |
| 68K | Debt consolidation | RENT | A | A5 | 08 March 2021 | \$6,625 | 0.09 | \$209.54 | \$7,542 |
| 69K | major purchase | MORTGAGE | C | C1 | 08 March 2021 | \$10,000 | 0.11 | \$327.53 | \$11,709 |
| 69K | moving | RENT | D | D2 | 08 August 2021 | \$2,300 | 0.13 | \$77.69 | \$2,797 |
| 69K | credit card | MORTGAGE | A | A5 | 09 September 2021 | \$15,000 | 0.09 | \$476.58 | \$17,136 |
| 69K | Debt consolidation | MORTGAGE | B | B4 | 08 March 2021 | \$18,000 | 0.10 | \$584.12 | \$21,028 |
| 69K | major purchase | RENT | E | E4 | 08 April 2021 | \$5,000 | 0.15 | \$173.65 | \$6,251 |
| 69K | other | MORTGAGE | A | A3 | 08 May 2021 | \$6,000 | 0.08 | \$188.02 | \$6,784 |
| 70K | Debt consolidation | RENT | D | D3 | 10 May 2021 | \$11,200 | 0.15 | \$268.4 | \$15,924 |

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):** Will 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.