

# Bank Loan Data Analysis with SQL

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**Data source: Data tutorials**



# Problem Statements

## **Dashboard for Bank Lending Activities and Performance Indicators**

- Provide insights into key loan-related metrics and track changes over time.
- Facilitate data-driven decisions, monitor loan portfolio health, and identify trends to inform strategy.



**What are we going to do?**

- 1. Bank Loan Report Summary using SQL**
- 2. Bank Loan Report Overview using SQL**
- 3. Bank Loan Report Details using SQL**

# Bank Loan Report Summary

- The Bank Loan Report provides a comprehensive overview of key performance indicators (KPIs) related to the bank's loan portfolio.

# Bank Loan Report Summary

## 1. Top Summary Metrics:

- Displays the overall metrics, including:
  - **Total Loan Applications:** 38.6K
  - **Total Funded Amount:** \$435.8M
  - **Total Amount Received:** \$473.1M
  - **Average Interest Rate:** 12.0%
  - **Average Debt-to-Income (DTI):** 13.3%
- Each metric also includes **Month-to-Date (MTD)** and **Month-over-Month (MOM)** changes, providing a clear view of performance trends.

# Bank Loan Report Summary

## 2. Good Loan vs. Bad Loan Breakdown:

- **Good Loan Issued:**
  - Represents loans classified as 'good,' with 86.2% of the applications approved in this category.
  - Metrics include:
    - **Applications:** 33.2K
    - **Total Funded Amount:** \$370.2M
    - **Amount Received:** \$435.8M

# Bank Loan Report Summary

## 2. Good Loan vs. Bad Loan Breakdown:

- **Bad Loan Issued:**
- Represents loans classified as 'bad.'
- Metrics include:
  - **Applications:** 5.3K
  - **Total Funded Amount:** \$65.5M
  - **Amount Received:** \$37.3M

# Bank Loan Report Summary

## 3.Loan Status Breakdown:

- A detailed table categorizes loans based on their current status:
  - **Charged Off:** Total amount received \$37.3M
  - **Current:** Total amount received \$24.2M
  - **Fully Paid:** Total amount received \$411.6M
  - **Grand Total:** Total amount received \$473.1M
- Each status category includes additional metrics like total funded amount, number of applications, and average interest rate.



# Bank Loan Report Summary

## 3.Loan Status Breakdown:

- A detailed table categorizes loans based on their current status:
  - **Charged Off:** Total amount received \$37.3M
  - **Current:** Total amount received \$24.2M
  - **Fully Paid:** Total amount received \$411.6M
  - **Grand Total:** Total amount received \$473.1M
- Each status category includes additional metrics like total funded amount, number of applications, and average interest rate.

## 2. Bank Loan Report - Overview

- This Overview dashboard provides an in-depth analysis of loan application metrics with multiple perspectives, including time, geography, loan term, employee length, and home ownership status. It helps understand patterns in loan applications across different factors.

## 2.Bank Loan Report - Overview

### 1.Top Summary Metrics:

- Similar to the Summary section, this part displays essential KPIs:
  - **Total Loan Applications:** 38.6K
  - **Total Funded Amount:** \$435.8M
  - **Total Amount Received:** \$473.1M
  - **Average Interest Rate:** 12.0%
  - **Average DTI (Debt-to-Income Ratio):** 13.3%
- Month-to-Date (MTD) and Month-over-Month (MOM) changes are shown for each metric, allowing for quick comparison with recent periods

## 2.Bank Loan Report - Overview

### 2.Total Loan Applications by Month:

- A line chart displays the trend of loan applications over the year, illustrating any monthly fluctuations or growth patterns.

### 3.Total Loan Applications by State:

- A map highlights the distribution of loan applications across different U.S. states, providing geographical insights into demand and loan uptake.

### 4.Total Loan Applications by Term:

- A pie chart breaks down the loan applications by term duration:
  - **36 months:** 73.2%
  - **60 months:** 26.8%
- These calculations aids in understanding the preference for shorter versus longer-term loans.

## 2. Bank Loan Report - Overview

### 5. Total Loan Applications by Employee Length:

- A bar chart categorizes loan applications by the applicant's employment length, with categories ranging from under 1 year to over 10 years.
- The highest number of applications are from individuals with 10+ years of employment, indicating a potential preference for borrowers with stable job histories.

### 6. Total Loan Applications by Loan Purpose:

- A bar chart shows the distribution of loan applications based on their intended purpose, such as debt consolidation, credit card refinancing, and home improvement.
- Debt consolidation is the most common reason for loan applications.

## 2.Bank Loan Report - Overview

### 7. Total Loan Applications by Home Ownership:

- A stacked bar chart illustrates the breakdown of applications based on home ownership status, including **Rent** (18,439 applications) and **Mortgage** (17,198 applications), which highlights the correlation between housing status and loan applications

## 2.Bank Loan Report - Overview

"The SQL-based calculation of loan report indicators provides stakeholders with the ability to quickly gain insights into various factors affecting loan applications. This supports targeted strategies for different customer segments and tailored loan products."

### 3.Bank Loan Report - Details

‘The Details section offers a granular view of individual loan applications by displaying comprehensive data for each entry. This level of detail facilitates in-depth analysis and auditing, enabling stakeholders to examine specific loan characteristics and performance effectively’



# 3. Bank Loan Report - Details

## 1. Top Summary Metrics:

- Similar to the other sections, this part displays overall metrics such as:
  - **Total Loan Applications:** 38.6K
  - **Total Funded Amount:** \$435.8M
  - **Total Amount Received:** \$473.1M
  - **Average Interest Rate:** 12.0%
  - **Average Debt-to-Income (DTI):** 13.3%
- Month-to-Date (MTD) and Month-over-Month (MOM) changes are shown to provide context.

# 3.Bank Loan Report - Details

## 2.Detailed Loan Data Table:

- This table includes the following columns for each loan application:
  - **Id**: Unique identifier for each loan.
  - **Purpose**: Reason for the loan (e.g., credit card, debt consolidation, home improvement).
  - **Home Ownership**: Applicant's housing status (e.g., Mortgage, Rent, Own).
  - **Grade & Sub Grade**: Risk grades assigned to the loan, indicating credit quality.
  - **Issue Date**: Date the loan was issued.
  - **Interest Rate (Int Rate)**: The rate applied to the loan.
  - **Loan Amount**: The total funded amount for each loan.
  - **Installment**: Monthly payment required to service the loan.
  - **Total Payment**: Total payment amount over the life of the loan.

## 3.Bank Loan Report Dashboard - Details

### 3.Filters:

- Filters are available on the left side to refine the data displayed:
  - **Select Measure:** Allows users to switch between different measures, such as Total Loan Applications.
  - **Grade:** Filter loans by credit grade.
  - **Verification Status:** Filter by the verification status of the loan.
  - **Purpose:** Filter loans based on their purpose, such as credit card consolidation or home improvement.

### 3.Bank Loan Report - Details

‘The Details section uses SQL queries to provide a granular view of individual loan applications, displaying comprehensive data for each entry. This detailed SQL-based analysis supports in-depth examination and auditing, allowing stakeholders to effectively evaluate specific loan characteristics and performance’.

# Bank Loan Creation Walkthrough

The following slides provide a step-by-step guide, with screenshots, demonstrating the process I followed to create the Bank Loan Report using SQL in the BigQuery sandbox.

# Our Data

financial_loan.Data																			
Home Insert Draw Page Layout Formulas Data Review View																			
Possible Data Loss Some features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, save it in an Excel file format.																			
A1																			
id	address	stat	application	emp_length	emp_title	grade	home_ownership	issue_date	last_credit_report_date	last_payment_date	loan_status	next_payment_date	member_id	purpose	sub_grade	term	verification_status	annual_income	dti
1077430	GA		INDIVIDUAL	< 1 year	Ryder	C	RENT	11/02/2021	13/09/2021	13/04/2021	Charged Off	13/05/2021	1314167	car	C4	60 months	Source Verified	30000	0.01
1072053	CA		INDIVIDUAL	9 years	MKC Account	E	RENT	01/01/2021	14/12/2021	15/01/2021	Fully Paid	15/02/2021	1288686	car	E1	36 months	Source Verified	48000	0.0535
1069243	CA		INDIVIDUAL	4 years	Chemat Tech	C	RENT	05/01/2021	12/12/2021	09/01/2021	Charged Off	09/02/2021	1304116	car	C5	36 months	Not Verified	50000	0.2088
1041756	TX		INDIVIDUAL	< 1 year	barnes distrib	B	MORTGAGE	25/02/2021	12/12/2021	12/03/2021	Fully Paid	12/04/2021	1272024	car	B2	60 months	Source Verified	42000	0.054
1068350	IL		INDIVIDUAL	10+ years	J&J Steel Inc	A	MORTGAGE	01/01/2021	14/12/2021	15/01/2021	Fully Paid	15/02/2021	1302971	car	A1	36 months	Verified	83000	0.0231
1062608	CA		INDIVIDUAL	3 years	Studio 94 Co	C	RENT	17/07/2021	16/03/2021	12/08/2021	Fully Paid	12/09/2021	1294481	car	C3	36 months	Not Verified	28000	0.126
1067441	TX		INDIVIDUAL	10+ years	American Ali	C	MORTGAGE	19/11/2021	14/06/2021	13/12/2021	Fully Paid	13/01/2022	1301833	car	C2	36 months	Verified	94800	0.2453
1066424	PA		INDIVIDUAL	10+ years	SCI Mahanoy	A	OWN	11/06/2021	14/07/2021	14/07/2021	Fully Paid	14/08/2021	1291243	car	A4	36 months	Source Verified	59000	0.0665
1065254	FL		INDIVIDUAL	10+ years	Tech Data Co	A	MORTGAGE	02/09/2021	15/06/2021	12/10/2021	Charged Off	12/11/2021	1299335	car	A5	36 months	Verified	116400	0.0394
1064589	MI		INDIVIDUAL	10+ years	teltow contri	B	MORTGAGE	09/02/2021	16/03/2021	16/03/2021	Fully Paid	16/04/2021	1298401	car	B5	60 months	Not Verified	36000	0.1773
1057766	TX		INDIVIDUAL	10+ years	Ericsson	B	MORTGAGE	22/07/2021	13/09/2021	13/08/2021	Fully Paid	13/09/2021	1289131	car	B5	36 months	Not Verified	75000	0.088
1062734	CA		INDIVIDUAL	3 years	myrvpartspla	B	RENT	11/09/2021	13/03/2021	12/10/2021	Charged Off	12/11/2021	1295018	car	B4	36 months	Not Verified	75000	0.2288
1062654	CA		INDIVIDUAL	4 years	AEG LIVE	B	RENT	11/08/2021	13/10/2021	13/09/2021	Fully Paid	13/10/2021	1294929	car	B3	36 months	Not Verified	35000	0.0401
1020855	CA		INDIVIDUAL	5 years	henkel corpo	B	RENT	11/12/2021	14/12/2021	14/12/2021	Fully Paid	14/01/2022	1249642	car	B5	36 months	Not Verified	48000	0.1533
1060945	IL		INDIVIDUAL	4 years	AXA Assistar	B	RENT	11/10/2021	14/12/2021	14/12/2021	Fully Paid	14/01/2022	1293124	car	B4	36 months	Not Verified	92000	0.106
1060995	RI		INDIVIDUAL	< 1 year	HSA-UWC	B	RENT	11/12/2021	14/02/2021	13/10/2021	Charged Off	13/11/2021	1292578	car	B4	36 months	Source Verified	60000	0.063
1046507	TX		INDIVIDUAL	1 year	Child's Day	B	RENT	02/12/2021	16/04/2021	14/12/2021	Fully Paid	14/01/2022	1277552	car	B1	36 months	Verified	16800	0.035
1059936	NY		INDIVIDUAL	4 years	OEC Freight	C	RENT	09/10/2021	15/09/2021	12/11/2021	Fully Paid	12/12/2021	1291775	car	C2	36 months	Source Verified	40000	0.1869
1059497	FL		INDIVIDUAL	10+ years	Sandestin Be	B	MORTGAGE	12/12/2021	14/12/2021	14/12/2021	Fully Paid	14/01/2022	1291322	car	B2	36 months	Verified	35000	0.1392
1058060	MD		INDIVIDUAL	10+ years		D	OWN	02/02/2021	16/05/2021	15/02/2021	Fully Paid	15/03/2021	1289636	car	D1	36 months	Not Verified	40000	0.0957
112245	WI		INDIVIDUAL	6 years	Norman G. C	A	RENT	07/07/2021	16/04/2021	10/08/2021	Fully Paid	10/09/2021	112227	car	A2	36 months	Not Verified	40000	0.0255
207910	FL		INDIVIDUAL	< 1 year		A	MORTGAGE	08/01/2021	16/05/2021	10/02/2021	Charged Off	10/03/2021	183496	car	A2	36 months	Not Verified	120000	0.0767
65426	MI		INDIVIDUAL	< 1 year	Infotrieve, In	B	MORTGAGE	09/08/2021	16/05/2021	11/06/2021	Charged Off	11/07/2021	232106	car	B1	36 months	Not Verified	60000	0.1108
211723	MD		INDIVIDUAL	4 years	self employee	C	OWN	08/01/2021	09/12/2021	08/08/2021	Charged Off	08/09/2021	211606	car	C2	36 months	Not Verified	72000	0.0512
662350	NV		INDIVIDUAL	10+ years	Clark County	A	MORTGAGE	11/01/2021	13/02/2021	12/08/2021	Charged Off	12/09/2021	847024	car	A5	36 months	Not Verified	70800	0.0795
1006769	PA		INDIVIDUAL	6 years	The Mount S	A	MORTGAGE	11/11/2021	13/11/2021	13/06/2021	Charged Off	13/07/2021	1233120	car	A3	36 months	Not Verified	80000	0.0648
405898	GA		INDIVIDUAL	< 1 year	Blue Ridge D	A	MORTGAGE	09/06/2021	16/05/2021	09/12/2021	Charged Off	09/01/2022	454145	car	A5	36 months	Not Verified	36000	0.15

## PMTD Loan Applications

```
1 SELECT COUNT(id) AS totalLoan_APP FROM `LoanPf.BankLoan`
2 SELECT COUNT(id) AS totalLoan_APP
3 FROM `LoanPf.BankLoan`
4 WHERE EXTRACT(MONTH FROM issue_date) = 12
5 AND EXTRACT(YEAR FROM issue_date) = 2021;
6 SELECT COUNT(id) AS PtotalLoan_APP
7 FROM `LoanPf.BankLoan`
8 WHERE EXTRACT(MONTH FROM issue_date) = 11
9 AND EXTRACT(YEAR FROM issue_date) = 2021;
```

Press Option+F1 for Accessibility Options

### Query results

 SAVE RESULTS ▾

 EXPLORE DATA ▾



JOB INFORMATION			RESULTS	CHART	JSON	EXECUTE	>
Row	PtotalLoan_APP ▾						
1	4035						



## Total Funded Amount

```
2 SELECT SUM(loan_amount) AS Total_Funded_Amount FROM `LoanPf.BankLoan`
```

Press Option+F1 for Accessibility Option

### Query results

 SAVE RESULTS ▾

 EXPLORE DATA ▾



JOB INFORMATION

RESULTS

CHART

JSON

EXECUTE



Row	Total_Funded_Amount
1	435757075



## MTD Total Funded Amount

Untitled query RUN SAVE DOWNLOAD

```
1 SELECT * FROM `LoanPf.BankLoan`
2 SELECT SUM(loan_amount) AS MTD_Total_Funded_Amount
3 FROM `LoanPf.BankLoan`
4 WHERE EXTRACT(MONTH FROM issue_date)=12 AND EXTRACT(YEAR FROM
issue_date)=2021
```

Press Option+F1 for Accessibility Option

### Query results

SAVE RESULTS

EXPLORE DATA

JOB INFORMATION			RESULTS	CHART	JSON	EXECUTE
Row	MTD_Total_Funded_Amount					
1	53981425					

PMTD Total Funded Amount

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```
issue_date)=2021
5 SELECT SUM(loan_amount) AS PMTD_Total_Funded_Amount
6 FROM `LoanPf.BankLoan`
7 WHERE EXTRACT(MONTH FROM issue_date)=11 AND EXTRACT(YEAR FROM
issue_date)=2021
```

Press Option+F1 for Accessibility Options.

Query results

SAVE RESULTS ▾

EXPLORE DATA ▾



JOB INFORMATION

RESULTS

CHART

JSON

EXECUTE



Row	PMTD_Total_Funded	
1	47754825	

Total Amount Received

```
SELECT SUM(total_payment) AS  
total_Amount_received FROM `LoanPf.BankLoan`
```

Press Option+F1 for Accessibility Option

Query results

SAVE RESULTS

EXPLORE DATA

<

JOB INFORMATION

RESULTS

CHART

JSON

EXECUTE

>

Row	total_Amount_received	
1	473070933	

Total Amount Received

```
SELECT SUM(total_payment) AS  
total_Amount_received FROM `LoanPf.BankLoan`
```

—

Press Option+F1 for Accessibility Option

Query results

⬇️ SAVE RESULTS ▾

📊 EXPLORE DATA ▾

⬆️

⏪

JOB INFORMATION

RESULTS

CHART

JSON

EXECUTE

⏩

Row	total_Amount_received	
1	473070933	

## MTD Total Amount Received

```
SELECT SUM(total_payment)  
AS MTD total Amount received  
FROM `LoanPf.BankLoan`  
WHERE EXTRACT(MONTH FROM issue_date)=12 AND  
EXTRACT(YEAR FROM issue_date)=2021
```

```
2 SELECT SUM(total_payment)AS MTD_total_Amount_received FROM `LoanPf.  
BankLoan`WHERE EXTRACT(MONTH FROM issue_date)=12 AND EXTRACT(YEAR  
FROM issue_date)=2021
```

Press Option+F1 for Accessibility Options.

### Query results

 SAVE RESULTS ▾

 EXPLORE DATA ▾



JOB INFORMATION

RESULTS

CHART

JSON

EXECUTE



Row	MTD_total_Amount_r
1	58074380

## PMTD Total Amount Received

```
SELECT SUM(total_payment)
AS MTD total Amount received
FROM `LoanPf.BankLoan` WHERE
EXTRACT(MONTH FROM issue_date)=12 AND
EXTRACT(YEAR FROM issue_date)=2021
```

```
1 SELECT * FROM `LoanPf.BankLoan`
2 SELECT SUM(total_payment) AS PMTD_total_Amount_received FROM `LoanPf.
   BankLoan` WHERE EXTRACT(MONTH FROM issue_date)=11 AND EXTRACT(YEAR
   FROM issue_date)=2021
```

Press Option+F1 for Accessibility Options

### Query results

 SAVE RESULTS ▾

 EXPLORE DATA ▾



JOB INFORMATION

RESULTS

CHART

JSON

EXECUTE



Row	PMTD_total_Amount
1	50132030

## Average Interest Rate

```
SELECT AVG(int_rate) AS  
Avereg_Interest_rate FROM  
`LoanPf.BankLoan`
```

The screenshot shows a SQL query editor interface. The top toolbar includes icons for home, close, search, and a dropdown menu. The main query area contains two lines of SQL code: `SELECT * FROM `LoanPf.BankLoan`` and `SELECT AVG(int_rate) AS Avereg_Interest_rate FROM `LoanPf.BankLoan``. The second line is highlighted. Below the query area is a 'Query results' section with tabs for 'JOB INFORMATION', 'RESULTS', 'CHART', 'JSON', and 'EXECUTION'. The 'RESULTS' tab is active, displaying a table with two columns: 'Row' and 'Avereg\_Interest\_rate'. The first row shows the value 0.120488313977...

Query results

Row	Avereg_Interest_rate
1	0.120488313977...

## MTD Average Interest

```
SELECT AVG(int_rate) * 100 AS  
Average_Interest_rate  
FROM `LoanPf.BankLoan`
```

```
WHERE EXTRACT(MONTH FROM issue_date) = 12  
AND EXTRACT(YEAR FROM issue_date) = 2021;
```

## Query results

< JOB INFORMATION		
Row	Average_Interest_rat	
1	12.35604079740...	



## PMTD Average Interest

```
SELECT AVG(int_rate)*100 AS  
PMTD_AVG_Interest_rate FROM  
`LoanPf.BankLoan` WHERE EXTRACT(MONTH  
FROM issue_date)=11 AND EXTRACT(YEAR FROM  
issue_date)=2021;
```

Untitled query RUN SAVE DOWNLOAD

```
1 SELECT AVG(int_rate)*100 AS PMTD_AVG_Interest_rate FROM `LoanPf.  
BankLoan` WHERE EXTRACT(MONTH FROM issue_date)=11 AND EXTRACT(YEAR  
FROM issue_date)=2021;
```

Press Option+F1 for Accessibility Options

Query results SAVE RESULTS EXPLORE DATA

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTE
Row	PMTD_AVG_Interest_				
1	11.94171747211...				

## Avg DTI

```
SELECT AVG(dti)*100 AS DTI_Agg FROM  
`LoanPf.BankLoan`
```

The screenshot shows a SQL query editor interface. At the top, there are tabs for '\*Untitled query' and 'BankLoan'. Below the tabs, the query text is: `SELECT AVG(dti)*100 AS DTI_Agg FROM `LoanPf.BankLoan``. The interface includes buttons for 'RUN', 'SAVE', and 'DOWNLOAD'. Below the query editor, there is a section for 'Query results' with options to 'SAVE RESULTS' and 'EXPLORE DATA'. The results are displayed in a table with two columns: 'Row' and 'DTI\_Agg'. The first row shows the value 13.32743311903...

Query results

Row	DTI_Agg
1	13.32743311903...

## MTD Avg DTI

```
SELECT AVG(dti)*100 AS MTD_AVG_DTI FROM  
`LoanPf.BankLoan`
```

```
where EXTRACT(MONTH FROM issue_date)=12  
AND EXTRACT(YEAR FROM issue_date)=2021;
```

Entered query

```
1 SELECT AVG(dti)*100 AS MTD_AVG_DTI FROM `LoanPf.BankLoan`  
2 where EXTRACT(MONTH FROM issue_date)=12 AND EXTRACT(YEAR FROM  
   issue_date)=2021;
```

Press Option+F1 for Accessibility Options

Query results [SAVE RESULTS](#) [EXPLORE DATA](#)

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTE
row	MTD_AVG_DTI				
1	13.66553778395...				

## PMTD Avg DTI

```
SELECT AVG(dti)*100 AS PMTD_AVG_DTI FROM `LoanPf.BankLoan`  
where EXTRACT(MONTH FROM issue_date)=11  
AND EXTRACT(YEAR FROM issue_date)=2021;
```

Untitled query RUN SAVE DOWNLOAD

```
1 SELECT AVG(dti)*100 AS PMTD_AVG_DTI FROM `LoanPf.BankLoan`  
2 where EXTRACT(MONTH FROM issue_date)=11 AND EXTRACT(YEAR FROM  
issue_date)=2021;
```

Press Option+F1 for Accessibility Options.

Query results SAVE RESULTS EXPLORE DATA

< JOB INFORMATION **RESULTS** CHART JSON EXECUTE >

Row	PMTD_AVG_DTI
1	13.30273358116...

## Good Loan Percentage

```
SELECT
    (COUNT(CASE WHEN loan_status = 'Fully
Paid' OR loan_status = 'Current' THEN id
END) * 100.0) /
COUNT(id) AS Good_Loan_Percentage
FROM `LoanPf.BankLoan`;
```

Untitled query [RUN](#) [SAVE](#) [DOWNLOAD](#) [SHARE](#)

```
1 SELECT * FROM `LoanPf.BankLoan`
2 > SELECT (COUNT(CASE WHEN loan_status = 'Fully Paid' OR loan_status = 'Current' THEN id END) *
   100.0) / ...
4 FROM `LoanPf.BankLoan`;
5
6 |
```

Press Option+F1 for Accessibility Options.

Query results [SAVE RESULTS](#) [EXPLORE DATA](#)

JOB INFORMATION **RESULTS** CHART JSON EXECUTION DETAILS EXECUTION GRAPH

Row	Good_Loan_Percentage
1	86.17534218166...

## Good Loan Funded Amount

```
SELECT COUNT(id) AS  
Good_Loan_Applications FROM  
`LoanPf.BankLoan`  
WHERE loan_status = 'Fully Paid' OR  
loan_status = 'Current'
```

Untitled query

RUN SAVE DOWNLOAD SHARE

```
1 SELECT * FROM `LoanPf.BankLoan`  
2 SELECT COUNT(id) AS Good_Loan_Applications FROM `LoanPf.BankLoan`  
3 WHERE loan_status = 'Fully Paid' OR loan_status = 'Current'
```

Query results

SAVE RESULTS

JOB INFORMATION	RESULTS	CHART	JSON	EXECUTION DETAILS
Row	Good_Loan_Applicat			
1	33243			

## Bad Loan Applications

```
SELECT COUNT(id)
Bad_Loan_Applications FROM
`LoanPf.BankLoan` WHERE
loan_status='Charged Off'
```

The screenshot shows a web-based SQL interface. At the top, there are tabs for 'Untitled query', 'BankLoan', and '\*Untitled query'. The active tab is 'Untitled query', which contains two lines of SQL code:   
1 SELECT \* FROM `LoanPf.BankLoan`   
2 SELECT COUNT(id) Bad\_Loan\_Applications FROM `LoanPf.BankLoan` WHERE loan\_status='Charged Off'   
Below the query editor, there are buttons for 'RUN', 'SAVE', 'DOWNLOAD', and 'SHARE'. The 'RUN' button is highlighted. Below the buttons, the query results are displayed in a table. The table has two columns: 'Row' and 'Bad\_Loan\_Applications'. The first row shows the value '5333'. At the bottom of the interface, there are tabs for 'JOB INFORMATION', 'RESULTS', 'CHART', 'JSON', 'EXECUTION DETAILS', and 'EXECUTION GRAPH'. The 'RESULTS' tab is selected.

Query results

Row	Bad_Loan_Applications
1	5333

# Bad Loan Funded Amount

```
SELECT SUM(loan_amount) AS
Bad_Loan_Funded_amount FROM
`LoanPf.BankLoan`
WHERE loan_status = 'Charged Off'
```

Untitled query

▶ RUN

📌 SAVE

⬇️ DOWNLOAD

🔗 SHARE

1

SELECT \* FROM `LoanPf.BankLoan`

2

SELECT SUM(loan\_amount) AS Bad\_Loan\_Funded\_amount FROM `LoanPf.BankLoan`

3

WHERE loan\_status = 'Charged Off'

4

Press Option+F1 for Accessibility 0

Query results

📄 SAVE RESULTS

📊 EXPLORE DATA

JOB INFORMATION

RESULTS

CHART

JSON

EXECUTION DETAILS

EXECUTION GRA

Row	Bad_Loan_Funded_a
1	65532225



## Bad Loan Amount Received

```
SELECT SUM(total_payment) AS  
Bad_Loan_amount_received FROM  
`LoanPf.BankLoan` Where  
loan_status='Charged Off'
```

Untitled query RUN SAVE DOWNLOAD SHARE

```
1 SELECT * FROM `LoanPf.BankLoan`  
2 SELECT SUM(total_payment) AS Bad_Loan_amount_received FROM `LoanPf.BankLoan` Where  
   loan_status='Charged Off'
```

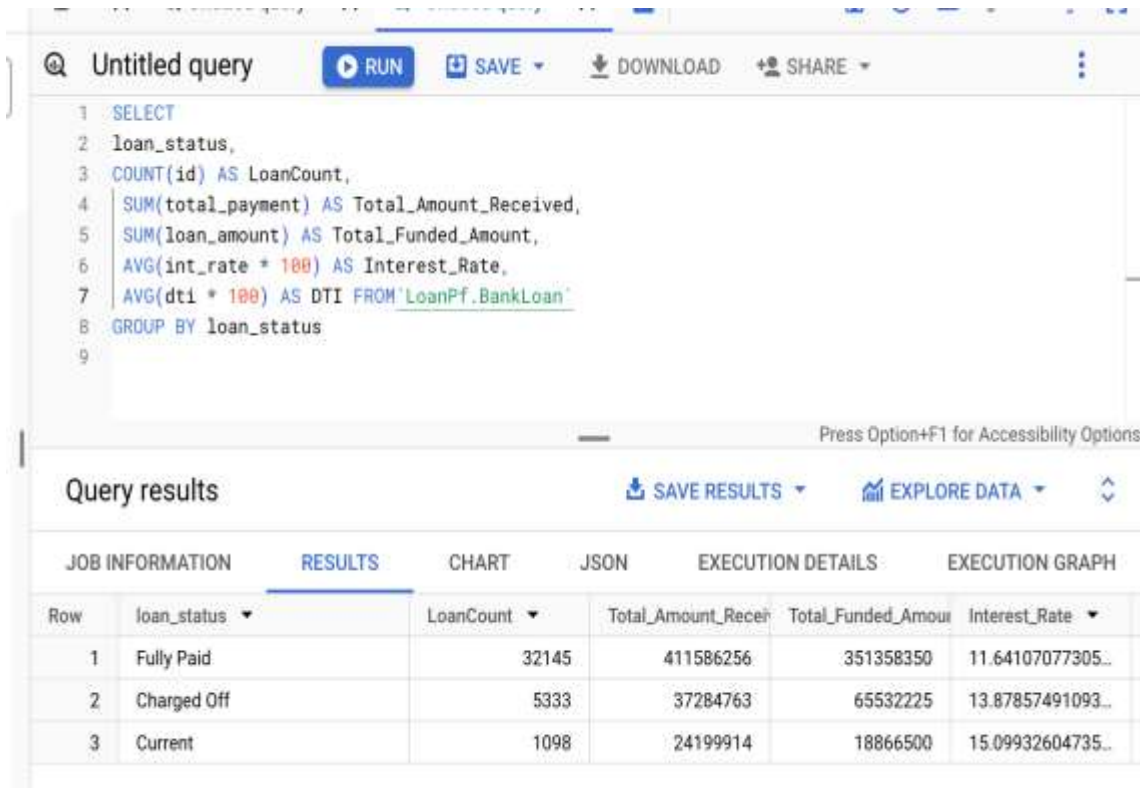
Press Option+F1 for Accessibility Options.

Query results SAVE RESULTS EXPLORE DATA

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	Bad_Loan_amount_r					
1	37284763					

## LOAN STATUS

```
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 `LoanPf.BankLoan`
GROUP BY loan_status
```



The screenshot shows a SQL query editor with the following query:

```
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 `LoanPf.BankLoan`
GROUP BY loan_status
```

The query results are displayed in a table with the following columns: Row, loan\_status, LoanCount, Total\_Amount\_Received, Total\_Funded\_Amount, and Interest\_Rate. The results are as follows:

Row	loan_status	LoanCount	Total_Amount_Received	Total_Funded_Amount	Interest_Rate
1	Fully Paid	32145	411586256	351358350	11.64107077305...
2	Charged Off	5333	37284763	65532225	13.87857491093...
3	Current	1098	24199914	18866500	15.09932604735...

## Loan By Month

```
SELECT
  FORMAT_DATE('%B', issue_date) AS Month_Name,
  EXTRACT(MONTH FROM issue_date) AS Month_Number,
  COUNT(id) AS Total_Loan_Application,
  SUM(loan_amount) AS Total_Funded_Amount,
  SUM(total_payment) AS Total_Amount_Received
FROM
  `LoanPf.BankLoan`
GROUP BY
  Month_Name,
  Month_Number
```

### Query results

[SAVE RESULTS](#) [EXPLORE DATA](#)

JOB INFORMATION					
RESULTS					
CHART					
JSON					
EXECUTION DETAILS					
EXECUTION GRAPH					
Row	Month_Name	Month_Number	Total_Loan_Application	Total_Funded_Amount	Total_Amount_Received
1	January	1	2332	25031650	27578836
2	February	2	2279	24647825	27717745
3	March	3	2627	28875700	32264400
4	April	4	2755	29800800	32495533

```
SELECT
  FORMAT_DATE('%B', issue_date) AS
Month_Name,
  EXTRACT(MONTH FROM issue_date) AS
Month_Number,
  COUNT(id) AS Total_Loan_Application,
  SUM(loan_amount) AS Total_Funded_Amount,
  SUM(total_payment) AS
Total_Amount_Received
FROM
  `LoanPf.BankLoan`
GROUP BY
  Month_Name,
  Month_Number
ORDER BY
  Month_Number;
```

## Loan By state

```
SELECT address_state AS state,
COUNT(id) AS Total_Loan_Application ,
SUM(Loan_amount) AS
Total_Funded_AMOUNT,
SUM(total_payment)AS
Total_Amount_Received,
FROM `LoanPf.BankLoan`
GROUP BY address_state
order by address_state
```

### Query results

[SAVE RESULTS](#) [EXPLORE DATA](#)

JOB INFORMATION					
RESULTS					
CHART					
JSON					
EXECUTION DETAILS					
EXECUTION GR					
Row	state	Total_Loan_Applicati	Total_Funded_AMOU	Total_Amount_Receiv	
1	AK	78	1031800	1108570	
2	AL	432	4949225	5492272	
3	AR	236	2529700	2777875	
4	AZ	833	9206000	10041986	
5	CA	6894	78484125	83901234	
6	CO	770	8976000	9845810	

```
SELECT address_state AS state,
COUNT(id) AS Total_Loan_Application ,
SUM(Loan_amount) AS
Total_Funded_AMOUNT,
SUM(total_payment)AS
Total_Amount_Received,
FROM `LoanPf.BankLoan`
GROUP BY address_state
order by address_state
```

## Loan By TERM

Untitled query RUN SAVE DOWNLOAD SHARE

```
1 SELECT term AS Loan_TERM ,
2 COUNT(id )AS TOTAL_Loan_Application,
3 SUM(total_payment) AS Total_Amount_Received,
4 SUM(loan_amount) AS Total_Funded_Amount,
5 FROM `LoanPf.BankLoan`
6 GROUP BY term
7 order by term
8
```

Press Option+F1 for Accessibility Options.

Query results SAVE RESULTS EXPLORE DATA

JOB INFORMATION	RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	Loan_TERM ▾	TOTAL_Loan_Applica	Total_Amount_Receiv	Total_Funded_Amount	
1	36 months	28237	294709458	273041225	
2	60 months	10339	178361475	162715850	

```
SELECT term AS Loan_TERM ,
COUNT(id )AS TOTAL_Loan_Application,
SUM(total_payment) AS
Total_Amount_Received,
SUM(loan_amount) AS
Total_Funded_Amount,
FROM `LoanPf.BankLoan`
GROUP BY term
order by term
```

## Loan By Employee Length

```
SELECT emp_length AS Emplyment_History,  
COUNT(id) AS Total_Loan_Application,  
SUM(loan_amount) AS  
Total_Funded_Amount,  
SUM(total_payment) AS  
Total_payment_Received,  
FROM `LoanPf.BankLoan`  
GROUP BY emp_length  
ORDER BY emp_length
```

the full BigQuery experience. [Learn more](#)

Untitled query **RUN** **SAVE** **DOWNLOAD** **SHARE**

```
1 SELECT emp_length AS Emplyment_History,  
2 COUNT(id) AS Total_Loan_Application,  
3 SUM(loan_amount) AS Total_Funded_Amount,  
4 SUM(total_payment) AS Total_payment_Received,  
5 FROM `LoanPf.BankLoan`  
6 GROUP BY emp_length  
7 ORDER BY emp_length
```

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Query results **SAVE RESULTS** **EXPLORE DATA**

JOB INFORMATION	RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	Emplyment_History ▾	Total_Loan_Applicati	Total_Funded_Amount	Total_payment_Rece	
1	1 year	3229	32883125	35498348	
2	10+ years	8870	116115950	125871616	
3	2 years	4382	44967975	49206961	
4	3 years	4088	43937850	47551832	
5	4 years	3428	37600375	40964850	
6	5 years	3273	36973625	40397571	

Results per page: 50 ▾ 1 - 11 of 11



## Loan By PURPOSE

Untitled query

```
1 SELECT purpose,  
2 COUNT(id) AS Total_Loan_Application,  
3 SUM(loan_amount) AS Total_Funded_Amount,  
4 SUM(total_payment) AS Total_payment_Received,  
5 FROM `LoanPf.BankLoan`  
6 GROUP BY purpose  
7 ORDER BY COUNT(id) Desc
```

Query results

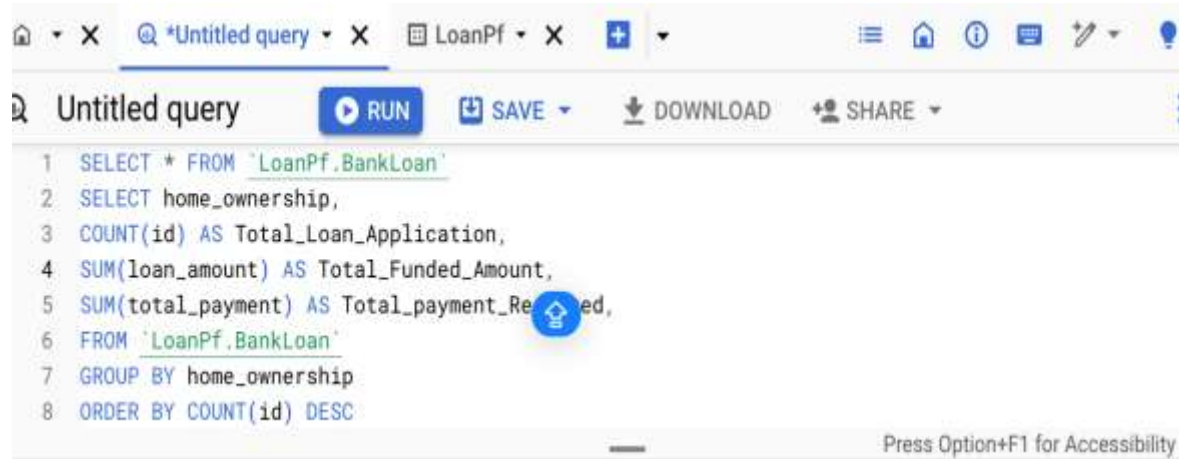
JOB INFORMATION RESULTS CHART JSON EXECUTION DETAILS EXECUTION GRAPH

Row	purpose	Total_Loan_Application	Total_Funded_Amount	Total_payment_Received
1	Debt consolidation	18214	232459675	253801871
2	credit card	4998	58885175	65214084
3	other	3824	31155750	33289676
4	home improvement	2876	33350775	36380930
5	major purchase	2110	17251600	18676927
6	small business	1776	24123100	23814817

Results per page: 50 1 - 14 of 14

```
SELECT purpose,  
COUNT(id) AS Total_Loan_Application,  
SUM(loan_amount) AS  
Total_Funded_Amount,  
SUM(total_payment) AS  
Total_payment_Received,  
FROM `LoanPf.BankLoan`  
GROUP BY purpose  
ORDER BY COUNT(id) DESC
```

## Loan By HOME OWNERSHIP



```
1 SELECT * FROM `LoanPf.BankLoan`
2 SELECT home_ownership,
3 COUNT(id) AS Total_Loan_Application,
4 SUM(loan_amount) AS Total_Funded_Amount,
5 SUM(total_payment) AS Total_payment_Received,
6 FROM `LoanPf.BankLoan`
7 GROUP BY home_ownership
8 ORDER BY COUNT(id) DESC
```

Press Option+F1 for Accessibility

### Query results

[SAVE RESULTS](#) [EXPLORE DATA](#)

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GR.
row	home_ownership	Total_Loan_Applicati	Total_Funded_Amour	Total_payment_Rece		
1	RENT	18439	185768475	201823056		
2	MORTGAGE	17198	219329150	238474438		
3	OWN	2838	29597675	31729129		
4	OTHER	98	1044975	1025257		
5	NONE	3	16800	19053		

```
SELECT home_ownership,
COUNT(id) AS Total_Loan_Application,
SUM(loan_amount) AS
Total_Funded_Amount,
SUM(total_payment) AS
Total_payment_Received,
FROM `LoanPf.BankLoan`
GROUP BY home_ownership
ORDER BY COUNT(id) DESC
```



# **Conclusion of the Bank Loan Report**

# Conclusion of the Bank Loan Report

## 1. High-Level Overview and Key Performance Indicators (KPIs):

- The dashboard highlights a significant loan portfolio with **38.6K total applications** and a **funded amount of \$435.8M**.
- The **average interest rate** is relatively moderate at **12.0%**, and the **average Debt-to-Income (DTI) ratio** stands at **13.3%**.
- The Month-to-Date (MTD) and Month-over-Month (MOM) metrics indicate steady growth in both loan applications and amounts funded, suggesting a consistent demand and strong lending activity

# Conclusion of the Bank Loan Report

## 2. Portfolio Composition and Trends:

- The portfolio is heavily skewed towards **good loans**, with **86.2%** categorized as low-risk. This is a positive indicator of portfolio health, showing a strong preference for funding reliable borrowers. However, a smaller portion of **bad loans (5.3K applications, funded at \$65.5M)** could represent a potential risk if not managed carefully.
- Most loans are for **36-month terms (73.2%)**, indicating a borrower preference for shorter repayment periods, possibly due to manageable debt obligations or a desire for quicker repayment.

# Conclusion of the Bank Loan Report

## 3. Loan Purposes and Borrower Demographics:

- **Debt consolidation** is the primary reason for loan applications, followed by **credit card refinancing** and **home improvement**, pointing to a high demand for loans that manage existing debt. This trend could signal consumer financial challenges, with many borrowers looking to reduce or reorganize their debt burdens.
- Applicants with **10+ years of employment** make up the largest share, suggesting that borrowers with stable job histories are a key target demographic. Furthermore, most applicants are either **renters or mortgage holders**, which reflects a mix of middle-class and aspiring homeowners likely to be managing ongoing financial obligations.

# Conclusion of the Bank Loan Report

## 4. Individual Loan Analysis and Risk Management:

- The Details section enables close monitoring of individual loan characteristics, such as **interest rates**, **loan grades**, and **payment terms**. The ability to drill down into each loan record allows for targeted risk assessments, especially for loans that are **higher risk** (e.g., loans with higher interest rates or longer terms)

## Final Insights:

The bank's portfolio appears generally healthy, with a strong representation of low-risk loans. However, the high demand for debt-related loans like debt consolidation and credit card refinancing suggests that economic factors may be influencing borrower behavior, possibly indicating higher consumer debt levels.

Moving forward, the bank could focus on monitoring **high-risk loan segments** (e.g., loans with higher interest rates or bad loans) to ensure sustainable performance and mitigate potential default risks.

Additionally, further insights into borrower demographics, such as employment stability and homeownership, can help refine the bank's lending strategies, focusing on reliable borrowers while cautiously managing high-risk segments.