

# CAPSTONE PROJECT IN POWER BI

Bank Loan Performance Analysis 2024

*by*  
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## Project Title: Bank Loan Performance Analysis

**Problem Statement** In today's data-driven world, understanding how borrower details and loan characteristics impact loan performance is very important for banking institutions. This project seeks to delve deep into a lending loan dataset to uncover the relationship between borrower behavior (such as employment length, income, and debt-to-income ratio) and loan characteristics (including amount, term, and interest rate) to unearth critical insights into loan performance metrics. By examining patterns in loan statuses such as fully paid, charged off, or late payments, this analysis aims to empower banking institutions with actionable insights to optimize loan lending strategies, mitigate credit risk, and enhance overall portfolio performance.



## Table Of Contents

- Data cleaning
- Data transformation
- Data modeling
- Data analysis expression
- Data visualizing
- Report interactivity



# Project Steps and Objectives

Importing Data

Transformation Using Power Query

Data Modeling

Creating Measures and Calculated Columns using DAX

Creating Comprehensive Reports

Report 1: Loan Performance Analysis

Report 2: Borrower Profile Analysis

# Importing Data

## Navigator

Display Options ▾



bank loan.xlsx [2]

☒ BorrowerDetails

☒ LoanDetails

## LoanDetails

Preview downloaded on Monday

id	loan_amnt	funded_amnt	term	int_rate	installment	grade	sub_grade	issue_d	loan_status	purpose
1077501	5000	4975	36 months	10.65	162.87	B	B2	01-12-2018	Fully Paid	credit_card
1077430	2500	2500	60 months	15.27	59.83	C	C4	01-12-2018	Charged Off	car
1077175	2400	2400	36 months	15.96	84.33	C	C5	01-12-2018	Fully Paid	small_business
1076863	10000	10000	36 months	13.49	339.31	C	C1	01-12-2018	Fully Paid	other
1075358	3000	3000	60 months	12.69	67.79	B	B5	01-12-2018	Current	other
1075269	5000	5000	36 months	7.9	156.46	A	A4	01-12-2018	Fully Paid	wedding
1069639	7000	7000	60 months	15.96	170.08	C	C5	01-12-2018	Current	debt_consolidation
1072053	3000	3000	36 months	18.64	109.43	E	E1	01-12-2018	Fully Paid	car
1071795	5600	5600	60 months	21.28	152.39	F	F2	01-12-2018	Charged Off	small_business
1071570	5375	5350	60 months	12.69	121.45	B	B5	01-12-2018	Charged Off	other
1070078	6500	6500	60 months	14.65	153.45	C	C3	01-12-2018	Fully Paid	debt_consolidation
1069908	12000	12000	36 months	12.69	402.54	B	B5	01-12-2018	Fully Paid	debt_consolidation
1064687	9000	9000	36 months	13.49	305.38	C	C1	01-12-2018	Charged Off	debt_consolidation
1069866	3000	3000	36 months	9.91	96.68	B	B1	01-12-2018	Fully Paid	credit_card
1069057	10000	10000	36 months	10.65	325.74	B	B2	01-12-2018	Charged Off	other
1069759	1000	1000	36 months	16.29	35.31	D	D1	01-12-2018	Fully Paid	debt_consolidation
1065775	10000	10000	36 months	15.27	347.98	C	C4	01-12-2018	Fully Paid	home_improvement
1069971	3600	3600	36 months	6.03	109.57	A	A1	01-12-2018	Fully Paid	major_purchase
1062474	6000	6000	36 months	11.71	198.46	B	B3	01-12-2018	Fully Paid	medical
1069742	9200	9200	36 months	6.03	280.01	A	A1	01-12-2018	Fully Paid	debt_consolidation
1069740	20250	19142.16108	60 months	15.27	484.63	C	C4	01-12-2018	Fully Paid	debt_consolidation
1039153	21000	21000	36 months	12.42	701.73	B	B4	01-12-2018	Charged Off	debt_consolidation
1069710	10000	10000	36 months	11.71	330.76	B	B3	01-12-2018	Fully Paid	credit_card
1069700	10000	10000	36 months	11.71	330.76	B	B3	01-12-2018	Fully Paid	debt_consolidation
1069559	6000	6000	36 months	11.71	198.46	B	B3	01-12-2018	Charged Off	major_purchase
1069697	15000	15000	36 months	9.91	483.38	B	B1	01-12-2018	Fully Paid	credit_card
1069800	15000	8725	36 months	14.27	514.64	C	C2	01-12-2018	Charged Off	debt_consolidation
1069657	5000	5000	60 months	16.77	123.65	D	D2	01-12-2018	Charged Off	other

Activate Windows

Go to Settings to activate Windows.

Load

Transform Data

Cancel

= Table.Distinct("#Added Conditional Column", {"loan\_id"})

	1 <sup>2</sup> 3 member_id	1 <sup>2</sup> 3 loan_id	A <sup>B</sup> C emp_length	A <sup>B</sup> C home_ownership	1.2 annual_inc	A <sup>B</sup> C verification_status	1.2 dti	1 <sup>2</sup> 3 delinq
1	1296599	1077501	10+ years	Rent	24000	Verified	27.65	
2	1314167	1077430	< 1 year	Rent	30000	Source Verified	1	
3	1313524	1077175	10+ years	Rent	12252	Not Verified	8.72	
4	1277178	1076863	10+ years	Rent	49200	Source Verified	20	
5	1311748	1075358	1 year	Rent	80000	Source Verified	17.94	
6	1311441	1075269	3 years	Rent	36000	Source Verified	11.2	
7	1304742	1069639	8 years	Rent	47004	Not Verified	23.51	
8	1288686	1072053	9 years	Rent	48000	Source Verified	5.35	
9	1306957	1071795	4 years	Own	40000	Source Verified	5.55	
10	1306721	1071570	< 1 year	Rent	15000	Verified	18.08	
11	1305201	1070078	5 years	Own	72000	Not Verified	16.12	
12	1305008	1069908	10+ years	Own	75000	Source Verified	10.78	
13	1298717	1064687	< 1 year	Rent	30000	Source Verified	10.08	
14	1304956	1069866	3 years	Rent	15000	Source Verified	12.56	
15	1303503	1069057	3 years	Rent	100000	Source Verified	7.06	
16	1304871	1069759	< 1 year	Rent	28000	Not Verified	20.31	
17	1299699	1065775	4 years	Rent	42000	Not Verified	18.6	
18	1304884	1069971	10+ years	Mortgage	110000	Not Verified	10.52	
19	1294539	1062474	1 year	Mortgage	84000	Verified	18.44	
20	1304855	1069742	6 years	Rent	77385.19	Not Verified	9.86	
21	1284848	1069740	3 years	Rent	43370	Verified	26.53	
22	1269083	1039153	10+ years	Rent	105000	Verified	13.22	
23	1304821	1069710	10+ years	Own	50000	Source Verified	11.18	
24	1304810	1069700	5 years	Rent	50000	Not Verified	16.01	
25	1304634	1069559	1 year	Rent	76000	Not Verified	2.4	
26	1273773	1069697	2 years	Mortgage	92000	Verified	29.44	
27	1304764	1069657	2 years	Rent	50004	Not Verified	13.97	
28								

COLUMNS, 999+ ROWS Column profiling based on top 1000 rows



# **Transformation Using Power Query**



# **Data Cleaning**



## Handling Missing Values and Duplicates:

Replace missing values (null) in the 'emp\_length' column of the "BorrowerDetails" table with '0 year'

File

Home

Transform

Add Column

View

Tools

Help

Close & Apply

New Source

Recent Sources

Enter Data

Data source settings

Manage Parameters

Refresh Preview

Properties

Advanced Editor

Manage

Choose Columns

Remove Columns

Keep Rows

Remove Rows

Sort

Split Column

Group By

Data Type: Whole Number

Use First Row as Headers

Replace Values

Merge Queries

Append Queries

Combine Files

Text Analytics

Vision

Azure Machine Learning

Close

New Query

Data Sources

Parameters

Query

Manage Columns

Reduce Rows

Transform

Combine

AI Insights

Queries [3]

Query Errors - 17-02-...

Other Queries [2]

BorrowerDetails

LoanDetails

fx

= Table.ReplaceValue("#"Changed Type",null,"0 year",Replacer.ReplaceValue,{"emp\_length"})

	123 member_id	123 loan_id	A8 emp_length	A8 home_ownership	1.2 annual_inc	A8 verification_status	1.2 dti
1	1296599	1077501	10+ years	RENT	24000	Verified	
2	1314167	1077430	< 1 year	RENT	30000	Source Verified	
3	1313524	1077175	10+ years	RENT	12252	Not Verified	
4	1277178	1076863	10+ years	RENT	49200	Source Verified	
5	1311748	1075358	1 year	RENT	80000	Source Verified	
6	1311441	1075269	3 years	RENT	36000	Source Verified	
7	1304742	1069639	8 years	RENT	47004	Not Verified	
8	1288686	1072053	9 years	RENT	48000	Source Verified	
9	1306957	1071795	4 years	OWN	40000	Source Verified	
10	1306721	1071570	< 1 year	RENT	15000	Verified	
11	1305201	1070078	5 years	OWN	72000	Not Verified	
12	1305008	1069908	10+ years	OWN	75000	Source Verified	
13	1298717	1064687	< 1 year	RENT	30000	Source Verified	
14	1304956	1069866	3 years	RENT	15000	Source Verified	
15	1303503	1069057	3 years	RENT	100000	Source Verified	
16	1304871	1069759	< 1 year	RENT	28000	Not Verified	
17	1299699	1065775	4 years	RENT	42000	Not Verified	
18	1304884	1069971	10+ years	MORTGAGE	110000	Not Verified	
19	1294539	1062474	1 year	MORTGAGE	84000	Verified	
20	1304855	1069742	6 years	RENT	77385.19	Not Verified	
21	1284848	1069740	3 years	RENT	43370	Verified	
22	1269083	1039153	10+ years	RENT	105000	Verified	
23	1304821	1069710	10+ years	OWN	50000	Source Verified	
24	1304810	1069700	5 years	RENT	50000	Not Verified	
25	1304634	1069559	1 year	RENT	76000	Not Verified	
26	1273773	1069697	2 years	MORTGAGE	92000	Verified	
27	1304679	1069800	9 years	RENT	60000	Not Verified	

Query Settings

PROPERTIES

Name

BorrowerDetails

All Properties

APPLIED STEPS

Source

Navigation

Promoted Headers

Changed Type

Replaced Value

Filtered Rows

Filtered Rows1

Removed Blank Rows

Removed Blank Rows1

Capitalized Each Word

Changed Type1

Renamed Columns

Added Conditional Column

Removed Duplicates

Activate Windows

Go to Settings to activate Windows.

Remove rows with missing values in the 'last\_pymnt\_d' and 'delinq\_2yrs' columns.

Close | New Query | Data Sources | Parameters | Query | Manage Columns | Reduce Rows | Sort | Transform | Combine | AI Insights

Queries [3]

- Query Errors - 17-02-...
- Errors in BorrowerDe...
- Other Queries [2]
- BorrowerDetails
- LoanDetails

2 annual\_inc | verification\_status | dti | delinq\_2yrs | last\_pymnt\_d | total\_pymnt | out\_prncp

1	24000	Verified	27.65	0	01-01-2015	5861.071414
2	30000	Source Verified	1	0	01-04-2020	1008.71
3	12252	Not Verified	8.72	0	01-06-2021	3003.653644
4	49200	Source Verified	20	0	01-01-2015	12226.30221
5	80000	Source Verified	17.94	0	01-01-2016	3242.17
6	36000	Source Verified	11.2	0	01-01-2015	5631.377753
7	47004	Not Verified	23.51	0	01-01-2016	8136.84
8	48000	Source Verified	5.35	0	01-01-2015	3938.144334
9	40000	Source Verified	5.55	0	01-04-2019	646.02
10	15000	Verified	18.08	0	01-11-2019	1476.19
11	72000	Not Verified	16.12	0	01-06-2020	7677.52
12	75000	Source Verified	10.78	0	01-09-2020	13943.08
13	30000	Source Verified	10.08	0	01-07-2019	2270.7
14	15000	Source Verified	12.56	0	01-01-2015	3478.981915
15	100000	Source Verified	7.06	0	01-10-2020	7471.99
16	28000	Not Verified	20.31	0	01-01-2015	1270.171106
17	42000	Not Verified	18.6	0	01-01-2015	12519.26045
18	110000	Not Verified	10.52	0	01-05-2020	3785.02
19	84000	Verified	18.44	2	01-02-2015	7164.499852
20	77385.19	Not Verified	9.86	0	01-07-2019	9459.96
21	43370	Verified	26.53	0	01-08-2015	27663.04267
22	105000	Verified	13.22	0	01-09-2020	14025.4
23	50000	Source Verified	11.18	0	01-01-2015	11902.56157
24	50000	Not Verified	16.01	0	01-10-2020	11536.31
25	76000	Not Verified	2.4	0	01-10-2019	2050.14
26	92000	Verified	29.44	0	01-09-2019	15823.48
27	50004	Not Verified	13.97	3	01-12-2019	1609.12
28						

Query Settings

PROPERTIES

Name

BorrowerDetails

All Properties

APPLIED STEPS

- Source
- Navigation
- Promoted Headers
- Changed Type
- Replaced Value
- Filtered Rows
- Filtered Rows1
- Removed Blank Rows
- Removed Blank Rows1
- Capitalized Each Word
- Changed Type1
- Renamed Columns
- Added Conditional Column
- Removed Duplicates

Activate Windows  
Go to Settings to activate Windows.

Queries [3]

Query Errors - 17-02-...

Errors in BorrowerDe...

Other Queries [2]

BorrowerDetails

LoanDetails

	2 annual_inc	AB verification_status	1.2 dti	1.2 delinq_2yrs	last pymnt_d	1.2 total_pymnt	1.2 out_prncp
1	24000	Verified	27.65	0	01-01-2015	5861.071414	
2	30000	Source Verified	1	0	01-04-2020	1008.71	
3	12252	Not Verified	8.72	0	01-06-2021	3003.653644	
4	49200	Source Verified	20	0	01-01-2015	12226.30221	
5	80000	Source Verified	17.94	0	01-01-2016	3242.17	
6	36000	Source Verified	11.2	0	01-01-2015	5631.377753	
7	47004	Not Verified	23.51	0	01-01-2016	8136.84	
8	48000	Source Verified	5.35	0	01-01-2015	3938.144334	
9	40000	Source Verified	5.55	0	01-04-2019	646.02	
10	15000	Verified	18.08	0	01-11-2019	1476.19	
11	72000	Not Verified	16.12	0	01-06-2020	7677.52	
12	75000	Source Verified	10.78	0	01-09-2020	13943.08	
13	30000	Source Verified	10.08	0	01-07-2019	2270.7	
14	15000	Source Verified	12.56	0	01-01-2015	3478.981915	
15	100000	Source Verified	7.06	0	01-10-2020	7471.99	
16	28000	Not Verified	20.31	0	01-01-2015	1270.171106	
17	42000	Not Verified	18.6	0	01-01-2015	12519.26045	
18	110000	Not Verified	10.52	0	01-05-2020	3785.02	
19	84000	Verified	18.44	2	01-02-2015	7164.499852	
20	77385.19	Not Verified	9.86	0	01-07-2019	9459.96	
21	43370	Verified	26.53	0	01-08-2015	27663.04267	
22	105000	Verified	13.22	0	01-09-2020	14025.4	
23	50000	Source Verified	11.18	0	01-01-2015	11902.56157	
24	50000	Not Verified	16.01	0	01-10-2020	11536.31	
25	76000	Not Verified	2.4	0	01-10-2019	2050.14	
26	92000	Verified	29.44	0	01-09-2019	15823.48	
27	50004	Not Verified	13.97	3	01-12-2019	1609.12	

Query Settings

## PROPERTIES

Name

BorrowerDetails

All Properties

## APPLIED STEPS

Source

Navigation

Promoted Headers

Changed Type

Replaced Value

Filtered Rows

Filtered Rows1

Removed Blank Rows

X Removed Blank Rows1

Capitalized Each Word

Changed Type1

Renamed Columns

Added Conditional Column

Removed Duplicates

Activate Windows

Go to Settings to activate Windows.

# Remove duplicate rows in the 'id' column of the "LoanDetails" table.

Close & Apply

New Source

Recent Sources

Enter Data

Data source settings

Manage Parameters

Refresh Preview

Properties

Advanced Editor

Choose Columns

Remove Columns

Keep Rows

Remove Rows

Sort

Split Column

Group By

Data Type: Whole Number

Use First Row as Headers

Replace Values

Merge Queries

Append Queries

Combine Files

Text Analytics

Vision

Azure Machine Learning

Close

New Query

Data Sources

Parameters

Query

Manage Columns

Reduce Rows

Transform

Combine

AI Insights

Queries [3]

Query Errors - 17-02-...

Other Queries [2]

BorrowerDetails

LoanDetails

fx

= Table.Distinct("#Changed Type", {"id"})

	1.2 id	1.2 loan_amnt	1.2 funded_amnt	1.2 term	1.2 int_rate	1.2 installment	1.2 grade
1	1077501	5000	4975	36 months	10.65	162.87	B
2	1077430	2500	2500	60 months	15.27	59.83	C
3	1077175	2400	2400	36 months	15.96	84.33	C
4	1076863	10000	10000	36 months	13.49	339.31	C
5	1075358	3000	3000	60 months	12.69	67.79	B
6	1075269	5000	5000	36 months	7.9	156.46	A
7	1069639	7000	7000	60 months	15.96	170.08	C
8	1072053	3000	3000	36 months	18.64	109.43	E
9	1071795	5600	5600	60 months	21.28	152.39	F
10	1071570	5375	5350	60 months	12.69	121.45	B
11	1070078	6500	6500	60 months	14.65	153.45	C
12	1069908	12000	12000	36 months	12.69	402.54	B
13	1064687	9000	9000	36 months	13.49	305.38	C
14	1069866	3000	3000	36 months	9.91	96.68	B
15	1069057	10000	10000	36 months	10.65	325.74	B
16	1069759	1000	1000	36 months	16.29	35.31	D
17	1065775	10000	10000	36 months	15.27	347.98	C
18	1069971	3600	3600	36 months	6.03	109.57	A
19	1062474	6000	6000	36 months	11.71	198.46	B
20	1069742	9200	9200	36 months	6.03	280.01	A
21	1069740	20250	19142.16108	60 months	15.27	484.63	C
22	1039153	21000	21000	36 months	12.42	701.73	B
23	1069710	10000	10000	36 months	11.71	330.76	B
24	1069700	10000	10000	36 months	11.71	330.76	B
25	1069559	6000	6000	36 months	11.71	198.46	B
26	1069697	15000	15000	36 months	9.91	483.38	B
27	1069800	15000	8725	36 months	14.27	514.64	C

Query Settings

PROPERTIES

Name

LoanDetails

All Properties

APPLIED STEPS

Source

Navigation

Promoted Headers

Changed Type

Removed Duplicates

Replaced Value

Capitalized Each Word

Changed Type1

Renamed Columns

Removed Columns

Activate Windows

Go to Settings to activate Windows.

## Dealing with Inconsistencies

**Ensure words in the 'purpose' column are separated by spaces instead of underscores (e.g., "credit card" instead of "credit\_card").**

Close & Apply

New Source

Recent Sources

Enter Data

Data source settings

Manage Parameters

Refresh Preview

Advanced Editor

Manage

Choose Columns

Remove Columns

Keep Rows

Remove Rows

Sort

Split Column

Group By

Use First Row as Headers

Replace Values

Merge Queries

Append Queries

Combine Files

Text Analytics

Vision

Azure Machine Learning

Close

New Query

Data Sources

Parameters

Query

Manage Columns

Reduce Rows

Sort

Transform

Combine

AI Insights

Queries [3]

Query Errors - 17-02-...

Errors in BorrowerDe...

Other Queries [2]

BorrowerDetails

LoanDetails

Table.ReplaceValue("#Removed Duplicates","credit\_card","credit card",Replacer.ReplaceText,{"purpose"})

1.2 installment

AB grade

AB sub\_grade

issue\_d

AB loan\_status

AB purpose

1	10.65	162.87	B	B2	01-12-2018	Fully Paid	credit card
2	15.27	59.83	C	C4	01-12-2018	Charged Off	car
3	15.96	84.33	C	C5	01-12-2018	Fully Paid	small_business
4	13.49	339.31	C	C1	01-12-2018	Fully Paid	other
5	12.69	67.79	B	B5	01-12-2018	Current	other
6	7.9	156.46	A	A4	01-12-2018	Fully Paid	wedding
7	15.96	170.08	C	C5	01-12-2018	Current	debt_consolidation
8	18.64	109.43	E	E1	01-12-2018	Fully Paid	car
9	21.28	152.39	F	F2	01-12-2018	Charged Off	small_business
10	12.69	121.45	B	B5	01-12-2018	Charged Off	other
11	14.65	153.45	C	C3	01-12-2018	Fully Paid	debt_consolidation
12	12.69	402.54	B	B5	01-12-2018	Fully Paid	debt_consolidation
13	13.49	305.38	C	C1	01-12-2018	Charged Off	debt_consolidation
14	9.91	96.68	B	B1	01-12-2018	Fully Paid	credit card
15	10.65	325.74	B	B2	01-12-2018	Charged Off	other
16	16.29	35.31	D	D1	01-12-2018	Fully Paid	debt_consolidation
17	15.27	347.98	C	C4	01-12-2018	Fully Paid	home_improvement
18	6.03	109.57	A	A1	01-12-2018	Fully Paid	major_purchase
19	11.71	198.46	B	B3	01-12-2018	Fully Paid	medical
20	6.03	280.01	A	A1	01-12-2018	Fully Paid	debt_consolidation
21	15.27	484.63	C	C4	01-12-2018	Fully Paid	debt_consolidation
22	12.42	701.73	B	B4	01-12-2018	Charged Off	debt_consolidation
23	11.71	330.76	B	B3	01-12-2018	Fully Paid	credit card
24	11.71	330.76	B	B3	01-12-2018	Fully Paid	debt_consolidation
25	11.71	198.46	B	B3	01-12-2018	Charged Off	major_purchase
26	9.91	483.38	B	B1	01-12-2018	Fully Paid	credit card
27	14.27	514.64	C	C2	01-12-2018	Charged Off	debt_consolidation
28							

Query Settings

PROPERTIES

Name

LoanDetails

All Properties

APPLIED STEPS

Source

Navigation

Promoted Headers

Changed Type

Removed Duplicates

Replaced Value

Capitalized Each Word

Changed Type1

Renamed Columns

Removed Columns

## Format the 'purpose' and 'home\_ownership' columns to proper case.

Queries [3]

Query Errors - 17-02-...

Other Queries [2]

BorrowerDetails

LoanDetails

✕

✓

fx

= Table.TransformColumns("#Removed Blank Rows1",{{"home\_ownership", Text.Proper, type text}})

	1.3 member_id	1.3 loan_id	1.3 emp_length	1.3 home_ownership	1.2 annual_inc	1.3 verification_status	1.2 dti
1	1296599	1077501	10+ years	Rent	24000	Verified	
2	1314167	1077430	< 1 year	Rent	30000	Source Verified	
3	1313524	1077175	10+ years	Rent	12252	Not Verified	
4	1277178	1076863	10+ years	Rent	49200	Source Verified	
5	1311748	1075358	1 year	Rent	80000	Source Verified	
6	1311441	1075269	3 years	Rent	36000	Source Verified	
7	1304742	1069639	8 years	Rent	47004	Not Verified	
8	1288686	1072053	9 years	Rent	48000	Source Verified	
9	1306957	1071795	4 years	Own	40000	Source Verified	
10	1306721	1071570	< 1 year	Rent	15000	Verified	
11	1305201	1070078	5 years	Own	72000	Not Verified	
12	1305008	1069908	10+ years	Own	75000	Source Verified	
13	1298717	1064687	< 1 year	Rent	30000	Source Verified	
14	1304956	1069866	3 years	Rent	15000	Source Verified	
15	1303503	1069057	3 years	Rent	100000	Source Verified	
16	1304871	1069759	< 1 year	Rent	28000	Not Verified	
17	1299699	1065775	4 years	Rent	42000	Not Verified	
18	1304884	1069971	10+ years	Mortgage	110000	Not Verified	
19	1294539	1062474	1 year	Mortgage	84000	Verified	
20	1304855	1069742	6 years	Rent	77385.19	Not Verified	
21	1284848	1069740	3 years	Rent	43370	Verified	
22	1269083	1039153	10+ years	Rent	105000	Verified	
23	1304821	1069710	10+ years	Own	50000	Source Verified	
24	1304810	1069700	5 years	Rent	50000	Not Verified	
25	1304634	1069559	1 year	Rent	76000	Not Verified	
26	1273773	1069697	2 years	Mortgage	92000	Verified	
27	1304764	1069657	2 years	Rent	50004	Not Verified	

Query Settings

PROPERTIES

Name

BorrowerDetails

All Properties

APPLIED STEPS

Source

Navigation

Promoted Headers

Changed Type

Replaced Value

Filtered Rows

Filtered Rows1

Removed Blank Rows

Removed Blank Rows1

✕ Capitalized Each Word

Changed Type1

Renamed Columns

Added Conditional Column

Removed Duplicates

Activate Windows  
Go to Settings to activate Windows.



# **Data Transformation**



# Column Transformation:

Change the data type of the 'total\_pymnt' column to 'Fixed decimal number'.

Queries [3]

- Query Errors - 17-02-...
- Errors in BorrowerDe...
- Other Queries [2]
- BorrowerDetails
- LoanDetails

		verification_status	dti	delinq_2yrs	last_pymnt_d	total_pymnt	out_prncp
1	24000	Verified	27.65	0	01-01-2015	5,861.07	0
2	30000	Source Verified	1	0	01-04-2020	1,008.71	0
3	12252	Not Verified	8.72	0	01-06-2021	3,003.65	0
4	49200	Source Verified	20	0	01-01-2015	12,226.30	0
5	80000	Source Verified	17.94	0	01-01-2016	3,242.17	766.9
6	36000	Source Verified	11.2	0	01-01-2015	5,631.38	0
7	47004	Not Verified	23.51	0	01-01-2016	8,136.84	1889.15
8	48000	Source Verified	5.35	0	01-01-2015	3,938.14	0
9	40000	Source Verified	5.55	0	01-04-2019	646.02	0
10	15000	Verified	18.08	0	01-11-2019	1,476.19	0
11	72000	Not Verified	16.12	0	01-06-2020	7,677.52	0
12	75000	Source Verified	10.78	0	01-09-2020	13,943.08	0
13	30000	Source Verified	10.08	0	01-07-2019	2,270.70	0
14	15000	Source Verified	12.56	0	01-01-2015	3,478.98	0
15	100000	Source Verified	7.06	0	01-10-2020	7,471.99	0
16	28000	Not Verified	20.31	0	01-01-2015	1,270.17	0
17	42000	Not Verified	18.6	0	01-01-2015	12,519.26	0
18	110000	Not Verified	10.52	0	01-05-2020	3,785.02	0
19	84000	Verified	18.44	2	01-02-2015	7,164.50	0
20	77385.19	Not Verified	9.86	0	01-07-2019	9,459.96	0
21	43370	Verified	26.53	0	01-08-2015	27,663.04	0
22	105000	Verified	13.22	0	01-09-2020	14,025.40	0
23	50000	Source Verified	11.18	0	01-01-2015	11,902.56	0
24	50000	Not Verified	16.01	0	01-10-2020	11,536.31	0
25	76000	Not Verified	2.4	0	01-10-2019	2,050.14	0
26	92000	Verified	29.44	0	01-09-2019	15,823.48	0
27	50004	Not Verified	13.97	3	01-12-2019	1,609.12	0
28							

Query Settings

## PROPERTIES

Name

BorrowerDetails

All Properties

## APPLIED STEPS

- Source
- Navigation
- Promoted Headers
- Changed Type
- Replaced Value
- Filtered Rows
- Filtered Rows1
- Removed Blank Rows
- Removed Blank Rows1
- Capitalized Each Word
- Changed Type1
- Renamed Columns
- Added Conditional Column
- Removed Duplicates

Activate Windows  
Go to Settings to activate Windows.



Round off the numbers in the 'funded\_amnt' column to 2 decimal places.

Close & Apply

New Source

Recent Sources

Enter Data

Data source settings

Manage Parameters

Refresh Preview

Advanced Editor

Manage

Choose Columns

Remove Columns

Keep Rows

Remove Rows

Sort

Split Column

Group By

Replace Values

Data Type: Fixed decimal number

Use First Row as Headers

Combine Queries

Append Queries

Combine Files

Text Analytics

Vision

Azure Machine Learning

Close

New Query

Data Sources

Parameters

Query

Manage Columns

Reduce Rows

Transform

Combine

AI Insights

Queries [3]

Query Errors - 17-02-...

Other Queries [2]

BorrowerDetails

LoanDetails

fx

= Table.TransformColumnTypes("#Capitalized Each Word",{{"funded\_amnt", Currency.Type}})

loan\_amnt

funded\_amnt

term

int\_rate

installment

grade

sub

1	1077501	5000	4,975.00	36 months	10.65	162.87	B	B2
2	1077430	2500	2,500.00	60 months	15.27	59.83	C	C4
3	1077175	2400	2,400.00	36 months	15.96	84.33	C	C5
4	1076863	10000	10,000.00	36 months	13.49	339.31	C	C1
5	1075358	3000	3,000.00	60 months	12.69	67.79	B	B5
6	1075269	5000	5,000.00	36 months	7.9	156.46	A	A4
7	1069639	7000	7,000.00	60 months	15.96	170.08	C	C5
8	1072053	3000	3,000.00	36 months	18.64	109.43	E	E1
9	1071795	5600	5,600.00	60 months	21.28	152.39	F	F2
10	1071570	5375	5,350.00	60 months	12.69	121.45	B	B5
11	1070078	6500	6,500.00	60 months	14.65	153.45	C	C3
12	1069908	12000	12,000.00	36 months	12.69	402.54	B	B5
13	1064687	9000	9,000.00	36 months	13.49	305.38	C	C1
14	1069866	3000	3,000.00	36 months	9.91	96.68	B	B1
15	1069057	10000	10,000.00	36 months	10.65	325.74	B	B2
16	1069759	1000	1,000.00	36 months	16.29	35.31	D	D1
17	1065775	10000	10,000.00	36 months	15.27	347.98	C	C4
18	1069971	3600	3,600.00	36 months	6.03	109.57	A	A1
19	1062474	6000	6,000.00	36 months	11.71	198.46	B	B3
20	1069742	9200	9,200.00	36 months	6.03	280.01	A	A1
21	1069740	20250	19,142.16	60 months	15.27	484.63	C	C4
22	1039153	21000	21,000.00	36 months	12.42	701.73	B	B4
23	1069710	10000	10,000.00	36 months	11.71	330.76	B	B3
24	1069700	10000	10,000.00	36 months	11.71	330.76	B	B3
25	1069559	6000	6,000.00	36 months	11.71	198.46	B	B3
26	1069697	15000	15,000.00	36 months	9.91	483.38	B	B1
27	1069800	15000	8,725.00	36 months	14.27	514.64	C	C2
28								

Query Settings

PROPERTIES

Name

LoanDetails

All Properties

APPLIED STEPS

Source

Navigation

Promoted Headers

Changed Type

Removed Duplicates

Replaced Value

Capitalized Each Word

Changed Type1

Renamed Columns

Removed Columns

Activate Windows

Go to Settings to activate Windows.

# Column Renaming:

Rename the column 'issue\_d' to 'issue\_date'.

Close & Apply | New Source | Recent Sources | Enter Data | Data source settings | Manage Parameters | Refresh Preview | Properties | Advanced Editor | Manage | Choose Columns | Remove Columns | Keep Rows | Remove Rows | Split Column | Group By | Data Type: Date | Use First Row as Headers | Replace Values | Merge Queries | Append Queries | Combine Files | Text Analytics | Vision | Azure Machine Learning | AI Insights

Queries [3] | Query Errors - 17-02-... | Errors in BorrowerDe... | Other Queries [2] | BorrowerDetails | LoanDetails

Formula Bar: `= Table.RenameColumns("#Changed Type1",{{"issue_d", "issue_date"}})`

	installment	grade	sub_grade	issue_date	loan_status	purpose
1	10.65	162.87	B	01-12-2018	Fully Paid	Credit Card
2	15.27	59.83	C	01-12-2018	Charged Off	Car
3	15.96	84.33	C	01-12-2018	Fully Paid	Small_Business
4	13.49	339.31	C	01-12-2018	Fully Paid	Other
5	12.69	67.79	B	01-12-2018	Current	Other
6	7.9	156.46	A	01-12-2018	Fully Paid	Wedding
7	15.96	170.08	C	01-12-2018	Current	Debt_Consolidation
8	18.64	109.43	E	01-12-2018	Fully Paid	Car
9	21.28	152.39	F	01-12-2018	Charged Off	Small_Business
10	12.69	121.45	B	01-12-2018	Charged Off	Other
11	14.65	153.45	C	01-12-2018	Fully Paid	Debt_Consolidation
12	12.69	402.54	B	01-12-2018	Fully Paid	Debt_Consolidation
13	13.49	305.38	C	01-12-2018	Charged Off	Debt_Consolidation
14	9.91	96.68	B	01-12-2018	Fully Paid	Credit Card
15	10.65	325.74	B	01-12-2018	Charged Off	Other
16	16.29	35.31	D	01-12-2018	Fully Paid	Debt_Consolidation
17	15.27	347.98	C	01-12-2018	Fully Paid	Home_Improvement
18	6.03	109.57	A	01-12-2018	Fully Paid	Major_Purchase
19	11.71	198.46	B	01-12-2018	Fully Paid	Medical
20	6.03	280.01	A	01-12-2018	Fully Paid	Debt_Consolidation
21	15.27	484.63	C	01-12-2018	Fully Paid	Debt_Consolidation
22	12.42	701.73	B	01-12-2018	Charged Off	Debt_Consolidation
23	11.71	330.76	B	01-12-2018	Fully Paid	Credit Card
24	11.71	330.76	B	01-12-2018	Fully Paid	Debt_Consolidation
25	11.71	198.46	B	01-12-2018	Charged Off	Major_Purchase
26	9.91	483.38	B	01-12-2018	Fully Paid	Credit Card
27	14.27	514.64	C	01-12-2018	Charged Off	Debt_Consolidation

Query Settings

PROPERTIES

Name: LoanDetails

APPLIED STEPS

- Source
- Navigation
- Promoted Headers
- Changed Type
- Removed Duplicates
- Replaced Value
- Capitalized Each Word
- Changed Type1
- Renamed Columns**
- Removed Columns

# Rename the column 'last\_pymnt\_d' to 'last\_pymnt\_date'

Bi project

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Properties Advanced Editor Manage Choose Columns Remove Columns Keep Rows Remove Rows Split Column Group By Data Type: Date Use First Row as Headers Replace Values Merge Queries Append Queries Combine Files Text Analytics Vision Azure Machine Learning

Queries [3]

- Query Errors - 17-02-...
- Other Queries [2]
- BorrowerDetails**
- LoanDetails

= Table.RenameColumns("#Changed Type1",{{"last\_pymnt\_d", "last\_pymnt\_date"}})

	l_inc	verification_status	dti	delinq_2yrs	last_pymnt_date	total_pymnt	out_prncp
1	24000	Verified	27.65	0	01-01-2015	5,861.07	
2	30000	Source Verified	1	0	01-04-2020	1,008.71	
3	12252	Not Verified	8.72	0	01-06-2021	3,003.65	
4	49200	Source Verified	20	0	01-01-2015	12,226.30	
5	80000	Source Verified	17.94	0	01-01-2016	3,242.17	
6	36000	Source Verified	11.2	0	01-01-2015	5,631.38	
7	47004	Not Verified	23.51	0	01-01-2016	8,136.84	
8	48000	Source Verified	5.35	0	01-01-2015	3,938.14	
9	40000	Source Verified	5.55	0	01-04-2019	646.02	
10	15000	Verified	18.08	0	01-11-2019	1,476.19	
11	72000	Not Verified	16.12	0	01-06-2020	7,677.52	
12	75000	Source Verified	10.78	0	01-09-2020	13,943.08	
13	30000	Source Verified	10.08	0	01-07-2019	2,270.70	
14	15000	Source Verified	12.56	0	01-01-2015	3,478.98	
15	100000	Source Verified	7.06	0	01-10-2020	7,471.99	
16	28000	Not Verified	20.31	0	01-01-2015	1,270.17	
17	42000	Not Verified	18.6	0	01-01-2015	12,519.26	
18	110000	Not Verified	10.52	0	01-05-2020	3,785.02	
19	84000	Verified	18.44	2	01-02-2015	7,164.50	
20	77385.19	Not Verified	9.86	0	01-07-2019	9,459.96	
21	43370	Verified	26.53	0	01-08-2015	27,663.04	
22	105000	Verified	13.22	0	01-09-2020	14,025.40	
23	50000	Source Verified	11.18	0	01-01-2015	11,902.56	
24	50000	Not Verified	16.01	0	01-10-2020	11,536.31	
25	76000	Not Verified	2.4	0	01-10-2019	2,050.14	
26	92000	Verified	29.44	0	01-09-2019	15,823.48	
27	50004	Not Verified	13.97	3	01-12-2019	1,609.12	
28							

Query Settings

**PROPERTIES**

Name  
BorrowerDetails

All Properties

**APPLIED STEPS**

- Source
- Navigation
- Promoted Headers
- Changed Type
- Replaced Value
- Filtered Rows
- Filtered Rows1
- Removed Blank Rows
- Removed Blank Rows1
- Capitalized Each Word
- Changed Type1
- Renamed Columns**
- Added Conditional Column
- Removed Duplicates

11 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED ON MONDAY

## Creating New Columns:

Create a new custom column named 'total\_amount\_paid' to calculate the total amount paid by each borrower by subtracting

Structure

Formatting

Properties

Sort

Groups

Relationships

Calculations

✕

✓

1 total\_amount\_paid = [total\_pymnt] - [out\_prncp]

member\_id

loan\_id

emp\_length

home\_ownership

annual\_inc

verification\_status

dti

delinq\_2yrs

last\_pymnt\_date

total\_pymnt

out\_prncp

total\_amount\_paid

delinquency\_status

1277722

1046668

10+ years

Mortgage

\$65,000

Verified

24.92

0

01 November 2015

\$28,646

0

\$28,646

not delinquent

1266546

1036674

10+ years

Mortgage

\$65,000

Verified

12.37

0

01 May 2015

\$41,927.68

0

\$41,927.68

not delinquent

1240546

1013191

10+ years

Mortgage

\$65,000

Verified

20.88

0

01 January 2021

\$7,391.71

0

\$7,391.71

not delinquent

1236283

1009533

10+ years

Mortgage

\$65,000

Verified

11.39

0

01 December 2020

\$40,954.38

0

\$40,954.38

not delinquent

1233736

1007154

10+ years

Mortgage

\$65,000

Verified

7.92

0

01 November 2019

\$15,844.83

0

\$15,844.83

not delinquent

1223683

998521

10+ years

Mortgage

\$65,000

Verified

11.21

0

01 January 2019

\$3,360.74

0

\$3,360.74

not delinquent

1229951

1003567

10+ years

Mortgage

\$65,000

Verified

18.33

0

01 June 2021

\$26,040.9215

0

\$26,040.9215

not delinquent

1173982

953231

10+ years

Mortgage

\$65,000

Verified

9.58

0

01 October 2021

\$36,215.5279

0

\$36,215.5279

not delinquent

1108073

891272

10+ years

Mortgage

\$65,000

Verified

20.27

0

01 June 2015

\$7,160.56

0

\$7,160.56

not delinquent

1100116

884664

10+ years

Mortgage

\$65,000

Verified

11.26

0

01 July 2020

\$3,620.1

0

\$3,620.1

not delinquent

1090511

875933

10+ years

Mortgage

\$65,000

Verified

20.55

0

01 December 2021

\$28,724.6507

0

\$28,724.6507

not delinquent

1083144

871639

10+ years

Mortgage

\$65,000

Verified

18.39

0

01 June 2020

\$6,873.75

0

\$6,873.75

not delinquent

1080872

867266

10+ years

Mortgage

\$65,000

Verified

10.1

0

01 May 2021

\$25,035.0854

0

\$25,035.0854

not delinquent

1075368

862285

10+ years

Mortgage

\$65,000

Verified

21.64

0

01 June 2020

\$16,958.47

0

\$16,958.47

not delinquent

1059787

848204

10+ years

Mortgage

\$65,000

Verified

24.81

0

01 March 2015

\$35,958.0289

0

\$35,958.0289

not delinquent

1069065

856680

10+ years

Mortgage

\$65,000

Verified

14.6

0

01 February 2021

\$13,986.04

0

\$13,986.04

not delinquent

1068797

856438

10+ years

Mortgage

\$65,000

Verified

13.77

0

01 December 2020

\$14,141.87

0

\$14,141.87

not delinquent

1042768

833210

10+ years

Mortgage

\$65,000

Verified

14.1

0

01 August 2021

\$28,277.8687

0

\$28,277.8687

not delinquent

983304

780516

10+ years

Mortgage

\$65,000

Verified

29.13

0

01 March 2021

\$26,864.9489

0

\$26,864.9489

not delinquent

968352

767286

10+ years

Mortgage

\$65,000

Verified

25.13

0

01 March 2015

\$39,716.96

0

\$39,716.96

not delinquent

955511

755647

10+ years

Mortgage

\$65,000

Verified

7.98

0

01 June 2021

\$11,954.8781

0

\$11,954.8781

not delinquent

932572

735772

10+ years

Mortgage

\$65,000

Verified

22.52

0

01 December 2018

\$2,582.93

0

\$2,582.93

not delinquent

919885

724732

10+ years

Mortgage

\$65,000

Verified

23.41

0

01 October 2018

\$3,493.86

0

\$3,493.86

not delinquent

909630

715901

10+ years

Mortgage

\$65,000

Verified

1.95

0

01 May 2019

\$28,740.98

0

\$28,740.98

not delinquent

856804

670178

10+ years

Mortgage

\$65,000

Verified

20.05

0

01 March 2015

\$45,316.5737

0

\$45,316.5737

not delinquent

804216

627586

10+ years

Mortgage

\$65,000

Verified

19.83

0

01 April 2020

\$15,699.77

0

\$15,699.77

not delinquent

776040

604926

10+ years

Mortgage

\$65,000

Verified

18.35

0

01 June 2018

\$27,028.56

0

\$27,028.56

not delinquent

Data

Search

BorrowerDetails

Σ annual\_inc

Σ delinq\_2yrs

delinquency\_status

Σ dti

emp\_length

home\_ownership

last\_pymnt\_date

loan\_id

Σ member\_id

Non-Verified Borrowers Count

Σ out\_prncp

remaining\_installments

total\_amount\_paid

Σ total\_pymnt

verification\_status

LoanDetails

fully paid

fully paid loan percentage

Σ funded\_amnt

grade

id

installment

**Add a new conditional column named 'delinquency\_status' to identify if the borrower has any delinquencies. If the number of delinquencies in 'delinq\_2yrs' is greater than 0, the status should be 'Delinquent', otherwise 'Not Delinquent'.**

The screenshot displays the Microsoft Power Query Editor interface. The ribbon at the top includes tabs for Close & Apply, New Source, Recent Sources, Enter Data, Data source settings, Manage Parameters, Refresh Preview, Properties, Advanced Editor, Manage, Choose Columns, Remove Columns, Keep Rows, Remove Rows, Sort, Split Column, Group By, Transform, Data Type, Merge Queries, Append Queries, Combine Files, Text Analytics, Vision, and Azure Machine Learning.

The Queries list on the left shows 'BorrowerDetails' selected. The main area displays a table with columns: 'dti', 'delinq\_2yrs', 'last\_pymnt\_date', 'total\_pymnt', 'out\_prncp', and 'delinquency\_status'. The formula bar shows the M code for adding the conditional column:

```
= Table.AddColumn("#Renamed Columns", "delinquency_status", each if [delinq_2yrs] > 0 then "delinquent" else "not delinquent")
```

The 'delinquency\_status' column is highlighted in green. The right sidebar shows the 'Query Settings' pane with 'PROPERTIES' and 'APPLIED STEPS'. The 'APPLIED STEPS' list includes 'Source', 'Navigation', 'Promoted Headers', 'Changed Type', 'Replaced Value', 'Filtered Rows', 'Filtered Rows1', 'Removed Blank Rows', 'Removed Blank Rows1', 'Capitalized Each Word', 'Changed Type1', 'Renamed Columns', 'Added Conditional Column' (highlighted), and 'Removed Duplicates'.

	dti	delinq_2yrs	last_pymnt_date	total_pymnt	out_prncp	delinquency_status
1	27.65	0	01-01-2015	5,861.07	0	not delinquent
2	1	0	01-04-2020	1,008.71	0	not delinquent
3	8.72	0	01-06-2021	3,003.65	0	not delinquent
4	20	0	01-01-2015	12,226.30	0	not delinquent
5	17.94	0	01-01-2016	3,242.17	766.9	not delinquent
6	11.2	0	01-01-2015	5,631.38	0	not delinquent
7	23.51	0	01-01-2016	8,136.84	1889.15	not delinquent
8	5.35	0	01-01-2015	3,938.14	0	not delinquent
9	5.55	0	01-04-2019	646.02	0	not delinquent
10	18.08	0	01-11-2019	1,476.19	0	not delinquent
11	16.12	0	01-06-2020	7,677.52	0	not delinquent
12	10.78	0	01-09-2020	13,943.08	0	not delinquent
13	10.08	0	01-07-2019	2,270.70	0	not delinquent
14	12.56	0	01-01-2015	3,478.98	0	not delinquent
15	7.06	0	01-10-2020	7,471.99	0	not delinquent
16	20.31	0	01-01-2015	1,270.17	0	not delinquent
17	18.6	0	01-01-2015	12,519.26	0	not delinquent
18	10.52	0	01-05-2020	3,785.02	0	not delinquent
19	18.44	2	01-02-2015	7,164.50	0	delinquent
20	9.86	0	01-07-2019	9,459.96	0	not delinquent
21	26.53	0	01-08-2015	27,663.04	0	not delinquent
22	13.22	0	01-09-2020	14,025.40	0	not delinquent
23	11.18	0	01-01-2015	11,902.56	0	not delinquent
24	16.01	0	01-10-2020	11,536.31	0	not delinquent
25	2.4	0	01-10-2019	2,050.14	0	not delinquent
26	29.44	0	01-09-2019	15,823.48	0	not delinquent



# Column Dropping:

Remove the 'sub\_grade' column as that does not significantly contribute to the analysis.

Close & Apply | New Source | Recent Sources | Enter Data | Data source settings | Manage Parameters | Refresh Preview | Properties | Advanced Editor | Manage | Choose Columns | Remove Columns | Keep Rows | Remove Rows | Sort | Split Column | Group By | Data Type: Any | Use First Row as Headers | Replace Values | Merge Queries | Append Queries | Combine Files | Text Analytics | Vision | Azure Machine Learning | AI Insights

Queries [3] | Query Errors - 17-02-... | Other Queries [2] | BorrowerDetails | LoanDetails

status | dti | delinq\_2yrs | last\_pymnt\_date | total\_pymnt | out\_prncp | delinquency\_status

1	27.65	0	01-01-2015	5,861.07	0	not delinquent
2	1	0	01-04-2020	1,008.71	0	not delinquent
3	8.72	0	01-06-2021	3,003.65	0	not delinquent
4	20	0	01-01-2015	12,226.30	0	not delinquent
5	17.94	0	01-01-2016	3,242.17	766.9	not delinquent
6	11.2	0	01-01-2015	5,631.38	0	not delinquent
7	23.51	0	01-01-2016	8,136.84	1889.15	not delinquent
8	5.35	0	01-01-2015	3,938.14	0	not delinquent
9	5.55	0	01-04-2019	646.02	0	not delinquent
10	18.08	0	01-11-2019	1,476.19	0	not delinquent
11	16.12	0	01-06-2020	7,677.52	0	not delinquent
12	10.78	0	01-09-2020	13,943.08	0	not delinquent
13	10.08	0	01-07-2019	2,270.70	0	not delinquent
14	12.56	0	01-01-2015	3,478.98	0	not delinquent
15	7.06	0	01-10-2020	7,471.99	0	not delinquent
16	20.31	0	01-01-2015	1,270.17	0	not delinquent
17	18.6	0	01-01-2015	12,519.26	0	not delinquent
18	10.52	0	01-05-2020	3,785.02	0	not delinquent
19	18.44	2	01-02-2015	7,164.50	0	delinquent
20	9.86	0	01-07-2019	9,459.96	0	not delinquent
21	26.53	0	01-08-2015	27,663.04	0	not delinquent
22	13.22	0	01-09-2020	14,025.40	0	not delinquent
23	11.18	0	01-01-2015	11,902.56	0	not delinquent
24	16.01	0	01-10-2020	11,536.31	0	not delinquent
25	2.4	0	01-10-2019	2,050.14	0	not delinquent
26	29.44	0	01-09-2019	15,823.48	0	not delinquent

Query Settings

PROPERTIES

Name

BorrowerDetails

All Properties

APPLIED STEPS

Source

Navigation

Promoted Headers

Changed Type

Replaced Value

Filtered Rows

Filtered Rows1

Removed Blank Rows

Removed Blank Rows1

Capitalized Each Word

Changed Type1

Renamed Columns

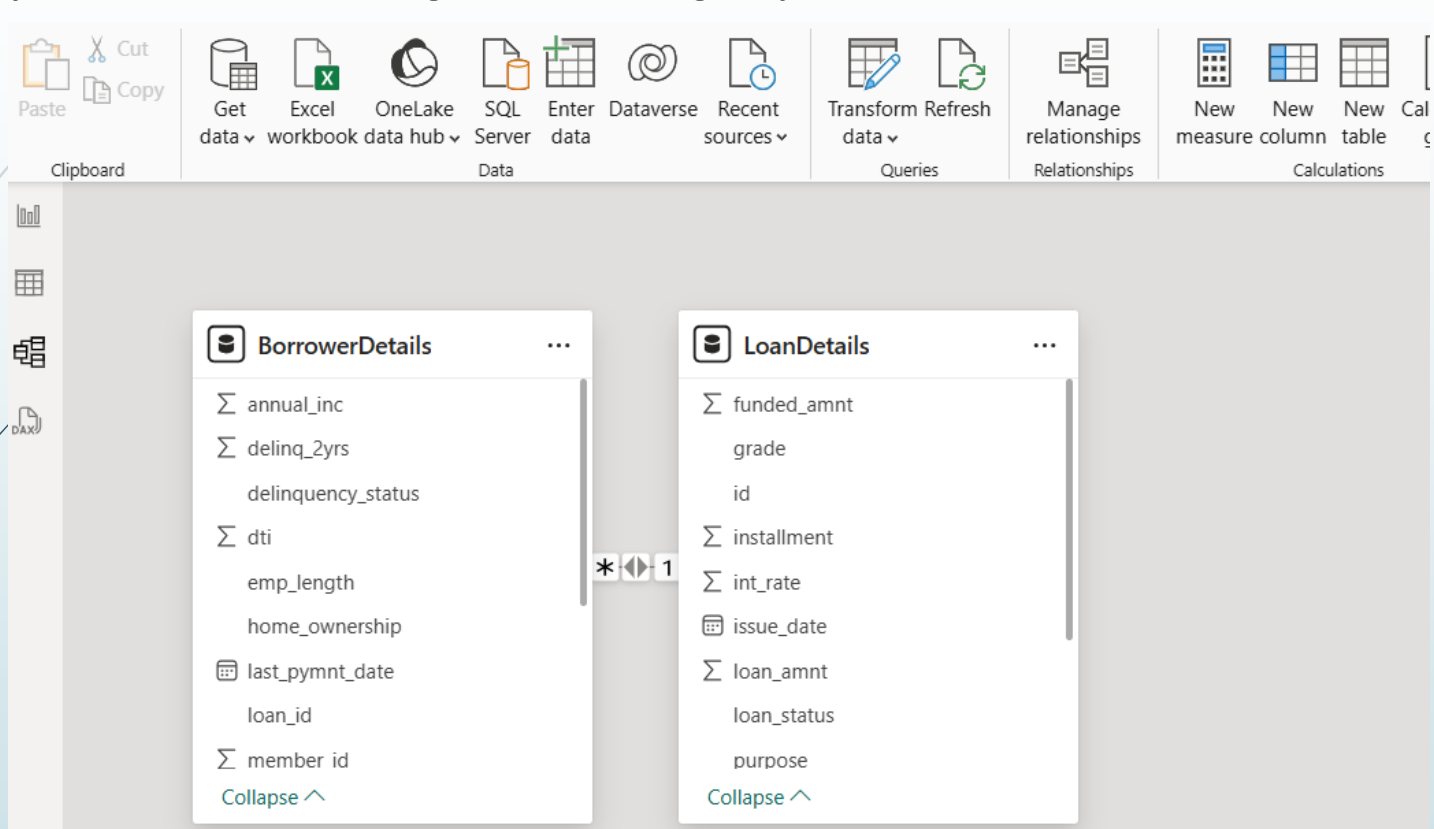
Added Conditional Column

Removed Duplicates



# **Data Modeling**

Identify the common column between both the tables and establish relationships between the two tables. Ensure the cross-filter direction is set to "Both". This step is crucial for enabling cross-table analysis and ensuring data integrity within the dataset.







# Creating Measures and Calculated Columns using DAX

Create a new calculated column named 'remaining\_installments' using DAX in the "BorrowerDetails" table to calculate the number of remaining installments by dividing the remaining principal amount ('out\_prncp') by the monthly installment amount ('installment') and round up the result using the CEILING() function to account for any partial payments.

home_ownership	annual_inc	verification_status	dti	delinq_2yrs	last_pymnt_date	total_pymnt	out_prncp	total_amount_paid	delinquency_status	remaining_installments
Mortgage	\$65,000	Verified	24.92	0	01 November 2015	\$28,646	0	\$28,646	not delinquent	0.00
Mortgage	\$65,000	Verified	12.37	0	01 May 2015	\$41,927.68	0	\$41,927.68	not delinquent	0.00
Mortgage	\$65,000	Verified	20.88	0	01 January 2021	\$7,391.71	0	\$7,391.71	not delinquent	0.00
Mortgage	\$65,000	Verified	11.39	0	01 December 2020	\$40,954.38	0	\$40,954.38	not delinquent	0.00
Mortgage	\$65,000	Verified	7.92	0	01 November 2019	\$15,844.83	0	\$15,844.83	not delinquent	0.00
Mortgage	\$65,000	Verified	11.21	0	01 January 2019	\$3,360.74	0	\$3,360.74	not delinquent	0.00
Mortgage	\$65,000	Verified	18.33	0	01 June 2021	\$26,040.9215	0	\$26,040.9215	not delinquent	0.00
Mortgage	\$65,000	Verified	9.58	0	01 October 2021	\$36,215.5279	0	\$36,215.5279	not delinquent	0.00
Mortgage	\$65,000	Verified	20.27	0	01 June 2015	\$7,160.56	0	\$7,160.56	not delinquent	0.00
Mortgage	\$65,000	Verified	11.26	0	01 July 2020	\$3,620.1	0	\$3,620.1	not delinquent	0.00
Mortgage	\$65,000	Verified	20.55	0	01 December 2021	\$28,724.6507	0	\$28,724.6507	not delinquent	0.00
Mortgage	\$65,000	Verified	18.39	0	01 June 2020	\$6,873.75	0	\$6,873.75	not delinquent	0.00
Mortgage	\$65,000	Verified	10.1	0	01 May 2021	\$25,035.0854	0	\$25,035.0854	not delinquent	0.00
Mortgage	\$65,000	Verified	21.64	0	01 June 2020	\$16,958.47	0	\$16,958.47	not delinquent	0.00
Mortgage	\$65,000	Verified	24.81	0	01 March 2015	\$35,958.0289	0	\$35,958.0289	not delinquent	0.00
Mortgage	\$65,000	Verified	14.6	0	01 February 2021	\$13,986.04	0	\$13,986.04	not delinquent	0.00
Mortgage	\$65,000	Verified	13.77	0	01 December 2020	\$14,141.87	0	\$14,141.87	not delinquent	0.00
Mortgage	\$65,000	Verified	14.1	0	01 August 2021	\$28,277.8687	0	\$28,277.8687	not delinquent	0.00
Mortgage	\$65,000	Verified	29.13	0	01 March 2021	\$26,864.9489	0	\$26,864.9489	not delinquent	0.00
Mortgage	\$65,000	Verified	25.13	0	01 March 2015	\$39,716.96	0	\$39,716.96	not delinquent	0.00
Mortgage	\$65,000	Verified	7.98	0	01 June 2021	\$11,954.8781	0	\$11,954.8781	not delinquent	0.00
Mortgage	\$65,000	Verified	22.52	0	01 December 2018	\$2,582.93	0	\$2,582.93	not delinquent	0.00
Mortgage	\$65,000	Verified	23.41	0	01 October 2018	\$3,493.86	0	\$3,493.86	not delinquent	0.00
Mortgage	\$65,000	Verified	1.95	0	01 May 2019	\$28,740.98	0	\$28,740.98	not delinquent	0.00
Mortgage	\$65,000	Verified	20.05	0	01 March 2015	\$45,316.5737	0	\$45,316.5737	not delinquent	0.00
Mortgage	\$65,000	Verified	19.83	0	01 April 2020	\$15,699.77	0	\$15,699.77	not delinquent	0.00
Mortgage	\$65,000	Verified	18.35	0	01 June 2018	\$27,028.56	0	\$27,028.56	not delinquent	0.00

Table: BorrowerDetails (4 65 804 rows) Column: remaining\_installments (1 38 437 distinct values)

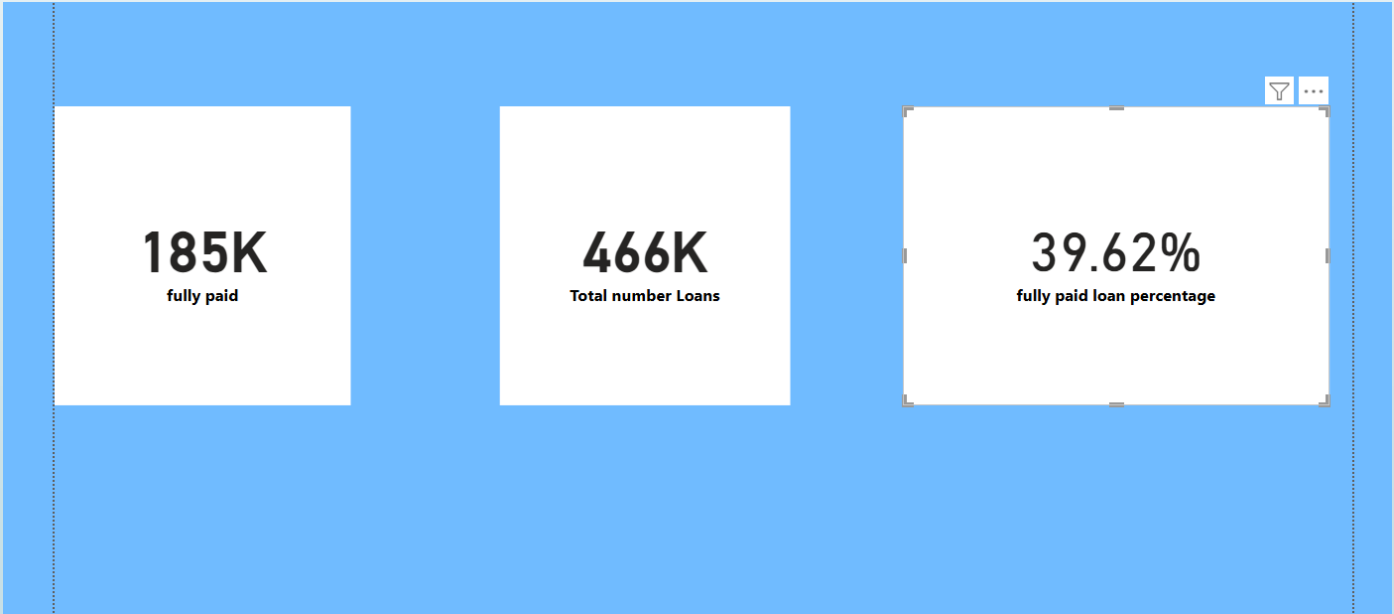
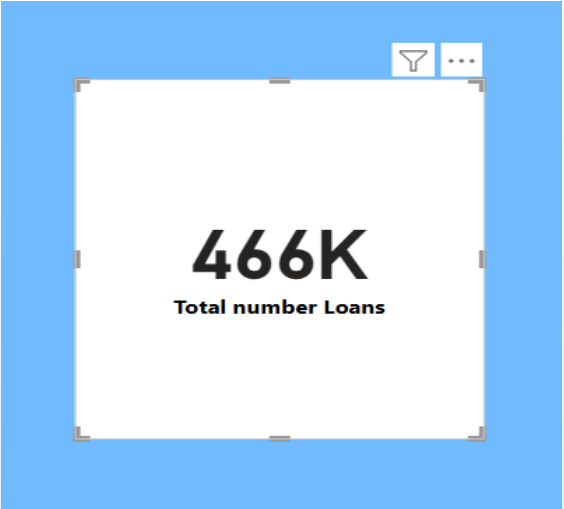
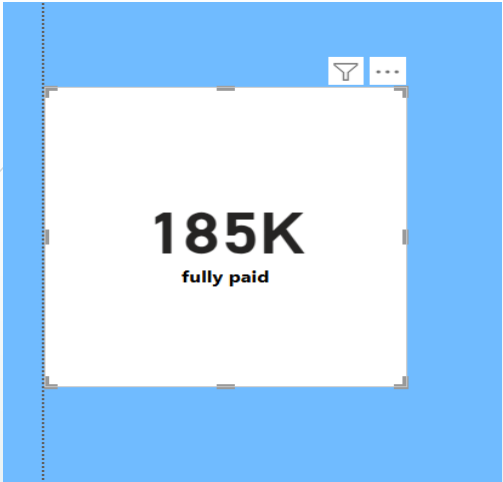
Update available (click to download)

Create a measure named 'Non-Verified Borrowers Count' using DAX to count the number of loans that have been 'Not Verified'.

**148K**

**Non-Verified Borrowers Count**

Create a measure named 'Fully Paid Loan Percentage' to calculate the percentage of fully paid loans. Divide the number of loans with a "Fully Paid" loan status by the total number of loans and then format this measure as Percentage.





# Creating Comprehensive Reports

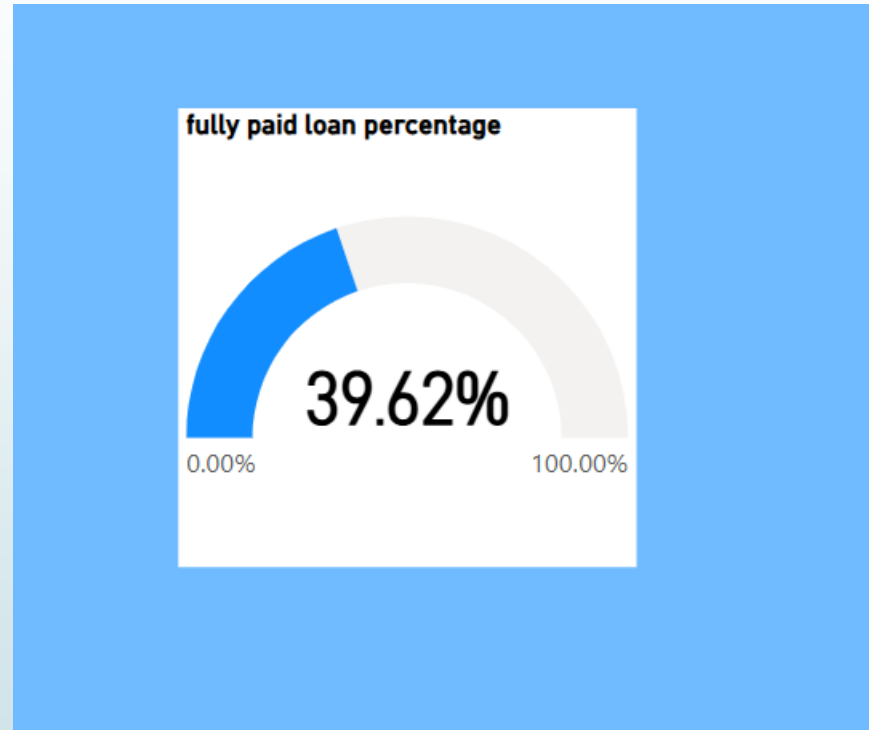
## Report 1: Loan Performance Analysis

Total Funded Amount: Create a card visual to display the total funded amount

A card visual with a blue background and a white center. The center contains the text '₹ 6.63bn' in a large, bold font, and 'Sum of funded\_amnt' in a smaller font below it.

**₹ 6.63bn**  
Sum of funded\_amnt

Fully Paid Loan Percentage: Create a gauge chart to display the 'Fully Paid Loan Percentage' measure.

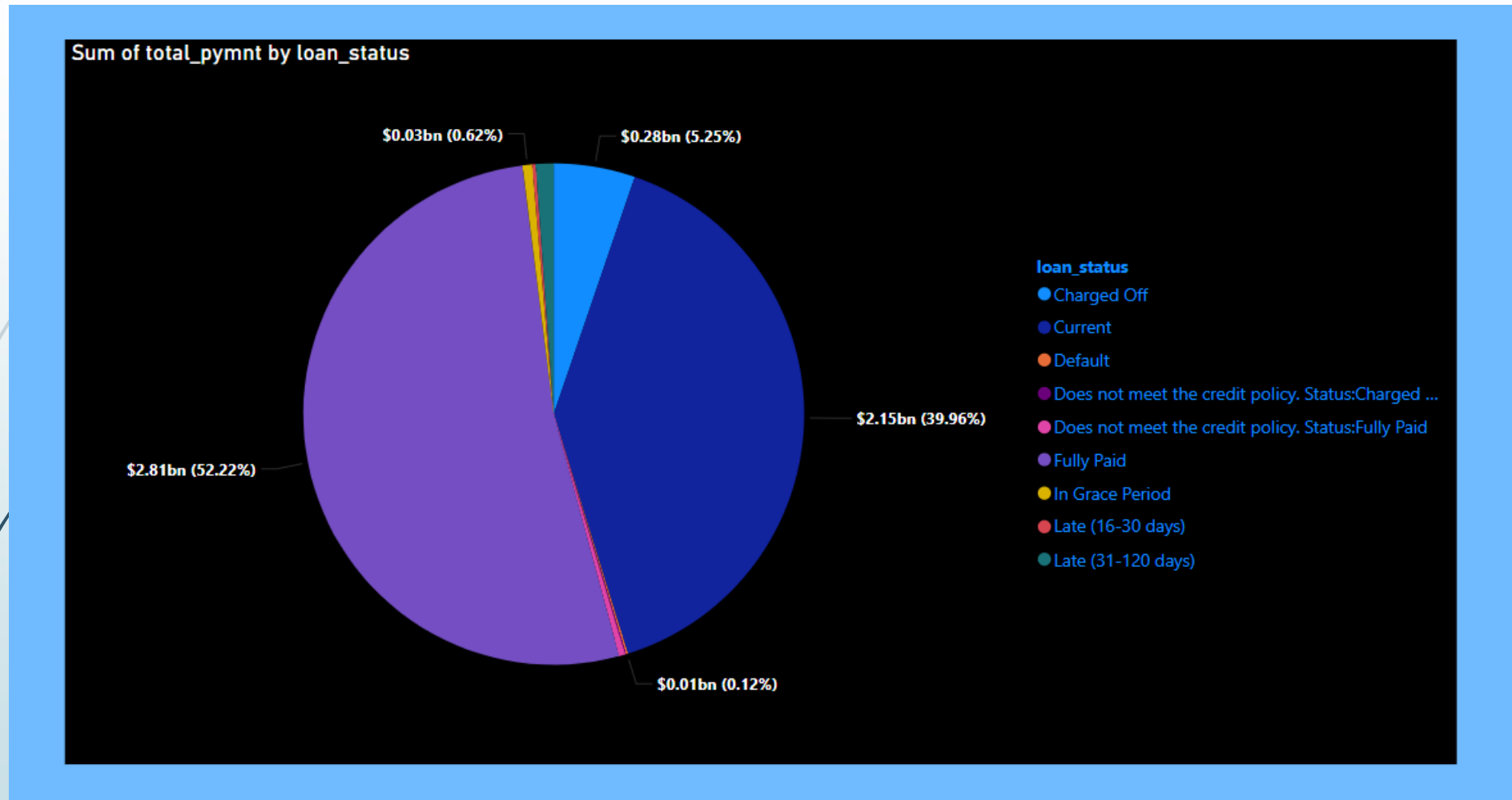


Average Interest Rate by Term: Create a multi-row card to show the average interest rate for each term.

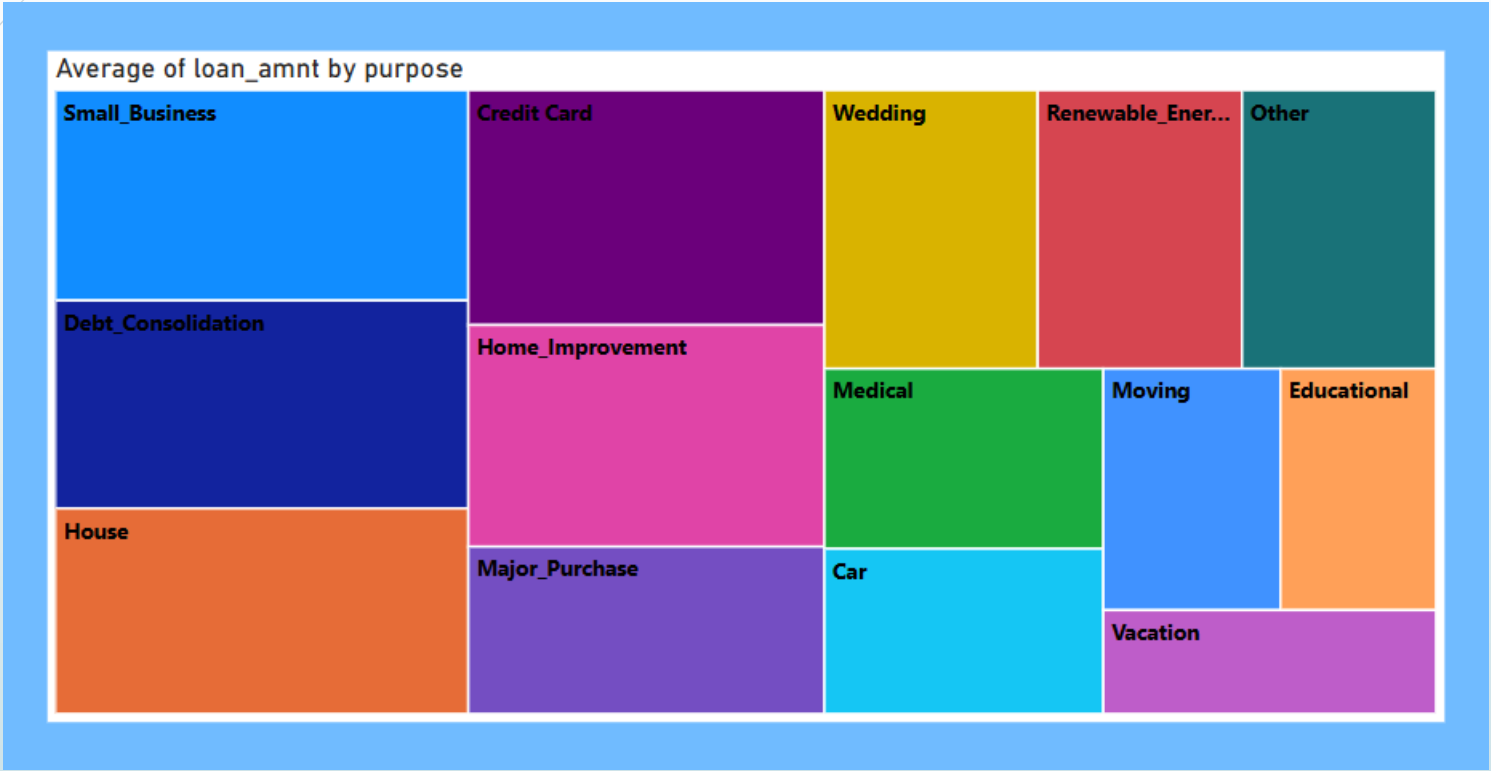
36 months
\$12.63866915876334
Average of int_rate
60 months
\$16.96480687397777
Average of int_rate



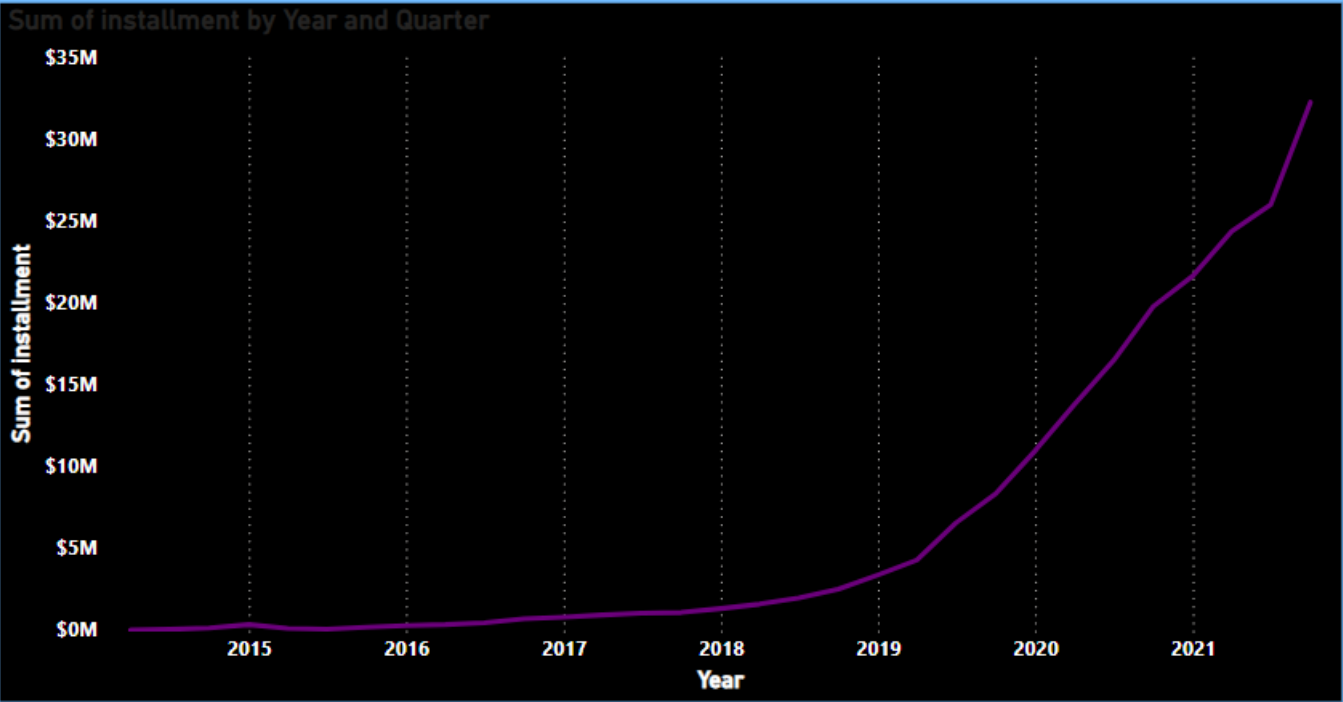
Loan Status Distribution: Create a pie chart to visualize the sum of total payments by loan status.



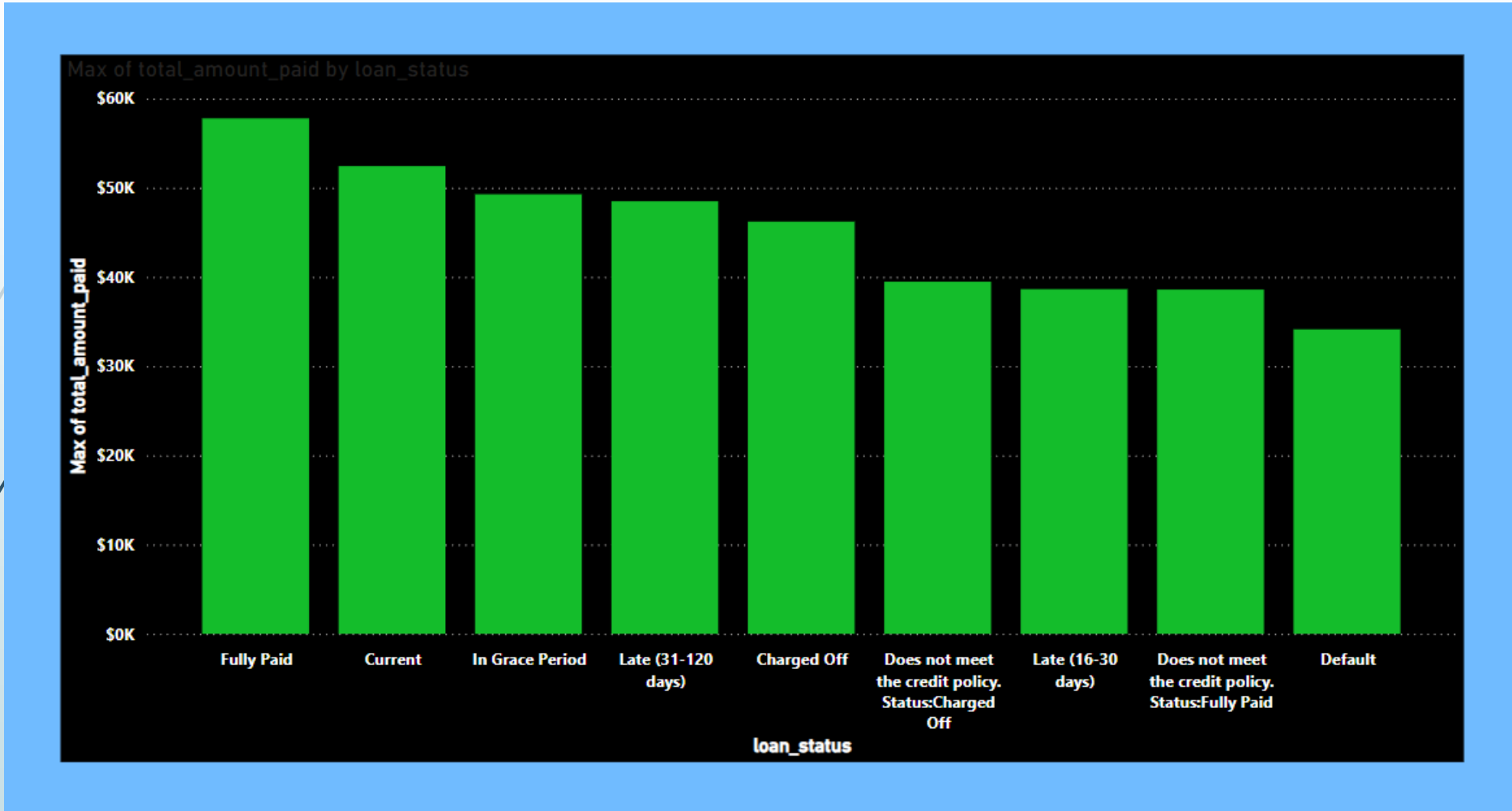
Loan Amount by Purpose: Create a treemap to show the average loan amount by purpose.



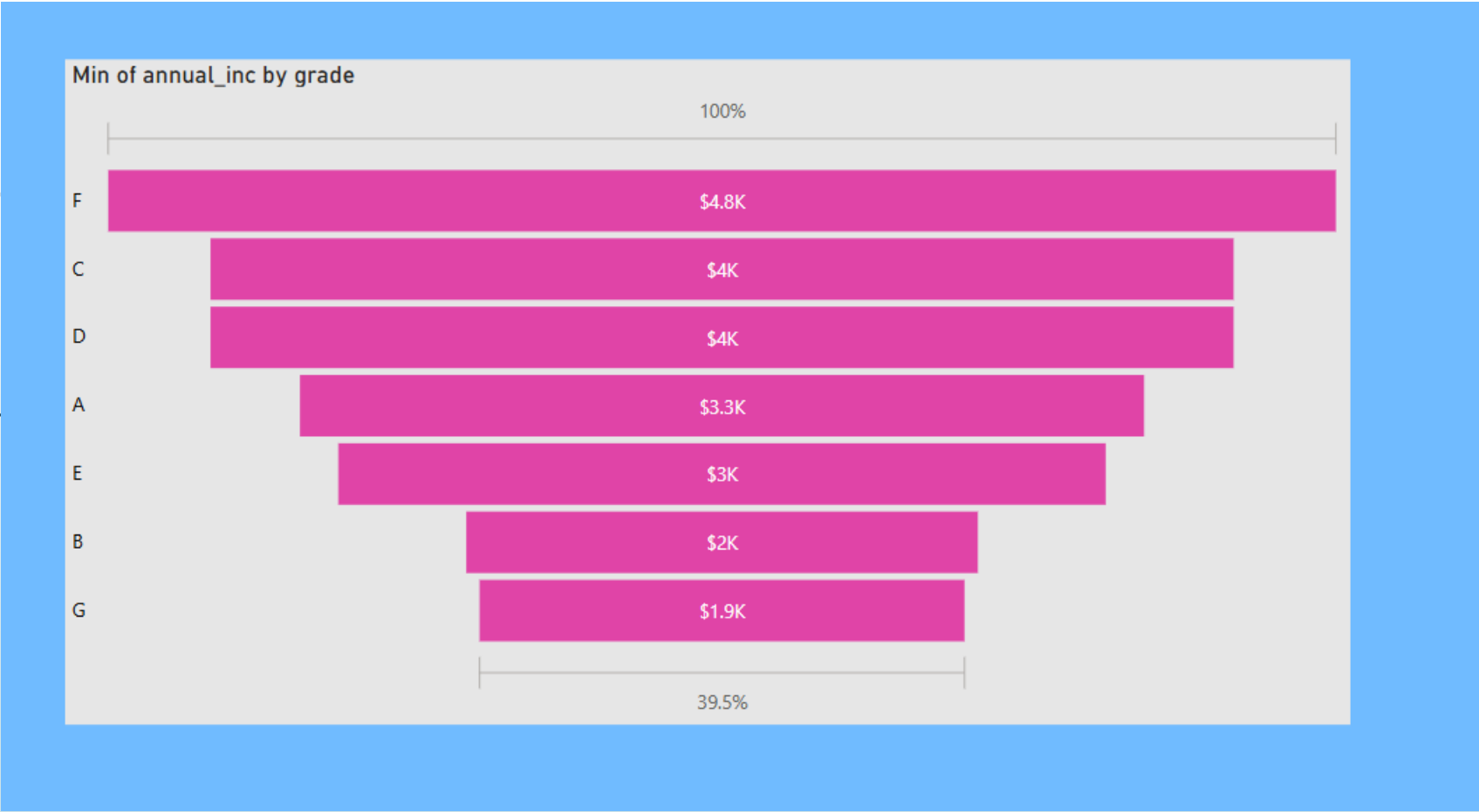
Installment Over Time: Create a line chart to visualize the sum of installments by Year and Quarter of the issue date.



Maximum Total Amount Paid by Loan Status: Create a column chart to display the maximum total amount paid by loan status.



Minimum Annual Income by Grade: Create a funnel chart to show the minimum annual income by grade.



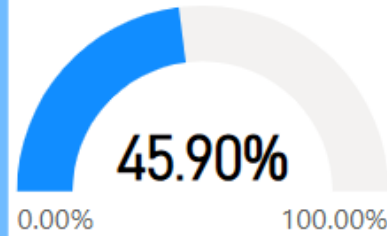
Issue Date Slicer: Add a slicer for the Month of the issue date to enable dynamic data exploration.



# Loan Performance Analysis

₹  
**511.8K**  
Sum of funded\_amnt

fully paid loan percentage

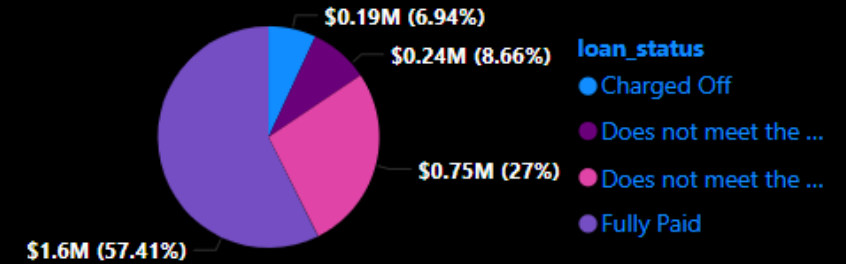


36 months

\$11.72039344262295

Average of int\_rate

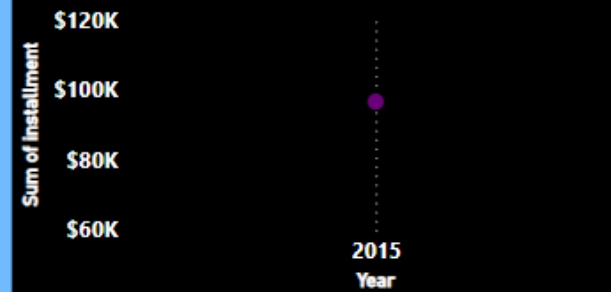
Sum of total\_pymnt by loan\_status



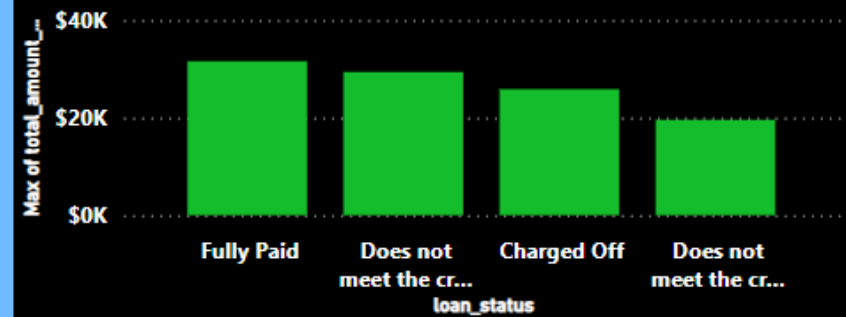
Average of loan\_amnt by purpose



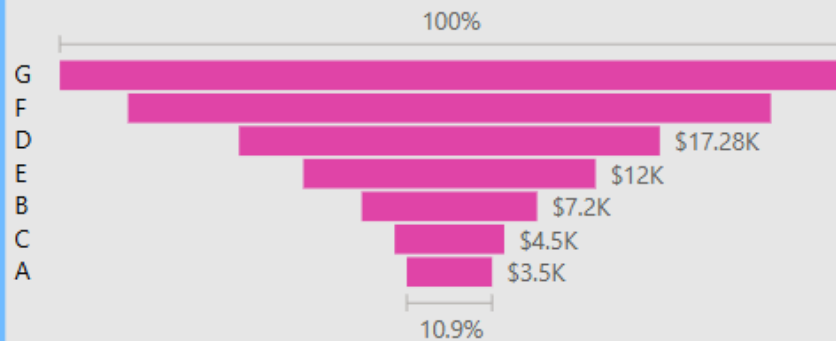
Sum of installment by Year and Quarter



Max of total\_amount\_paid by loan\_status



Min of annual\_inc by grade



issue\_date

- ☐ 01 June 2014
- ☐ 01 July 2014
- ☐ 01 August 2014
- ☐ 01 September 2014
- ☐ 01 October 2014
- ☐ 01 November 2014
- ☐ 01 December 2014




## Report 2: Borrower Profile Analysis



KPI Visual: Create a KPI visual with the sum of total payment as the value, the year of last payment date as the trend axis, and the sum of loan amount as the target. Round off to 2 decimal points and format as \$ currency.



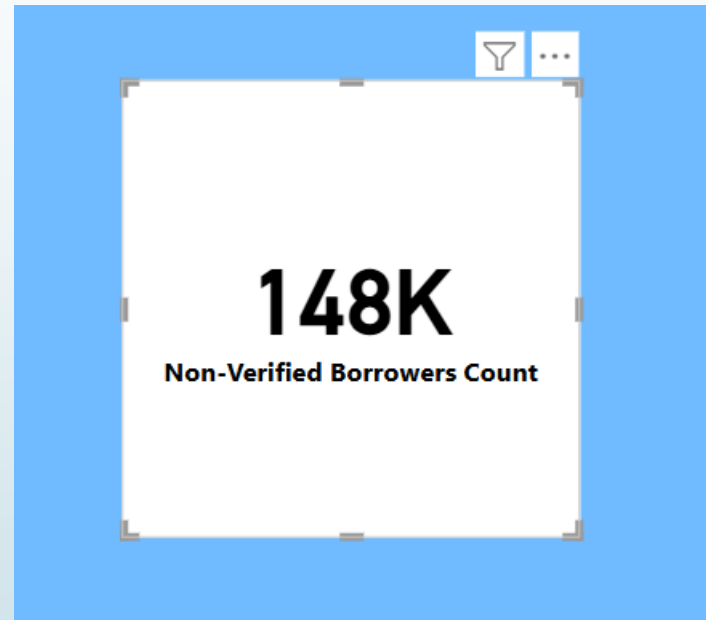
Average of Annual Income: Display the average of annual income using a card visual.

A card visual with a blue border and a white center. The center contains the text "\$73.29K" in a large, bold, black font, and below it, "Average of annual\_inc" in a smaller, regular, black font.

**\$73.29K**

Average of annual\_inc

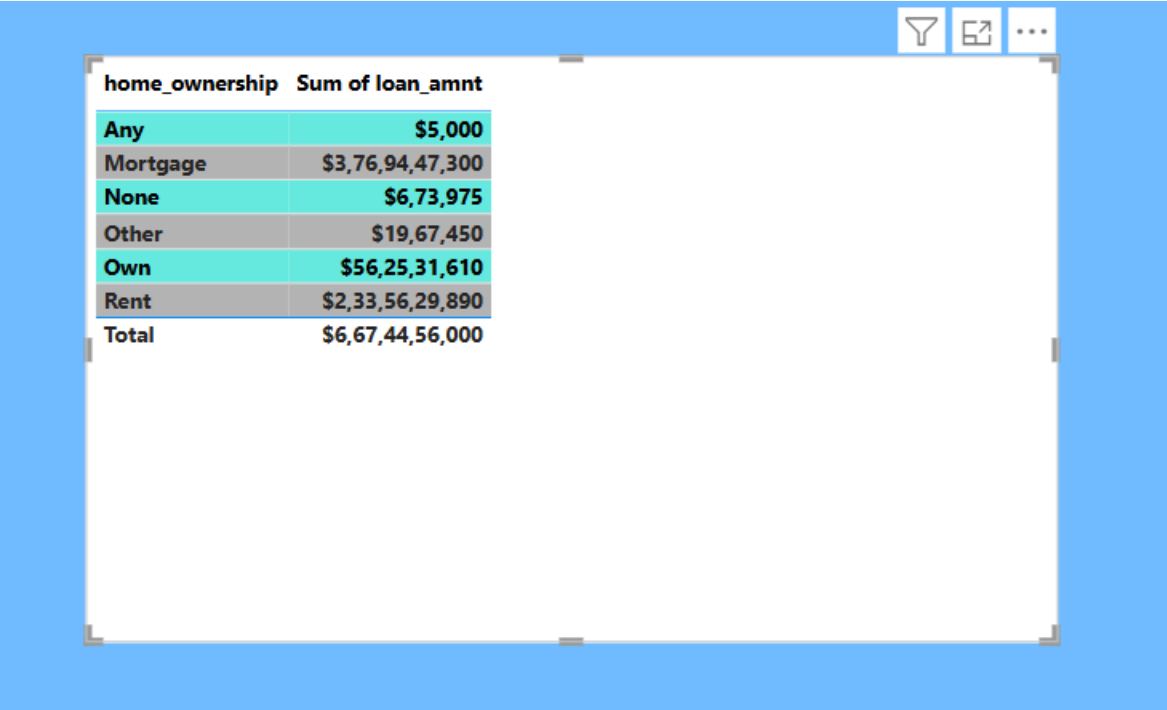
Non-Verified Borrowers Count: Display the count of non-verified borrowers using a card visual.



Average Debt-to-Income by Delinquency Status: Create a multi-row card to show the average debt-to-income ratio by delinquency status.



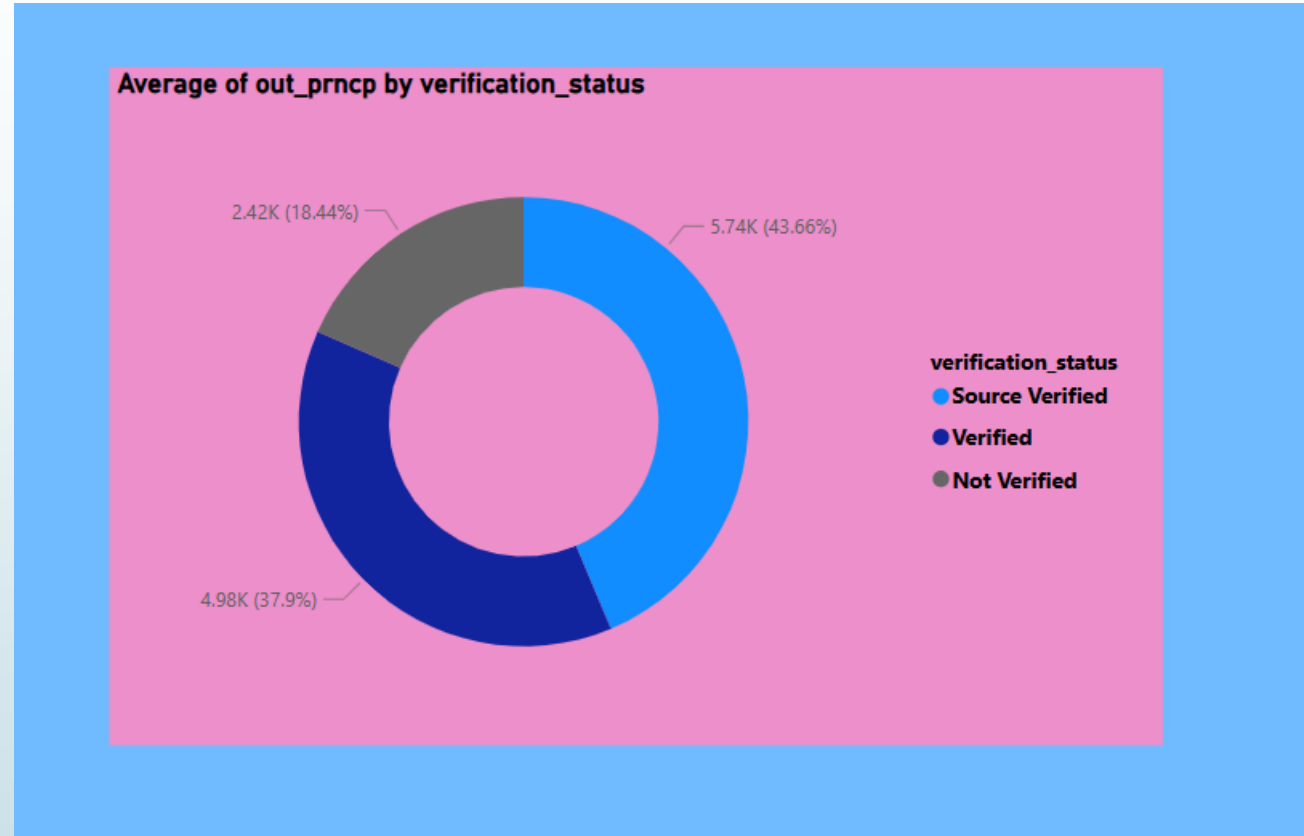
Sum of Loan Amount by Home Ownership: Create a table to show the total loan amount by home ownership.



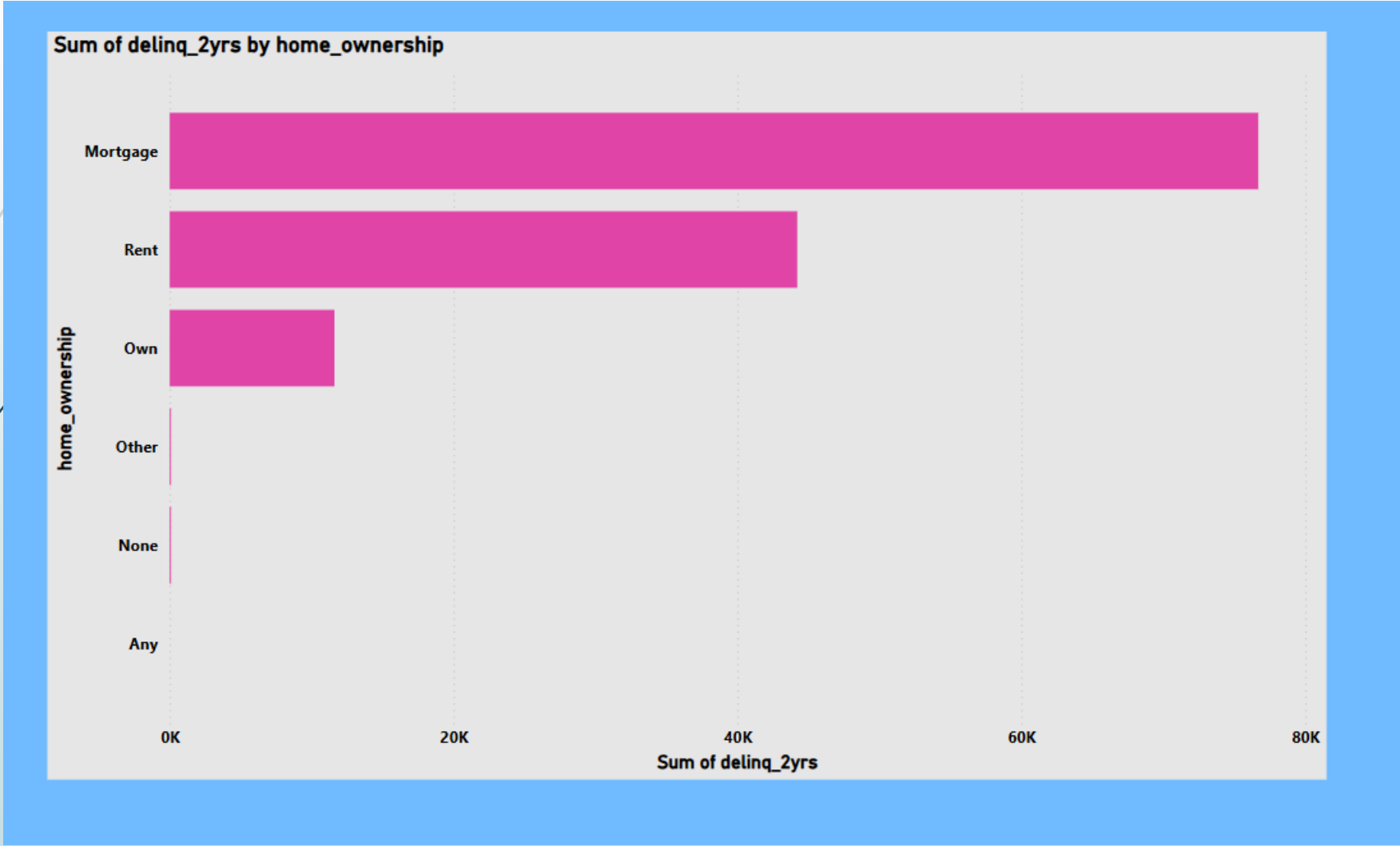
A screenshot of a data visualization tool showing a table. The table has two columns: 'home\_ownership' and 'Sum of loan\_amnt'. The rows are: Any (\$5,000), Mortgage (\$3,76,94,47,300), None (\$6,73,975), Other (\$19,67,450), Own (\$56,25,31,610), Rent (\$2,33,56,29,890), and Total (\$6,67,44,56,000). The table is displayed within a blue-bordered window with filter, share, and menu icons at the top right.

home_ownership	Sum of loan_amnt
Any	\$5,000
Mortgage	\$3,76,94,47,300
None	\$6,73,975
Other	\$19,67,450
Own	\$56,25,31,610
Rent	\$2,33,56,29,890
Total	\$6,67,44,56,000

Average Remaining Principal by Verification Status: Create a donut chart to display the average remaining outstanding principal by verification status.



Sum of Delinquencies by Home Ownership: Create a bar chart to show the total number of delinquencies in the past 2 years by home ownership and filter the visual to display only Mortgage, Rent, and Own.

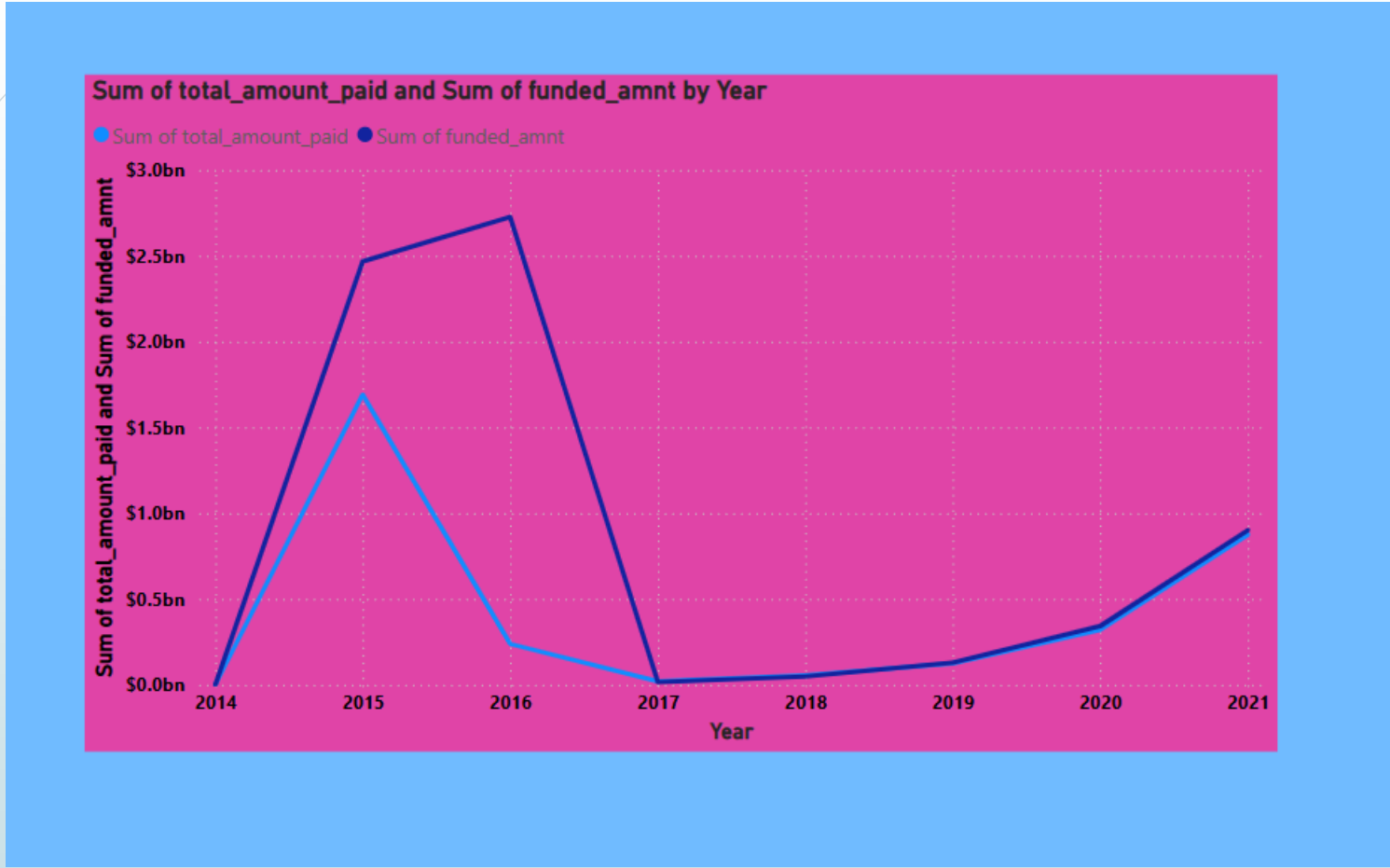


Max Remaining Installments by Employment Length: Create a treemap to show the maximum remaining installments by employment length.





Total Amount Paid and Funded Amount Over Time: Create a line chart to display the sum of total amount paid and the sum of funded amount by the year of last payment date.



Purpose Slicer: Add a slicer for loan purpose to enable dynamic data exploration.



purpose

- ☐ Car
- ☐ Credit Card
- ☐ Debt\_Consolidation
- ☐ Educational
- ☐ Home\_Improvement
- ☐ House
- ☐ Major\_Purchase
- ☐ Medical
- ☒ Moving
- ☐ Other
- ☐ Renewable\_Energy
- ☐ Small\_Business
- ☐ Vacation
- ☐ Wedding

# Borrower Profile Analysis

Sum of total\_pymnt and Sum of loan\_amnt by last\_pymnt\_date

\$400.4415254K

Goal: \$393.1K (+1.87%)

\$66.76K

Average of annual\_inc

1330

Non-Verified Borrowers Count

delinquent

15.97

Average of dti

not delinquent

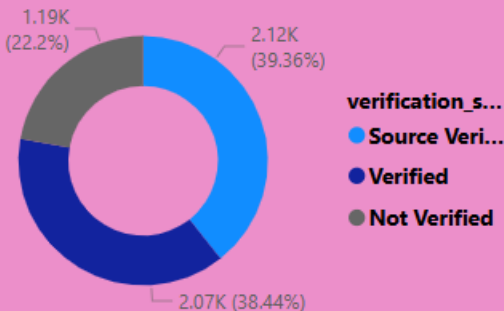
14.91

Average of dti

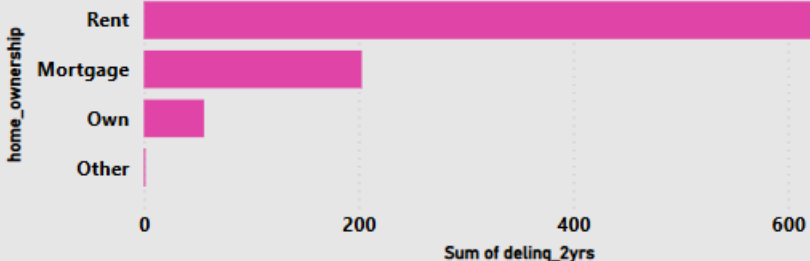
home\_ownership Sum of loan\_amnt

Mortgage	\$58,07,200
Other	\$13,000
Own	\$11,22,100
Rent	\$1,55,95,270
Total	\$2,25,58,070

Average of out\_prncp by verification\_status



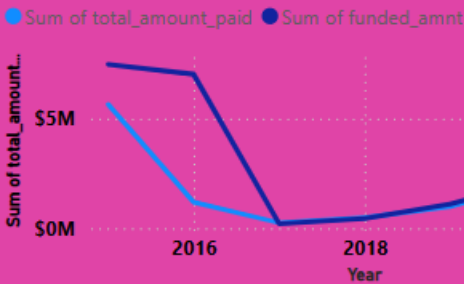
Sum of delinq\_2yrs by home\_ownership



Max of remaining\_installments by emp\_length



Sum of total\_amount\_paid and Sum of funded\_amnt by Year



purpose

- ☐ Car
- ☐ Credit Card
- ☐ Debt\_Consolidation
- ☐ Educational
- ☐ Home\_Improvement
- ☐ House
- ☐ Major\_Purchase

