Data to Decisions Qlik Journey through LendingClub Issued Loans Analysis (Qlik)

The Business Problem

The business problem lies in the inadequacy of the current lending strategy, which fails to leverage insights from LendingClub loan data. This results in ineffective risk assessment, challenges in predicting loan defaults, and a lack of adaptability in lending criteria, ultimately exposing the institution to financial losses and reduced competitiveness in the market.

Business Requirements

The business requirements emphasize the development of a comprehensive data analytics framework that effectively derives insights from LendingClub loan data. This framework should empower the financial institution to gain in-depth knowledge of borrower behavior, pinpoint high-risk segments, accurately forecast default rates, and facilitate real-time modifications to lending criteria.

Literature Survey

A comprehensive literature survey is essential to understand existing methodologies, tools, and best practices in optimizing lending strategies and risk management in the context of peer-to-peer lending platforms such as LendingClub. This survey aims to identify relevant studies on data analytics in finance, peer-to-peer lending trends, and similar analyses conducted by

financial institutions to enhance their decision-making processes.

Downloading the dataset

Link – https://www.kaggle.com/datasets/husainsb/lendingclub-issued-loans
I have used Test data set (lc_2016_2017.csv) for analysis which contains loans issued from 2016 till 2017.

Understand the data

- The LendingClub dataset includes detailed financial records of loans issued to borrowers.
- It spans the years 2016 and 2017, providing a snapshot of lending practices during that period.
- Dataset contains complete loan data for all loans issued through the time period stated, including –
  - Current loan status (Current, Late, Fully Paid, etc.)
  - Unique member id of the members
    Loan amount taken by members
    Tenure for the loan_amount
    Rate of Interest for the loan_amount
    Grades of the members
  - Funded amount taken by members
  - States of the members, etc.

Prepare the Data for Visualization

Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualization software, and ensuring the data is accurate and complete. This process helps to make the data easily understandable and ready for creating visualizations to gain
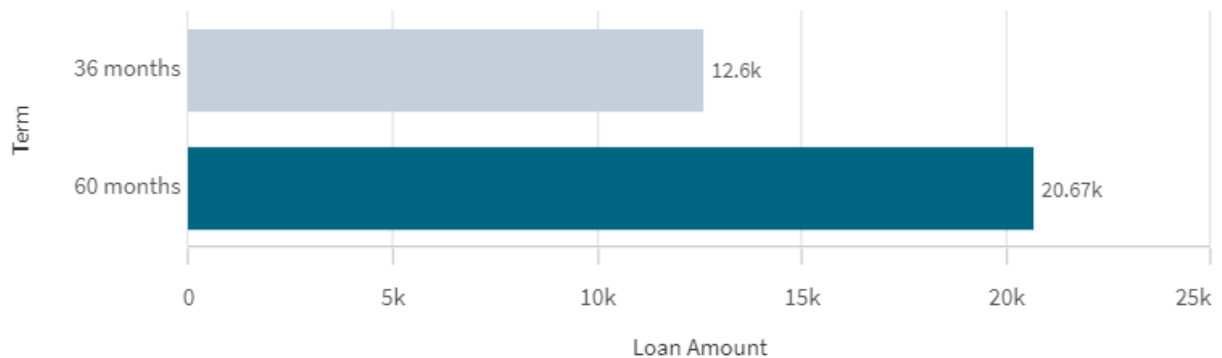
insights into the performance and efficiency. Since the data is already cleaned, we can move to visualization.

I have removed blank column named member id.
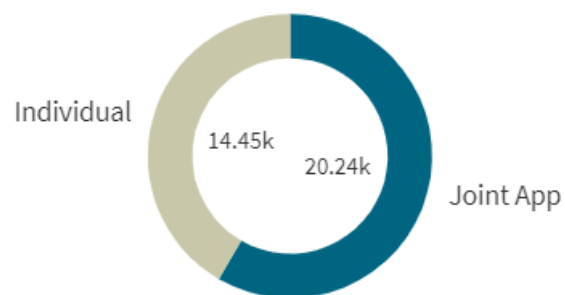
Data Visualization

1) Loan Amount Analysis –

Termwise average loan

2) Average Loan Amount for the Account_Type –
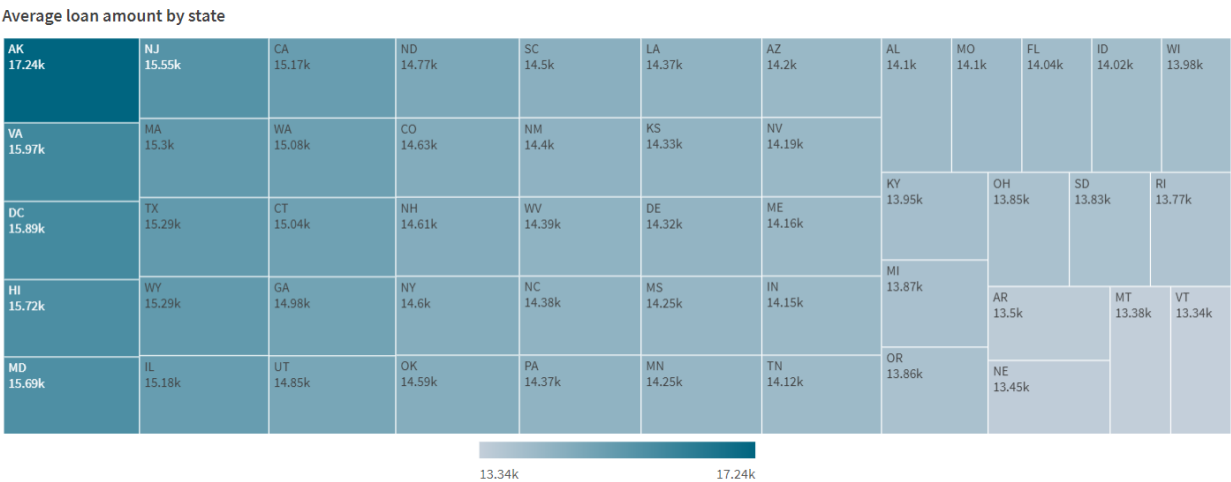
Average loan by account type

3) Total Loan Amount –

Total Loan Amount
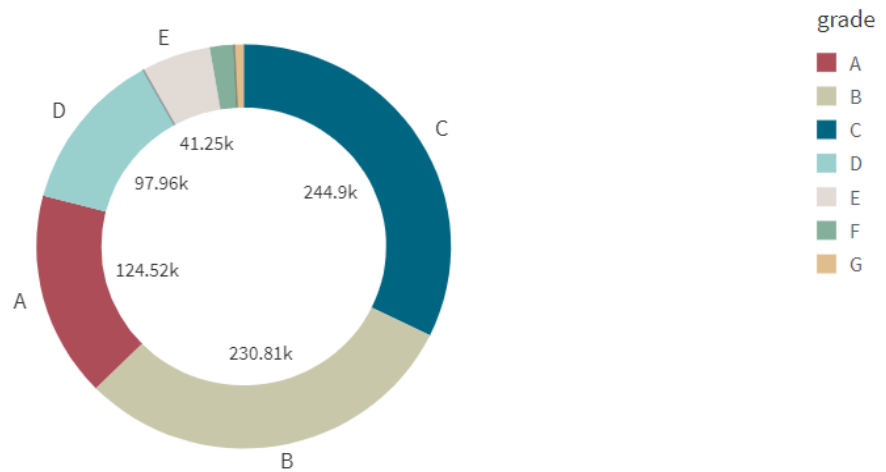# 11,168,172,650

4) Total Number of Loan Account –

Total no. of Accounts
# 759.3k

5) Average Loan Amount – State Wise

Average loan amount by state

AK 17.24k	NJ 15.55k	CA 15.17k	ND 14.77k	SC 14.5k	LA 14.37k	AZ 14.2k	AL 14.1k	MO 14.1k	FL 14.04k	ID 14.02k	WI 13.98k
VA 15.97k	MA 15.3k	WA 15.08k	CO 14.63k	NM 14.4k	KS 14.33k	NV 14.19k					
DC 15.89k	TX 15.29k	CT 15.04k	NH 14.61k	WV 14.39k	DE 14.32k	ME 14.16k	KY 13.95k	OH 13.85k	SD 13.83k	RI 13.77k	
HI 15.72k	WY 15.29k	GA 14.98k	NY 14.6k	NC 14.38k	MS 14.25k	IN 14.15k	MI 13.87k	AR 13.5k		MT 13.38k	VT 13.34k
MD 15.69k	IL 15.18k	UT 14.85k	OK 14.59k	PA 14.37k	MN 14.25k	TN 14.12k	OR 13.86k	NE 13.45k			

13.34k   17.24k

6) Grade wise – Count of Members –

Customer distribution on the basis of grades

grade
A
B
C
D
E
F
G

7) Verification Status –

Count of members for verification

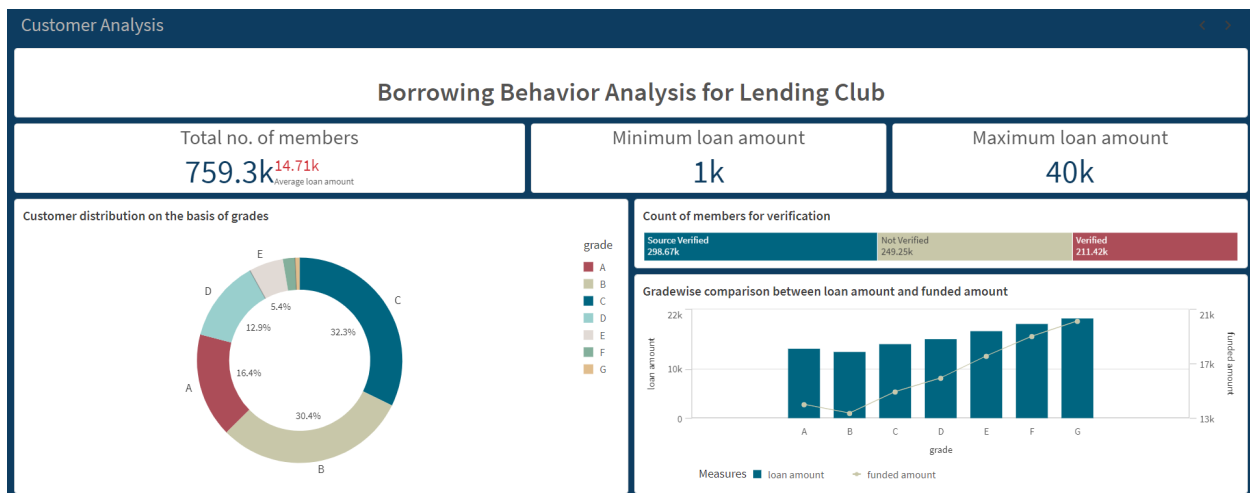| Source Verified	Not Verified	Verified
298.67k	249.25k	211.42k
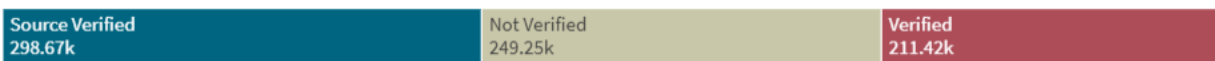
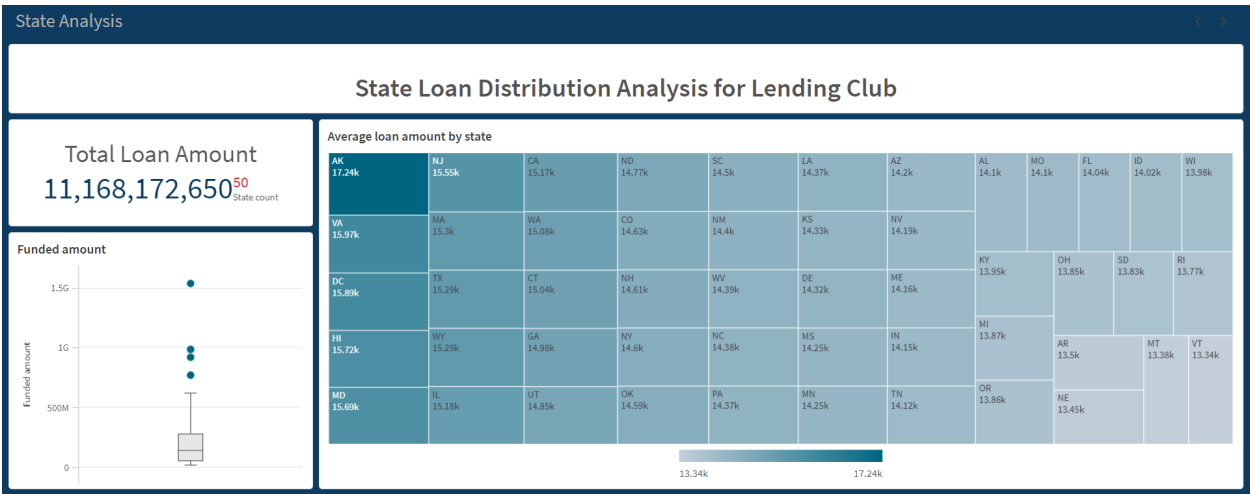# Design of Dashboards

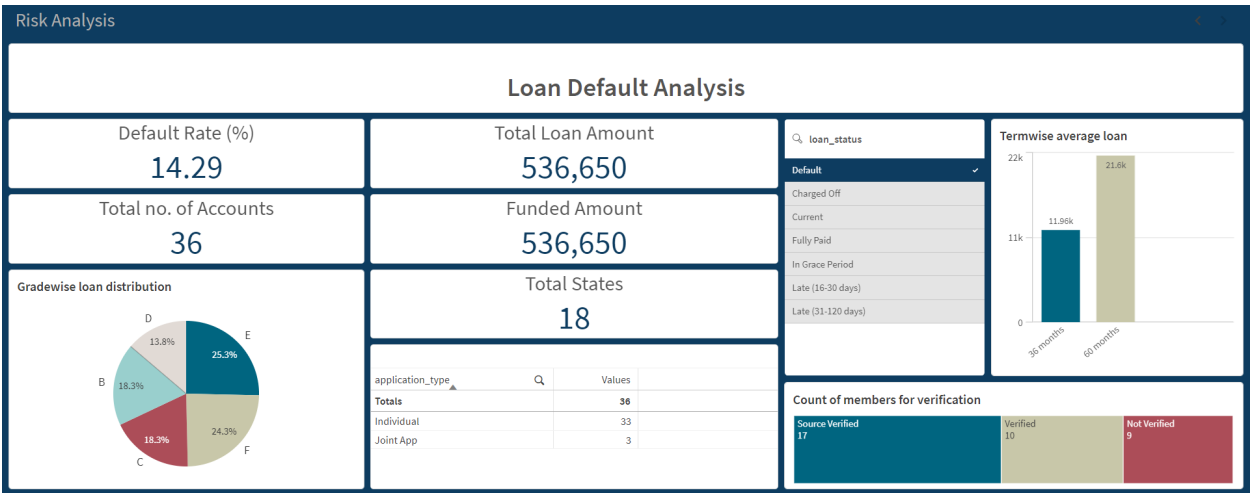## 1) Loan Analysis Dashboard :
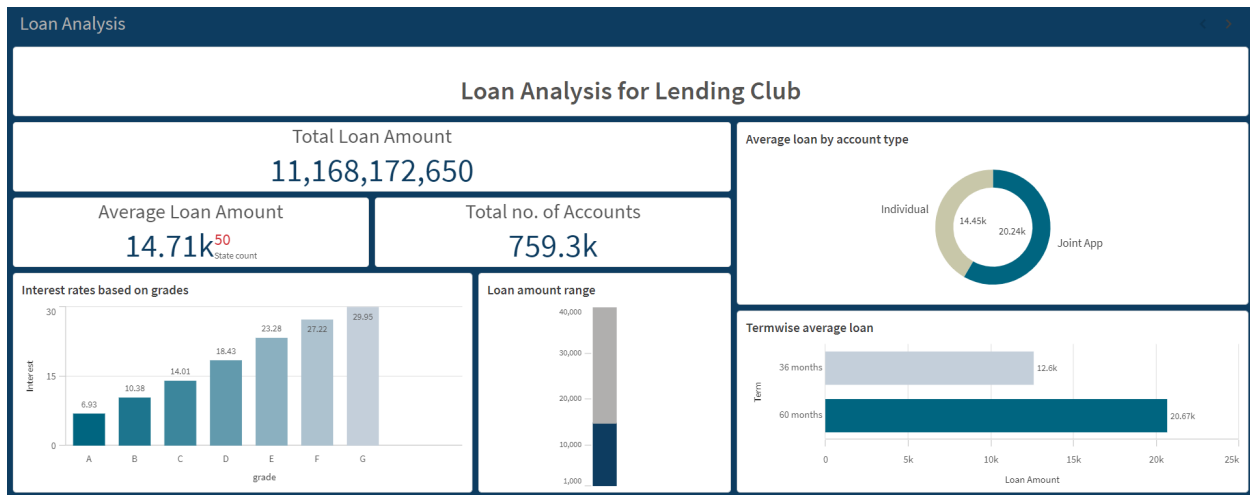
2) Customer Analysis Dashboard :

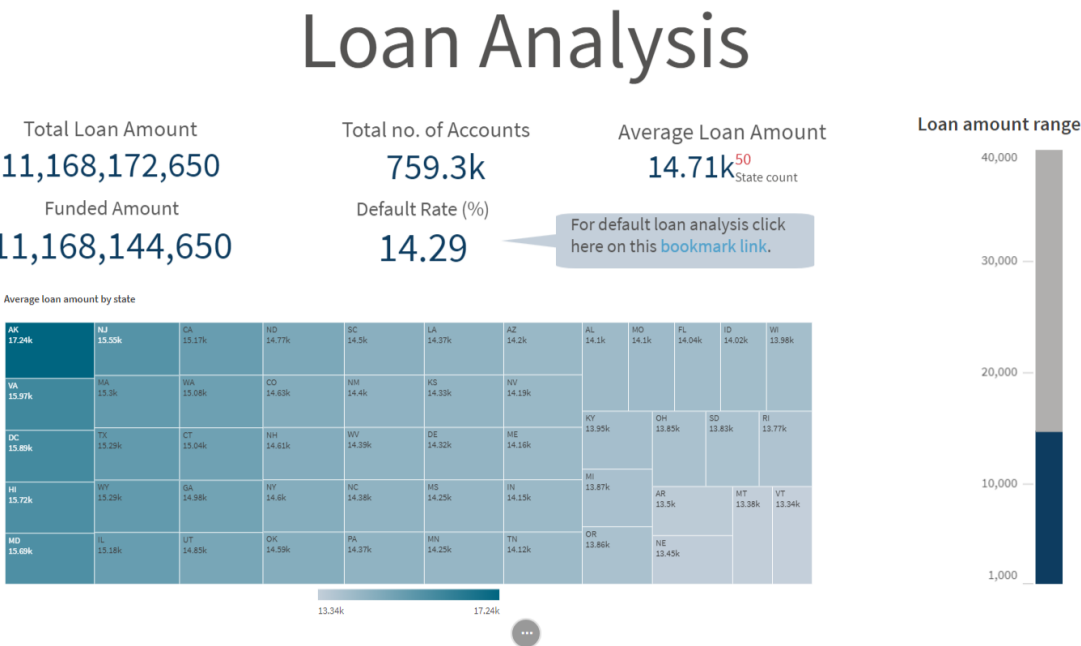## 3) State Analysis Dashboard :
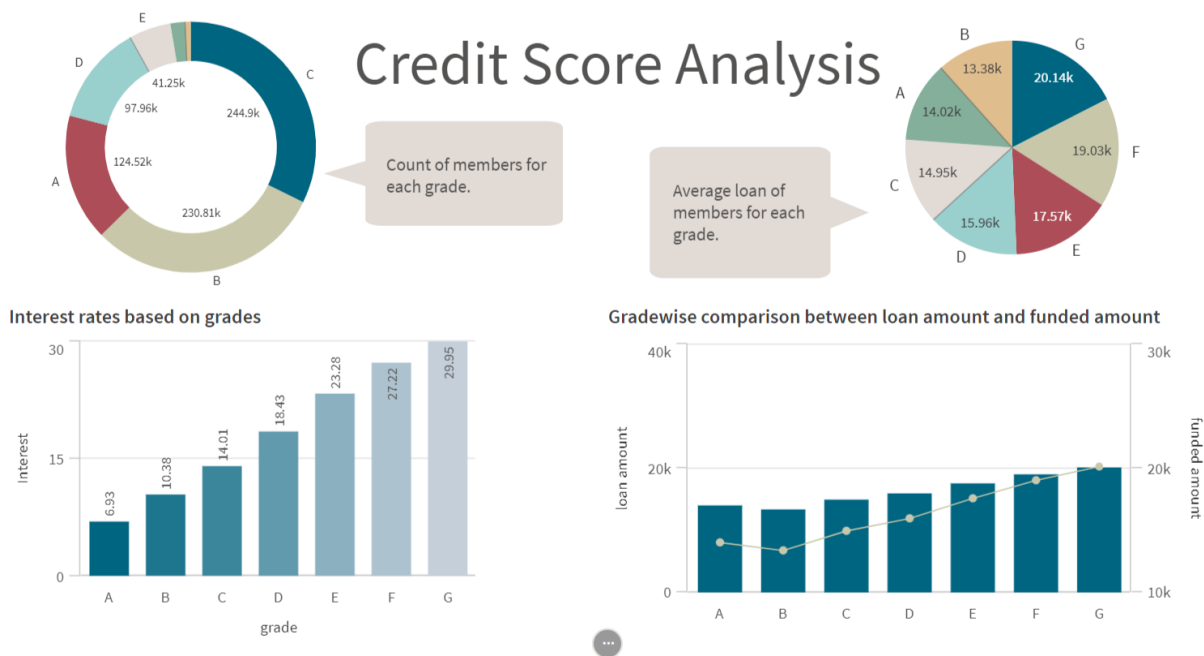

4) Risk Analysis Dashboard :

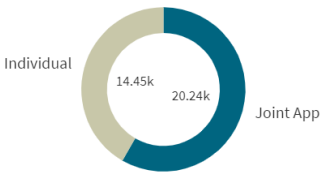# Design of Story

1) Loan Analysis

2) Credit Score Analysis

3) Other Analysis

Application, Verification Status and Term Analysis

Count of members by application type

application_type	Values
Totals	759338
Individual	725335
Joint App	34003

Average loan by application type

Individual 14.45k
Joint App 20.24k

Termwise average loan

22k
11k
0

36 months — 12.6k
60 months — 20.67k

Count of members for verification

Source Verified 298.67k	Not Verified 249.25k	Verified 211.42k
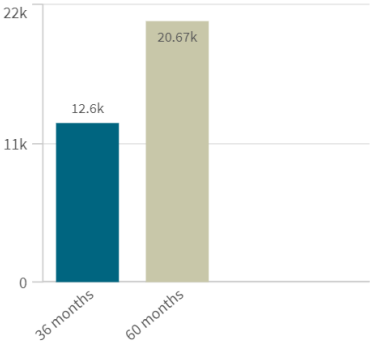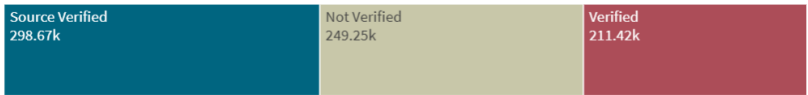
Amount of Data Loaded

id
member_id
loan_amnt
funded_amnt
funded_amnt_inv
term
int_rate
installment
grade
sub_grade
emp_title
emp_length
home_ownership
annual_inc
verification_status
issue_d
loan_status
pymnt_plan
desc
purpose
title
zip_code
addr_state
dti
delinq_2yrs
earliest_cr_line
inq_last_6mths
mths_since_last_delinq
mths_since_last_record
open_acc
pub_rec
revol_bal
revol_util
total_acc
initial_list_status
out_prncp
out_prncp_inv
total_pymnt

total_pymnt_inv
total_rec_prncp
total_rec_int
total_rec_late_fee
recoveries
collection_recovery_fee
last_pymnt_d
last_pymnt_amnt
next_pymnt_d
last_credit_pull_d
collections_12_mths_ex_med
mths_since_last_major_derog
policy_code
application_type
annual_inc_joint
dti_joint
verification_status_joint
acc_now_delinq
tot_coll_amt
tot_cur_bal
open_acc_6m
open_il_12m
open_il_24m
mths_since_rcnt_il
total_bal_il
il_util
open_rv_12m
open_rv_24m
max_bal_bc
all_util
total_rev_hi_lim
inq_fi
total_cu_tl
inq_last_12m

Utilization of Filters

Default Rate (%)	Total Loan Amount	loan_status	Termwise average loan
14.29	536,650		

Gradewise loan distribution

Total no. of Accounts: 36

Funded Amount: 536,650

Total States: 18

loan_status filter options:
- Default ✓
- Charged Off
- Current
- Fully Paid
- In Grace Period
- Late (16-30 days)
- Late (31-120 days)

Termwise average loan:
- 22k
- 21.6k
- 11.96k
- 11k

application_type	Values
Totals	36
Individual	33
Joint App	3

Count of members for verification:
- Source Verified: 17
- Verified: 10
- Not Verified: 9

Gradewise loan distribution pie:
- D 13.8%
- E 25.3%
- B 18.3%
- C 18.3%
- F 24.3%

No of Visualizations/ Graphs

1. Loan Analysis dashboard -
   1. Total Loan Amount (KPI)
   2. Average Loan Amount with State Count (Dual KPI)
   3. Total no. of Accounts (KPI)
   4. Interest rates based on grades (Bar Graph)
   5. Loan amount range (Gauge)
   6. Average loan by account type (Donut Chart)
   7. Termwise average loan (Bar Graph)

2. Customer Analysis Dashboard -
   1. Total no. of members (KPI)
   2. Minimum loan amount (KPI)
   3. Maximum loan amount (KPI)
   4. Customer distribution on the basis of grades (Donut Chart)

5. Count of members for verification (Tree Map)
6. Gradewise comparison between loan amount and funded amount (Combo Chart)

3. State Analysis Dashboard -
   1. Total Loan Amount with State Count (Dual KPI)
   2. Average loan amount by state (Tree Map)
   3. Funded amount (Boxplot)

4. Risk Analysis Dashboard -
   1. Default Rate (%) (KPI)
   2. Total Loan Amount (KPI)
   3. Total no. of Accounts (KPI)
   4. Funded amount (KPI)
   5. Total States (KPI)
   6. Gradewise loan distribution (Pie Chart)
   7. loan_status (Filter Pane)
   8. Termwise average loan (Bar Graph)
   9. application_type (Table)
   10. Count of members for verification (Tree Map)
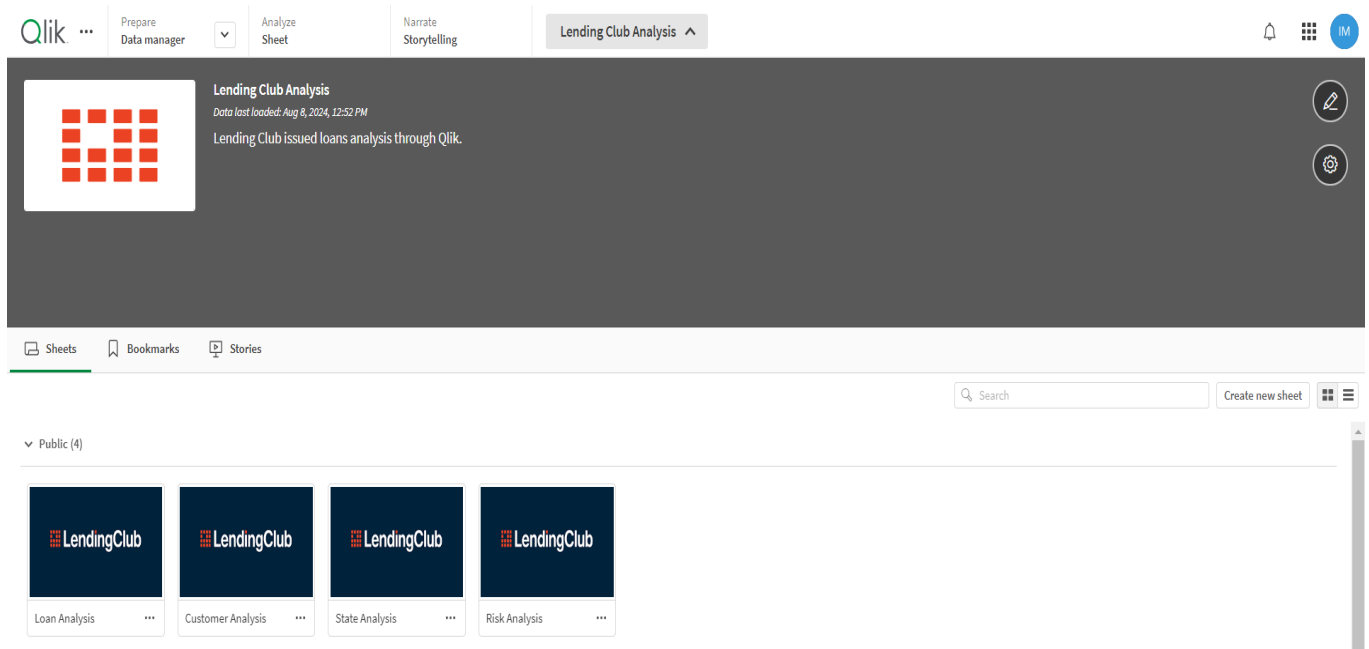
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