# BANK LOAN APPLICATION DETAILS

The domain of the Project:

SQL & POWERBI(MINI PROJECT)

Under the guidance of

Ms. Siddhika Shah ( Software Engineer at HCLTech)

By:

Ms. Gopika N G ( BTech CSE Graduate)

Period of the project

May 2025 to August 2025

# Declaration

The project titled “Bank Loan Application Details” has been mentored by Ms.Siddhika Shah, organised by SURE Trust, from May 2025 to August 2025, for the benefit of the educated unemployed rural youth for gaining hands-on experience in working on industry relevant projects that would take them closer to the prospective employer. This initiative aims to benefit educated unemployed rural youth by providing hands-on experience in industry-relevant projects, thereby enhancing employability.

I, Ms. Gopika N G, hereby declare that I have solely worked on this project under the guidance of my mentor. This project has significantly enhanced my practical knowledge and skills in the domain.

Siddhika Shah
Software Engineer—HCLTech

Prof. Radhakumari
Executive Director & Founder
SURE Trust

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# *Executive Summary*

 **Objective:** To analyze bank loan applications and detect fraud risks using Power BI.

 **Methods:** Data modeling, DAX measures, and dashboard design.

 **Key Findings:**

- CIBIL score strongly influences loan approval and fraud detection.
- Loan purposes are evenly distributed across Owned, Rented, and Jointly Owned properties.
- Younger applicants request higher loan types, while middle-aged groups show stable applications.
- Fraud detection varies by employment status and gender.

 **Recommendations:** Improve fraud detection systems, focus on loan approval based on risk scores, and allocate resources to high-risk applicant groups.

- Extend the dashboard for real-time monitoring and predictive analysis.

# *Introduction*

**Background & Context:**

- Loan approval is a critical banking process influenced by applicant data.
- Risk factors like income, dependents, loan amount, property status, and fraud flags affect loan outcomes.
- A BI solution helps banks analyze and reduce risks effectively.

**Problem Statement / Goals:**

- Manual analysis of loan applications is time-consuming.
- Fraud detection is challenging without structured insights.
- Goal: Build a Power BI dashboard to evaluate loan applications, applicant risk profiles, and fraud patterns.

**Scope & Limitations:**

- Scope: Covers loan applications with details on CIBIL score, income, dependents, fraud flags, property ownership, loan type, and purpose.
- Limitation: Dataset is static (no real-time integration).

**Innovation Component:**

- Use of CIBIL score analysis with fraud detection.
- Integration of multiple applicant parameters (income, dependents, loan purpose, property status).
- Designed interactive dashboards with drill-down analysis.

# *Project Objectives*

**Objectives & Goals:**

- Develop a dashboard to analyze bank loan applications.
- Study the effect of CIBIL score on fraud detection and loan approval.
- Examine applicant profile factors like age, dependents, employment status, and income.
- Evaluate loan purposes and property ownership trends.
- Provide insights for fraud risk mitigation.

**Expected Outcomes & Deliverables:**

- A Power BI dashboard with:
    - Loan analysis by CIBIL score & fraud flag.
    - Loan requests vs monthly income and house type.
    - Distribution of loan purposes by property ownership status.
    - Age-wise loan type trends.
    - Fraud detection by employment status and gender.
- Final report with key findings and recommendations.

# Methodology and Results

**Methods / Technology Used:**

- BI approach using Power BI & DAX measures.
- Data modeling with applicant-level attributes.

**Tools / Software Used:**

- Microsoft Power BI
- Power Query (data cleaning, transformation)
- Excel/CSV dataset

**Data Collection Approach:**

- Dataset includes:
    - Applicant details (Age, Gender, Employment status, Dependents).
    - Financials (Monthly Income, Loan Amount, Debt-to-Income Ratio).
    - Risk indicators (CIBIL score, Fraud flag, Fraud type).
    - Loan details (Purpose, Property ownership, Loan type).

**Project Architecture:**

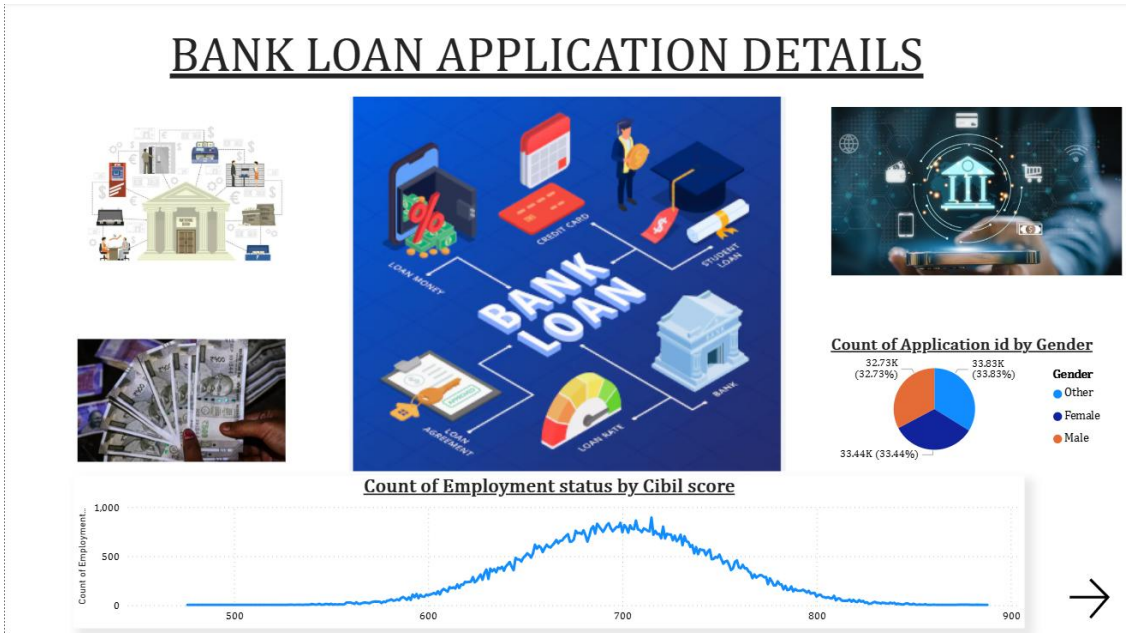
1. Data Source → Loan applications dataset.
2. Data Cleaning → Missing values handled in Power Query.
3. Data Modeling → Fact table (loan applications) linked with attributes.
4. DAX → Measures for CIBIL score averages, fraud detection counts, loan approval analysis.
5. Visualization → Dashboards created for fraud, CIBIL score, loan trends.

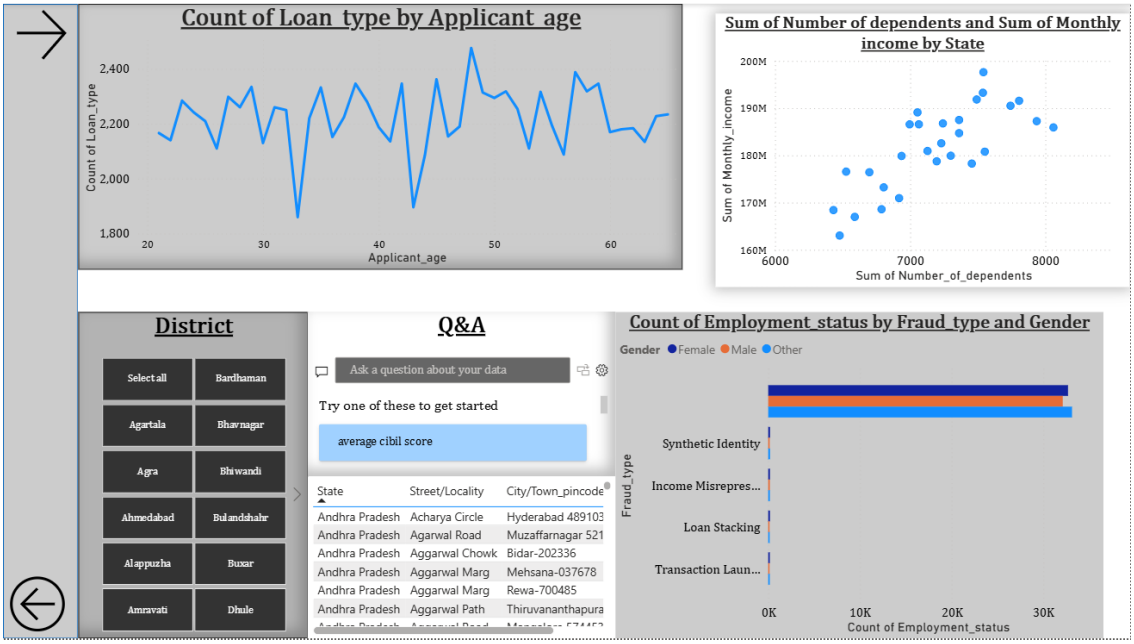
**Results (Screenshots Explanation):**

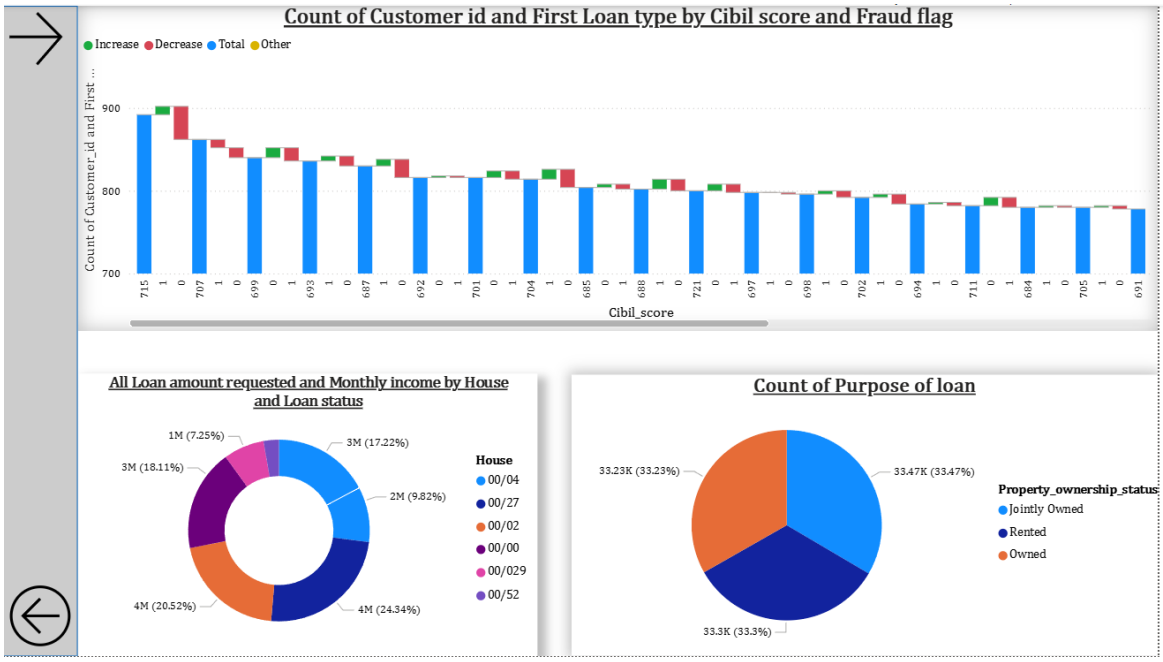
- Dashboard 1: Loan applications by CIBIL score & fraud flag, loan amount vs monthly income, loan purpose distribution.
- Dashboard 2: Loan type by applicant age, income vs dependents by state, fraud detection by employment & gender.
- Dashboard 3 (Home Page): Overall summary — application distribution by gender, employment status vs CIBIL score, and fraud insights.

**Project GitHub Link:**

*https://github.com/Gopika-N-G/SQL-POWERBI-PROJECT*




Count of Customer id and First Loan type by Cibil score and Fraud flag
Increase Decrease Total Other
Count of Customer_id and First ...
900
800
700
Cibil_score
All Loan amount requested and Monthly income by House and Loan status
1M (7.25%)
3M (17.22%)
3M (18.11%)
2M (9.82%)
4M (20.52%)
4M (24.34%)
House
00/04
00/27
00/02
00/00
00/029
00/52
Count of Purpose of loan
33.23K (33.23%)
33.47K (33.47%)
33.3K (33.3%)
Property_ownership_status
Jointly Owned
Rented
Owned

# *Learning and Reflection*

**New Learnings:**

- Learned to design BI dashboards in Power BI.
- Gained knowledge in fraud detection analysis using financial datasets.
- Improved skills in DAX functions and KPI creation.
- Learned data-driven decision-making in the banking and finance domain.

**Experience:**

- Independently worked on full cycle: data cleaning → modeling → visualization.
- Experienced real-world use of BI in loan approval and fraud detection.
- Gained confidence in presenting results through interactive dashboards.

# Conclusion and Future Scope

**Conclusion (Recap of Achievements):**

- Successfully built dashboards to analyze loan applications, fraud detection, and CIBIL score impacts.
- Identified key risk factors influencing loan approval and fraud detection.
- Achieved the project goal of providing data-driven insights for banking decision-making.

**Future Scope:**

- Integration with real-time loan applications for live monitoring.
- Use of Machine Learning models to predict fraud likelihood.
- Expansion into customer segmentation (high/low risk applicants).
- Mobile-friendly dashboards for quick bank officer decisions.
- Linking with external credit bureau data for better fraud detection.

**Social / Industry Relevance:**

- **Industry Benefits**: Helps banks and NBFCs reduce loan defaults and fraud risks.
- **Social Impact:** Ensures fair lending by analyzing applicants on transparent parameters.
- **Policy Relevance:** Supports regulators in improving credit scoring systems.
- **Business Value:** Enhances loan approval efficiency, reduces fraud, and improves customer trust.

# THANK YOU