

# Step-by-Step Explanation of SQL Queries

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## Step 1: Load the Database

### 1. Select the database

**USE BankLoanDB;**

**This tells SQL which database you want to run queries on.**

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## Step 2: Explore the Dataset

### 2. View the entire table

**SELECT \* FROM bank\_loan\_data;**

**Shows all rows and columns in the dataset.**

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## Step 3: Basic KPIs (Key Performance Indicators)

### 3. Total number of loan applications

**SELECT COUNT(id) AS Total\_Loan\_Applications FROM bank\_loan\_data;**

### 4. MTD (Month-to-Date) loan applications for December 2021

**WHERE MONTH(issue\_date)=12 AND YEAR(issue\_date)=2021;**

### 5. MTD total funded amount

**Uses:**

**SUM(loan\_amount)**

### 6. PMTD (Previous Month-to-Date) funded amount

**Same as above, but for November.**

### 7. MTD total amount received (payments)

**Uses:**

**SUM(total\_payment)**

**8. PMTD amount received**

**Same calculation for the previous month.**

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#### **Step 4: Risk Analysis (Good vs Bad Loans)**

**9. Average DTI percentage (debt-to-income)**

**ROUND(AVG(dti),4) \* 100**

**DTI is converted from decimal to percentage.**

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#### **Good Loans**

**Loans that are:**

- **Fully Paid**
- **Current**

**10. % of good loans**

**COUNT(CASE WHEN loan\_status IN ('Fully Paid','Current') THEN id END)\*100 /  
COUNT(id)**

**11. Total amounts received from good loans**

**SUM(total\_payment)**

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#### **Bad Loans**

**Loans that are:**

- **Charged Off**

**12. Count of bad loans**

**COUNT(CASE WHEN loan\_status='Charged Off' THEN id END)**

**13. % of bad loans**

**COUNT(ChargedOff) \* 100 / total loans**

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## Step 5: Loan Performance by Status

### 14. Summary of each loan status

Includes:

- count of loans
- total amount received
- total funded amount
- average interest rate
- average DTI

Using:

**GROUP BY** loan\_status;

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## Step 6: Monthly Performance Summary

### 15. Summary per month

Groups by:

- month number
- month name
- total applications
- total funded amount
- total received

Using:

**GROUP BY** MONTH(issue\_date), DATENAME(MONTH, issue\_date)

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## Step 7: Loan Insights by Customer Segments

### 16. Summary by loan term (36, 60 months)

**GROUP BY** term

**17. Summary by employment length**

**GROUP BY emp\_length**

**18. Summary by home ownership**

**GROUP BY home\_ownership**

**ORDER BY COUNT(id) DESC**

**Shows which home ownership groups apply the most.**

**19. Home ownership but only for Grade A loans**

**WHERE grade='A'**

**20. Summary by purpose (loan reason)**

**GROUP BY purpose Graduation Project**