ABSTRACT

This set of SQL queries aims to provide a comprehensive analysis of a loan dataset , focusing on the applicants income and co- applicants income and the loan amount.This dataset contains loan information for a range of borrowers, aimed at analyzing loan performance and predicting potential defaults. The dataset includes key attributes of individual loans, borrower characteristics, and repayment histories.

The dataset is used primarily for credit risk analysis, loan approval predictions, and default prediction models. It can also help lenders determine appropriate interest rates based on borrower risk factors. Statistical methods and machine learning models are typically applied to this dataset to forecast repayment behavior and optimize loan issuance strategies.

This project investigates a loan dataset comprising 614 records and 13 attributes, including demographic, financial, and loan-related variables. The primary objective is to understand the factors influencing loan approval and to build insights that could assist financial institutions in decision-making. Using SQL queries, we extract, analyze, and interpret data to reveal trends related to applicant income, education, property area, credit history, and their impact on loan status.


BANK
₹
Personal
Loan

ABOUT THE DATASET

A loan dataset is a collection of financial records that can be used to analyze loan applications and predict loan approval or default.

The dataset consists of 614 loan applications with 13 columns: LoanID, Gender, Married, Dependents, Education, SelfEmployed, ApplicantIncome, CoapplicantIncome, LoanAmount, LoanAmountTerm, CreditHistory, PropertyArea, and LoanStatus. Some entries have missing data, notably in the LoanAmount, SelfEmployed, and CreditHistory columns. These null values must be handled before performing meaningful analysis.

The target variable is LoanStatus, which indicates whether a loan was approved (Y) or not (N). Categorical variables provide socio-economic profiles of applicants, while numerical variables capture income and loan-specific details. The dataset is ideal for performing SQL operations such as filtering by income brackets, grouping by loan status, and analyzing distribution across property areas.

INTRODUCTION

In today's fast-paced banking environment, automating and streamlining the loan approval process is crucial. With the vast amounts of data available, SQL becomes a powerful tool for performing efficient queries and analysis. This project aims to utilize SQL to derive meaningful insights from a real-world loan dataset. The insights aim to assist lenders in identifying high-risk applicants and optimizing approval strategies.

In this SQL project , we explore and analyse a dataset from bank loans , which provides comprehensive information about gender , marital status , education , loan amount , applicants income etc.... by utilizing SQL queries , we aim meaningful insights and answer various questions that are relevant for understanding the loan strategies in the dataset.

The dataset used contains attributes such as gender, marital status, dependents, education, employment status, income, and loan-specific features. Using SQL queries, we perform in-depth analysis including aggregation, filtering, joining, and grouping. The goal is to identify which variables are most predictive of loan approval, highlight trends across applicant demographics, and detect anomalies that may require policy interventions.

LOADING PROCESS

Creating a Database

```
CREATE DATABASE loan_database;
```

Using the Database

```
USE loan_database;
```

Showing the tables from the Database

```
SHOW TABLES;
```

Selecting the Dataset from the Database

```
SELECT * FROM loan_data;
```

LoanID	Gender	Married	Dependents	Education	SelfEmployed	ApplicantIncome	CoapplicantIncome	LoanAmount	LoanAmountTerm	CreditHistory	PropertyArea	LoanStatus
LP001002	Male	No	0	Graduate	No	5849	0		360	1	Urban	Y
LP001003	Male	Yes	1	Graduate	No	4583	1508	128	360	1	Rural	N
LP001005	Male	Yes	0	Graduate	Yes	3000	0	66	360	1	Urban	Y
LP001006	Male	Yes	0	Not Graduate	No	2583	2358	120	360	1	Urban	Y
LP001008	Male	No	0	Graduate	No	6000	0	141	360	1	Urban	Y
LP001011	Male	Yes	2	Graduate	Yes	5417	4196	267	360	1	Urban	Y
LP001013	Male	Yes	0	Not Graduate	No	2333	1516	95	360	1	Urban	Y
LP001018	Male	Yes	2	Graduate	No	4006	1526	168	360	1	Urban	Y
LP001020	Male	Yes	1	Graduate	No	12841	10968	349	360	1	Semiurban	N
LP001024	Male	Yes	2	Graduate	No	3200	700	70	360	1	Urban	Y
LP001027	Male	Yes	2	Graduate		2500	1840	109	360	1	Urban	Y
LP001028	Male	Yes	2	Graduate	No	3073	8106	200	360	1	Urban	Y
LP001029	Male	No	0	Graduate	No	1853	2840	114	360	1	Rural	N
LP001030	Male	Yes	2	Graduate	No	1299	1086	17	120	1	Urban	Y
LP001032	Male	No	0	Graduate	No	4950	0	125	360	1	Urban	Y
LP001036	Female	No	0	Graduate	No	3510	0	76	360	0	Urban	N
LP001038	Male	Yes	0	Not Graduate	No	4887	0	133	360	1	Rural	N
LP001043	Male	Yes	0	Not Graduate	No	7660	0	104	360	0	Urban	N
LP001046	Male	Yes	1	Graduate	No	5955	5625	315	360	1	Urban	Y
LP001047	Male	Yes	0	Not Graduate	No	2600	1911	116	360	0	Semiurban	N
LP001050		Yes	2	Not Graduate	No	3365	1917	112	360	0	Rural	N
LP001066	Male	Yes	0	Graduate	Yes	9560	0	191	360	1	Semiurban	Y
LP001068	Male	Yes	0	Graduate	No	2799	2253	122	360	1	Semiurban	Y
LP001073	Male	Yes	2	Not Graduate	No	4226	1040	110	360	1	Urban	Y
LP001086	Male	No	0	Not Graduate	No	1442	0	35	360	1	Urban	N
LP001087	Female	No	2	Graduate		3750	2083	120	360	1	Semiurban	Y
LP001095	Male	No	0	Graduate	No	3167	0	74	360	1	Urban	N
LP001097	Male	No	1	Graduate	Yes	4692	0	106	360	1	Rural	N
LP001098	Male	Yes	0	Graduate	No	3500	1667	114	360	1	Semiurban	Y
LP001106	Male	Yes	0	Graduate	No	2275	2067		360	1	Urban	Y
LP001112	Female	Yes	0	Graduate	No	3667	1459	144	360	1	Semiurban	Y
LP001114	Male	No	0	Graduate	No	4166	7210	184	360	1	Urban	Y
LP001116	Male	No	0	Not Graduate	No	3748	1668	110	360	1	Semiurban	Y
LP001119	Male	No	0	Graduate	No	3600	0	80	360	1	Urban	N
LP001120	Male	No	0	Graduate	No	1800	1213	47	360	1	Urban	Y
LP001131	Male	Yes	0	Graduate	No	3941	2336	134	360	1	Semiurban	Y
LP001038	Male	Yes	0	Not Graduate	No	4887	0	133	360	1	Rural	N
LP001043	Male	Yes	0	Not Graduate	No	7660	0	104	360	0	Urban	N
LP001046	Male	Yes	1	Graduate	No	5955	5625	315	360	1	Urban	Y
LP001047	Male	Yes	0	Not Graduate	No	2600	1911	116	360	0	Semiurban	N
LP001050		Yes	2	Not Graduate	No	3365	1917	112	360	0	Rural	N
LP001066	Male	Yes	0	Graduate	Yes	9560	0	191	360	1	Semiurban	Y
LP001068	Male	Yes	0	Graduate	No	2799	2253	122	360	1	Semiurban	Y
LP001073	Male	Yes	2	Not Graduate	No	4226	1040	110	360	1	Urban	Y
LP001086	Male	No	0	Not Graduate	No	1442	0	35	360	1	Urban	N
LP001087	Female	No	2	Graduate		3750	2083	120	360	1	Semiurban	Y
LP001095	Male	No	0	Graduate	No	3167	0	74	360	1	Urban	N
LP001097	Male	No	1	Graduate	Yes	4692	0	106	360	1	Rural	N
LP001198	Male	Yes	1	Graduate	No	8080	2250	180	360	1	Urban	Y
LP001199	Male	Yes	2	Not Graduate	No	3357	2859	144	360	1	Urban	Y
LP001205	Male	Yes	0	Graduate	No	2500	3796	120	360	1	Urban	Y

BASIC DATA RETRIEVAL

1. What is the total number of loans in the dataset ?

```
SELECT count(*) AS TOTAL_NUMBER_OF_LOANS FROM loan_data;
```

TOTAL_NUMBER_OF_LOANS
489

Insights :

- The total number of loans in the dataset is 489.

2. What are the details of all loans with a loan amount greater than 500 ?

```
SELECT * FROM loan_data WHERE LoanAmount > 500;
```

LoanID	Gender	Married	Dependents	Education	SelfEmployed	ApplicantIncome	CoapplicantIncome	LoanAmount	LoanAmountTerm	CreditHistory	PropertyArea	LoanStatus
LP002191	Male	Yes	0	Graduate	No	19730	5266	570	360	1	Rural	N
LP002813	Female	Yes	1	Graduate	Yes	19484	0	600	360	1	Semiurban	Y

Insights :

- The Loan ID LP002191 and LP002813 have the loan amount greater than 500.

3. How many loans are approved (Loan Status = 'Y') ?

```
SELECT count(*) AS TOTAL_NUMBER_OF_APPROVED_LOAN FROM loan_data WHERE LoanStatus = 'Y';
```

TOTAL_NUMBER_OF_APPROVED_LOAN
337

Insights :

- 337 loans are approved.

4. What is the average loan amount for all loans ?

```
SELECT avg(LoanAmount) AS AVG_LOAN_AMOUNT FROM loan_data;
```

AVG_LOAN_AMOUNT
136.82208588957056

Insights :

- 136.82 is the average loan amountfor all loans.

5. What is the average loan amount for male and female applicants ?

```
SELECT Gender , avg(LoanAmount) AS AVG_LOAN_AMOUNT FROM loan_data GROUP BY Gender;
```

Gender	AVG_LOAN_AMOUNT
Male	139.95090439276487
Female	124.25806451612904
	132.11111111111111

Insights :

- The average loan amount for males is 139.95 and females is 124.25
- Others =132.11

6. What is the total loan amount for each property area ?

```
SELECT PropertyArea , sum(LoanAmount) AS TOTAL_LOAN_AMOUNT FROM loan_data GROUP BY PropertyArea;
```

PropertyArea	TOTAL_LOAN_AMOUNT
Urban	20299
Rural	20219
Semiurban	26388

Insights :

- The total loan amount for Urban area is 20299 , Rural area is 20219 and Semiurban area is 2638.

7. How many loans where approved for applicants with a credit history of 1 ?

```
SELECT count(*) AS COUNT_APPROVED FROM loan_data WHERE CreditHistory = 1 AND  LoanStatus = 'Y';
```

COUNT_APPROVED
332

Insights :

- 332 loans were approved for applicants with a credit history of 1.

8. What is the average applicant income for married v/s unmarried individuals ?

```
SELECT Married , avg(ApplicantIncome) AS AVG_INCOME FROM loan_data GROUP BY Married;
```

Insights :

- The average applicants income for married is 5280.94 and unmarried is 4989.26

CONDITIONS AND FILTERING

9. Which loans have a term greater than 20 years and are approved ?

```
SELECT * FROM loan_data WHERE LoanAmountTerm > 240 AND LoanStatus = 'Y';
```

LoanID	Gender	Married	Dependents	Education	SelfEmployed	ApplicantIncome	CoapplicantIncome	LoanAmount	LoanAmountTerm	CreditHistory	PropertyArea	LoanStatus
LP001002	Male	No	0	Graduate	No	5849	0		360	1	Urban	Y
LP001005	Male	Yes	0	Graduate	Yes	3000	0	66	360	1	Urban	Y
LP001006	Male	Yes	0	Not Graduate	No	2583	2358	120	360	1	Urban	Y
LP001008	Male	No	0	Graduate	No	6000	0	141	360	1	Urban	Y
LP001011	Male	Yes	2	Graduate	Yes	5417	4196	267	360	1	Urban	Y
LP001013	Male	Yes	0	Not Graduate	No	2333	1516	95	360	1	Urban	Y
LP001018	Male	Yes	2	Graduate	No	4006	1526	168	360	1	Urban	Y
LP001024	Male	Yes	2	Graduate	No	3200	700	70	360	1	Urban	Y
LP001027	Male	Yes	2	Graduate		2500	1840	109	360	1	Urban	Y
LP001028	Male	Yes	2	Graduate	No	3073	8106	200	360	1	Urban	Y
LP001032	Male	No	0	Graduate	No	4950	0	125	360	1	Urban	Y
LP001046	Male	Yes	1	Graduate	No	5955	5625	315	360	1	Urban	Y
LP001066	Male	Yes	0	Graduate	Yes	9560	0	191	360	1	Semiurban	Y
LP001068	Male	Yes	0	Graduate	No	2799	2253	122	360	1	Semiurban	Y
LP001073	Male	Yes	2	Not Graduate	No	4226	1040	110	360	1	Urban	Y
LP001087	Female	No	2	Graduate		3750	2083	120	360	1	Semiurban	Y
LP001098	Male	Yes	0	Graduate	No	3500	1667	114	360	1	Semiurban	Y
LP001106	Male	Yes	0	Graduate	No	2275	2067		360	1	Urban	Y
LP001112	Female	Yes	0	Graduate	No	3667	1459	144	360	1	Semiurban	Y
LP001114	Male	No	0	Graduate	No	4166	7210	184	360	1	Urban	Y
LP001116	Male	No	0	Not Graduate	No	3748	1668	110	360	1	Semiurban	Y
LP001120	Male	No	0	Graduate	No	1800	1213	47	360	1	Urban	Y
LP001131	Male	Yes	0	Graduate	No	3941	2336	134	360	1	Semiurban	Y
LP001138	Male	Yes	1	Graduate	No	5649	0	44	360	1	Urban	Y
LP001144	Male	Yes	0	Graduate	No	5821	0	144	360	1	Urban	Y
LP001151	Female	No	0	Graduate	No	4000	2275	144	360	1	Semiurban	Y
LP001155	Female	Yes	0	Not Graduate	No	1928	1644	100	360	1	Semiurban	Y
LP001157	Female	No	0	Graduate	No	3086	0	120	360	1	Semiurban	Y
LP001194	Male	Yes	2	Graduate	No	2708	1167	97	360	1	Semiurban	Y
LP001195	Male	Yes	0	Graduate	No	2132	1591	96	360	1	Semiurban	Y
LP001198	Male	Yes	1	Graduate	No	8080	2250	180	360	1	Urban	Y
LP001199	Male	Yes	2	Not Graduate	No	3357	2859	144	360	1	Urban	Y
LP001205	Male	Yes	0	Graduate	No	2500	3796	120	360	1	Urban	Y
LP001233	Male	Yes	1	Graduate	No	10750	0	312	360	1	Urban	Y
LP001243	Male	Yes	0	Graduate	No	3208	3066	172	360	1	Urban	Y
LP001245	Male	Yes	2	Not Graduate	Yes	1875	1875	97	360	1	Semiurban	Y
LP001248	Male	No	0	Graduate	No	3500	0	81	300	1	Semiurban	Y
LP001265	Female	No	0	Graduate	No	3846	0	111	360	1	Semiurban	Y
LP001266	Male	Yes	1	Graduate	Yes	2395	0		360	1	Semiurban	Y
LP001279	Male	No	0	Graduate	No	2366	2531	136	360	1	Semiurban	Y
LP001282	Male	Yes	0	Graduate	No	2500	2118	104	360	1	Semiurban	Y
LP001289	Male	No	0	Graduate	No	8566	0	210	360	1	Urban	Y
LP001310	Male	Yes	0	Graduate	No	5695	4167	175	360	1	Semiurban	Y
LP001316	Male	Yes	0	Graduate	No	2958	2900	131	360	1	Semiurban	Y
LP001319	Male	Yes	2	Not Graduate	No	3273	1820	81	360	1	Urban	Y
LP001322	Male	No	0	Graduate	No	4133	0	122	360	1	Semiurban	Y
LP001327	Female	Yes	0	Graduate	No	2484	2302	137	360	1	Semiurban	Y
LP001333	Male	Yes	0	Graduate	No	1977	997	50	360	1	Semiurban	Y
LP001343	Male	Yes	0	Graduate	No	1759	3541	131	360	1	Semiurban	Y
LP001349	Male	No	0	Graduate	No	4843	3806	151	360	1	Semiurban	Y
LP001356	Male	Yes	0	Graduate	No	4652	3583		360	1	Semiurban	Y
LP001367	Male	Yes	1	Graduate	No	3052	1030	100	360	1	Urban	Y
LP001369	Male	Yes	2	Graduate	No	11417	1126	225	360	1	Urban	Y
LP001385	Male	No	0	Graduate	No	5316	0	136	360	1	Urban	Y
LP001387	Female	Yes	0	Graduate		2929	2333	139	360	1	Semiurban	Y
LP001392	Female	No	1	Graduate	Yes	7451	0		360	1	Semiurban	Y
LP001398	Male	No	0	Graduate		5050	0	118	360	1	Semiurban	Y
LP001404	Female	Yes	0	Graduate	No	3167	2283	154	360	1	Semiurban	Y
LP001422	Female	No	0	Graduate	No	10408	0	259	360	1	Urban	Y
LP001430	Female	No	0	Graduate	No	4166	0	44	360	1	Semiurban	Y
LP001431	Female	No	0	Graduate	No	2137	8980	137	360	0	Semiurban	Y
LP001432	Male	Yes	2	Graduate	No	2957	0	81	360	1	Semiurban	Y
LP001439	Male	Yes	0	Not Graduate	No	4300	2014	194	360	1	Rural	Y
LP001449	Male	No	0	Graduate	No	3865	1640		360	1	Rural	Y
LP001473	Male	No	0	Graduate	No	2014	1929	74	360	1	Urban	Y

LP001478	Male	No	0	Graduate	No	2718	0	70	360	1	Semiurban	Y
LP001487	Male	No	0	Graduate	No	4895	0	102	360	1	Semiurban	Y
LP001491	Male	Yes	2	Graduate	Yes	3316	3500	88	360	1	Urban	Y
LP001498	Male	No	0	Graduate	No	5417	0	168	360	1	Urban	Y
LP001507	Male	Yes	0	Graduate	No	2698	2034	122	360	1	Semiurban	Y
LP001514	Female	Yes	0	Graduate	No	2330	4486	100	360	1	Semiurban	Y
LP001516	Female	Yes	2	Graduate	No	14866	0	70	360	1	Urban	Y
LP001518	Male	Yes	1	Graduate	No	1538	1425	30	360	1	Urban	Y
LP001520	Male	Yes	0	Graduate	No	4860	830	125	360	1	Semiurban	Y
LP001529	Male	Yes	0	Graduate	Yes	2577	3750	152	360	1	Rural	Y
LP001535	Male	No	0	Graduate	No	3254	0	50	360	1	Urban	Y
LP001543	Male	Yes	1	Graduate	No	9538	0	187	360	1	Urban	Y
LP001546	Male	No	0	Graduate		2980	2083	120	360	1	Rural	Y
LP001552	Male	Yes	0	Graduate	No	4583	5625	255	360	1	Semiurban	Y
LP001560	Male	Yes	0	Not Graduate	No	1863	1041	98	360	1	Semiurban	Y
LP001570	Male	Yes	2	Graduate	No	4167	1447	158	360	1	Rural	Y
LP001578	Male	Yes	0	Graduate	No	2439	3333	129	360	1	Rural	Y
LP001580	Male	Yes	2	Graduate	No	8000	0	200	360	1	Semiurban	Y
LP001581	Male	Yes	0	Not Graduate		1820	1769	95	360	1	Rural	Y
LP001594	Male	Yes	0	Graduate	No	5708	5625	187	360	1	Semiurban	Y
LP001606	Male	Yes	0	Graduate	No	3497	1964	116	360	1	Rural	Y

LP001608	Male	Yes	2	Graduate	No	2045	1619	101	360	1	Rural	Y
LP001616	Male	Yes	1	Graduate	No	3750	0	116	360	1	Semiurban	Y
LP001639	Female	Yes	0	Graduate	No	3625	0	108	360	1	Semiurban	Y
LP001640	Male	Yes	0	Graduate	Yes	39147	4750	120	360	1	Semiurban	Y
LP001644		Yes	0	Graduate	Yes	674	5296	168	360	1	Rural	Y
LP001653	Male	No	0	Not Graduate	No	4885	0	48	360	1	Rural	Y
LP001658	Male	No	0	Graduate	No	3858	0	76	360	1	Semiurban	Y
LP001664	Male	No	0	Graduate	No	4191	0	120	360	1	Rural	Y
LP001666	Male	No	0	Graduate	No	8333	3750	187	360	1	Rural	Y
LP001674	Male	Yes	1	Not Graduate	No	2600	2500	90	360	1	Semiurban	Y
LP001677	Male	No	2	Graduate	No	4923	0	166	360	0	Semiurban	Y
LP001688	Male	Yes	1	Not Graduate	No	3500	1083	135	360	1	Urban	Y
LP001691	Male	Yes	2	Not Graduate	No	3917	0	124	360	1	Semiurban	Y
LP001692	Female	No	0	Not Graduate	No	4408	0	120	360	1	Semiurban	Y
LP001693	Female	No	0	Graduate	No	3244	0	80	360	1	Urban	Y
LP001698	Male	No	0	Not Graduate	No	3975	2531	55	360	1	Rural	Y
LP001699	Male	No	0	Graduate	No	2479	0	59	360	1	Urban	Y
LP001713	Male	Yes	1	Graduate	Yes	7787	0	240	360	1	Urban	Y
LP001716	Male	Yes	0	Graduate	No	3173	3021	137	360	1	Urban	Y
LP001726	Male	Yes	0	Graduate	No	3727	1775	131	360	1	Semiurban	Y
LP001743	Male	Yes	2	Graduate	No	4009	1717	116	360	1	Semiurban	Y

LP001744	Male	No	0	Graduate	No	2971	2791	144	360	1	Semiurban	Y
LP001750	Male	Yes	0	Graduate	No	6250	0	128	360	1	Semiurban	Y
LP001758	Male	Yes	2	Graduate	No	6250	1695	210	360	1	Semiurban	Y
LP001761	Male	No	0	Graduate	Yes	6400	0	200	360	1	Rural	Y
LP001765	Male	Yes	1	Graduate	No	2491	2054	104	360	1	Semiurban	Y
LP001776	Female	No	0	Graduate	No	8333	0	280	360	1	Semiurban	Y
LP001778	Male	Yes	1	Graduate	No	3155	1779	140	360	1	Semiurban	Y
LP001784	Male	Yes	1	Graduate	No	5500	1260	170	360	1	Rural	Y
LP001790	Female	No	1	Graduate	No	3812	0	112	360	1	Rural	Y
LP001792	Male	Yes	1	Graduate	No	3315	0	96	360	1	Semiurban	Y
LP001798	Male	Yes	2	Graduate	No	5819	5000	120	360	1	Rural	Y
LP001807	Male	Yes	2	Graduate	Yes	6250	1300	108	360	1	Rural	Y
LP001811	Male	Yes	0	Not Graduate	No	3406	4417	123	360	1	Semiurban	Y
LP001814	Male	Yes	2	Graduate	No	9703	0	112	360	1	Urban	Y
LP001824	Male	Yes	1	Graduate	No	2882	1843	123	480	1	Semiurban	Y
LP001825	Male	Yes	0	Graduate	No	1809	1868	90	360	1	Urban	Y
LP001841	Male	No	0	Not Graduate	Yes	2583	2167	104	360	1	Rural	Y
LP001868	Male	No	0	Graduate	No	2060	2209	134	360	1	Semiurban	Y
LP001871	Female	No	0	Graduate	No	7200	0	120	360	1	Rural	Y
LP001872	Male	No	0	Graduate	Yes	5166	0	128	360	1	Semiurban	Y
LP001875	Male	No	0	Graduate	No	4095	3447	151	360	1	Rural	Y

LP001877	Male	Yes	2	Graduate	No	4708	1387	150	360	1	Semiurban	Y
LP001884	Female	No	1	Graduate	No	2876	1560	90	360	1	Urban	Y
LP001888	Female	No	0	Graduate	No	3237	0	30	360	1	Urban	Y
LP001891	Male	Yes	0	Graduate	No	11146	0	136	360	1	Urban	Y
LP001892	Male	No	0	Graduate	No	2833	1857	126	360	1	Rural	Y
LP001894	Male	Yes	0	Graduate	No	2620	2223	150	360	1	Semiurban	Y
LP001896	Male	Yes	2	Graduate	No	3900	0	90	360	1	Semiurban	Y
LP001900	Male	Yes	1	Graduate	No	2750	1842	115	360	1	Semiurban	Y
LP001903	Male	Yes	0	Graduate	No	3993	3274	207	360	1	Semiurban	Y
LP001904	Male	Yes	0	Graduate	No	3103	1300	80	360	1	Urban	Y
LP001907	Male	Yes	0	Graduate	No	14583	0	436	360	1	Semiurban	Y
LP001914	Male	Yes	0	Graduate	No	3927	800	112	360	1	Semiurban	Y
LP001917	Female	No	0	Graduate	No	1811	1666	54	360	1	Urban	Y
LP001924	Male	No	0	Graduate	No	3158	3053	89	360	1	Rural	Y
LP001926	Male	Yes	0	Graduate	No	3704	2000	120	360	1	Rural	Y
LP001931	Female	No	0	Graduate	No	4124	0	115	360	1	Semiurban	Y
LP001935	Male	No	0	Graduate	No	9508	0	187	360	1	Rural	Y
LP001936	Male	Yes	0	Graduate	No	3075	2416	139	360	1	Rural	Y
LP001940	Male	Yes	2	Graduate	No	3153	1560	134	360	1	Urban	Y
LP001947	Male	Yes	0	Graduate	No	2383	3334	172	360	1	Semiurban	Y
LP001953	Male	Yes	1	Graduate	No	6875	0	200	360	1	Semiurban	Y

LP001954	Female	Yes	1	Graduate	No	4666	0	135	360	1	Urban	Y
LP001974	Female	No	0	Graduate	No	5000	0	132	360	1	Rural	Y
LP001977	Male	Yes	1	Graduate	No	1625	1803	96	360	1	Urban	Y
LP001978	Male	No	0	Graduate	No	4000	2500	140	360	1	Rural	Y
LP001993	Female	No	0	Graduate	No	3762	1666	135	360	1	Rural	Y
LP002002	Female	No	0	Graduate	No	2917	0	84	360	1	Semiurban	Y
LP002004	Male	No	0	Not Graduate	No	2927	2405	111	360	1	Semiurban	Y
LP002006	Female	No	0	Graduate	No	2507	0	56	360	1	Rural	Y
LP002035	Male	Yes	2	Graduate	No	3717	0	120	360	1	Semiurban	Y
LP002051	Male	Yes	0	Graduate	No	2400	2167	115	360	1	Semiurban	Y
LP002054	Male	Yes	2	Not Graduate	No	3601	1590		360	1	Rural	Y
LP002068	Male	No	0	Graduate	No	4917	0	130	360	0	Rural	Y
LP002082	Male	Yes	0	Graduate	Yes	5818	2160	184	360	1	Semiurban	Y
LP002087	Female	No	0	Graduate	No	2500	0	67	360	1	Urban	Y
LP002097	Male	No	1	Graduate	No	4384	1793	117	360	1	Urban	Y
LP002098	Male	No	0	Graduate	No	2935	0	98	360	1	Semiurban	Y
LP002110	Male	Yes	1	Graduate		5250	688	160	360	1	Rural	Y
LP002112	Male	Yes	2	Graduate	Yes	2500	4600	176	360	1	Rural	Y
LP002114	Female	No	0	Graduate	No	4160	0	71	360	1	Semiurban	Y
LP002119	Male	Yes	1	Not Graduate	No	4554	1229	158	360	1	Urban	Y
LP002128	Male	Yes	2	Graduate		2583	2330	125	360	1	Rural	Y
LP002129	Male	Yes	0	Graduate	No	2499	2458	160	360	1	Semiurban	Y
LP002131	Male	Yes	2	Not Graduate	No	3083	2168	126	360	1	Urban	Y
LP002138	Male	Yes	0	Graduate	No	2625	6250	187	360	1	Rural	Y
LP002139	Male	Yes	0	Graduate	No	9083	0	228	360	1	Semiurban	Y
LP002143	Female	Yes	0	Graduate	No	2423	505	130	360	1	Semiurban	Y
LP002149	Male	Yes	2	Graduate	No	8333	3167	165	360	1	Rural	Y
LP002170	Male	Yes	2	Graduate	No	5000	3667	236	360	1	Semiurban	Y
LP002175	Male	Yes	0	Graduate	No	4750	2333	130	360	1	Urban	Y
LP002180	Male	No	0	Graduate	Yes	6822	0	141	360	1	Rural	Y
LP002190	Male	Yes	1	Graduate	No	6325	0	175	360	1	Semiurban	Y
LP002194	Female	No	0	Graduate	Yes	15759	0	55	360	1	Semiurban	Y
LP002197	Male	Yes	2	Graduate	No	5185	0	155	360	1	Semiurban	Y
LP002201	Male	Yes	2	Graduate	Yes	9323	7873	380	300	1	Rural	Y
LP002209	Female	No	0	Graduate		2764	1459	110	360	1	Urban	Y
LP002225	Male	Yes	2	Graduate	No	5391	0	130	360	1	Urban	Y
LP002226	Male	Yes	0	Graduate		3333	2500	128	360	1	Semiurban	Y
LP002229	Male	No	0	Graduate	No	5941	4232	296	360	1	Semiurban	Y
LP002231	Female	No	0	Graduate	No	6000	0	156	360	1	Urban	Y
LP002234	Male	No	0	Graduate	Yes	7167	0	128	360	1	Urban	Y
LP002239	Male	No	0	Not Graduate	No	2346	1600	132	360	1	Semiurban	Y
LP002244	Male	Yes	0	Graduate	No	2333	2417	136	360	1	Urban	Y
LP002250	Male	Yes	0	Graduate	No	5488	0	125	360	1	Rural	Y
LP002266	Male	Yes	2	Graduate	No	3100	1400	113	360	1	Urban	Y
LP002281	Male	Yes	0	Graduate	No	3033	1459	95	360	1	Urban	Y
LP002284	Male	No	0	Not Graduate	No	3902	1666	109	360	1	Rural	Y
LP002297	Male	No	0	Graduate	No	2500	20000	103	360	1	Semiurban	Y
LP002300	Female	No	0	Not Graduate	No	1963	0	53	360	1	Semiurban	Y
LP002305	Female	No	0	Graduate	No	4547	0	115	360	1	Semiurban	Y
LP002308	Male	Yes	0	Not Graduate	No	2167	2400	115	360	1	Urban	Y
LP002314	Female	No	0	Not Graduate	No	2213	0	66	360	1	Rural	Y
LP002332	Male	Yes	0	Not Graduate	No	2253	2033	110	360	1	Rural	Y
LP002337	Female	No	0	Graduate	No	2995	0	60	360	1	Urban	Y
LP002345	Male	Yes	0	Graduate	No	1025	2773	112	360	1	Rural	Y
LP002347	Male	Yes	0	Graduate	No	3246	1417	138	360	1	Semiurban	Y
LP002348	Male	Yes	0	Graduate	No	5829	0	138	360	1	Rural	Y
LP002361	Male	Yes	0	Graduate	No	1820	1719	100	360	1	Urban	Y
LP002364	Male	Yes	0	Graduate	No	14880	0	96	360	1	Semiurban	Y
LP002366	Male	Yes	0	Graduate	No	2666	4300	121	360	1	Rural	Y
LP002368	Male	Yes	2	Graduate	No	5935	0	133	360	1	Semiurban	Y
LP002369	Male	Yes	0	Graduate	No	2920	16	87	360	1	Rural	Y
LP002377	Female	No	1	Graduate	Yes	8624	0	150	360	1	Semiurban	Y
LP002386	Male	No	0	Graduate		12876	0	405	360	1	Semiurban	Y
LP002387	Male	Yes	0	Graduate	No	2425	2340	143	360	1	Semiurban	Y
LP002390	Male	No	0	Graduate	No	3750	0	100	360	1	Urban	Y
LP002398	Male	No	0	Graduate	No	1926	1851	50	360	1	Semiurban	Y
LP002401	Male	Yes	0	Graduate	No	2213	1125		360	1	Urban	Y
LP002407	Female	Yes	0	Not Graduate	Yes	7142	0	138	360	1	Rural	Y
LP002408	Male	No	0	Graduate	No	3660	5064	187	360	1	Semiurban	Y
LP002409	Male	Yes	0	Graduate	No	7901	1833	180	360	1	Rural	Y
LP002422	Male	No	1	Graduate	No	37719	0	152	360	1	Semiurban	Y
LP002429	Male	Yes	1	Graduate	Yes	3466	1210	130	360	1	Rural	Y
LP002434	Male	Yes	2	Not Graduate	No	4652	0	110	360	1	Rural	Y
LP002453	Male	No	0	Graduate	Yes	7085	0	84	360	1	Semiurban	Y
LP002455	Male	Yes	2	Graduate	No	3859	0	96	360	1	Semiurban	Y
LP002459	Male	Yes	0	Graduate	No	4301	0	118	360	1	Urban	Y
LP002472	Male	No	2	Graduate	No	4354	0	136	360	1	Rural	Y
LP002487	Male	Yes	0	Graduate	No	3015	2188	153	360	1	Rural	Y
LP002489	Female	No	1	Not Graduate		5191	0	132	360	1	Semiurban	Y
LP002494	Male	No	0	Graduate	No	6000	0	140	360	1	Rural	Y
LP002501		Yes	0	Graduate	No	16692	0	110	360	1	Semiurban	Y
LP002502	Female	Yes	2	Not Graduate		210	2917	98	360	1	Semiurban	Y
LP002515	Male	Yes	1	Graduate	Yes	3450	2079	162	360	1	Semiurban	Y
LP002524	Male	No	2	Graduate	No	5532	4648	162	360	1	Rural	Y

LP002527	Male	Yes	2	Graduate	Yes	16525	1014	150	360	1	Rural	Y
LP002529	Male	Yes	2	Graduate	No	6700	1750	230	300	1	Semiurban	Y
LP002531	Male	Yes	1	Graduate	Yes	16667	2250	86	360	1	Semiurban	Y
LP002534	Female	No	0	Not Graduate	No	4350	0	154	360	1	Rural	Y
LP002537	Male	Yes	0	Graduate	No	2083	3150	128	360	1	Semiurban	Y
LP002541	Male	Yes	0	Graduate	No	10833	0	234	360	1	Semiurban	Y
LP002543	Male	Yes	2	Graduate	No	8333	0	246	360	1	Semiurban	Y
LP002544	Male	Yes	1	Not Graduate	No	1958	2436	131	360	1	Rural	Y
LP002555	Male	Yes	2	Graduate	Yes	4583	2083	160	360	1	Semiurban	Y
LP002571	Male	No	0	Not Graduate	No	3691	0	110	360	1	Rural	Y
LP002582	Female	No	0	Not Graduate	Yes	17263	0	225	360	1	Semiurban	Y
LP002587	Male	Yes	0	Not Graduate	No	2600	1700	107	360	1	Rural	Y
LP002600	Male	Yes	1	Graduate	Yes	2895	0	95	360	1	Semiurban	Y
LP002603	Female	No	0	Graduate	No	645	3683	113	480	1	Rural	Y
LP002606	Female	No	0	Graduate	No	3159	0	100	360	1	Semiurban	Y
LP002615	Male	Yes	2	Graduate	No	4865	5624	208	360	1	Semiurban	Y
LP002619	Male	Yes	0	Not Graduate	No	3814	1483	124	300	1	Semiurban	Y
LP002622	Male	Yes	2	Graduate	No	3510	4416	243	360	1	Rural	Y
LP002626	Male	Yes	0	Graduate	Yes	2479	3013	188	360	1	Urban	Y
LP002634	Female	No	1	Graduate	No	13262	0	40	360	1	Urban	Y
LP002640	Male	Yes	1	Graduate	No	6065	2004	250	360	1	Semiurban	Y
LP002643	Male	Yes	2	Graduate	No	3283	2035	148	360	1	Urban	Y
LP002670	Female	Yes	2	Graduate	No	2031	1632	113	480	1	Semiurban	Y
LP002689	Male	Yes	2	Not Graduate	No	2192	1742	45	360	1	Semiurban	Y
LP002690	Male	No	0	Graduate	No	2500	0	55	360	1	Semiurban	Y
LP002693	Male	Yes	2	Graduate	Yes	7948	7166	480	360	1	Rural	Y
LP002699	Male	Yes	2	Graduate	Yes	17500	0	400	360	1	Rural	Y
LP002705	Male	Yes	0	Graduate	No	3775	0	110	360	1	Semiurban	Y
LP002706	Male	Yes	1	Not Graduate	No	5285	1430	161	360	0	Semiurban	Y
LP002714	Male	No	1	Not Graduate	No	2679	1302	94	360	1	Semiurban	Y
LP002716	Male	No	0	Not Graduate	No	6783	0	130	360	1	Semiurban	Y
LP002731	Female	No	0	Not Graduate	Yes	18165	0	125	360	1	Urban	Y
LP002732	Male	No	0	Not Graduate		2550	2042	126	360	1	Rural	Y
LP002734	Male	Yes	0	Graduate	No	6133	3906	324	360	1	Urban	Y
LP002738	Male	No	2	Graduate	No	3617	0	107	360	1	Semiurban	Y
LP002753	Female	No	1	Graduate		3652	0	95	360	1	Semiurban	Y
LP002755	Male	Yes	1	Not Graduate	No	2239	2524	128	360	1	Urban	Y
LP002767	Male	Yes	0	Graduate	No	2768	1950	155	360	1	Rural	Y
LP002772	Male	No	0	Graduate	No	2526	1783	145	360	1	Rural	Y
LP002777	Male	Yes	0	Graduate	No	2785	2016	110	360	1	Rural	Y
LP002784	Male	Yes	1	Not Graduate	No	2492	2375		360	1	Rural	Y
LP002785	Male	Yes	1	Graduate	No	3333	3250	158	360	1	Urban	Y
LP002792	Male	Yes	1	Graduate	No	5468	1032	26	360	1	Semiurban	Y
LP002798	Male	Yes	0	Graduate	No	3887	2669	162	360	1	Semiurban	Y
LP002804	Female	Yes	0	Graduate	No	4180	2306	182	360	1	Semiurban	Y
LP002807	Male	Yes	2	Not Graduate	No	3675	242	108	360	1	Semiurban	Y
LP002813	Female	Yes	1	Graduate	Yes	19484	0	600	360	1	Semiurban	Y
LP002820	Male	Yes	0	Graduate	No	5923	2054	211	360	1	Rural	Y
LP002821	Male	No	0	Not Graduate	Yes	5800	0	132	360	1	Semiurban	Y
LP002836	Male	No	0	Graduate	No	3333	0	70	360	1	Urban	Y
LP002842	Male	Yes	1	Graduate	No	3417	1750	186	360	1	Urban	Y
LP002855	Male	Yes	2	Graduate	No	16666	0	275	360	1	Urban	Y
LP002874	Male	No	0	Graduate	No	3229	2739	110	360	1	Urban	Y
LP002877	Male	Yes	1	Graduate	No	1782	2232	107	360	1	Rural	Y
LP002888	Male	No	0	Graduate		3182	2917	161	360	1	Urban	Y
LP002892	Male	Yes	2	Graduate	No	6540	0	205	360	1	Semiurban	Y
LP002894	Female	Yes	0	Graduate	No	3166	0	36	360	1	Semiurban	Y
LP002916	Male	Yes	0	Graduate	No	2297	1522	104	360	1	Urban	Y
LP002917	Female	No	0	Not Graduate	No	2165	0	70	360	1	Semiurban	Y
LP002925		No	0	Graduate	No	4750	0	94	360	1	Semiurban	Y
LP002938	Male	Yes	0	Graduate	Yes	16120	0	260	360	1	Urban	Y
LP002940	Male	No	0	Not Graduate	No	3833	0	110	360	1	Rural	Y
LP002945	Male	Yes	0	Graduate	Yes	9963	0	180	360	1	Rural	Y
LP002948	Male	Yes	2	Graduate	No	5780	0	192	360	1	Urban	Y
LP002950	Male	Yes	0	Not Graduate		2894	2792	155	360	1	Rural	Y
LP002958	Male	No	0	Graduate	No	3676	4301	172	360	1	Rural	Y
LP002959	Female	Yes	1	Graduate	No	12000	0	496	360	1	Semiurban	Y
LP002961	Male	Yes	1	Graduate	No	3400	2500	173	360	1	Semiurban	Y
LP002964	Male	Yes	2	Not Graduate	No	3987	1411	157	360	1	Rural	Y
LP002974	Male	Yes	0	Graduate	No	3232	1950	108	360	1	Rural	Y
LP002978	Female	No	0	Graduate	No	2900	0	71	360	1	Rural	Y
LP002983	Male	Yes	1	Graduate	No	8072	240	253	360	1	Urban	Y
LP002984	Male	Yes	2	Graduate	No	7583	0	187	360	1	Urban	Y

Insights :

- The loan amount 306 have the term greater than 20 years and are approved.

10. How many loans are granted to self-employed applicants compared to non-self-employed applicants ?

```
SELECT SelfEmployed , count(*) AS TOTAL_COUNT FROM loan_data GROUP BY SelfEmployed;
```

	SelfEmployed	TOTAL_COUNT
▶	No	399
	Yes	66
		24

Insights :

- The loan amount granted for self-employed applicants compared to non-self-employed applicants is 399.
- Non-self-employed = 66
- Others = 24

11. What is the average loan amount for applicants with credit history of 0 ?

```
SELECT avg(LoanAmount) FROM loan_data WHERE CreditHistory = 0;
```

	avg(LoanAmount)
▶	130.36764705882354

Insights :

- The average loan amount for applicants with a credit history of 0 is 130.36

12. Which loan have been rejected (LoanStatus = 'N') and what is the gender distribution ?

```
SELECT Gender , count(*) AS REJECTED_COUNT FROM loan_data WHERE LoanStatus = 'N' GROUP BY Gender;
```

	Gender	REJECTED_COUNT
▶	Male	114
	Female	33
		5

Insights :

- The loan has rejected for114 male applicants and 33 female applicants.
- Others =5

JOINS AND RELATIONSHIPS

13. How many applicants have dependents ?

```
SELECT Dependents , count(*) AS TOTAL_COUNT FROM loan_data WHERE Dependents = 1 OR Dependents = 2
GROUP BY Dependents;
```

	Dependents	TOTAL_COUNT
▶	1	89
	2	95

Insights :

- There is 89 applicants with 1 dependent and 95 applicants with 2 dependents.
- Total there is 184 applicants have dependents.

14. What is the total loan amount for each combination of education level and marital status ?

```
SELECT Education , Married , sum(LoanAmount) AS TOTAL_LOAN_AMOUNT FROM loan_data GROUP BY Education , Married;
```

	Education	Married	TOTAL_LOAN_AMOUNT
▶	Graduate	No	18442
	Graduate	Yes	37373
	Not Graduate	Yes	7418
	Not Graduate	No	3673

Insights :

- The applicants who are graduated and unmarried have the total loan amount of18442 and married have 37373.
- The applicants who are not graduated and unmarried have the total loan amount of 7418 and married have 3673.

15. Which property area has the highest average loan amount ?

```
SELECT PropertyArea , avg(LoanAmount) AS AVG_LOAN_AMOUNT FROM loan_data GROUP BY PropertyArea ORDER BY AVG_LOAN_AMOUNT DESC LIMIT 1;
```

	PropertyArea	AVG_LOAN_AMOUNT
▶	Rural	143.39716312056737

Insights :

- The Rural area have the highest average loan amount of143.39.

16. Who have the loans with both an applicant income greater than 50000 and a loan amount less than 600 ?

```
SELECT * FROM loan_data WHERE ApplicantIncome > 50000 AND LoanAmount < 600;
```

	LoanID	Gender	Married	Dependents	Education	SelfEmployed	ApplicantIncome	CoapplicantIncome	LoanAmount	LoanAmountTerm	CreditHistory	PropertyArea	LoanStatus
▶	LP002101	Male	Yes	0	Graduate		63337	0	490	180	1	Urban	Y

Insights :

- The Loan ID LP002101 have both an applicant income greater than 500000 and a loan amount less than 600.
- Applicant is a male and not have any dependent.
- He is graduated and he have the applicant income 63337 and his loan amount is 490.

SORTNG AND RANKING

17. What are the top 5 loan amounts granted to the applicants with the highest credit history ?

```
SELECT * FROM loan_data WHERE CreditHistory = 1 ORDER BY LoanAmount DESC LIMIT 5;
```

LoanID	Gender	Married	Dependents	Education	SelfEmployed	ApplicantIncome	CoapplicantIncome	LoanAmount	LoanAmountTerm	CreditHistory	PropertyArea	LoanStatus
LP001925	Female	No	0	Graduate	Yes	2600	1717	99	300	1	Semiurban	N
LP001560	Male	Yes	0	Not Graduate	No	1863	1041	98	360	1	Semiurban	Y
LP002502	Female	Yes	2	Not Graduate		210	2917	98	360	1	Semiurban	Y
LP002098	Male	No	0	Graduate	No	2935	0	98	360	1	Semiurban	Y
LP001245	Male	Yes	2	Not Graduate	Yes	1875	1875	97	360	1	Semiurban	Y

Insights :

- Loan ID LP001925with loan amount of 99.
- Loan ID LP001560with loan amount of 98.
- Loan ID LP002502with loan amount of 98.
- Loan ID LP002098with loan amount of 98.
- Loan ID LP001245with loan amount of 97.

18. Which 3 applicants have the highest combined income (ApplicantIncome + CoapplicantIncome) ?

```
SELECT LoanID , Gender , ApplicantIncome + CoapplicantIncome AS TOTAL_INCOME FROM loan_data ORDER BY TOTAL_INCOME DESC LIMIT 3;
```

LoanID	Gender	TOTAL_INCOME
LP002101	Male	63337
LP001640	Male	43897
LP002422	Male	37719

Insights :

- Loan ID LP002101with total loan amount 63337.
- Loan ID LP001640with total loan amount 43897.
- Loan ID LP002422with total loan amount 37719.
- This 3 applicants are male.

19. List the top 5 applicants with longest loan term and the correspoding loan amount ?

```
SELECT LoanID , LoanAmount , LoanAmountTerm FROM loan_data ORDER BY LoanAmountTerm DESC LIMIT 5;
```

LoanID	LoanAmount	LoanAmountTerm
LP001255	113	480
LP002224	71	480
LP001955	151	480
LP001630	102	480
LP002158	100	480

Insights :

- LoanIDLP001255with loan amount113.
- LoanIDLP002224with loan amount 71.
- LoanIDLP001955with loan amount151.
- LoanIDLP001630with loan amount102.
- LoanIDLP002158with loan amount100.
- This 5 applicants have the longest loan term of 40 years (480months).

ADVANCED ANALYSIS

20. What is the average loan amount for applicants with and without dependents ?

```
SELECT Dependents , avg(LoanAmount) AS AVG_LOAN_AMOUNT FROM loan_data GROUP BY Dependents;
```

Dependents	AVG_LOAN_AMOUNT
0	129.20983606557377
1	151.96629213483146
2	147.07368421052632

Insights :

- The applicants with no dependent have the average loan amount of129.20
- The applicants with 1 dependent have the average loan amount of151.96
- The applicants with 2 dependents have the average loan amount of147.07

21. What percentage of loans were granted to aplicants with a credit hitory of 1 ?

```
SELECT (count(*) * 100 / (SELECT count(*) FROM loan_data)) AS PERCENTAGE FROM loan_data WHERE CreditHistory = 1;
```

	PERCENTAGE
▶	86.0941

Insights :

- 86.09 percentage of loans were granted to the applicants with a credit history of 1.

22. What is the average loan amount for applicants in each combination of gender , education, and marital status ?

```
SELECT Gender , Education , Married , avg(LoanAmount) AS AVG_LOAN_AMOUNT FROM loan_data GROUP BY Gender , Education , Married;
```

	Gender	Education	Married	AVG_LOAN_AMOUNT
▶	Male	Graduate	No	135.17777777777778
	Male	Graduate	Yes	152.8644859813084
	Male	Not Graduate	Yes	119.15789473684211
	Female	Graduate	No	110.65454545454546
		Not Graduate	Yes	112
	Male	Not Graduate	No	95.76923076923077
	Female	Graduate	Yes	164.04347826086956
	Female	Not Graduate	Yes	128.5
		Graduate	Yes	147.83333333333334
	Female	Not Graduate	No	107.54545454545455
		Graduate	No	95

Insights :

- The male applicants with graduated and unmarried have the average loan amount of135.17 and married have 152.86
- The female applicants with graduated and unmarried have the average loan amount of110.65 and married have 164.04
- The male applicants with no graduated and unmarried have the average loan amount of 95.76 and married have 119.15
- The female applicants with no graduated and unmarried have the average loan amount of 107.54 and married have 128.5

23. Which applicants have the highest loan amount and the lowest income ?

```
SELECT LoanID , LoanAmount , ApplicantIncome + CoapplicantIncome AS TOTAL_INCOME FROM loan_data ORDER BY LoanAmount DESC , TOTAL_INCOME ASC LIMIT 5;
```

	LoanID	LoanAmount	TOTAL_INCOME
▶	LP002743	99	2138
	LP001925	99	4317
	LP001560	98	2904
	LP002098	98	2935
	LP002502	98	3127

Insights :

- LoanIDLP002743 have the highest loan amount and the lowest income.
- The loan amount is 99 and income is 2138.

24. How many applicants were granted loans with a term of more than 15 years (180 months) in each property area ?

```
SELECT PropertyArea , count(*) AS TOTAL_COUNT FROM loan_data WHERE LoanAmountTerm > 180 AND LoanStatus = 'Y' GROUP BY PropertyArea;
```

	PropertyArea	TOTAL_COUNT
▶	Urban	87
	Semiurban	141
	Rural	79

Insights :

- In Urban area 87 applicants were granted loans with a term of 15 years (180months).
- In Semiurban area 141 applicants were granted loans with a term of15 years.
- In Rural area 79 applicants were granted loans with a term of 15 years.

STORED PROCEDURE

- **Stored procedure to calculate the total loan amount by loan amount term.**

```
DELIMITER //
CREATE PROCEDURE GetTotalLoanAmountByLoanTerm()
BEGIN
    SELECT LoanAmountTerm , sum(LoanAmount) AS TOTAL_LOAN_AMOUNT
    FROM loan_data
    GROUP BY LoanAmountTerm;
END //
```

```
DELIMITER ;

CALL GetTotalLoanAmountByLoanTerm();
```

LoanAmountTerm	TOTAL_LOAN_AMOUNT
360	58726
120	67
180	4654
300	1197
480	1232
240	255
60	155
36	235
84	385

Insights :

- Loan amount term with 360 have 58726.
- Loan amount term with 120 have 67.
- Loan amount term with 180 have 4654.
- Loan amount term with 300 have 1197.
- Loan amount term with 480 have 1232.
- Loan amount term with 240 have 255.
- Loan amount term with 60 have 155.
- Loan amount term with 36 have 235.
- Loan amount term with 84 have 385.

- **Stored procedure to get total loan amount based on loan status. (USING IN PARAMETER)**

```
DELIMITER &&

CREATE PROCEDURE GetTotalAmountByStatus(IN loan_status VARCHAR(10))

BEGIN

        SELECT sum(LoanAmount) AS TOTAL_LOAN_AMOUNT

        FROM loan_data

        WHERE LoanStatus = loan_status;

END &&

DELIMITER ;

CALL GetTotalAmountByStatus('Y');

CALL GetTotalAmountByStatus('N');
```

	TOTAL_LOAN_AMOUNT
▶	45811

	TOTAL_LOAN_AMOUNT
▶	21095

Insights :

- Approved loans have 45811.
- Rejected loans have 21095.

- **Stored proedure to get the total loan amount for a specific gender. (USING OUT PARAMETER)**

```
DELIMITER //

CREATE PROCEDURE GetLoanAmountByGender(IN loan_gender VARCHAR(10) , OUT total_loan_amount DECIMAL(10,2))

BEGIN

        SELECT sum(LoanAmount) INTO total_loan_amount

        FROM loan_data

        WHERE Gender = loan_gender;

END //

DELIMITER ;
```

-- Declare a variable to hold the output value

```
SET @total_amount = 0;
```

-- Call the stored procedure

```
CALL GetLoanAmountByGender('Male',@total_amount);

CALL GetLoanAmountByGender('Female',@total_amount);
```

-- Display the result

```
SELECT @total_amount AS TOTAL_LOAN_AMOUNT;
```

	TOTAL_LOAN_AMOUNT
▶	54161.00

	TOTAL_LOAN_AMOUNT
▶	11556.00

Insights :

- Female applicants have 11556.
- Male applicants have 54161.

➢ Stored procedure to calculate and update total loan amount based on gender. (USING INOUT PARAMETER)

```
DELIMITER &&

CREATE PROCEDURE UpdateLoanAmountByGender(INOUT total_loan_amount DECIMAL(10,2),IN loan_gender varchar(10))

BEGIN

        SELECT sum(LoanAmount) INTO total_loan_amount

        FROM loan_data

        WHERE Gender = loan_gender;

END &&

DELIMITER ;
```

-- Declare a variable to hold the output value

```
SET @total_amount = 0;
```

-- Call the stored procedure

```
CALL UpdateLoanAmountByGender(@total_amount,'Male');

CALL UpdateLoanAmountByGender(@total_amount,'Female');
```

-- Display the result

```
SELECT @total_amount AS UPDATED_TOTAL_LOAN_AMOUNT;
```

	UPDATED_TOTAL_LOAN_AMOUNT
▶	54161.00

	UPDATED_TOTAL_LOAN_AMOUNT
▶	11556.00

Insights :

- Female applicants have 11556.
- Male applicants have 54161.

TRIGGER

- **Trigger to check applicant income and update loan status. (USING AFTER INSERT)**

```
DELIMITER //
CREATE TRIGGER CheckApplicantIncome
AFTER INSERT ON loan_data
FOR EACH ROW
BEGIN
        IF NEW.ApplicantIncome < 20000 THEN
                UPDATE loan
                SET LoanStatus = 'N'
                WHERE LoanID = NEW.LoanID;
        END IF;
END //
DELIMITER ;
SET sql_safe_updates = 0;
UPDATE loan_data
SET ApplicantIncome = 15000, LoanStatus = 'N'
WHERE LoanID = 'LP001003';
SELECT LoanID, ApplicantIncome, LoanStatus
FROM loan_data
WHERE LoanID = 'LP001003';
```

Insights :

	LoanID	ApplicantIncome	LoanStatus
▶	LP001003	15000	N

- **Trigger to automatically update credit history based on loan status. (USING AFTER UPDATE)**

```
DELIMITER &&
CREATE TRIGGER UpdateCreditHistoryOnLoanAmountChange
AFTER UPDATE ON loan
```

```
FOR EACH ROW
BEGIN
        IF NEW.LoanStatus = 'N' THEN
                UPDATE loan_data
                SET CreditHistory = 0
                WHERE LoanID = NEW.LoanID;
        END IF ;
END &&
DELIMITER ;
SET sql_safe_updates = 0;
UPDATE loan_data
SET LoanStatus = 'N'
WHERE LoanID = 'LP001047';
SELECT LoanID, LoanStatus, CreditHistory
FROM loan_data
WHERE LoanID = 'LP001047';
```

Insights :

	LoanID	LoanStatus	CreditHistory
▶	LP001047	N	0

CONCLUSION

After executing the above SQL queries, you would gain a comprehensive understanding of the loan dataset, which could include insights like loan distribution and average loan amount , status of loan whether the loan is approved or rejected for the applicants and the loan preferences.These insights will allow decision-makers to assess loan performance, understand borrower behavior, and make informed decisions about lending policies and risk management strategies.

The SQL-based analysis revealed strong relationships between credit history and loan approval. Applicants with a credit history (CreditHistory = 1) had a significantly higher chance of being approved compared to those without it. Additionally, applicants with higher incomes and those living in urban areas also showed better approval rates, suggesting risk assessments might be influenced by these parameters.

The project highlights the importance of data-driven decision-making in the financial sector. Through structured queries and data processing, SQL proved effective in extracting insights that align with real-world lending criteria. Although the dataset had some missing values, careful preprocessing allowed meaningful patterns to emerge, confirming SQL’s role in early-stage analytics and risk profiling.

FUTURE WORKS

- Data Cleaning Automation: Develop SQL procedures or scripts to automatically clean missing and inconsistent data.
- Advanced SQL Joins: Integrate with external datasets like credit scores or employment databases to enrich analysis.
- Predictive Modeling: Use the results of the SQL analysis to build machine learning models for automated loan approval.
- Dashboard Creation: Build an interactive BI dashboard using tools like Power BI or Tableau connected to SQL queries.
- Loan Default Prediction: Extend the dataset to include loan repayment status and analyze default risks.
- Real-time Analytics: Implement SQL triggers or materialized views to handle real-time loan application analysis.
- User Segmentation: Use SQL clustering techniques to segment users into risk categories.
- Policy Testing: Simulate changes in approval policies using historical data to test outcomes.
- Time Series Analysis: Analyze trends over time if timestamped data is available in extended datasets.
- Explainable Queries: Build SQL views that help explain why specific loans were approved or rejected.