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1  --Create a new database
2  create database [Bank Loan DB];
3
4  --Switch to the new database
5  use [Bank Loan DB];
6
7  --Retrieve Records
8  select * from bank_loan_data;
9
10 --Data Cleaning
11 /*Delete duplicate rows*/
12 delete from bank_loan_data
13 where id NOT IN (select MIN(id) from bank_loan_data
14 group by address_state, application_type, emp_length, grade, home_ownership,
15 issue_date,
16 last_credit_pull_date, last_payment_date, loan_status, next_payment_date,
17 member_id, purpose, sub_grade,
18 term, annual_income, dti, installment, int_rate, loan_amount,
19 total_acc, total_payment
20 );
21
22 /*checking for null values in columns*/
23 select * from bank_loan_data
24 where id IS NULL
25 OR address_state IS NULL
26 OR emp_length IS NULL
27 OR grade IS NULL
28 OR home_ownership IS NULL
29 OR issue_date IS NULL
30 OR last_credit_pull_date IS NULL
31 OR last_payment_date IS NULL
32 OR loan_status IS NULL
33 OR next_payment_date IS NULL
34 OR member_id IS NULL
35 OR purpose IS NULL
36 OR sub_grade IS NULL
37 OR term IS NULL
38 OR annual_income IS NULL
39 OR dti IS NULL
40 OR installment IS NULL
41 OR int_rate IS NULL
42 OR loan_amount IS NULL
43 OR total_acc IS NULL
44 OR total_payment IS NULL;
45
46 /*Creating a new column*/
47 alter table bank_loan_data
48 add [Good Vs Bad Loan] varchar(50);
49
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47 /*Adding data in new column [Good Vs Bad Loan] using condition*/
48 update bank_loan_data
49 set [Good Vs Bad Loan] =
50 (CASE WHEN loan_status='Current' OR loan_status='Fully Paid' THEN 'Good Loan'
51 ELSE 'Bad Loan'
52 END);
53
54 --Writing queries for Problem Statement questions
55 --i)KPI Requirements
56 --1) Total Loan Applications:
57 select COUNT(id) AS [Total Loan Applications] from bank_loan_data;
58
59 --MTD (Month-to-Date) Total Loan Applications:
60 select COUNT(id) AS [MTD Total Loan Applications] from bank_loan_data
61 where MONTH(issue_date)=12 AND YEAR(issue_date)=2021;
62
63 --PMTD (Previous Month-to-Date) Total Loan Applications:
64 select COUNT(id) AS [PMTD Total Loan Applications] from bank_loan_data
65 where MONTH(issue_date)=11 AND YEAR(issue_date)=2021;
66
67 --2) Total Funded Amount:
68 select SUM(loan_amount) AS [Total Funded Amount] from bank_loan_data;
69
70 --MTD (Month-to-Date) Total Funded Amount:
71 select SUM(loan_amount) AS [MTD Total Funded Amount] from bank_loan_data
72 where MONTH(issue_date)=12 AND YEAR(issue_date)=2021;
73
74 --PMTD (Previous Month-to-Date) Total Funded Amount:
75 select SUM(loan_amount) AS [PMTD Total Funded Amount] from bank_loan_data
76 where MONTH(issue_date)=11 AND YEAR(issue_date)=2021;
77
78 --3) Total Amount Received:
79 select SUM(total_payment) AS [Total Amount Received] from bank_loan_data;
80
81 --MTD (Month-to-Date) Total Amount Received:
82 select SUM(total_payment) AS [MTD Total Amount Received] from bank_loan_data
83 where MONTH(issue_date)=12 AND YEAR(issue_date)=2021;
84
85 --PMTD (Previous Month-to-Date) Total Amount Received:
86 select SUM(total_payment) AS [PMTD Total Amount Received] from bank_loan_data
87 where MONTH(issue_date)=11 AND YEAR(issue_date)=2021;
88
89 --4) Average Interest Rate:
90 select ROUND(AVG(int_rate),4)*100 AS [Average Interest Rate] from
    bank_loan_data;
91
92 --MTD (Month-to-Date) Average Interest Rate:
93 select ROUND(AVG(int_rate),4)*100 AS [MTD Average Interest Rate] from
    bank_loan_data
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94 where MONTH(issue_date)=12 AND YEAR(issue_date)=2021;
95
96 --PMTD (Previous Month-to-Date) Average Interest Rate:
97 select ROUND(AVG(int_rate),4)*100 AS [PMTD Average Interest Rate] from
    bank_loan_data
98 where MONTH(issue_date)=11 AND YEAR(issue_date)=2021;
99
100 --5) Average Debt-to-Income Ratio (DTI):
101 select ROUND(AVG(dti),4)*100 AS [Average Debt-to-Income Ratio] from
    bank_loan_data;
102
103 --MTD (Month-to-Date) Average Debt-to-Income Ratio (DTI):
104 select ROUND(AVG(dti),4)*100 AS [MTD Average Debt-to-Income Ratio] from
    bank_loan_data
105 where MONTH(issue_date)=12 AND YEAR(issue_date)=2021;
106
107 --PMTD (Previous Month-to-Date) Average Debt-to-Income Ratio (DTI):
108 select ROUND(AVG(dti),4)*100 AS [PMTD Average Debt-to-Income Ratio] from
    bank_loan_data
109 where MONTH(issue_date)=11 AND YEAR(issue_date)=2021;
110
111 --ii) Good Loan KPI:
112 --1.Good Loan Application Percentage:
113 select (COUNT(
114 CASE
115     WHEN loan_status='Fully Paid'
116     OR loan_status='Current' THEN id
117     END
118 )*100)/COUNT(id) AS [Good Loan Percentage] from bank_loan_data;
119
120 --2.Good Loan Applications:
121 select COUNT(id) AS [Good Loan Applications] from bank_loan_data
122 where loan_status IN ('Fully Paid','Current');
123
124 --3.Good Loan Funded Amount:
125 select SUM(loan_amount) AS [Good Loan Funded Amount] from bank_loan_data
126 where loan_status IN ('Fully Paid','Current');
127
128 --4.Good Loan Amount Received
129 select SUM(total_payment) AS [Good Loan Amount Received] from bank_loan_data
130 where loan_status IN ('Fully Paid','Current');
131
132 --iii) Bad Loan KPI:
133 --1.Bad Loan Application Percentage:
134 select (COUNT(
135 CASE
136     WHEN loan_status='Charged Off' THEN id
137     END) *100)/COUNT(id) AS [Bad Loan Percentage] from bank_loan_data;
138
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139 --2.Bad Loan Applications:
140 select COUNT(id) AS [Bad Loan Applications] from bank_loan_data
141 where loan_status='Charged Off';
142
143 --3.Bad Loan Funded Amount:
144 select SUM(loan_amount) AS [Bad Loan Funded Amount] from bank_loan_data
145 where loan_status='Charged Off';
146
147 --4.Bad Loan Total Received Amount:
148 select SUM(total_payment) AS [Bad Loan Amount Received] from bank_loan_data
149 where loan_status='Charged Off';
150
151 --Loan Status
152 select loan_status, COUNT(id) AS [Total Loan Applications],
153 SUM(loan_amount) AS [Total Funded Amount],
154 SUM(total_payment) AS [Total Amount Received],
155 AVG(int_rate*100) AS [Average Interest Rate],
156 AVG(dti*100) AS [Average Debt-to-Income Ratio (DTI)] from bank_loan_data
157 group by loan_status;
158
159 --1. Total Loan Applications by Issue Date:
160 select MONTH(issue_date) AS [Month Number], DATENAME(MONTH, issue_date) AS ↗
    [Month Name],
161 COUNT(id) AS [Total Loan Applications] from bank_loan_data
162 group by MONTH(issue_date), DATENAME(MONTH, issue_date)
163 order by [Month Number];
164
165 --2.Total Loan Applications by State:
166 select address_state AS State, COUNT(id) AS [Total Loan Applications] from ↗
    bank_loan_data
167 group by address_state
168 order by [Total Loan Applications] DESC;
169
170 --3.Total Loan Applications by Loan Term
171 select term AS [Loan Term], COUNT(id) AS [Total Loan Applications] from ↗
    bank_loan_data
172 group by term
173 order by [Total Loan Applications] DESC;
174
175 --4.Total Loan Applications by Employee Length
176 select emp_length AS [Employee Length], COUNT(id) AS [Total Loan Applications] ↗
    from bank_loan_data
177 group by emp_length
178 order by [Total Loan Applications] DESC;
179
180 --5.Total Loan Applications by Loan Purpose
181 select purpose AS [Loan Purpose], COUNT(id) AS [Total Loan Applications] from ↗
    bank_loan_data
182 group by purpose
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183 order by [Total Loan Applications] DESC;
184
185 --6. Total Loan Applications by Home Ownership
186 select home_ownership AS [Home Ownership], COUNT(id) AS [Total Loan Applications] from bank_loan_data
187 group by home_ownership
188 order by [Total Loan Applications] DESC;
189
190 --Details Dashboard
191 select
192     id AS ID,
193     address_state AS [Address State],
194     application_type AS [Application Type],
195     emp_length AS [Employee Length],
196     grade AS Grade,
197     home_ownership AS [Home Ownership],
198     issue_date AS [Issue Date],
199     last_credit_pull_date AS [Last Credit Pull Date],
200     last_payment_date AS [Last Payment Date],
201     loan_status AS [Loan Status],
202     next_payment_date AS [Next Payment Date],
203     member_id AS [Member ID],
204     purpose AS Purpose,
205     sub_grade AS [Sub Grade],
206     term AS Term,
207     CONCAT('$', annual_income) AS [Annual Income],
208     CONCAT(ROUND(dti * 100, 2), '%') AS DTI,
209     CONCAT('$', installment) AS Installment,
210     CONCAT(ROUND(int_rate * 100, 2), '%') AS [Interest Rate],
211     CONCAT('$', loan_amount) AS [Loan Amount],
212     total_acc AS [Total Accounts],
213     CONCAT('$', total_payment) AS [Amount Received],
214     [Good Vs Bad Loan]
215 from
216     bank_loan_data;
217
```