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