

DBMS LAB 4 : BANK DATABASE

1. DB AND TABLE CREATION

```
1 • CREATE DATABASE bank;
2 • USE bank;
3
4 • CREATE TABLE Branch (
5     Branchname VARCHAR(50) PRIMARY KEY,
6     Branchcity VARCHAR(50) NOT NULL,
7     Assets DECIMAL(15,2) NOT NULL
8 );
9
10 • CREATE TABLE BankCustomer (
11     Customername VARCHAR(50) PRIMARY KEY,
12     Customerstreet VARCHAR(100) NOT NULL,
13     City VARCHAR(50) NOT NULL
14 );
15
16 • CREATE TABLE BankAccount (
17     Accno INT PRIMARY KEY,
18     Branchname VARCHAR(50) NOT NULL,
19     Balance DECIMAL(15,2) NOT NULL,
20     FOREIGN KEY (Branchname) REFERENCES Branch(Branchname)
21 );
22
23 • CREATE TABLE Depositer (
24     Customername VARCHAR(50),
25     Accno INT,
26     PRIMARY KEY (Customername, Accno),
27     FOREIGN KEY (Customername) REFERENCES BankCustomer(Customername),
28     FOREIGN KEY (Accno) REFERENCES BankAccount(Accno)
29 );
30
31 • CREATE TABLE Loan (
32     Loannumber INT PRIMARY KEY,
33     Branchname VARCHAR(50) NOT NULL,
34     Amount DECIMAL(15,2) NOT NULL,
35     FOREIGN KEY (Branchname) REFERENCES Branch(Branchname)
36 );
```

2. INSERTING VALUES

```
37
38 ● INSERT INTO Branch (Branchname, Branchcity, Assets) VALUES
39     ('SBI_Chamrajpet', 'Bangalore', 50000),
40     ('SBI_ResidencyRoad', 'Bangalore', 10000),
41     ('SBI_ShivajiRoad', 'Bombay', 20000),
42     ('SBI_ParliamentRoad', 'Delhi', 10000),
43     ('SBI_Jantarmantra', 'Delhi', 20000);
44
45 ● INSERT INTO BankCustomer (Customername, Customerstreet, City) VALUES
46     ('Avinash', 'Bull_Temple_Road', 'Bangalore'),
47     ('Dinesh', 'Bannerghatta_Road', 'Bangalore'),
48     ('Mohan', 'NationalCollege_Road', 'Bangalore'),
49     ('Nikil', 'Akbar_Road', 'Delhi'),
50     ('Ravi', 'Prithviraj_Road', 'Delhi');
51
52 ● INSERT INTO BankAccount (Accno, Branchname, Balance) VALUES
53     (1, 'SBI_Chamrajpet', 2000),
54     (2, 'SBI_ResidencyRoad', 5000),
55     (3, 'SBI_ShivajiRoad', 6000),
56     (4, 'SBI_ParliamentRoad', 9000),
57     (5, 'SBI_Jantarmantra', 8000),
58     (6, 'SBI_ShivajiRoad', 4000),
59     (8, 'SBI_ResidencyRoad', 4000),
60     (9, 'SBI_ParliamentRoad', 3000);
61
62
63
64 ● INSERT INTO Depositor (Customername, Accno) VALUES
65     ('Avinash', 1),
66     ('Dinesh', 2),
67     ('Nikil', 4),
68     ('Ravi', 5),
69     ('Avinash', 8),
70     ('Nikil', 9),
71     ('Dinesh', 10),
72     ('Nikil', 11);
73
74 ● INSERT INTO Loan (Loannumber, Branchname, Amount) VALUES
75     (1, 'SBI_Chamrajpet', 1000),
76     (2, 'SBI_ResidencyRoad', 2000),
77     (3, 'SBI_ShivajiRoad', 3000),
78     (4, 'SBI_ParliamentRoad', 4000),
79     (5, 'SBI_Jantarmantra', 5000);
80
```

3. VIEWING ALL TABLES

A. BRANCH

```
82 • SELECT * FROM Branch;
```

```
83
```

Branchname	Branchcity	Assets
SBI_Chamrajpet	Bangalore	50000.00
SBI_Jantarmantar	Delhi	20000.00
SBI_ParliamentRoad	Delhi	10000.00
SBI_ResidencyRoad	Bangalore	10000.00
SBI_ShivajiRoad	Bombay	20000.00
NULL	NULL	NULL

B. BANK CUSTOMER

```
85 • SELECT * FROM BankCustomer;
```

```
86
```

Customername	Customerstreet	City
Avinash	Bull_Temple_Road	Bangalore
Dinesh	Bannergatta_Road	Bangalore
Mohan	NationalCollege_Road	Bangalore
Nikil	Akbar_Road	Delhi
Ravi	Prithviraj_Road	Delhi
NULL	NULL	NULL

C. BANK ACCOUNT

```
88 • SELECT * FROM BankAccount;
```

```
89
```

Accno	Branchname	Balance
1	SBI_Chamrajpet	2000.00
2	SBI_ResidencyRoad	5000.00
3	SBI_ShivajiRoad	6000.00
4	SBI_ParliamentRoad	9000.00
5	SBI_Jantarmantar	8000.00
6	SBI_ShivajiRoad	4000.00
8	SBI_ResidencyRoad	4000.00
9	SBI_ParliamentRoad	3000.00
10	SBI_ResidencyRoad	5000.00
11	SBI_Jantarmantar	2000.00

D. DEPOSITER

```
91 • SELECT * FROM Depositer;
```

```
92
```

Customername	Accno
Avinash	1
Dinesh	2
Nikil	4
Ravi	5
Avinash	8
Nikil	9
Dinesh	10
Nikil	11
NULL	NULL

E. LOAN

```
94 • SELECT * FROM Loan;
```

```
95
```

Loannumber	Branchname	Amount
1	SBI_Chamrajpet	1000.00
2	SBI_ResidencyRoad	2000.00
3	SBI_ShivajiRoad	3000.00
4	SBI_ParliamentRoad	4000.00
5	SBI_Jantarmantar	5000.00
NULL	NULL	NULL

4. EXECUTING QUERIES

- A. Display the branch name and assets from all branches in lakhs of rupees and rename the assets column to 'assets in lakhs'.

```
96 • SELECT Branchname, Assets/100000 AS 'Assets in lakhs'
97 FROM Branch;
98
```

Result Grid | Filter Rows: | Export: | Wrap Cell

	Branchname	Assets in lakhs
▶	SBI_Chamrajpet	0.500000
	SBI_Jantarmantar	0.200000
	SBI_ParliamentRoad	0.100000
	SBI_ResidencyRoad	0.100000
	SBI_ShivajiRoad	0.200000

- B. Find all the customers who have at least two accounts at the same branch (ex.SBI_ResidencyRoad).

```
99 • SELECT d.Customername, ba.Branchname, COUNT(*) AS AccountCount
100 FROM Depositer d
101 JOIN BankAccount ba ON d.Accno = ba.Accno
102 GROUP BY d.Customername, ba.Branchname
103 HAVING COUNT(*) >= 2;
104
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

	Customername	Branchname	AccountCount
▶	Dinesh	SBI_ResidencyRoad	2
	Nikil	SBI_ParliamentRoad	2

c. CREATE A VIEW WHICH GIVES EACH BRANCH THE SUM OF THE AMOUNT OF ALL THE LOANS AT THE BRANCH.

```
105 • CREATE VIEW Branch_Loan_Summary AS
106     SELECT Branchname, SUM(Amount) AS Total_Loan_Amount
107     FROM Loan
108     GROUP BY Branchname;
109 • SELECT * FROM Branch_Loan_Summary;
```

Result Grid | | Filter Rows: | Export: | Wrap Cell Content:

	Branchname	Total_Loan_Amount
▶	SBI_Chamrajpet	1000.00
	SBI_Jantarmantar	5000.00
	SBI_ParliamentRoad	4000.00
	SBI_ResidencyRoad	2000.00
	SBI_ShivajiRoad	3000.00

ADDITIONAL QUERIES

1. Find all the customers who have an account at all the branches located in a specific city (Ex. Delhi).

```
112 • SELECT DISTINCT d.Customername
113     FROM Depositer d
114     JOIN BankAccount ba ON d.Accno = ba.Accno
115     JOIN Branch b ON ba.Branchname = b.Branchname
116     WHERE b.Branchcity = 'Delhi'
117     GROUP BY d.Customername
118     HAVING COUNT(DISTINCT ba.Branchname) = (
119         SELECT COUNT(*) FROM Branch WHERE Branchcity = 'Delhi'
120     );
```

Result Grid | | Filter Rows: | Export: | Wrap Cell Content:

	Customername
▶	Niki

2. Find all customers who have a loan at the bank but do not have an account.

```
122 • SELECT DISTINCT bc.Customername
123     FROM BankCustomer bc
124     WHERE bc.Customername IN (
125         SELECT DISTINCT Customername FROM Depositer
126     )
127     AND bc.Customername NOT IN (
128         SELECT DISTINCT Customername FROM Depositer
129     );
```

Result Grid | Filter Rows: | Edit: | Exp

Customername
NULL

3. Find all customers who have both an account and a loan at the Bangalore branch

```
131 • SELECT DISTINCT d.Customername
132     FROM Depositer d
133     JOIN BankAccount ba ON d.Accno = ba.Accno
134     JOIN Branch b ON ba.Branchname = b.Branchname
135     WHERE b.Branchcity = 'Bangalore'
136     AND d.Customername IN (
137         SELECT bc.Customername
138         FROM BankCustomer bc
139         WHERE EXISTS (
140             SELECT 1 FROM Loan l
141             JOIN Branch b2 ON l.Branchname = b2.Branchname
142             WHERE b2.Branchcity = 'Bangalore'
143         )
144     );
```

Result Grid | Filter Rows: | Export: | Wrap Cell Cont

Customername
Avinash
Dinesh

4, Find the names of all branches that have greater assets than all branches located in Bangalore.

```

146 • SELECT Branchname
147 FROM Branch
148 WHERE Assets > ALL (
149     SELECT Assets FROM Branch WHERE Branchcity = 'Bangalore'
150 );
151

```

Result Grid

Branchname
NULL

5. Demonstrate how you delete all account tuples at every branch located in a specific city (Ex. Bombay).

```

152 • DELETE FROM Depositer
153 WHERE Accno IN (
154     SELECT Accno FROM BankAccount ba
155     JOIN Branch b ON ba.Branchname = b.Branchname
156     WHERE b.Branchcity = 'Bombay'
157 );
158

```

6. Update the Balance of all accounts by 5%

```

164 • UPDATE BankAccount
165 SET Balance = Balance * 1.05;
166 • select * from BankAccount

```

Result Grid

Accno	Branchname	Balance
1	SBI_Chamrajpet	2100.00
2	SBI_ResidencyRoad	5250.00
3	SBI_ShivajiRoad	6300.00
4	SBI_ParliamentRoad	9450.00
5	SBI_Jantarmantar	8400.00
6	SBI_ShivajiRoad	4200.00
8	SBI_ResidencyRoad	4200.00
9	SBI_ParliamentRoad	3150.00
10	SBI_ResidencyRoad	5250.00
11	SBI_Jantarmantar	2100.00
NULL	NULL	NULL