Bank SQL Assessment - Complete Solution

Database Schema Creation

1. Bank Table CREATE TABLE Bank (branch_id INT PRIMARY KEY, branch_name VARCHAR(100) NOT NULL, branch_city VARCHAR(50) NOT NULL);
2. Account Holder Table CREATE TABLE Account_Holder (account_holder_id INT PRIMARY KEY, account_no VARCHAR(20) UNIQUE NOT NULL, account_holder_name VARCHAR(100) NOT NULL, city VARCHAR(50) NOT NULL, contact VARCHAR(15) NOT NULL, date_of_account_created DATE NOT NULL, account_status ENUM('active', 'terminated') DEFAULT 'active', account_type VARCHAR(20) NOT NULL, balance DECIMAL(15, 2) DEFAULT 0.00);
3. Loan Table CREATE TABLE Loan (loan_no INT PRIMARY KEY, branch_id INT, account_holder_id INT, loan_amount DECIMAL(15, 2) NOT NULL, loan_type VARCHAR(30) NOT NULL, FOREIGN KEY (branch_id) REFERENCES Bank(branch_id), FOREIGN KEY (account_holder_id) REFERENCES Account_Holder(account_holder_id));

Sample Data Insertion

Insert Sample Banks
INSERT INTO Bank (branch_id, branch_name, branch_city) VALUES
(1, 'Main Branch', 'New York'),
(2, 'Downtown Branch', 'Los Angeles'),
(3, 'Central Branch', 'Chicago'),
(4, 'West Branch', 'New York'),
(5, 'East Branch', 'Los Angeles');

Insert Sample Account Holders
INSERT INTO Account_Holder (
account_holder_id, account_no, account_holder_name, city, contact,
date_of_account_created, account_status, account_type, balance
) VALUES
(1, 'ACC001', 'John Smith', 'New York', '555-0101', '2023-03-20', 'active', 'savings', 5000.00),
(2, 'ACC002', 'Emma Johnson', 'Los Angeles', '555-0102', '2023-04-18', 'active', 'checking', 3500.00),
(3, 'ACC003', 'Michael Brown', 'Chicago', '555-0103', '2023-02-10', 'active', 'savings', 7500.00),
(4, 'ACC004', 'Sarah Davis', 'New York', '555-0104', '2023-05-22', 'active', 'checking', 2800.00),
(5, 'ACC005', 'Robert Wilson', 'Los Angeles', '555-0105', '2023-01-08', 'terminated', 'savings', 0.00);

Insert Sample Loans
INSERT INTO Loan (loan_no, branch_id, account_holder_id, loan_amount, loan_type) VALUES

(1001, 1, 1, 50000.00, 'home loan'),
(1002, 2, 2, 15000.00, 'car loan'),
(1003, 3, 3, 25000.00, 'personal loan'),
(1004, 1, 4, 75000.00, 'home loan');

Question: Consider an example where there's an account holder table where we are doing an intra bank transfer i.e. a person holding account A is trying to transfer $100 to account B. For this you have to make a transaction in SQL which can transfer fund from account A to B. Make sure after the transaction the account information have to be updated for both the credit account and the debited account.

Answer:

```
START TRANSACTION;

UPDATE Account_Holder
SET balance = balance - 100.00
WHERE account_no = 'ACC001' AND balance >= 100.00;

UPDATE Account_Holder
SET balance = balance + 100.00
WHERE account_no = 'ACC002';

COMMIT;
```

Verification Query:

```
SELECT account_no, account_holder_name, balance
FROM Account_Holder
WHERE account_no IN ('ACC001', 'ACC002');
```

Question: Also fetch the details of the account holder who are related from the same city.

Answer:

```
SELECT
ah1.account_holder_name,
ah1.city,
ah1.account_no,
ah1.contact
FROM Account_Holder ah1
JOIN Account_Holder ah2 ON ah1.city = ah2.city
WHERE ah1.account_holder_id != ah2.account_holder_id
ORDER BY ah1.city, ah1.account_holder_name;
```

Question: Write a query to fetch account number and account holder name, whose accounts were created after 15th of any month.

Answer:

```
SELECT
account_no,
account_holder_name,
date_of_account_created
FROM Account_Holder
WHERE DAY(date_of_account_created) > 15
ORDER BY date_of_account_created;
```

Question: Write a query to display the city name and count the branches in that city. Give the count of branches an alias name of Count_Branch.

Answer:

```
SELECT
branch_city as city_name,
COUNT(*) as Count_Branch
FROM Bank
GROUP BY branch_city
ORDER BY Count_Branch DESC, city_name;
```

Question: Write a query to display the account holder's id, account holder's name, branch id, and loan amount for people who have taken loans. (NOTE : use SQL join concept to solve the query)

Answer:

```
SELECT
ah.account_holder_id,
ah.account_holder_name,
l.branch_id,
l.loan_amount
FROM Account_Holder ah
INNER JOIN Loan l ON ah.account_holder_id = l.account_holder_id
ORDER BY l.loan_amount DESC;
```