Problem Statement 4 - View, Index, Constraints, Synonym, Sequence (MySQL)

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-- Step 1: Create Database
CREATE DATABASE bank4;
USE bank4;

-- Step 2: Create Tables
CREATE TABLE branch(
    branch_name VARCHAR(30) PRIMARY KEY,
    branch_city VARCHAR(30) NOT NULL,
    assets INT CHECK(assets >= 0)
);

CREATE TABLE Account(
    Acc_no INT PRIMARY KEY AUTO_INCREMENT,
    branch_name VARCHAR(30),
    balance INT CHECK(balance >= 0),
    FOREIGN KEY(branch_name) REFERENCES branch(branch_name)
);

CREATE TABLE customer(
    cust_name VARCHAR(30) PRIMARY KEY,
    cust_street VARCHAR(30),
    cust_city VARCHAR(30)
);

CREATE TABLE Depositor(
    cust_name VARCHAR(30),
    acc_no INT,
    PRIMARY KEY(cust_name, acc_no),
    FOREIGN KEY(cust_name) REFERENCES customer(cust_name),
    FOREIGN KEY(acc_no) REFERENCES Account(acc_no)
);

CREATE TABLE Loan(
    loan_no INT PRIMARY KEY,
    branch_name VARCHAR(30),
    amount INT CHECK(amount > 0),
    FOREIGN KEY(branch_name) REFERENCES branch(branch_name)
);

CREATE TABLE Borrower(
    cust_name VARCHAR(30),
    loan_no INT,
    PRIMARY KEY(cust_name, loan_no),
    FOREIGN KEY(cust_name) REFERENCES customer(cust_name),
    FOREIGN KEY(loan_no) REFERENCES Loan(loan_no)
);

-- Step 3: Insert Sample Data
INSERT INTO branch VALUES
('Akurdi','Pune',500000),
('Shivaji Nagar','Pune',650000),
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('Kothrud','Pune',450000);

INSERT INTO customer VALUES
('Suyash','MG Road','Pune'),
('Rahul','Karve Road','Pune'),
('Amit','Akurdi Gaon','Pune');

INSERT INTO Account (branch_name, balance) VALUES
('Akurdi',20000),
('Shivaji Nagar',15000),
('Kothrud',30000);

INSERT INTO Depositor VALUES
('Suyash',1),
('Rahul',2),
('Amit',3);

INSERT INTO Loan VALUES
(201,'Akurdi',12000),
(202,'Shivaji Nagar',25000),
(203,'Kothrud',18000);

INSERT INTO Borrower VALUES
('Suyash',201),
('Rahul',202),
('Amit',203);

-- Step 4: Create View
CREATE VIEW customer_accounts AS
SELECT customer.cust_name, account.acc_no, account.balance
FROM customer
JOIN depositor ON customer.cust_name = depositor.cust_name
JOIN account ON depositor.acc_no = account.acc_no;

-- Step 5: Create Index
CREATE INDEX idx_balance ON Account(balance);

-- Step 6: Add Constraint (NOT NULL)
ALTER TABLE customer
MODIFY cust_city VARCHAR(30) NOT NULL;

-- Step 7: Synonym Alternative (Using View)
CREATE VIEW cust AS SELECT * FROM customer;
```