ASSIGNMENT 1

CSA0593-DBMS

-192324289

RAKINA S

QUESTION:

Banking System Database with Transaction Management

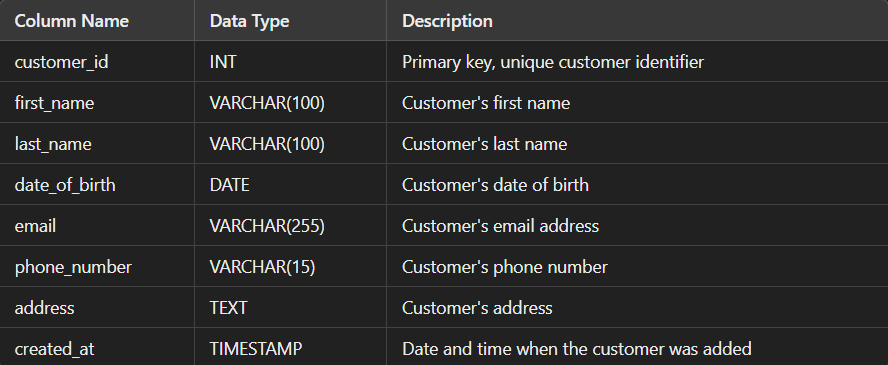
Create a relational database to manage banking operations, including accounts, transactions, loans, and customer details.

Requirements:

* Design tables for customers, accounts, transactions, and loan processing, with appropriate primary and foreign keys.
* Implement stored procedures for deposit, withdrawal, and loan processing with transaction rollback in case of errors.
* Develop SQL queries for reporting monthly transactions, loan approvals, and account balances.
* Implement ACID properties to ensure reliable transaction management, and test using various failure scenarios.

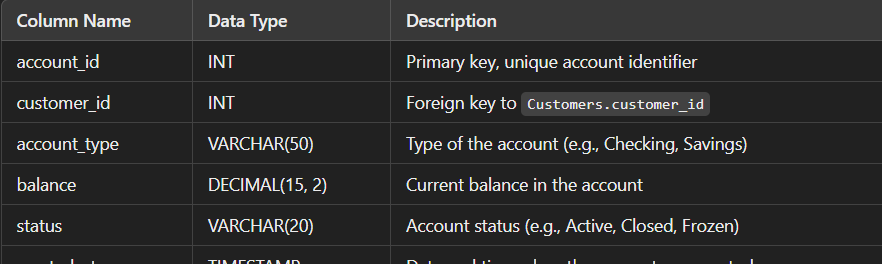
1. **Customers Table**

**This table stores information about each customer.**



2.Account Table

This table stores information about each account held by a customer.

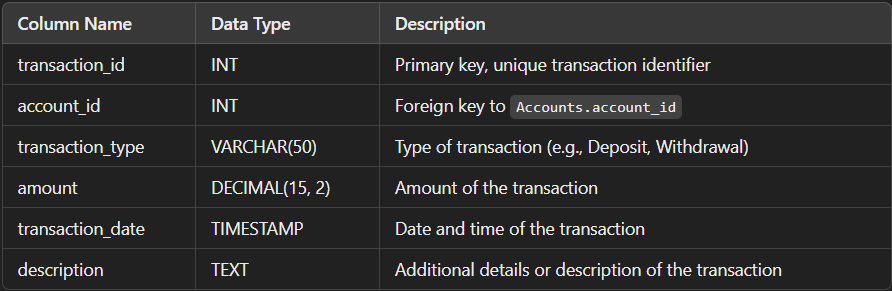


**Relationships:**

* Accounts.customer\_id references Customers.customer\_id (one-to-many: one customer can have many accounts).

3.Transaction Table

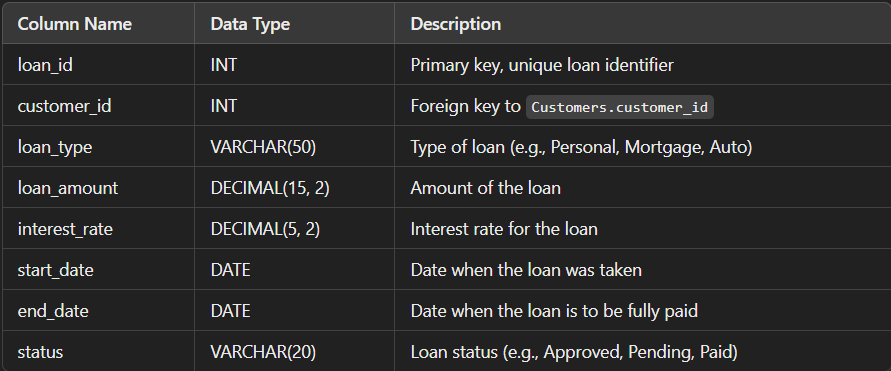
This table stores information about all transactions made on accounts.



**Relationships:**

* Transactions.account\_id references Accounts.account\_id (one-to-many: one account can have many transactions).
* 4.Loan Table

This table stores details about loans given to customers.

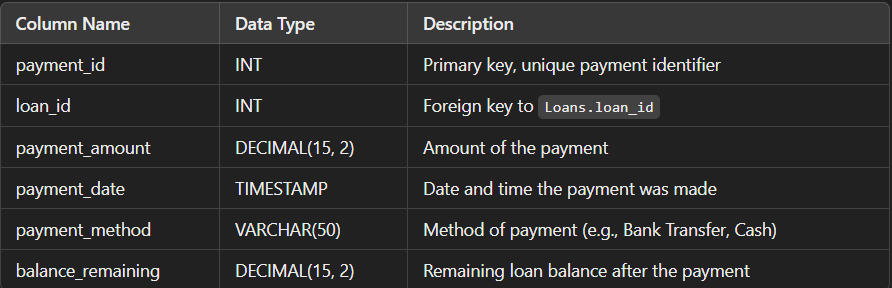


**Relationships:**

* Loans.customer\_id references Customers.customer\_id (one-to-many: one customer can have many loans).

5.Loan Payments Table

This table stores information about payments made towards loans.

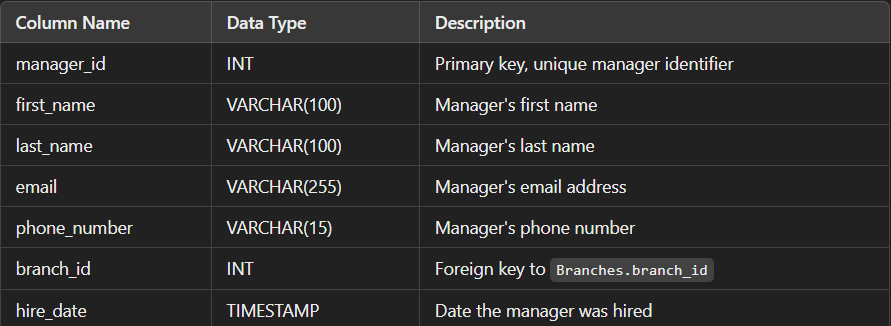


**Relationships:**

* Loan Payments.loan\_id references Loans.loan\_id (one-to-many: one loan can have many payments).

6.Account Managers Table

This table stores information about bank employees who manage accounts and customer relationships.

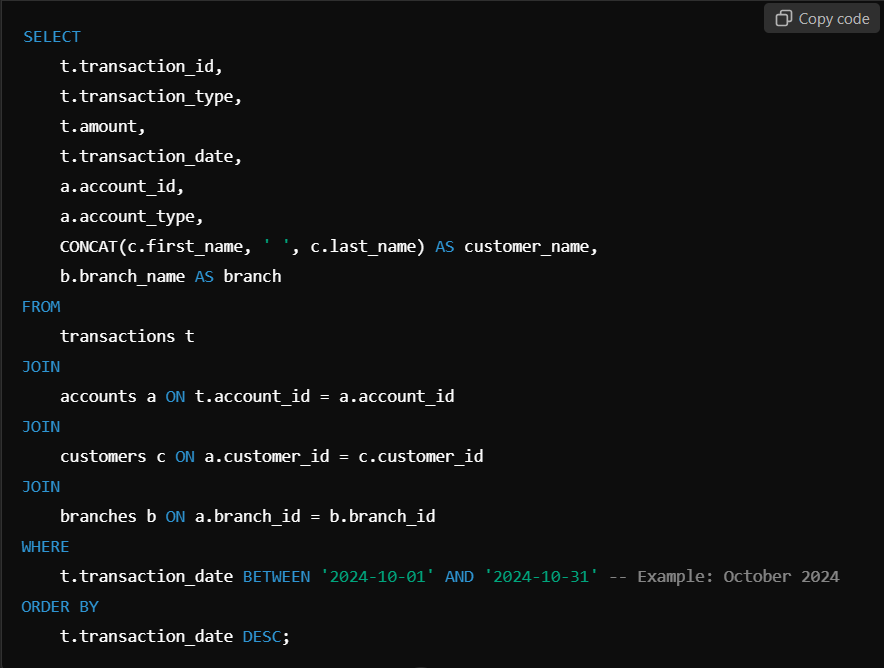


**Relationships:**

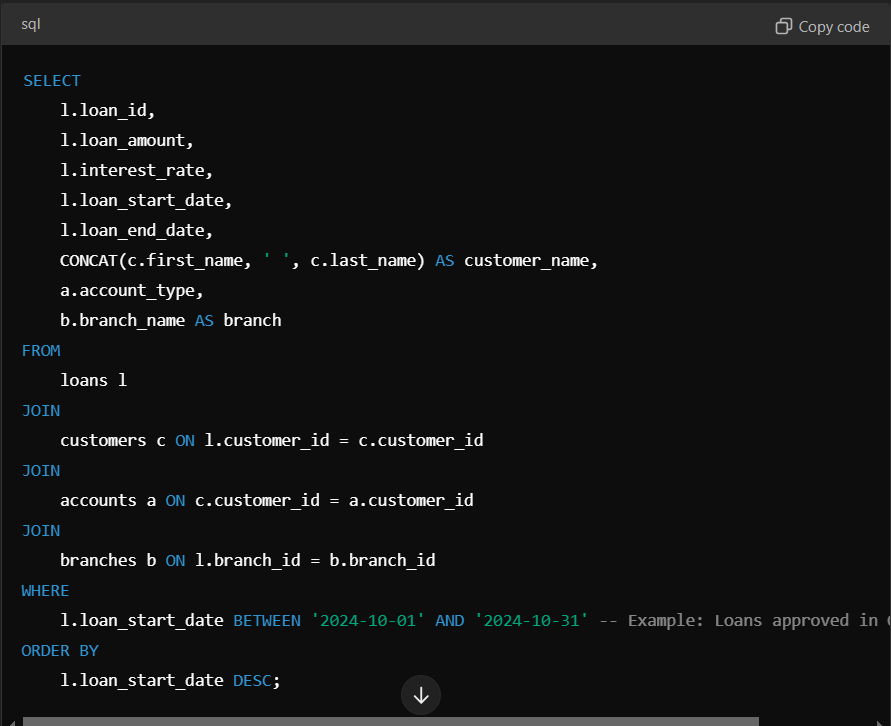
* Account Managers.branch\_id references Branches.branch\_id (one-to-many: one branch can have many account managers).

SQL QUERIES:

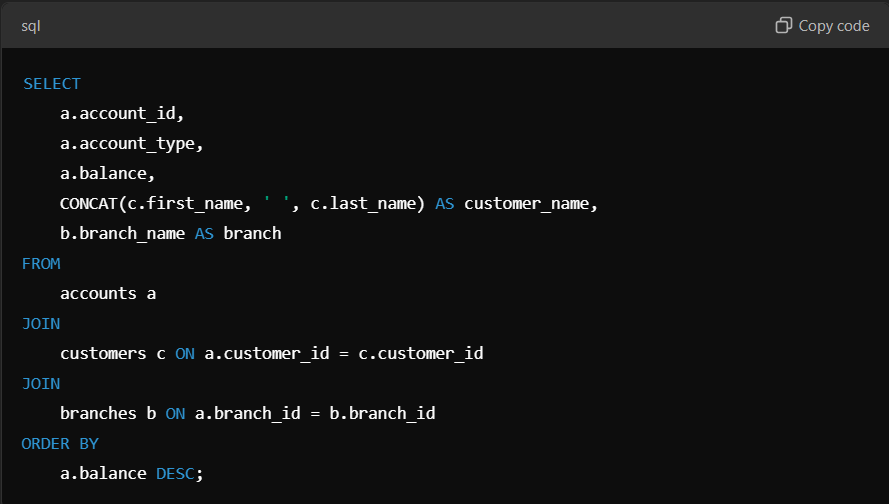
1. **Monthly Transactions Report**



1. **Loan Approvals Report**

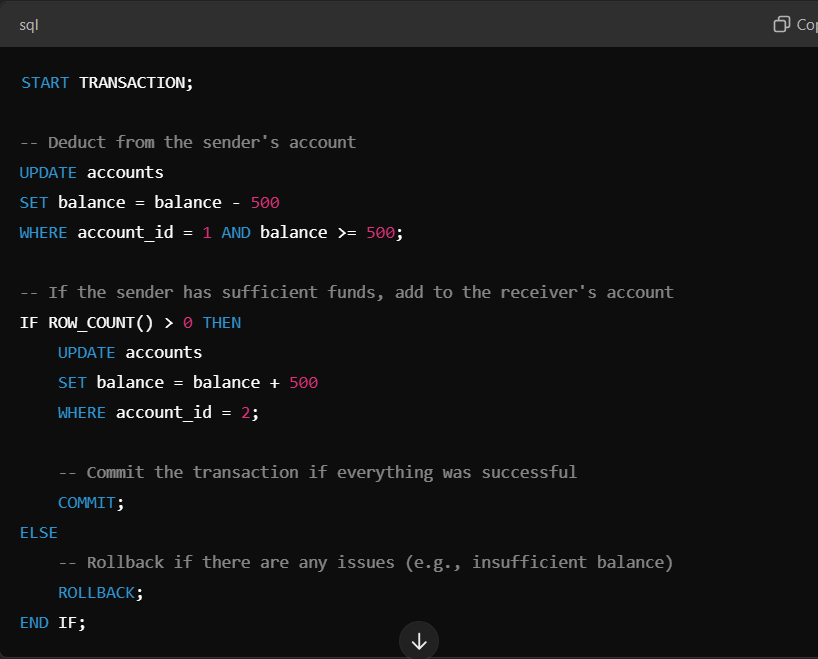


1. **Account Balances Report**

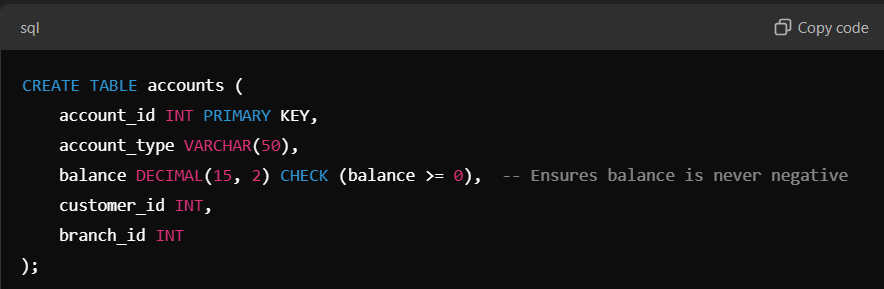


Implementing ACID Properties in SQL:

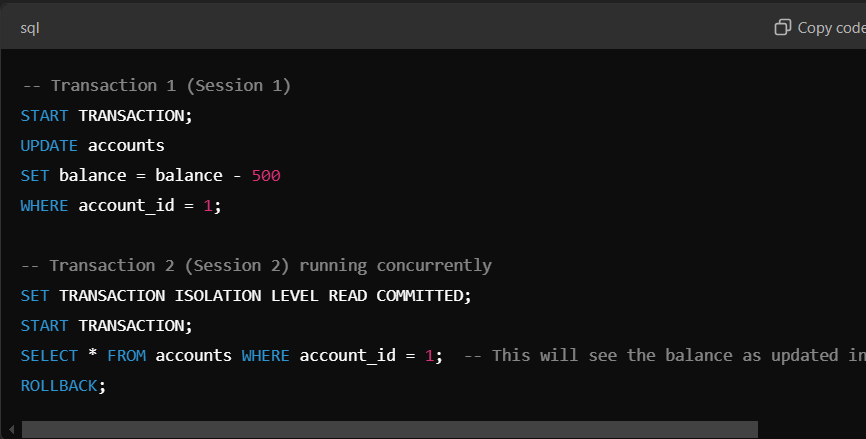
* 1. **Atomicity**



**2.Consistency**



**3.Isolation**



Testing ACID Properties Using Failure Scenarios:

