

SQL-Based Test Data Management and Validation for a Banking System Application

Project Overview:

In this project I will create a SQL-based system for managing and validating test data for a financial application. This project involves designing a database schema, writing SQL scripts for data insertion and manipulation, and creating SQL queries for data validation. The objective is to ensure data integrity, consistency, and accuracy in a financial application through effective test data management and validation processes.

key entities:

1. Customers: Information about the bank's customers.
2. Accounts: Details of different types of accounts held by customers.
3. Transactions: Records of financial transactions associated with accounts.
4. Loans: Information about loans taken by customers.
5. Employees: Details of bank employees.
6. Branches: Information about the bank's branches.
7. Credit Cards: Details of credit cards issued to customers.
8. Deposits: Records of fixed deposits or savings plans.
9. Payments: Details of various payments made through the bank.

Relationships:

Customers and Accounts:

- One customer can have multiple accounts.
- Each account is linked to one customer.
- **Relationship:** One-to-Many (Customer to Accounts)

Accounts and Transactions:

- One account can have multiple transactions.
- Each transaction is associated with one account.
- **Relationship:** One-to-Many (Account to Transactions)

Customers and Loans:

- One customer can have multiple loans.
- Each loan is associated with one customer.
- **Relationship:** One-to-Many (Customer to Loans)

Customers and Credit Cards:

- One customer can have multiple credit cards.
- Each credit card is issued to one customer.
- **Relationship:** One-to-Many (Customer to Credit Cards)

Branches and Employees:

- One branch can have multiple employees.
- Each employee works at one branch.

- **Relationship:** One-to-Many (Branch to Employees)

Branches and Accounts:

- One branch can have multiple accounts.
- Each account is associated with one branch.
- **Relationship:** One-to-Many (Branch to Accounts)

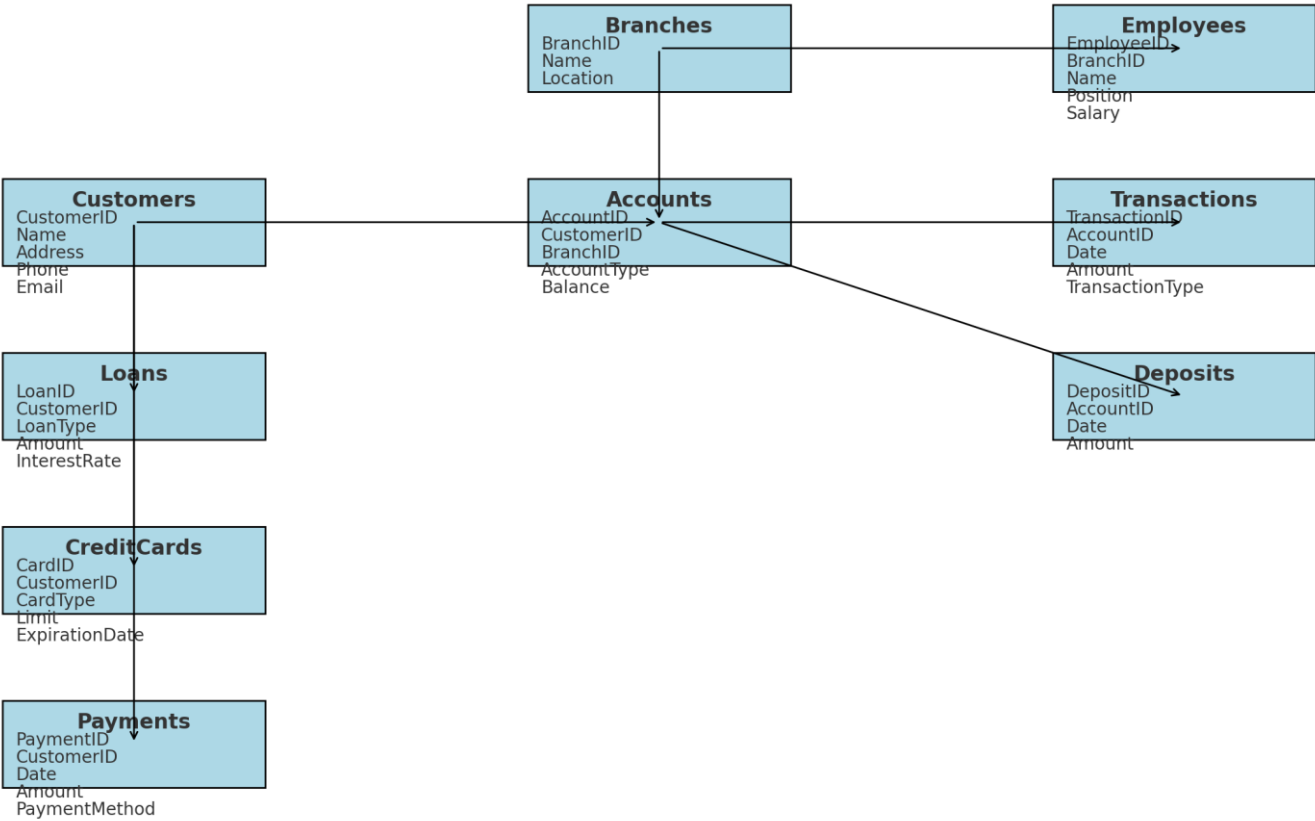
Accounts and Deposits:

- One account can have multiple deposits.
- Each deposit is associated with one account.
- **Relationship:** One-to-Many (Account to Deposits)

Customers and Payments:

- One customer can make multiple payments.
- Each payment is made by one customer.
- **Relationship:** One-to-Many (Customer to Payments)

Entity-Relationship Diagram:



Data Validation Queries:

validate account balances

Verify Unique Email Addresses for Customers

Verify Unique Account Numbers

Check for Orphan Records in Transactions

Check for Orphan Records in Accounts

Check for Orphan Records in Loans

Check for Orphan Records in Credit Cards

Check for Duplicate Credit Card Numbers

Check for Inactive Customers (customers without any account)

