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Homework 4

Banking System DBMS

Today we will look at the ERD diagram for the banking system. In this diagram there are 4 entities.

- The first entity is an Account that has attributes such as account number and balance. The account number is the primary attribute.
- The next entity is a Branch that has attributes such as branch name, city and assets. The branch name is the primary attribute.
- Another entity Loan contains a loan number and amount. The loan number is the primary attribute.
- The last entity is a Customer, which has attributes such as customer name, city and street. The customer name is the primary attribute.

Consider the relationship between entities.

- Each Loan must belong to one and only one Branch. On the other hand, Branch can have a lot of Loans. At the same time, Branch may not have Loans at all. Loan determines its relation to Branch using branch name attribute. The cardinality is one-to-many.
- Each Account must belong to one and only one Branch. Branch can also have many accounts. It may also be that no Account belongs to Branch. Account determines its relationship to Branch using branch name attribute. The cardinality is one-to-many.
- There is a many-to-many relationship between Account and Customer entities through the account number attribute and the customer name attribute.
- Between the entities Customer and Loan, the relationship has a cardinality of many-to-many using the attribute of the customer name and the attribute

of the loan number.

Now let's look at the representation of our entities in a relational model:

— Account entity has the attributes account number, branch name and balance. The branch name is a foreign key that is connected to the branch name in the entity Branch.
— Branch entity has the attributes branch name, city and assets.
— Loan entity has the attributes loan number, branch name and amount. The branch name is a foreign key that is connected to the branch name in the entity Branch.
— Customer entity has the attributes customer name, city and street.

Also, to implement many-to-many relationships, two additional entities are introduced: Depositor and Borrower.

— Depositor has the attributes of the customer name and account number. The customer name is a foreign key that is connected to the attribute of the customer name of the Customer entity. The account number is a foreign key that is connected to the account number attribute of the Account entity.
— Borrower has the attributes of the customer name and loan number. The customer name is a foreign key that is connected to the attribute of the customer name of the Customer entity. The loan number is a foreign key that is connected to the loan number attribute of the Loan entity.

This is all that can be said about this schema. I hope that it has become a little clearer to you how the banking system works from the inside at the database level.