**Database Design**

**Bank Transaction Database Design**

**Abstract**

Bank Transaction Database System keeps the day by day tally record as a complete banking system. It can keep the information of Deposited fund, Withdrawals, Account type and Searching the transaction, Transaction reports, Individual account information.

**Business rules/ Ideas**

Our project deals with all the transactions that are handled by our organization, we have identified the following entity types. An identifier is also suggested for each entity, together with selected important attributes:

* Person is a general representation of all the employees and customers of the bank. PersonId is the primary key of the person entity and it contains the contact information of the person such as ‘PersonFullname’, ‘Street’, ‘City’, ‘State’ and ‘Zipcode’. It has another attribute ‘Password’ which stores the password of the Person in an encrypted format.
* Employee is an entity that contains details about the employees of the bank. ‘EpersonId’ is the primary key of this entity and it contains 2 foreign keys ‘Managedby’ and ‘BranchId’. It contains details about employee’s position and their salary. Relationships it has are ‘Manages’ which is one to many (unary relationship) to identify the person’s manager, and ‘works for’ which shows the employee’s branch location.
* Customer is an entity that contains details about customers of the bank. ‘CpersonId’ is the primary key of this entity and it contains 1 foreign key ‘BranchId’. It contains details about customer’s amount balance in the bank.
* Branch is an entity that contains details about the location of the bank. ‘BranchId’ is the primary key of this entity. It has 2 relations, with at least one ‘works for’ relationship with Employee and one to many ‘account at’ relationship with Customer. It contains details such as ‘BranchName’, ‘Street’, ‘city’, ‘state’ and ‘Zipcode’.
* DebitCrd is an entity that contains debit card details. ‘CardNumber’ is the primary key and ‘CpersonId’ is not null attribute of this entity. It has a relationship of ‘Holds’ with Customer. ‘validity’ is an attribute that mentions when the card expires. It has at most one customer.
* Creditcrd is an entity that contains credit card details. ‘accnumber’ is the primary key and ‘CpersonId’ is not null attribute of this entity. It has a relationship of ‘Holds’ with customer. ‘Creditline’ is an attribute that shows the available credit limit, ‘totalpurchase’ is an attribute which shows how much a customer has already spent using his credit account and ‘validity’ is an attribute that mentions when the card expires. It has a one to many relationship with Customer.
* Checking is an entity that contains checking account information of the customer. ‘accnumber’ is the primary key of this entity. ‘CpersonId’ is not null attribute of this entity, it is to distinguish each customer’s information. It contains ‘Balance’ attribute which shows the amount balance in the checking account of a customer. It has at most one Customer.
* Saving is an entity that contains savings account information of the customer. ‘accnumber’ is the primary key of this entity. ‘CpersonId’ is not null attribute of this entity, it is to distinguish each customer’s information. It contains ‘Balance’ attribute which shows the amount balance in the checking account of a customer. It has one to many relationship with Customer.
* Transaction is an entity which contains details about all the transactions that have taken place in the bank. ‘TransactionId’ is the primary key of this entity. ‘CpersonId’ is not null attribute and ‘Timestamp’ is an attribute which has details about the exact time at which a transaction happened. It has one to many relationship with Customer.
* Deposit is a specialized entity of Transaction which stores details of all deposits to checking account of the Customer. ‘DTransactionId’ is the primary key of this entity. ‘CPersonId’ is a not null attribute, ‘DepositType’ is an attribute which gives information about how money was deposited, like cheque or cash or from another account.
* Withdrawal is a specialized entity of Transaction which stores details of all withdrawals from checking account of the Customer. ‘WTransactionId’ is the primary key of this entity. ‘CPersonId’ is a not null attribute.
* Transfer is a specialized entity of Transaction which stores details of all Transfers between accounts of the Customer or from one customer account to other customer accounts. ‘TTransactionId’ is the primary key of this entity. ‘CPersonId’ is a not null attribute, ‘transfertype’ is an attribute which gives information about how money was transferred, between accounts of the customer or from/to third party.