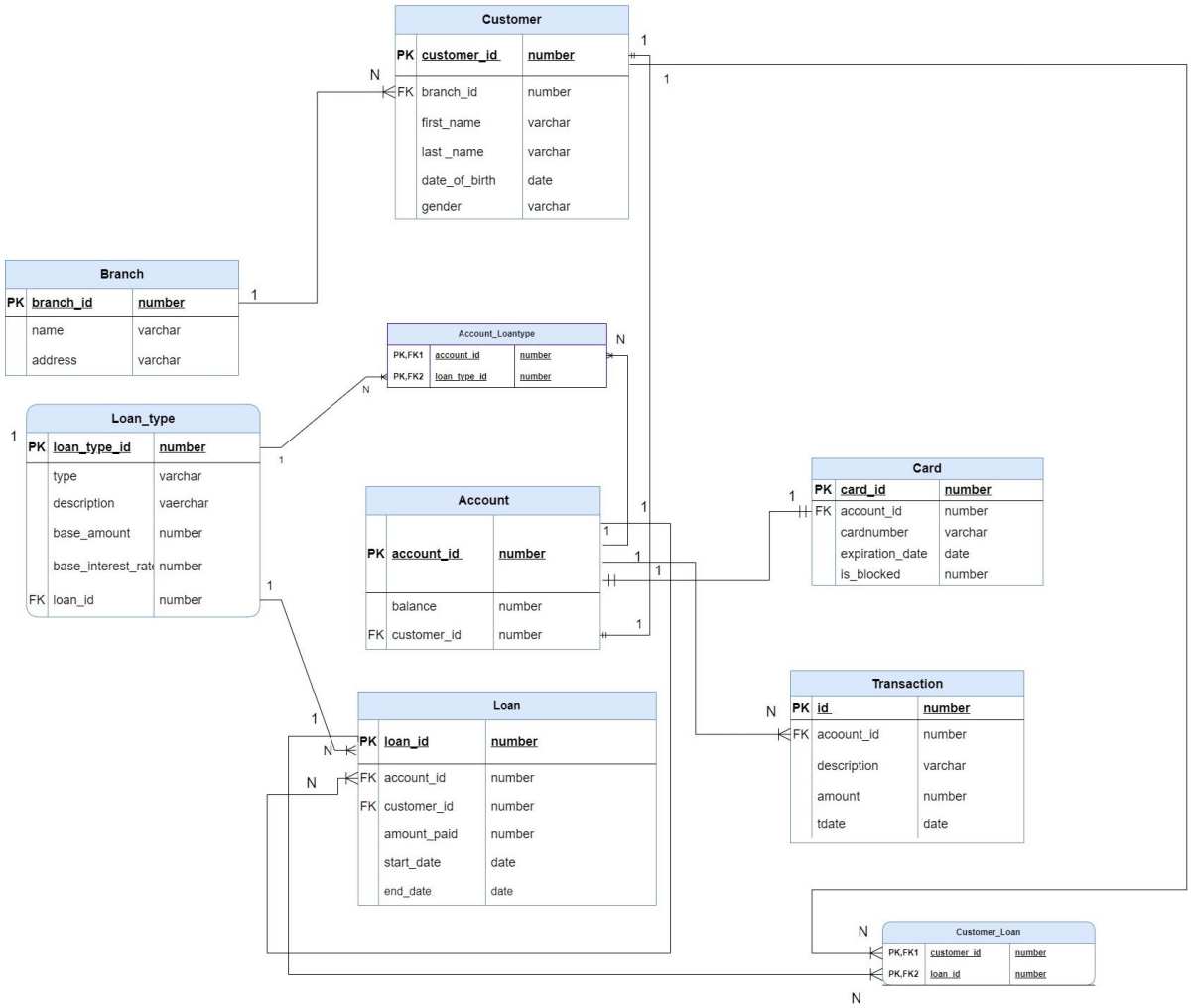
BANK MANAGEMENT SYSTEM

CONVERSION OF ER INTO RELATIONAL SCHEMA



ENTITIES AND ATTRIBUTES:

1. Branch (branch_id, name, address)
2. Customer (customer_id, first_name, last_name, dob, gender)
3. Account (account_id,balance)
4. Loan (loan_id, amount_paid, start_date, due_date)
5. Loan_Type (loan_type_id, base_amount, base_interest_rate, description, type)
6. Card (card_id, card_number, is_blocked, expiration_date)
7. Transaction (transaction_id, description, amount, t_date)
8. Customer_Loan (customer_id, loan_id)
9. Account_Loantype (account_id, loan_type_id)

RELATIONSHIPS:

1. A branch can have many customers. (One to Many relationship) 1:N
2. One customer can borrow n number of loans and one loan can be availed by two persons (like the joint personal loan). (Many to Many relationship) N:N
3. A customer can have only one account. (One to One relationship) 1:1
4. A distinct card is accessed by one account. (One to One relationship) 1:1
5. Each loan belongs to one account (Many to One relationship) N:1
6. Loan type has many loans. (One to Many relationship) 1:N
7. An account can have many transactions. (One to Many relationship) 1:N
8. An account can have many loan types and one loan type can be linked to many accounts. (Many to Many relationship) N:N

CONVERSION OF RELATIONSHIP TO FOREIGN KEYS:

1. Customer (customer_id, branch_id, loan_id, first_name, last_name, dob, gender)
2. Account_Loantype (account_id, loan_type_id)
3. Customer_Loan (customer_id, loan_id)
4. Card (card_id, account_id, card_number, is_blocked, expiration_date)
5. Loan (loan_id, account_id, amount_paid, start_date, due_date)
6. Loan_type (loan_type_id, account_id, loan_id, base_interest_rate, description, base_amount, type)
7. Transaction (transaction_id, account_id)
8. Account (account_id, customer_id)

PRIMARY KEYS:

- Branch (branch_id)
- Customer (customer_id)
- Account (account_id)
- Loan (loan_id)
- Loan_type (loan_type_id, loan_id)
- Card (card_id)
- Transaction (transaction_id)

TABLE CONSTRAINTS:

- Branch (branch_id)- primary key
- Customer (customer_id)- primary key, foreign key (branch_id references Branch(branch_id)), foreign key (loan_id references Loan(loand_id))
- Account (account_id)- primary key, foreign key (customer_id references Customer(customer_id))
- Loan (loan_id)- primary key, foreign key (account_id references Account(account_id))
- Loan_type (loan_type_id)- partial key, foreign key (loan_id references Loan(loan_id))
- Card (card_id)- primary key, foreign key (account_id references Account(account_id))

- Transaction (transaction_id)- primary key, foreign key (account_id references Account(account_id))
- Account_Loantype – foreign key (loan_type_id references Loan_type(loan_type_id)), foreign key (account_id references Account(account_id))
- Customer_Loan – foreign key (customer_id references Customer(customer_id)), foreign key (loan_id references Loan(loan_id)

RELATIONAL SCHEMA:

- Branch (branch_id, address, name)
- Customer (customer_id, branch_id, loan_id, first_name, last_name, dob, gender)
- Account (account_id, customer_id, balance)
- Loan (loan_id, account_id, amount_paid, start_date, due_date)
- Loan_type (loan_type_id, loan_id, type, description, base_amount, base_interest_rate)
- Card (card_id, account_id, card_number, is_blocked, expiration_date)
- Transaction (transaction_id, account_id, description, amount, t_date)
- Account_Loantype (account_id, loan_type_id)
- Customer_Loan (customer_id, loan_id)