



BANKING SYSTEM

EMPOWERING THE FINANCIAL WORLD

GROUP 4
JANUARY 29, 2025

PROBLEM STATEMENT

Traditional banking systems often rely on manual processes, leading to inefficiencies, errors, delays in transaction processing, and security vulnerabilities. Customers face challenges in accessing real-time account information, managing loans, or resolving issues promptly. Designed by **Tech Genius**, the proposed system aims to automate core banking operations, enhance data accuracy, improve transaction speed, ensure secure access, and provide a seamless experience for customers, employees, and branch management.

Database Business Processes

1. Account Management

- a. Open/close accounts.
- b. Update account details (e.g. balance, type, associated branch).

2. Transaction Processing

- a. Deposit, withdrawal, and fund transfers.
- b. Track transaction history.

3. Loan Management

- a. Apply for loans.
- b. Approve/reject loans (by employees).
- c. Track repayments.

1.

4. Customer Management

- a. Register/update customer profiles.

5. Employee Operations

- a. Manage customer accounts/loans.
- b. Generate financial reports.

6. Branch Management

- a. Track branch details (location, contact).
- b. Assign employees to branches.

ENTITIES & BIDIRECTIONAL MULTIPLICITIES

1. CUSTOMER ↔ ACCOUNT

- **1-to-10:** A customer can own at most 10 accounts; each account belongs to one customer. It's mandatory for a customer to own an account.

2. ACCOUNT ↔ TRANSACTION

- **1-to-M:** An account can have multiple transactions; each transaction is linked to one account.

3. CUSTOMER ↔ LOAN

- **1-to-4:** A customer may apply for a maximum of 4 loans; each loan is tied to one customer.

4. EMPLOYEE ↔ LOAN

- **1-to-M:** An employee can manage multiple loans; each loan is processed by one employee.

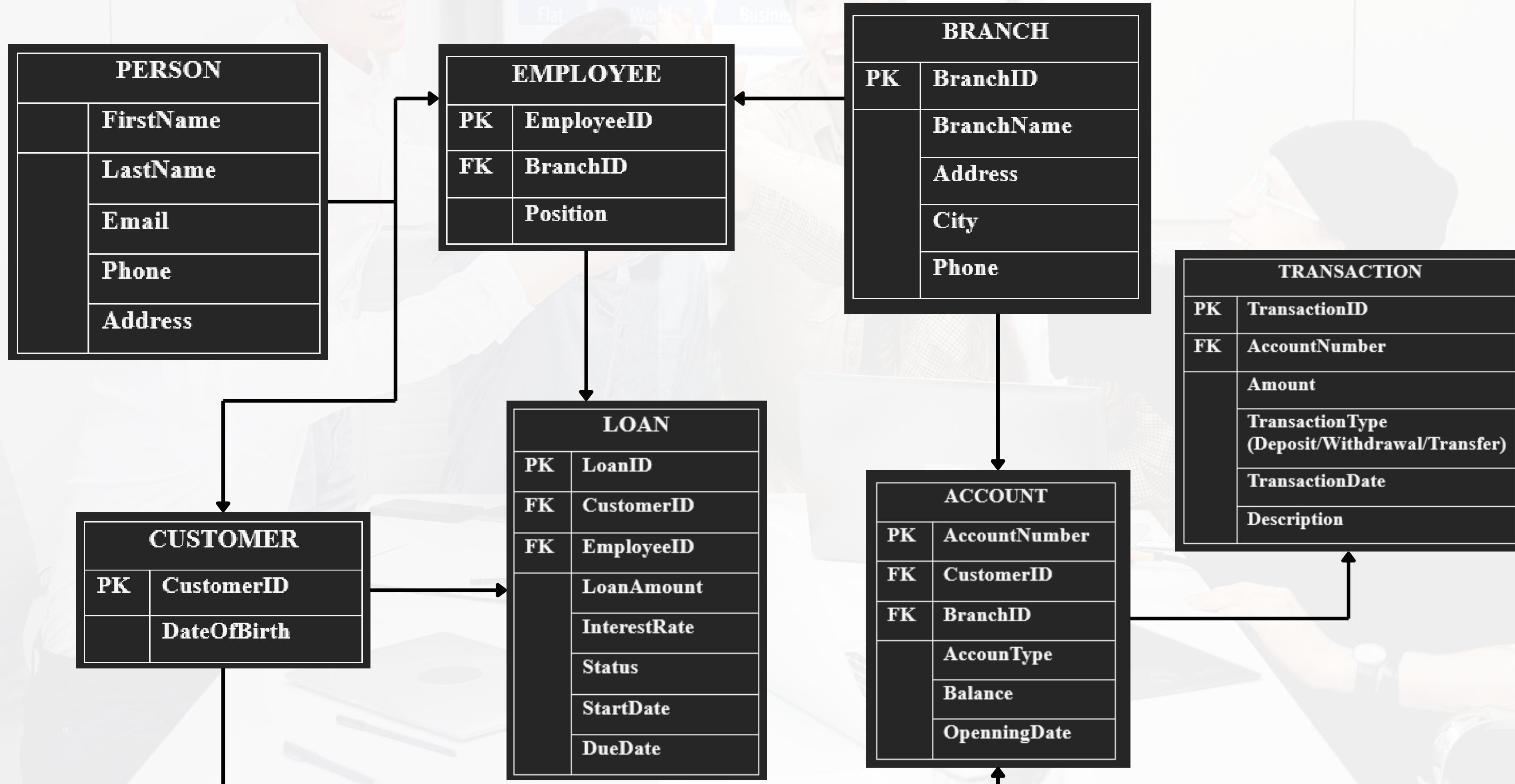
5. BRANCH ↔ EMPLOYEE

- **1-to-100:** A branch must have at least 15 employees and not more than 100 employees; each employee works at one branch.

6. BRANCH ↔ ACCOUNT

- **1-to-M:** A branch can host a minimum of 200 accounts; each account is associated with one branch.

ENTITIES & ATTRIBUTES



E E R D M O D E L

Superclass

PERSON	
	FirstName
	LastName
	Email
	Phone
	Address

Subclass

EMPLOYEE	
PK	EmployeeID
FK	BranchID
	Position

Overlapping relationship

Subclass

CUSTOMER	
PK	CustomerID
	DateOfBirth

1..1

apply

1..4

0..4

has

LOAN	
PK	LoanID
FK	CustomerID
FK	EmployeeID
	LoanAmount
	InterestRate
	Status
	StartDate
	DueDate

1..1
manage
0..m

1..1
15..100
has

1..1

1..1
200..m
host

ACCOUNT	
PK	AccountNumber
FK	CustomerID
FK	BranchID
	AccountType
	Balance
	OpenningDate

1..10

BRANCH	
PK	BranchID
	BranchName
	Address
	City
	Phone

TRANSACTION	
PK	TransactionID
FK	AccountNumber
	Amount
	TransactionType (Deposit/Withdrawal/Transfer)
	TransactionDate
	Description

n..m
has
1..1