Well Money Bank
Physical Database Design

User `1`

PK	**UserId**
	UserType
	FirstName
	LastName
	Password
	Email
	CustomerType

PhoneNumber

PK	**PhoneNumber**
PK,FK	**UserId**

Question

PK	**QuestionId**
	Question

SecurityQuestion

PK,FK	**UserId**
PK, FK	**QuestionId**
	Answer

UserAccount `2`

PK, FK	**UserId**
PK, FK	**AccountNumber**

Branch `5`

PK	**BranchNumber**
FK	Manager
	StreetAddress
	City
	State

Account `4` `3`

PK	**AccountNumber**
	AccountType
FK	MainBranch
	ServiceFee
	/Balance

Transaction

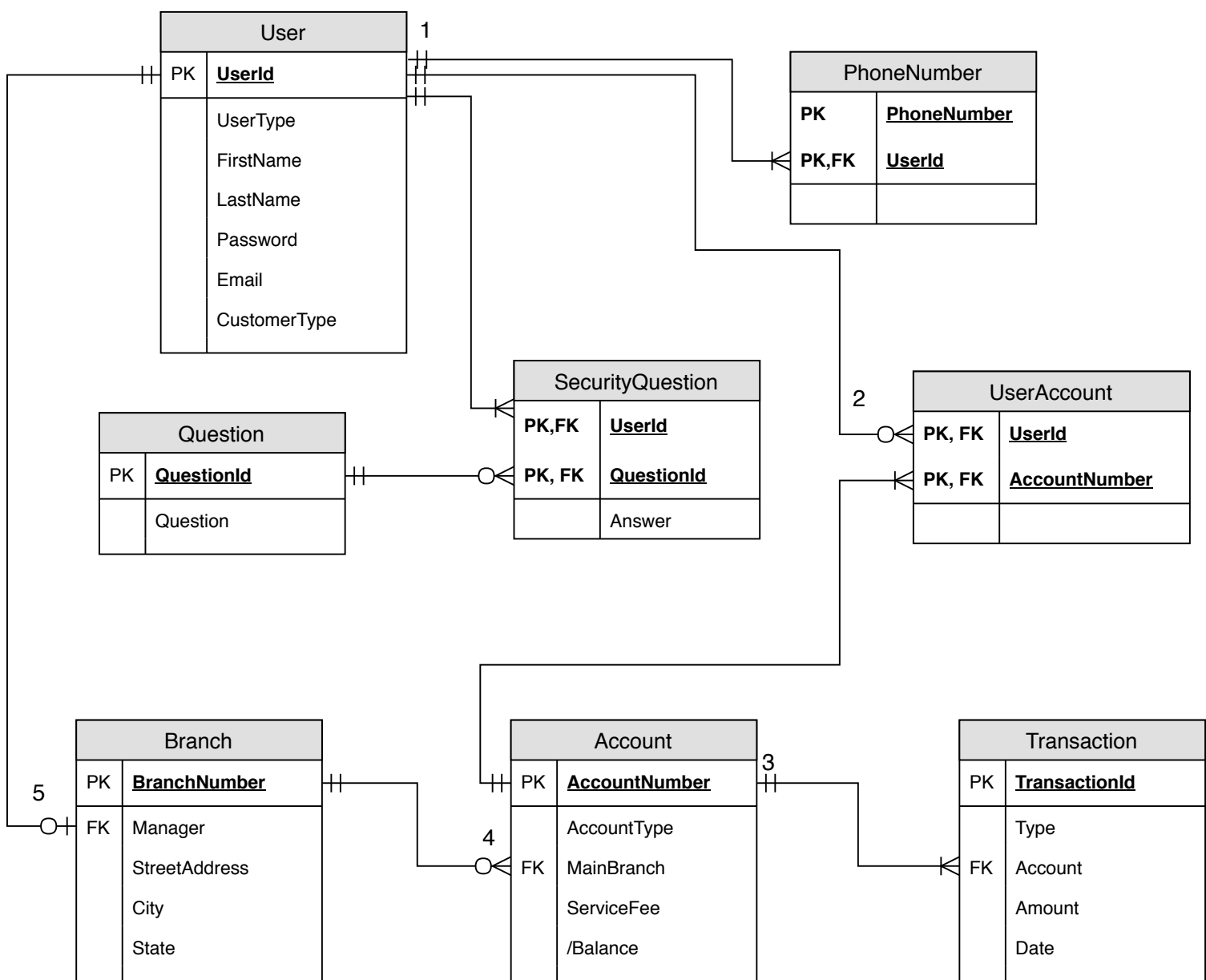| PK	**TransactionId**
	Type
FK	Account
	Amount
	Date

Computed value of /Balance will be stored and updated whenever a transaction occurs. Because of the potentially high number of transactions that would be accessed to calculate the balance each time it is needed, this one update per transaction is more efficient and worth the additional space to store the balance.

Security questions were moved into a separate table so each question will be stored only once and referenced by the QuestionId. This will prevent storing the same question multiple times. This will save space as questions require many bytes to store while the QuestionId only requires 1 byte.

1 A Phone Number is related to exactly one User:
Phone numbers might not be unique but each phone entry is associated with exactly one customer.

2 A User is related to zero, one, or many Accounts
A user can be in the system without an account

3 Each Transaction (Deposit, Withdrawal, and Payment) is related to exactly one Account.
It is not possible to do a transaction without specifying which account the money is to come from or go to

4 A Branch can be related to zero, one, or many Accounts
A branch can start with zero accounts
A branch can have many accounts

5 An Employee can manage zero or one Branches
Some employees are not managers
If an employee is a manager of one branch, they cannot be a manager of another branch