Purple Box DVD Physical Database Design

Customer

	PK	**CustomerId**
		FirstName
		LastName
		Password
		Email
		isBanned
		UserType
		CustomerType

PhoneNumber

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

SecurityQuestion

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

Question

	PK	**QuestionId**
		Question

Rental

	PK	**RentalId**
	FK	CustomerId
	FK	MovieItemId
		RentalDate
		ReturnDate

OverdueFee

	PK,FK	**RentalId**
		/OverdueFee

Reservation

	PK	**ReservationId**
	FK	CustomerId
	FK	MovieId
		Type

MovieItem

	PK	**MovieItemId**
		Type
		RentalFee
	FK	MovieId

Movie

	PK	**MovieId**
		Title
		Description
		MpaaRating

MovieActor

	PK,FK1	**MovieId**
	PK,FK2	**ActorId**

MovieDirector

	PK,FK1	**MovieId**
	PK,FK2	**DirectorId**

MovieGenre

	PK,FK1	**MovieId**
	PK,FK2	**GenreName**

Actor

	PK	**ActorId**

Director

	PK	**DirectorId**

Genre

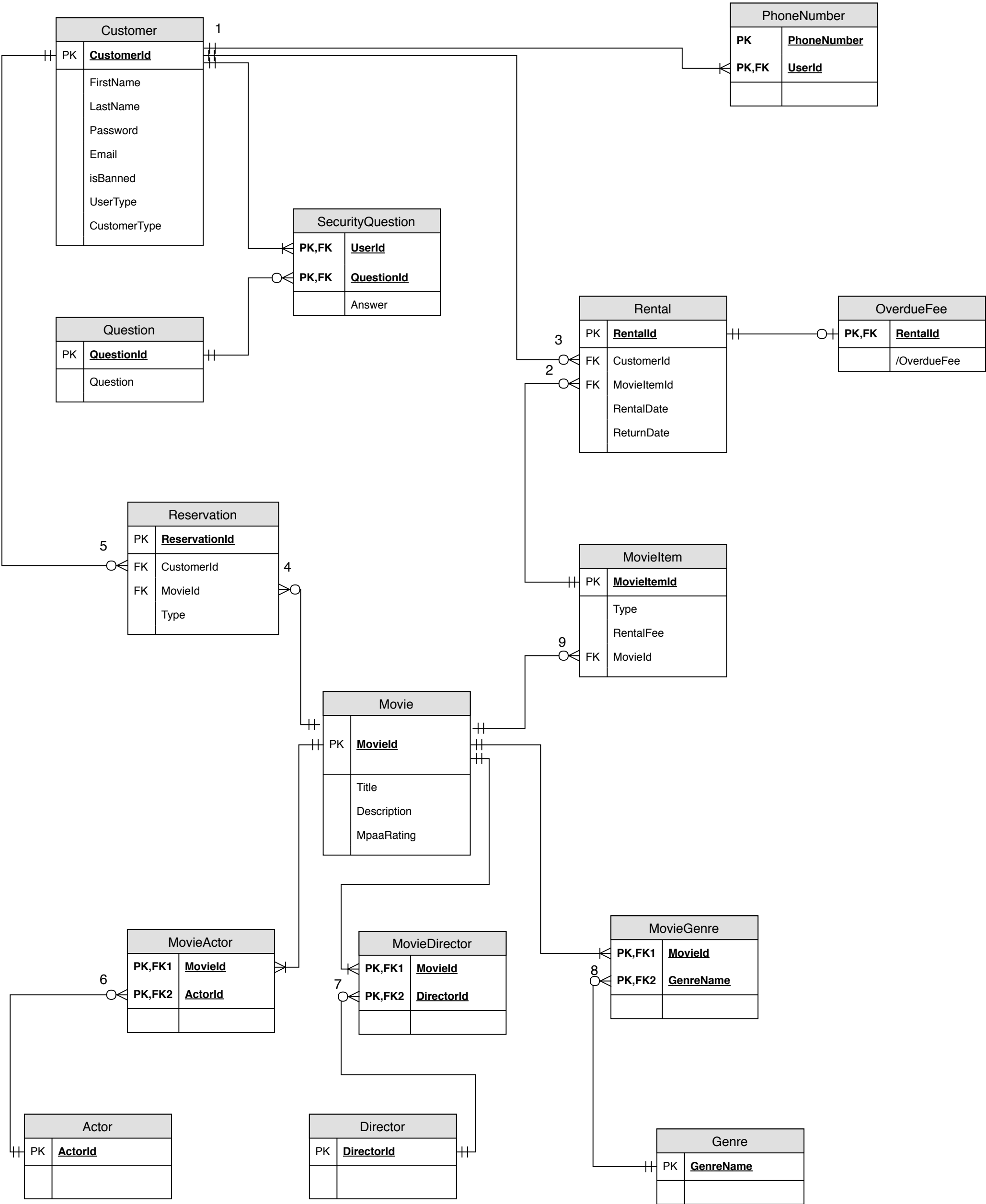|	PK	**GenreName**

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.

OverdueFee is a computed value. It will be stored. This is because it will only be computed once when the MovieItem is returned and may be accessed multiple times.

1 Each phone number record is related to exactly one user.
Phone numbers are not unique; it is possible for two users to have the same phone number.

2 A Movie Item can be related to 0 or more Rentals
It is possible for a Movie Item to be in the system before it is rented.
A Movie Item may be rented many times.

3 A Customer can be related to zero or more Movie Items
A Customer can exist in the system before they rent a Movie.

4 A Movie can be related to 0 or more Reservations
It is possible for a Movie to be in the system before it is reserved.
A Movie can be reserved many times.

5 A Customer can be related to zero or more Reservations
A Customer can sign up for an account before they reserve a Movie.
(The scenario specifies the more part of this multiplicity.)

6 An Actor can be related to zero or more Movies
It is possible for an Actor to be in one or more Movies.
(The scenario specifies it maintains Actors that are not related to any Movies - this provides
  the zero part of this multiplicity.)

7 A Director can be related to zero or more Movies
it is possible for a Director to work with one or more Movies.
(The scenario specifies it maintains Directors that are not related to any Movies - this provides
  the zero part of this multiplicity.)

8 A Genre can be related to zero or more Movies
A Genre may be added before any Movie uses it.
A Genre may be related to many Movies.

9 A Movie is related to zero or many Movie Items
IT is possible to add a Movie to the system before any copies (Movie Items) arrive.
(The scenario says "The store can have multiple copies of each movie" which specifies the
many part of this.)