1. Functions and Use Cases:

The database is a cinema ticket ordering platform.

Actor:

Customer

Use cases:

A customer browsing movie details (description, cast, rating etc.)

A customer selecting a movie schedule.

A customer selecting a cinema location.

A customer selecting a hall type.

A customer selecting a seat type.

A customer paying with a personal credit card.

A customer leaving feedback about a movie.

Functions:

The system fills in new movies in a timely manner.

The system populates new actors in a timely manner.

The system monitors the movie schedule.

The system monitors the occupancy of the halls.

The system calculates the cost of the ticket according to the specified parameters.

The system generates a ticket according to the specified parameters.

The system accepts payment from the client.

2. Entity description

Movies Entity:

Field's name	Field's content	Type	Note (constraints)
movie_id	Movie id	integer	PK
name	Movie name	varchar(200)	NOT NULL
rating	Movie rating	float	
release_year	Movie release year	date	
country	Movie country	varchar(200)	

director	Film director	varchar(200)	NOT NULL
description	Film description	varchar(200)	NOT NULL

MovieActor Entity:

Field’s name	**Field’s content**	**Type**	**Note (constraints)**
movie_id	Movie id	integer	FK to Movies
Actor_id	Actor id	integer	FK to Actors

Actors Entity:

Field’s name	**Field’s content**	**Type**	**Note (constraints)**
actor_id	Actor id	integer	PK
first_name	Actor first name	varchar(200)	NOT NULL
last_name	Actor last name	varchar(200)	NOT NULL
birth_date	Actor's date of birth	date	
rating	Actor's rating	float	
country	Actor country	varchar(200)	

MovieSchedule Entity:

Field’s name	**Field’s content**	**Type**	**Note (constraints)**
schedule_id	Movie schedule id	integer	PK
movie_id	Movie id	integer	FK to Movies
hall_id	Hall id	integer	FK to Halls
date_and_time	Date and time of the movie	date	NOT NULL
price	The price of this movie session	integer	NOT NULL

Halls Entity:

Field’s name	**Field’s content**	**Type**	**Note (constraints)**

hall_id	Hall id	integer	PK
cinema_id	Cinema id	integer	FK to Cinemas
hall_color	Color of the hall(i.e type of the hall)	varchar(20)	NOT NULL
number_of_seats	Hall seat capacity	integer	NOT NULL

Cinemas Entity:

Field's name	**Field's content**	**Type**	**Note (constraints)**
cinema_id	Cinema id	integer	PK
name	Cinema name	varchar(200)	NOT NULL
address	Cinema address	varchar(200)	NOT NULL
telephone	Cinema telephone	varchar(12)	NOT NULL

Tickets Entity:

Field's name	**Field's content**	**Type**	**Note (constraints)**
ticket_id	Ticket id	integer	PK
customer_id	Customer's id	integer	FK to Customers
schedule_id	Movie schedule id	integer	FK to MovieSchedule
seat_id	Seat id	integer	FK to Seats

Seats Entity:

Field's name	**Field's content**	**Type**	**Note (constraints)**
seat_id	Seat id	integer	PK
seat_type	Type of the seat (VIP, Standard etc.)	integer	varchar(20)
hall_id	Hall id	integer	FK to Halls
Is_booked	Checking if a seat is booked	boolean	NOT NULL

Customers Entity:

Field’s name	**Field’s content**	**Type**	**Note (constraints)**
customer_id	Customer id	integer	PK
first_name	Customer first name	varchar(200)	NOT NULL
last_name	Customer last name	varchar(200)	NOT NULL
birth_date	Customers's date of birth	date	
telephone	Customer telephone	varchar(12)	NOT NULL
email	Customer email	varchar(200)	NOT NULL
address	Cinema address	varchar(200)	

Relations:

One MovieActor may contain many Movies.

One MovieActor may contain many Actors.

One Movie may be present in many schedules.

One Cinema may have many Halls.

One Hall may be present in many schedules.

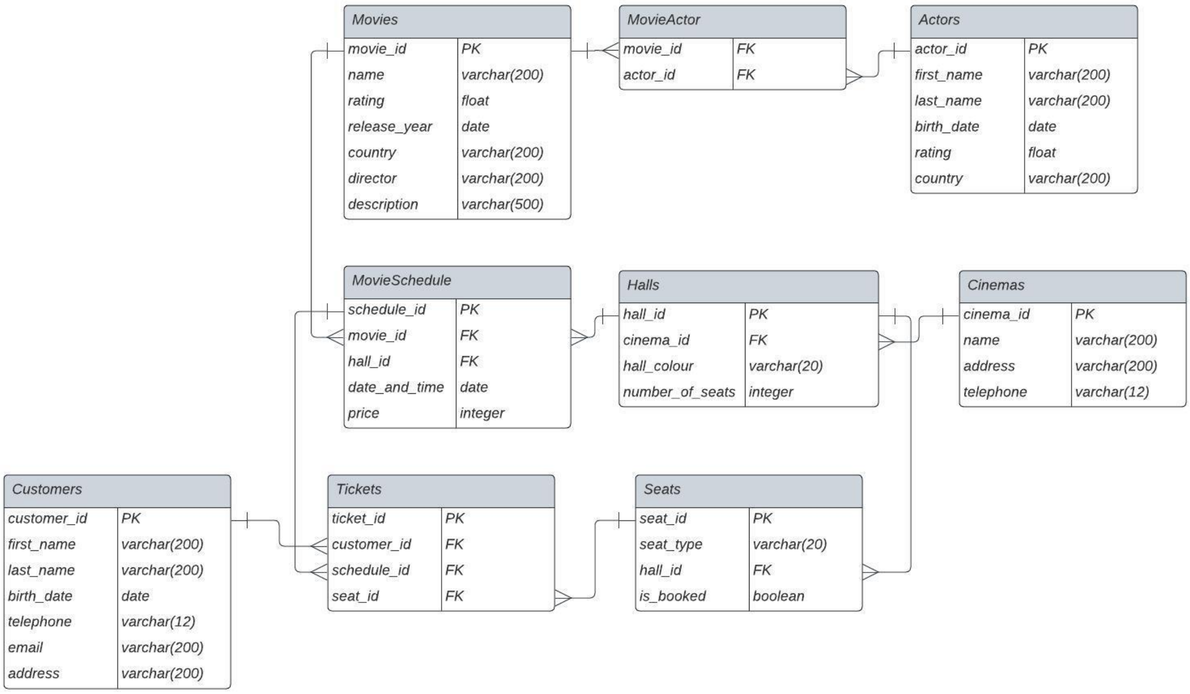
One Hall may have many Seats.

Many tickets may have the same Movie Schedule.

One Seat may be booked by different Tickets in a different Movie Schedule.

One Customer may order many Tickets.

3. ER diagram:



Movies	
movie_id	PK
name	varchar(200)
rating	float
release_year	date
country	varchar(200)
director	varchar(200)
description	varchar(500)

MovieActor	
movie_id	FK
actor_id	FK

Actors	
actor_id	PK
first_name	varchar(200)
last_name	varchar(200)
birth_date	date
rating	float
country	varchar(200)

MovieSchedule	
schedule_id	PK
movie_id	FK
hall_id	FK
date_and_time	date
price	integer

Halls	
hall_id	PK
cinema_id	FK
hall_colour	varchar(20)
number_of_seats	integer

Cinemas	
cinema_id	PK
name	varchar(200)
address	varchar(200)
telephone	varchar(12)

Customers	
customer_id	PK
first_name	varchar(200)
last_name	varchar(200)
birth_date	date
telephone	varchar(12)
email	varchar(200)
address	varchar(200)

Tickets	
ticket_id	PK
customer_id	FK
schedule_id	FK
seat_id	FK

Seats	
seat_id	PK
seat_type	varchar(20)
hall_id	FK
is_booked	boolean