University of Bahrain

College of Information Technology

Department of Computer Science

ITCS285: Database Management Systems

DBMS Project:
Online Cinema Tickets Booking System

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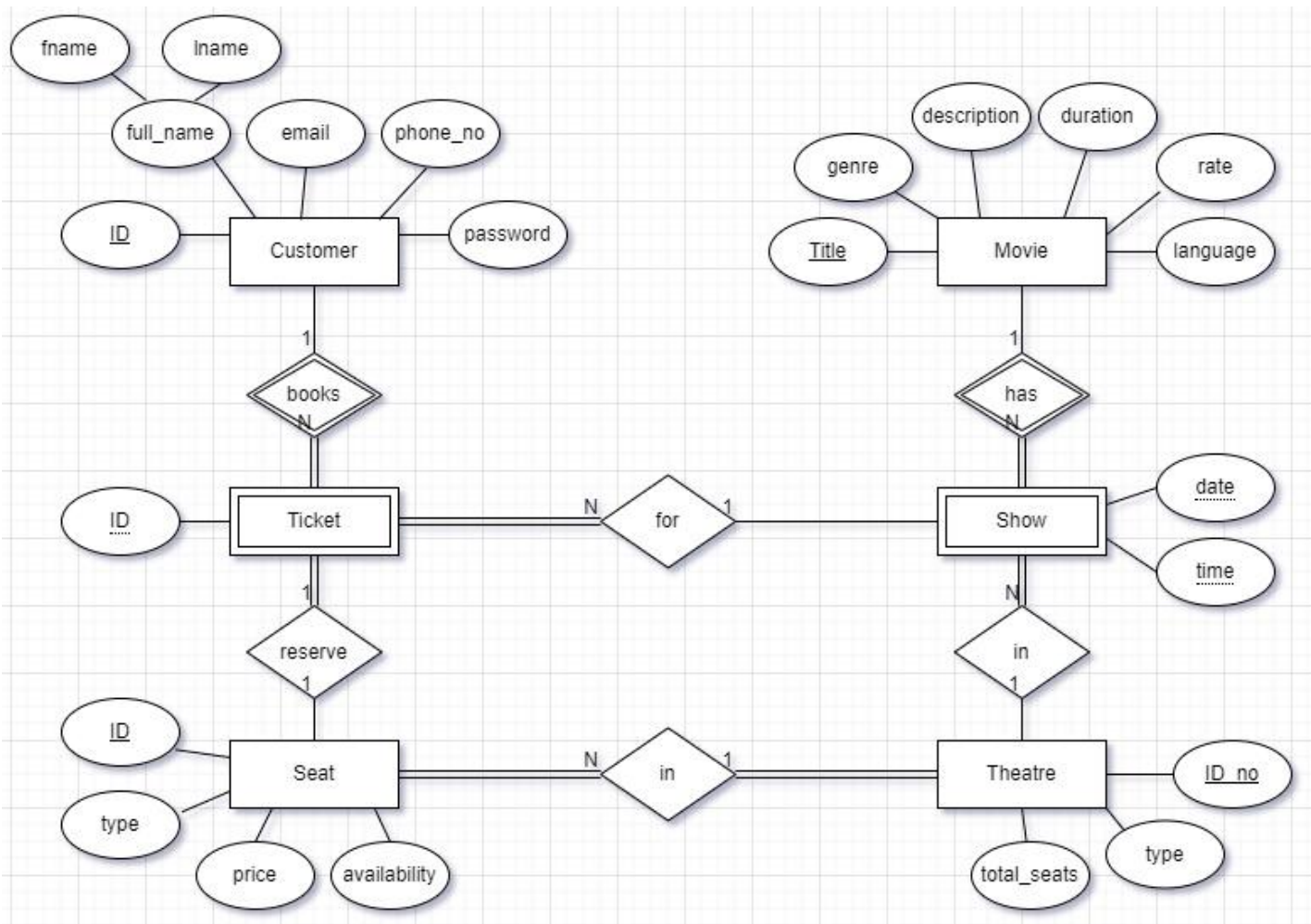Section: 1

Idea and Scenario

The selected idea of the project is an "Online Cinema Tickets Booking System", where the database will store information about movies' shows and support the process of booking the tickets for these shows.

- A customer registers online through the system and enters his information. His information include: Full name (first and last name), an email address, a phone number, a password, and a unique ID generated by the system.
- The customer will be able to search through the movies' catalog, and each movie has a unique title, genre, description, duration, rate, and the language.
- Once the customer selects a movie, the shows' dates and times are displayed.
- A show is played in a theatre, and each theatre has a unique ID number, type, and number of seats.
- A theatre has many seats, each has a unique ID, type, price, and availability status.
- The customer will be able to book tickets after choosing a show and a seat, then a ticket will hold a unique ID, where the customer will display at entrance to the theatre.
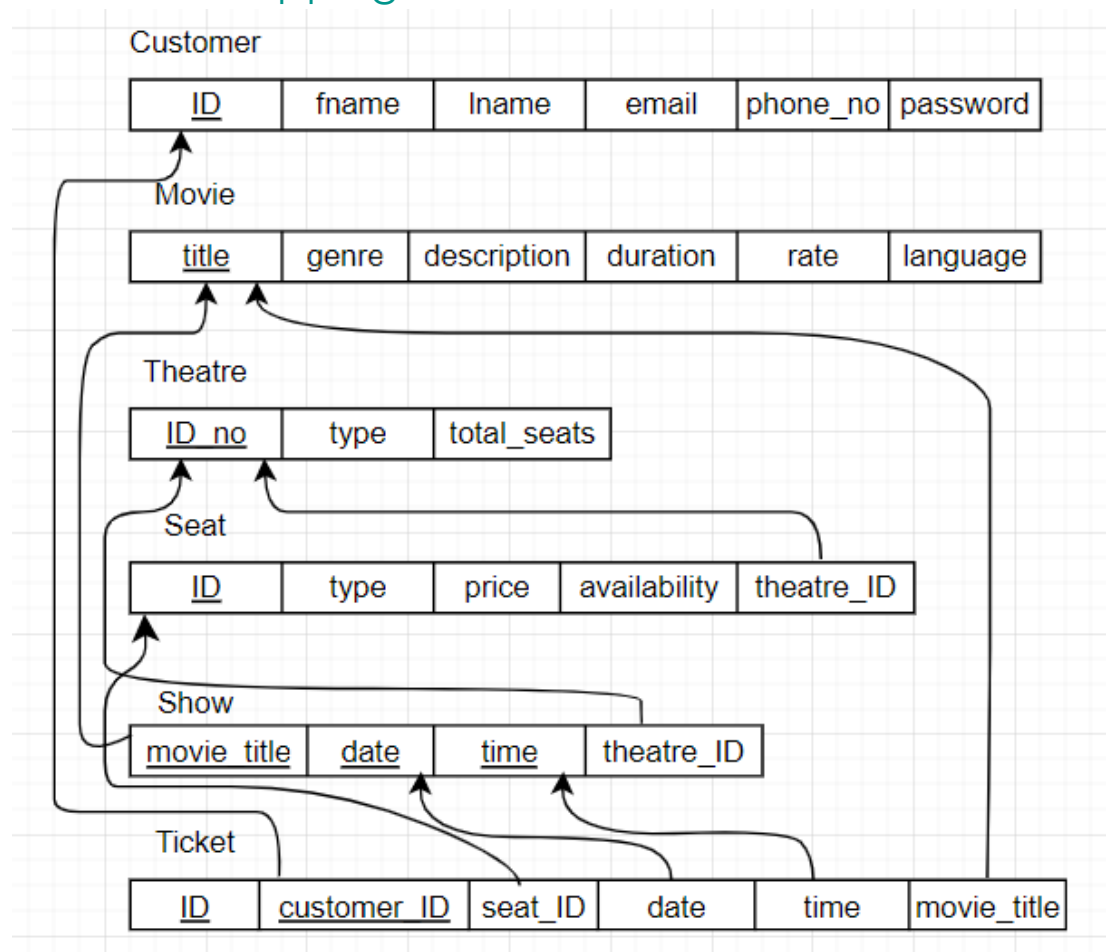
Assumptions

- A movie has zero or more shows, and a show must be of a movie.
- A show must be in a theatre, and theatres can have multiple shows.
- A theatre must have many seats, and a seat must be in a theatre.
- A customer can book many tickets, and a ticket is booked by one customer.
- A ticket is for one show only, but a show can be booked with many tickets.
- A ticket includes one seat only, and the seat can be reserved by one ticket.
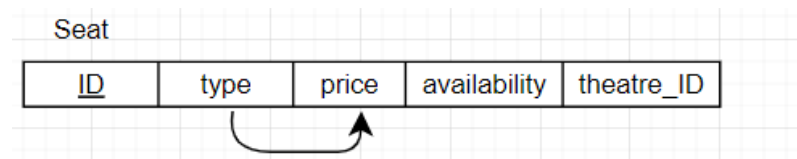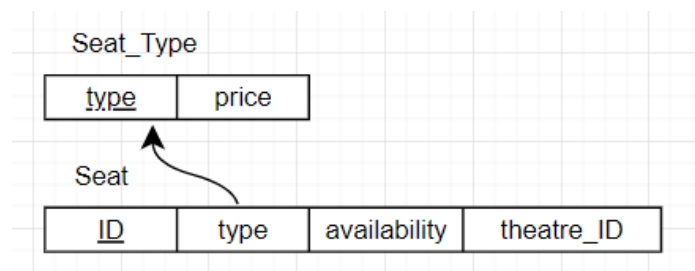
ER Diagram

Relations Mapping

Customer

ID	fname	lname	email	phone_no	password

Movie

title	genre	description	duration	rate	language

Theatre

ID_no	type	total_seats

Seat

ID	type	price	availability	theatre_ID

Show

movie_title	date	time	theatre_ID

Ticket

ID	customer_ID	seat_ID	date	time	movie_title

Normalization

The Relations are already in the 1st and 2nd Normal Form.

Seat

ID	type	price	availability	theatre_ID

There is transitive dependency in the seat relation, where the price depends on the seat type.

Seat_Type

type	price

Seat

ID	type	availability	theatre_ID

Now all relations are in the 3rd Normal Form.

Tables

Customer table

ID	fname	lname	email	phone_no	customer_password
1	Zainab	Ali	za@hotmail.com	33333333	za#@_333
2	Isa	Husain	isa65@gmail.com	34567899	husain_isa6565
3	Yosaif	Mahmood	yosaiffff@gmail.com	31223455	ASDFGHJKL;
4	Faisal	Abdulla	faisalA@outlook.com	39999999	aboYosaif11
5	Kawthar	Ahmed	koko123@hotmail.com	66748821	kokoAhmed123
6	Ali	Kayan	ali.kayan01@gmail.com	32145433	a_k32145433
7	Fran	Fine	franny@yahoo.com	65432212	frannyfine@nyc
8	Semba	Mufasa	sembaaaaa@hotmail.com	34557800	sembaTHEking
9	Sara	John	sara2023@gmail.com	31234500	20232023@sara
10	Zahraa	Nasser	zahoora.08@hotmail.com	38844359	zxcvbnm2008
11	Eman	Yaseen	e.yassen@outlook.com	65432122	abc123456789

Movie table

title	genre	descriotion	movie_duration	rate	movie_language
3 Idiots	comedy	Two friends are searching for ...	2:50	12A	Indian
Avengers: Infinity War	action	The Avengers and their allies ...	2:29	12A	English
Back to the Future	adventure	Marty McFly, a 17-year-old hi...	1:56	PG	English
Encanto	animation	A Colombian teenage girl has...	1:42	PG	English
Grave of the Fireflies	animation	A young boy and his little sist...	1:29	12A	Japanese
Interstellar	sci-fi	A newly discovered wormhol...	2:49	12A	English
Joker	crime	The rise of Arthur Fleck, from ...	2:02	15	English
Parasite	thriller	Greed and class discriminatio...	2:12	15	Korean
Spirited Away	animation	During her family move to th...	2:05	PG	Japanese
The Super Mario Bros. Movie	adventure	With help from Princess Peac...	1:32	PG	English

Theatre table

ID_no	theatre_type	Toatal_seats
1	standard	160
2	standard	150
3	standard	200
4	3D	155
5	3D	155
6	IMAX	180
7	IMAX	160
8	VIP	120
9	VIP	130
10	standard	170

Seat_Type table

seat_type	price
standard	3.500
VIP	6.000

Seat table

seat_ID	seat_type	availability	Theatre_ID
2	standard	Y	6
6	standard	Y	8
7	standard	N	7
11	standard	Y	2
16	standard	Y	1
23	VIP	Y	3
33	VIP	Y	10
42	VIP	Y	2
43	standard	N	5
54	standard	N	9
76	standard	Y	4

Movie_Show table

Movie_Title	show_date	show_time	theatre_ID
Parasite	12-05-2023	23:00	1
Interstellar	10-05-2023	21:30	2
The Super Mario Bros. Movie	11-05-2023	20:30	3
Encanto	11-05-2023	22:00	4
Back to the Future	12-05-2023	22:00	5
Spirited Away	14-05-2023	23:00	6
Joker	15-05-2023	21:00	7
3 Idiots	17-05-2023	23:00	8
Avengers: Infinity War	10-05-2023	23:45	9
Grave of the Fireflies	13-05-2023	21:30	10

Ticket table

ticket_ID	customer_ID	seat_ID	Ticket_date	Ticket_time	Movie_Title
444333	1	16	12-05-2023	23:00	Parasite
549443	8	6	17-05-2023	23:00	3 Idiots
555444	10	33	13-05-2023	21:30	Grave of the Fireflies
665544	3	23	11-05-2023	20:30	The Super Mario Bros. Movie
666111	4	76	11-05-2023	22:00	Encanto
666445	2	42	10-05-2023	21:30	Interstellar
689777	11	11	10-05-2023	21:30	Interstellar
776555	6	2	14-05-2023	23:00	Spirited Away
777747	7	7	15-05-2023	21:00	Joker
844332	5	43	12-05-2023	22:00	Back to the Future
888889	9	54	10-05-2023	23:45	Avengers: Infinity War

Queries

Q1: calculate the number of tickets for each movie booked in the date 10-05-2023

SELECT COUNT(ticket_ID) AS number_of_tickets, Movie_Title

FROM ticket

WHERE Ticket_date = '10-05-2023'

GROUP BY Movie_Title;

number_of_tickets	Movie_Title
2	Interstellar
1	Avengers: Infinity War

Q2: show contact information for customers that booked tickets for the movie Interstellar

SELECT ID, email, phone_no

FROM customer

WHERE ID IN (SELECT customer_ID FROM ticket WHERE Movie_Title = 'Interstellar');

ID	email	phone_no
abc Filter...	abc Filter...	abc Filter...
2	isa65@gmail.com	34567899
11	e.yassen@outlook.com	65432122

Q3: show the theatre ID for each ticket

SELECT ticket.*, seat.Theatre_ID FROM ticket

INNER JOIN seat

ON ticket.seat_ID = seat.seat_ID

ORDER BY Theatre_ID;

ticket_ID	customer_ID	seat_ID	Ticket_date	Ticket_time	Movie_Title	Theatre_ID
abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...
444333	1	16	12-05-2023	23:00	Parasite	1
666445	2	42	10-05-2023	21:30	Interstellar	2
689777	11	11	10-05-2023	21:30	Interstellar	2
665544	3	23	11-05-2023	20:30	The Super Mario Bros. Movie	3
666111	4	76	11-05-2023	22:00	Encanto	4
844332	5	43	12-05-2023	22:00	Back to the Future	5
776555	6	2	14-05-2023	23:00	Spirited Away	6
777747	7	7	15-05-2023	21:00	Joker	7
549443	8	6	17-05-2023	23:00	3 Idiots	8
888889	9	54	10-05-2023	23:45	Avengers: Infinity War	9
555444	10	33	13-05-2023	21:30	Grave of the Fireflies	10