



DBMS PROJECT

MOVIE TICKETS BOOKING SYSTEM

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Electrical and Electronics Engineering (2020-2024)

DBMS PROJECT

TOPIC: MOVIE TICKET BOOKING SYSTEM

PROBLEM STATEMENT:

In this project, we have designed a database management system to store and manage the information about customers, movies, theatres, shows, etc.

This database will store information about customer details like name, mobile number, tickets that they booked, theatre where they are going to watch, payment made by them, the movie they are going to watch, etc managed by the administrator of the database.

ASSUMPTIONS:

- A customer can book any number of tickets with a single customer id.
- Only one seat can be booked for a single ticket.
- One theatre can have multiple seat type names with different costs.
- Multiple theatres can have seat types with same name.
- One customer can make many payments
- Any number of tickets can be booked in a single payment.
- One movie can be screened in any number of shows.
- This database is applicable to single screen theatres.
- Any number of shows can be screened in a theatre in a single day.

TABLES:

1. CUSTOMER:

Attributes	Datatypes	Constraints
Customer_id	Int	Primary key
First_name	Varchar (30)	NOT NULL
Last_name	Varchar (30)	NOT NULL
age	Int	NOT NULL
Gender	Varchar (1)	NOT NULL
Mobile	Varchar (10)	UNIQUE, NOT NULL
email	Varchar (20)	UNIQUE

2. MOVIE:

Attributes	Datatype	constraints
Movie_id	Int	Primary key
Movie_name	Varchar (30)	NOT NULL
Genre	Varchar (30)	NOT NULL
Releasing_date	Date	NOT NULL
Rating	Decimal (2,1)	-
Cast	Varchar (50)	NOT NULL
Duration	Time	NOT NULL

3. THEATRE:

Attributes	Datatype	Constraints
Theatre_id	Int	Primary key
Theatre_name	Varchar (20)	NOT NULL
Location	Varchar (20)	NOT NULL
Capacity	Int	-

4. SHOWS:

Attributes	Datatype	Constraints
Show_name	Varchar (20)	Primary key (1)
Theatre_id	Int	Primary key (2), Foreign key (1)
Show_date	Date	Primary key (3)
Show_time	Time	NOT NULL
Movie_language	Varchar (20)	NOT NULL
Movie_id	Int	Foreign key (2)

5. PAYMENT:

Attributes	Datatype	Constraints
Payment_id	Int	Primary key
Price	Int	NOT NULL
Payment_mode	Varchar (20)	NOT NULL
Payment_date	Date	NOT NULL
Customer_id	Int	Foreign key

6. SEAT_TYPE:

Attributes	Datatype	Constraints
Seat_type_name	Varchar (20)	Primary key (1)
Theatre_id	Int	Primary key (2), Foreign key
Cost	Int	NOT NULL
Seat_type_capacity	Int	NOT NULL

7. TICKET:

Attributes	Datatype	Constraints
Ticket_id	Int	Primary key
Customer_id	Int	Foreign key (1)
Theatre_id	Int	Foreign key (2)
Payment_id	Int	Foreign key (3)
Show_id	Int	Foreign key (4)
Show_data	Int	Foreign key (5)

8. SEAT:

Attributes	Datatype	Constraints
Seat_number	Varchar (5)	NOT NULL
Seat_type_name	Varchar (20)	Foreign key (1)
Theatre_id	Int	Foreign key (2)
Ticket_id	Int	Primary key Foreign key (3)

FUNTIONAL DEPENCENCIES AND PRIMARY KEY:

1. CUSTOMER:

Customer_id-> {First_name, Last_name, age, gender, mobile, email}

Since all the fields depend on customer_id, (customer_id) + -> R.

Hence, Customer_id is a primary key.

2. MOVIE:

Movie_id-> {Movie_name, genre, release_date, rating, cast, duration}

Since all the fields depend on Movie_id, (Movie_id) + -> R.

Hence, Movie_id is a primary key.

3. THEATRE:

Theatre_id-> {Theatre_name, location, capacity}

Since all the fields depend on Theatre_id, (Theatre_id) + -> R.

Hence, Theatre_id is a primary key.

4. SHOWS:

{Show_name, Theatre_id, Show_date}-> {Show_time, Movie_language, Movie_id}

Since all the fields depend on (Theatre_id, Show_name, Show_date) + -> R.

Hence, (Show_name, Show_date, Theatre_id) are combinedly a composite primary key.

5. PAYMENT:

Payment_id-> {Price, Payment_mode, Payment_date, Customer_id}

Since all the fields depend on Payment_id, (Payment_id) + -> R.

Hence, Payment_id is a primary key.

6. SEAT_TYPE:

(Seat_type_name, Theatre_id) → {Cost, Seat_type_capacity}

Since all the fields depend on Seat_type_name and Theatre_id,

(Seat_type_name, Theatre_id) → R

Hence, (Seat_type_name, Theatre_id) combinedly becomes a composite primary key.

7. TICKET:

Ticket_id → {Customer_id, Theatre_id, Payment_id, Show_name, Show_date}

Since all fields depend on Ticket_id, (Ticket_id) → R

Hence, Ticket_id is a primary key.

8. SEAT:

Ticket_id → (Seat_number, Seat_type_name, Theatre_id)

Since all fields depend on Ticket_id, (Ticket_id) → R

Hence, Ticket_id is a primary key.

NORMALISATION:

1. CUSTOMER:

Primary key: customer_id

All attributes depend on the Customer_id, hence the table is in 2NF.

All attributes depend directly on Customer_id hence the table is in 3NF.

All determinants (customer_id) is Super key, hence the table is in BCNF.

2. MOVIE:

Primary key: Movie_id

All attributes depend on the Movie_id, hence the table is in 2NF.

All attributes depend directly on Movie_id hence the table is in 3NF.

All determinants (Movie_id) is Super key, hence the table is in BCNF.

3. THEATRE:

Primary key: Theatre_id

All attributes depend on the Theatre_id, hence the table is in 2NF.

All attributes depend directly on Theatre_id hence the table is in 3NF.

All determinants (Theatre_id) is Super key, hence the table is in BCNF.

4. SHOWS:

Primary key: Theatre_id, Show_name, Show_date

All attributes depend on the Theatre_id, Show_name, Show_date hence the table is in 2NF.

All attributes depend directly on Theatre_id, Show_name, Show_date hence the table is in 3NF.

All determinants (Theatre_id, Show_name, Show_date) is Super key, hence the table is in BCNF.

5. PAYMENT:

Primary key: Payment_id

All attributes depend on the Payment_id hence the table is in 2NF.

All attributes depend directly on Payment_id hence the table is in 3NF.

All determinants (Payment_id) is Super key, hence the table is in BCNF.

6. SEAT_TYPE:

Primary key: Theatre_id, Seat_type_name

All attributes depend on the Theatre_id, Seat_type_name hence the table is in 2NF.

All attributes depend directly on Theatre_id, Seat_type_name hence the table is in 3NF.

All determinants (Theatre_id, Seat_type_name) is Super key, hence the table is in BCNF.

7. TICKET:

Primary key: Ticket_id

All attributes depend on the Ticket_id hence the table is in 2NF.

All attributes depend directly on Ticket_id hence the table is in 3NF.

All determinants (Ticket_id) is Super key, hence the table is in BCNF.

8. SEAT:

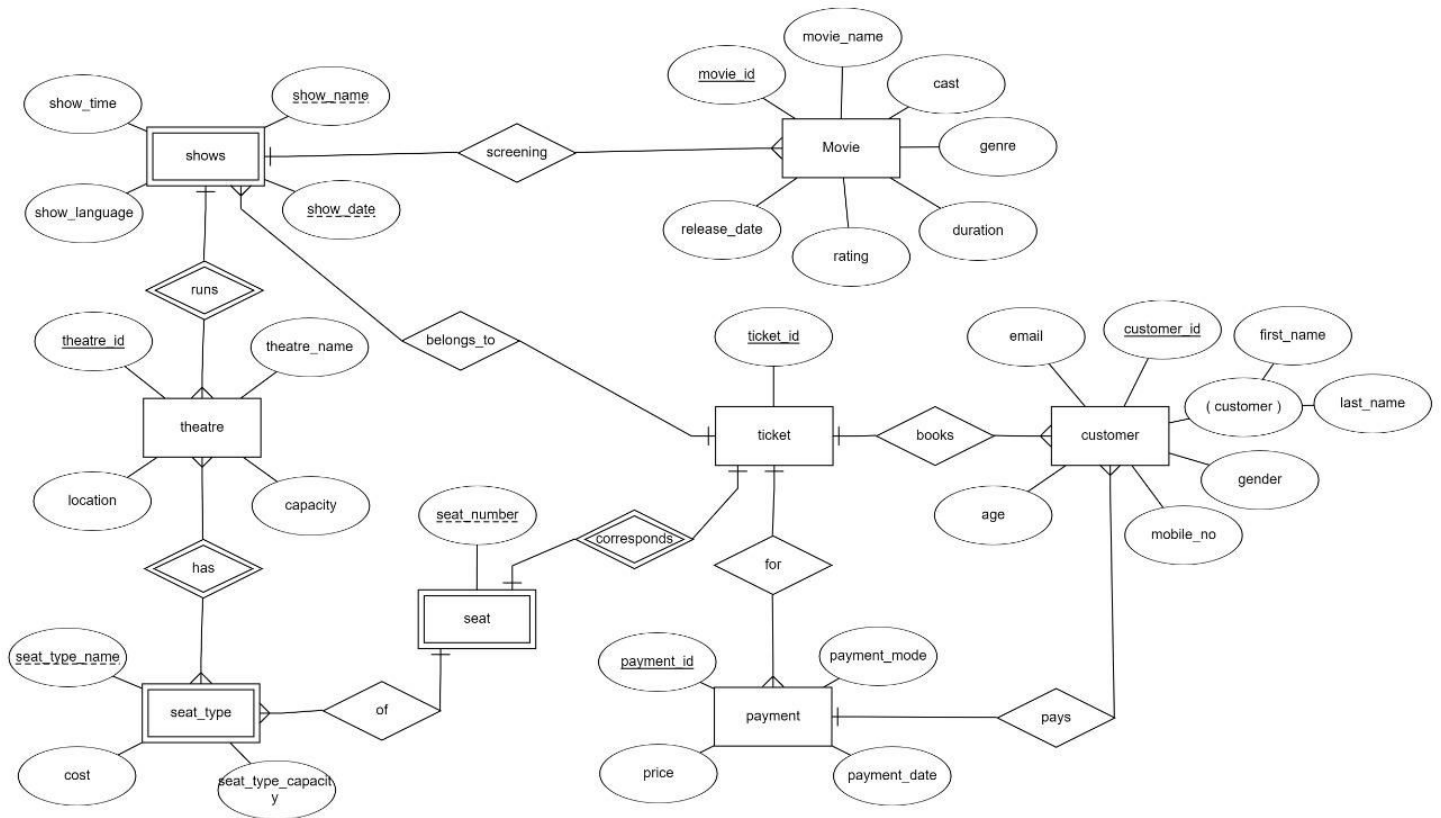
Primary key: Ticket_id

All attributes depend on the Ticket_id hence the table is in 2NF.

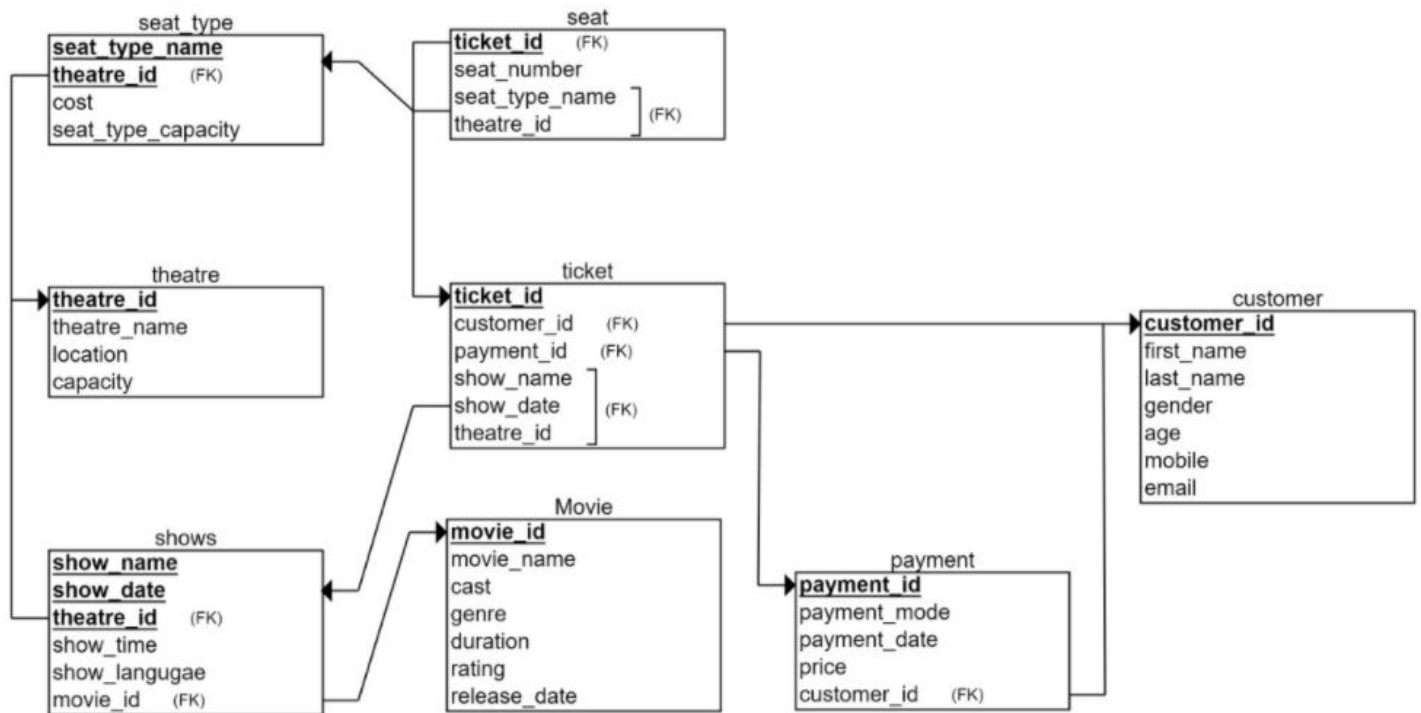
All attributes depend directly on Ticket_id hence the table is in 3NF.

All determinants (Ticket_id) is Super key, hence the table is in BCNF.

ER DIAGRAM:



RELATIONAL SCHEMA:



MYSQL CODE:

CREATING TABLES:

```
CREATE DATABASE Movie_tickets_Booking;

CREATE TABLE CUSTOMER(
  customer_id int PRIMARY KEY,
  first_name varchar(30) NOT NULL,
  last_name varchar(30) NOT NULL,
  gender varchar(1) NOT NULL,
  age int NOT NULL,
  mobile varchar(10) UNIQUE,
  email varchar(20) UNIQUE
);
```

```
CREATE TABLE MOVIE(
  movie_id int PRIMARY KEY,
  movie_name varchar(30) NOT NULL,
  cast varchar(50) NOT NULL,
  genre varchar(30) NOT NULL,
  duration time NOT NULL,
  rating DECIMAL(2,1),
  release_date date
);
```

```
CREATE TABLE THEATRE(
  theatre_id int PRIMARY KEY,
  theatre_name varchar(20) NOT NULL,
  location varchar(20) ,
  capacity int
);
```

```
CREATE TABLE SHOWS(
  show_name varchar(20) ,
  show_date date ,
  theatre_id int ,
  show_time varchar(10) NOT NULL,
  show_language varchar(20) NOT NULL,
  movie_id int ,
  PRIMARY KEY(show_name,show_date,theatre_id),
  FOREIGN KEY (movie_id) REFERENCES movie(movie_id) ON DELETE SET NULL,
  FOREIGN KEY (theatre_id) REFERENCES theatre(theatre_id) ON DELETE CASCADE
);
```

```
CREATE TABLE PAYMENT(
  payment_id int PRIMARY KEY,
  payment_mode varchar(20) NOT NULL,
  payment_date date NOT NULL,
  price int NOT NULL,
  customer_id int,
  FOREIGN KEY (customer_id) REFERENCES customer(customer_id) ON DELETE SET NULL
);
```

```
CREATE TABLE SEAT_TYPE(
    seat_type_name varchar(20) ,
    theatre_id int ,
    cost int NOT NULL,
    seat_type_capacity int,
    PRIMARY KEY (seat_type_name,theatre_id),
    FOREIGN KEY (theatre_id) REFERENCES theatre(theatre_id) ON DELETE CASCADE
);
```

```
CREATE TABLE TICKET(
    ticket_id int PRIMARY KEY,
    customer_id int,
    payment_id int,
    show_name varchar(20),
    show_date date,
    theatre_id int,
    FOREIGN KEY (customer_id) REFERENCES customer(customer_id) ON DELETE SET NULL,
    FOREIGN KEY (payment_id) REFERENCES payment(payment_id) ON DELETE SET NULL,
    FOREIGN KEY (show_name,show_date,theatre_id) REFERENCES shows(show_name,show_date,theatre_id) ON DELETE SET NULL
);
```

```
CREATE TABLE SEAT(
    ticket_id int PRIMARY KEY,
    seat_number varchar(5) NOT NULL,
    seat_type_name varchar(20) NOT NULL,
    theatre_id int NOT NULL,
    FOREIGN KEY (ticket_id) REFERENCES ticket(ticket_id) ON DELETE CASCADE
);
```

INSERTING DATA:

```
INSERT INTO CUSTOMER VALUES(101,'Sai','Prathyush','M',19,'9963321540','sp@gmail.com');
INSERT INTO CUSTOMER VALUES(102,'Rahul','Bomma','M',20,'9973638383','rb@yahoo.com');
INSERT INTO CUSTOMER VALUES(103,'Varun','Kumar','M',19,'9879654376','vk@gmail.com');
INSERT INTO CUSTOMER VALUES(104,'Samar','Reddy','M',22,'8739238373','sr@gmail.com');
INSERT INTO CUSTOMER VALUES(105,'Eren','Yenger','M',32,'8652839287','ey@gmail.com');
INSERT INTO CUSTOMER VALUES(106,'Sakura','Haruno','F',17,'9827387283','sh@gmail.com');
INSERT INTO CUSTOMER VALUES(107,'Anjali','Devi','F',45,'9834938748','ad@gmail.com');
INSERT INTO CUSTOMER VALUES(108,'Mahesh','Babu','M',46,'9990929893','gmb@yahoo.com');
INSERT INTO CUSTOMER VALUES(109,'Olivia','Morris','F',33,'9996664443','om@gmail.com');
INSERT INTO CUSTOMER VALUES(110,'Gayathri','Priya','F',35,'9003724540','gp@gmail.com');
INSERT INTO CUSTOMER VALUES(111,'Mitsuha','Miamizo','F',27,'9968721375','mm@gmail.com');
```

```
INSERT INTO MOVIE VALUES(301,'Major','Adivi Sesh,Saiee Manjrekar','Action,Drama','02:30:00',9.4,'2022-10-05');
INSERT INTO MOVIE VALUES(302,'Spiderman:no way home','Tom Holland,Zendaya','Action,Sci-fi','02:28:00',9.5,'2022-10-12');
INSERT INTO MOVIE VALUES(303,'Ms Dhoni:The untold story','Sushant singh rajput,kiara Advani','Drama','03:40:00',8.9,'2022-10-07');
INSERT INTO MOVIE VALUES(304,'PK','Aamir khan,Anushka sharma','Drama','02:32:00',9.0,'2022-07-20');
INSERT INTO MOVIE VALUES(305,'Vikram','kamal hassan,vijay sethupathi,faahad faasil','Action,fantasy','02:52:00',9.4,'2022-10-16');
INSERT INTO MOVIE VALUES(306,'mugen train','kamado tanjiro,kyojuro rengoku','action,fantasy','01:57:00',9.2,'2022-10-13');
INSERT INTO MOVIE VALUES(307,'KGF2','yash,srinidhi shetty,sanjay dutt','action,drama','02:53:22',9.5,'2022-10-02');
INSERT INTO MOVIE VALUES(308,'your name','taki tachibana,miki okudera','sci-fi,romance','01:45:00',8.8,'2022-10-15');
INSERT INTO MOVIE VALUES(309,'RRR','jr.ntr,ram charan,alia','action,drama','03:00:06',9.5,'2022-10-07');
```

```
INSERT INTO PAYMENT VALUES(201,'cash','2022-10-16',200,102);
INSERT INTO PAYMENT VALUES(202,'card','2022-10-04',100,106);
INSERT INTO PAYMENT VALUES(203,'upi','2022-10-07',100,101);
INSERT INTO PAYMENT VALUES(204,'cash','2022-10-06',1500,107);
INSERT INTO PAYMENT VALUES(205,'upi','2022-10-05',200,109);
INSERT INTO PAYMENT VALUES(206,'card','2022-10-06',400,103);
INSERT INTO PAYMENT VALUES(207,'upi','2022-10-16',200,110);
INSERT INTO PAYMENT VALUES(208,'cash','2022-10-16',250,101);
INSERT INTO PAYMENT VALUES(209,'upi','2022-10-07',300,105);
INSERT INTO PAYMENT VALUES(210,'upi','2022-10-11',400,108);
```

```

INSERT INTO THEATRE VALUES(501,'Siri','Vijayawada',220);
INSERT INTO THEATRE VALUES(502,'S2','Hanamkonda',120);
INSERT INTO THEATRE VALUES(503,'Devi','Warangal',100);
INSERT INTO THEATRE VALUES(504,'PVR Cinemas','Hyderabad',150);
INSERT INTO THEATRE VALUES(505,'IMAX','Delhi',200);
INSERT INTO THEATRE VALUES(506,'Amrutha','Pune',100);
INSERT INTO THEATRE VALUES(507,'Bhavani','kazipet',150);
INSERT INTO THEATRE VALUES(508,'AMB','Hyderabad',50);
INSERT INTO THEATRE VALUES(509,'Mayuri','Kakinada',120);
INSERT INTO THEATRE VALUES(510,'Rain cinema','Nellore',200);

```

```

INSERT INTO SHOWS VALUES('Matinee show','2022-10-07',507,'02:30','telugu',301);
INSERT INTO SHOWS VALUES('First show','2022-10-16',503,'06:45','telugu',305);
INSERT INTO SHOWS VALUES('Morning show','2022-10-17',504,'10:45','english',302);
INSERT INTO SHOWS VALUES('First show','2022-10-16',505,'06:15','korean',308);
INSERT INTO SHOWS VALUES('Second show','2022-10-07',508,'09:45','telugu',309);
INSERT INTO SHOWS VALUES('First show','2022-10-06',506,'06:35','telugu',307);
INSERT INTO SHOWS VALUES('Second show','2022-10-18',501,'09:45','english',306);
INSERT INTO SHOWS VALUES('First show','2022-10-08',509,'06:30','telugu',307);
INSERT INTO SHOWS VALUES('First show','2022-10-11',510,'06:45','telugu',303);
INSERT INTO SHOWS VALUES('First show','2022-10-06',502,'6:00','hindi',304);

```

```

INSERT INTO TICKET VALUES(801,107,204,'First show','2022-10-06',506);
INSERT INTO TICKET VALUES(802,103,206,'First show','2022-10-06',502);
INSERT INTO TICKET VALUES(803,105,209,'First show','2022-10-08',509);
INSERT INTO TICKET VALUES(804,110,207,'Second show','2022-10-18',501);
INSERT INTO TICKET VALUES(805,109,205,'Second show','2022-10-07',508);
INSERT INTO TICKET VALUES(806,101,203,'Matinee show','2022-10-07',507);
INSERT INTO TICKET VALUES(807,108,210,'First show','2022-10-11',510);
INSERT INTO TICKET VALUES(808,106,202,'First show','2022-10-16',505);
INSERT INTO TICKET VALUES(809,101,208,'First show','2022-10-16',503);
INSERT INTO TICKET VALUES(810,101,208,'First show','2022-10-16',503);
INSERT INTO TICKET VALUES(811,108,210,'First show','2022-10-11',510);
INSERT INTO TICKET VALUES(812,102,203,'Morning show','2022-10-17',504);

```

```

INSERT INTO SEAT_TYPE VALUES('silver',507,80,100);
INSERT INTO SEAT_TYPE VALUES('gold',507,100,50);
INSERT INTO SEAT_TYPE VALUES('deluxe',503,200,30);
INSERT INTO SEAT_TYPE VALUES('regular',503,125,70);
INSERT INTO SEAT_TYPE VALUES('gold',504,200,30);
INSERT INTO SEAT_TYPE VALUES('silver',504,150,80);
INSERT INTO SEAT_TYPE VALUES('copper',504,100,20);
INSERT INTO SEAT_TYPE VALUES('platinum',505,200,40);
INSERT INTO SEAT_TYPE VALUES('elite',505,100,160);
INSERT INTO SEAT_TYPE VALUES('upper balcony',506,30,150);
INSERT INTO SEAT_TYPE VALUES('lower balcony',506,70,100);
INSERT INTO SEAT_TYPE VALUES('sofas',508,200,30);
INSERT INTO SEAT_TYPE VALUES('deluxe seating',502,400,20);
INSERT INTO SEAT_TYPE VALUES('elite',501,200,15);
INSERT INTO SEAT_TYPE VALUES('regular',509,120,50);
INSERT INTO SEAT_TYPE VALUES('sofas',510,200,20);

```

```

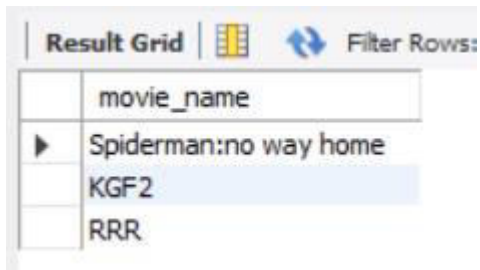
INSERT INTO SEAT VALUES(806,'B15','gold',507);
INSERT INTO SEAT VALUES(809,'A12','regular',503);
INSERT INTO SEAT VALUES(810,'A13','regular',503);
INSERT INTO SEAT VALUES(812,'E14','gold',504);
INSERT INTO SEAT VALUES(801,'F12','upper balcony',506);
INSERT INTO SEAT VALUES(805,'D22','sofas',508);
INSERT INTO SEAT VALUES(802,'C25','deluxe',502);
INSERT INTO SEAT VALUES(804,'G1','elite',501);
INSERT INTO SEAT VALUES(803,'B12','regular',509);
INSERT INTO SEAT VALUES(808,'D16','platinum',505);
INSERT INTO SEAT VALUES(807,'A4','sofas',510);
INSERT INTO SEAT VALUES(811,'A5','sofas',510);

```

QUERIES:

1. Display all movie names with rating greater than 9.3.

```
SELECT movie_name FROM MOVIE WHERE rating>=9.5;
```

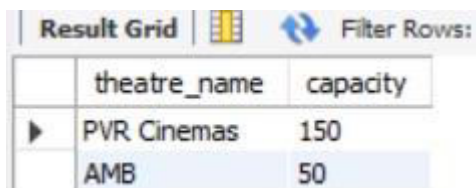


The screenshot shows a 'Result Grid' with a 'Filter Rows' button. The grid contains the following data:

movie_name
Spiderman:no way home
KGF2
RRR

2. Display all theatre names of theatres located in Hyderabad in decreasing order of their capacity.

```
SELECT theatre_name,capacity  
FROM THEATRE  
WHERE location='Hyderabad' ORDER BY capacity DESC;
```

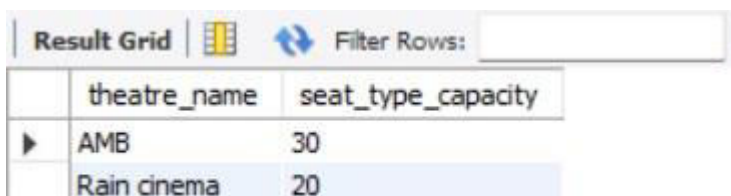


The screenshot shows a 'Result Grid' with a 'Filter Rows' button. The grid contains the following data:

theatre_name	capacity
PVR Cinemas	150
AMB	50

3. Display all the theatre names who have 'sofas' in it ordered by number of sofas in each table and display number of sofas in each theatre.

```
SELECT theatre_name,seat_type_capacity  
FROM theatre JOIN seat_type  
WHERE seat_type_name='sofas'  
AND theatre.theatre_id=seat_type.theatre_id ;
```



The screenshot shows a 'Result Grid' with a 'Filter Rows' button. The grid contains the following data:

theatre_name	seat_type_capacity
AMB	30
Rain cinema	20

4. Name all the movies watched by customer with first name Eren?

```
SELECT movie_name FROM movie
WHERE movie_id IN(
  SELECT movie_id FROM shows WHERE
  show_name IN (
    SELECT show_name FROM ticket WHERE customer_id IN (
      SELECT customer_id FROM customer WHERE first_name='eren'))
  and
  theatre_id IN(
    SELECT theatre_id FROM ticket WHERE customer_id IN (
      SELECT customer_id FROM customer WHERE first_name='eren'))
  and
  show_date IN(
    SELECT show_date FROM ticket WHERE customer_id IN (
      SELECT customer_id FROM customer WHERE first_name='eren'))
  );
```

Result Grid	
	movie_name
▶	KGF2

THANK YOU!

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