

# 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, <u>Payment\_id</u> 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 depends on Ticket\_id, (Ticket\_id) + ->R

Hence, <u>Ticket\_id</u> is a primary key.

#### 8. **SEAT:**

Ticket\_id-> (Seat\_number, Seat\_type\_name, Theatre\_id)
Since all fields depends on Ticket\_id, (Ticket\_id) +->R
Hence, <u>Ticket id</u> is a primary key.

## **NORMALISATION:**

#### 1. CUSTOMER:

Primary key: customer\_id

All attributes depend on the Customer\_id, hence the table is in <u>2NF</u>.

All attributes depend directly on Customer\_id hence the table is in <u>3NF</u>.

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 <u>3NF</u>.

All determinants (Theatre \_id) is Super key, hence the table is in <u>BCNF</u>.

#### 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 <u>3NF</u>.

All determinants (Theatre\_id, Show\_name, Show\_date) is Super key, hence the table is in <u>BCNF</u>.

#### 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 <u>3NF</u>.

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 <u>3NF</u>.

All determinants (Theatre\_id, Seat\_type\_name) is Super key, hence the table is in <u>BCNF</u>.

#### 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:

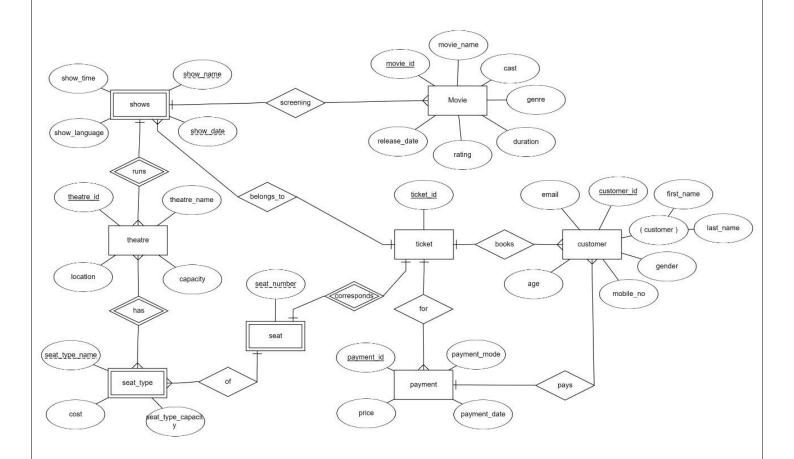
Primary key: Ticket\_id

All attributes depend on the Ticket\_id hence the table is in 2NF.

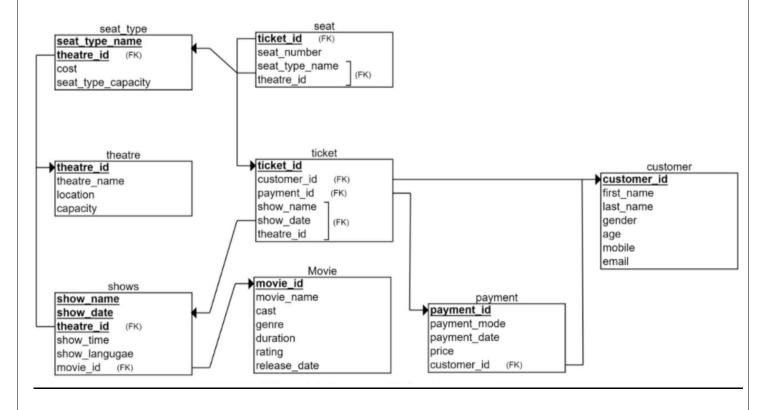
All attributes depend directly on Ticket\_id hence the table is in 3NF.

All determinants (Ticket\_id) is Super key, hence the table is in <u>BCNF</u>.

# **ER DIAGRAM:**



# **RELATIONAL SCHEMA:**



## **MYSQL CODE:**

**CREATING TABLES:** 

```
EATE DATABASE Movie_tickets_Booking;
CREATE TABLE CUSTOMER(

customer_id int PRIMARY KEY,

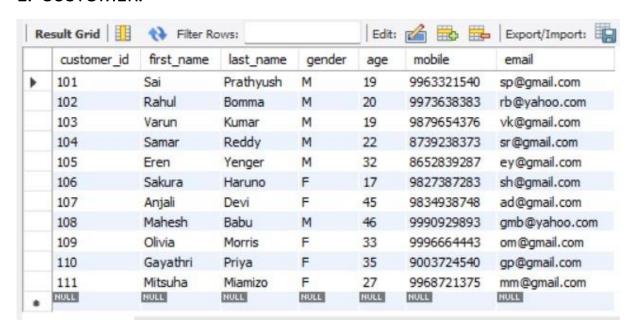
first_name varchar(30) NOT NULL,
    last_name varchar(30) NOT NULL,
    gender varchar(1) NOT NULL,
    age int NOT NULL, mobile varchar(10) UNIQUE,
    email varchar(20) UNIQUE
CREATE TABLE MOVIE(
    movie_id int PRIMARY KEY,
    movie_name varchar(30) NOT NULL,
    cast varchar(50) NOT NULL, genre 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
```

```
REATE 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
  REATE 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:
               INTO CUSTOMER VALUES(101, 'Sai', 'Prathyush', 'M',19, '9963321540', 'sp@gmail.com');
INTO CUSTOMER VALUES(102, 'Rahul', 'Bomma', 'M',20, '9973638383', 'rb@yahoo.com');
INTO CUSTOMER VALUES(103, 'Varun', 'Kumar', 'M',19, '9879654376', 'vk@gmail.com');
INTO CUSTOMER VALUES(104, 'Samar', 'Reddy', 'M',22, '8739238373', 'sr@gmail.com');
INTO CUSTOMER VALUES(105, 'Eren', 'Yenger', 'M',32, '8652839287', 'ey@gmail.com');
INTO CUSTOMER VALUES(106, 'Sakura', 'Haruno', 'F',17, '9827387283', 'sh@gmail.com');
INTO CUSTOMER VALUES(107, 'Anjali', 'Devi', 'F',45, '9834938748', 'ad@gmail.com');
INTO CUSTOMER VALUES(108, 'Mahesh', 'Babu', 'M',46, '9990929893', 'gmb@yahoo.com');
INTO CUSTOMER VALUES(109, 'Olivia', 'Morris', 'F',33, '9996664443', 'om@gmail.com');
INTO CUSTOMER VALUES(110, 'Gayathri', 'Priya', 'F',35, '9003724540', 'gp@gmail.com');
INTO CUSTOMER VALUES(111, 'Mitsuha', 'Miamizo', 'F',27, '9968721375', 'mm@gmail.com');
                                                           5(301, 'Major', 'Adivi Sesh, Saiee Manjrekar', 'Action, Drama', '02:30:00', 9.4, '2022-10-05');
5(302, 'Spiderman:no way home', 'Tom Holland, Zendaya', 'Action, Sci-fi', '02:28:00', 9.5, '2022-10-12');
5(303, 'Ms Dhoni:The untold story', 'Sushant singh rajput, kiara Advani', 'Drama', '03:40:00', 8.9, '2022-10-07');
5(304, 'PK', 'Aamir khan, Anushka sharma', 'Drama', '02:32:00', 9.0, '2022-07-20');
5(305, 'Vikram', 'kamal hassan, vijay sethupathi, faahad faasil', 'Action, fantasy', '02:52:00', 9.4, '2022-10-16');
5(306, 'mugen train', 'kamado tanjiro, kyojuro rengoku', 'action, fantasy', '01:57:00', 9.2, '2022-10-13');
5(307, 'KGF2', 'yash, srinidhi shetty, sanjay dutt', 'action, drama', '02:53:22', 9.5, '2022-10-02');
5(308, 'your name', 'taki tachibana, miki okudera', 'sci-fi, romance', '01:45:00', 8.8, '2022-10-15');
5(309, 'RRR', 'jr.ntr, ram charan, alia', 'action, drama', '03:00:06', 9.5, '2022-10-07');
                             MOVIE
                            MOVTE
                            MOVIE
                            MOVIE
                            MOVIE
                            MOVIE
                            MOVIE
                             MOVIE
                 INTO MOVIE
       ERT INTO PAYMENT VALUES(201, 'cash', '2022-10-16',200,102);
   ISERT INTO PAYMENT VALUES(201, 'cash', '2022-10-16', 200, 102);
ISERT INTO PAYMENT VALUES(202, 'card', '2022-10-04', 100, 106);
ISERT INTO PAYMENT VALUES(203, 'upi', '2022-10-07', 100, 101);
ISERT INTO PAYMENT VALUES(204, 'cash', '2022-10-06', 1500, 107);
ISERT INTO PAYMENT VALUES(205, 'upi', '2022-10-05', 200, 109);
ISERT INTO PAYMENT VALUES(206, 'card', '2022-10-06', 400, 103);
ISERT INTO PAYMENT VALUES(207, 'upi', '2022-10-16', 200, 110);
ISERT INTO PAYMENT VALUES(208, 'cash', '2022-10-16', 250, 101);
ISERT INTO PAYMENT VALUES(209, 'upi', '2022-10-07', 300, 105);
ISERT INTO PAYMENT VALUES(210, 'upi', '2022-10-11', 400, 108);
```

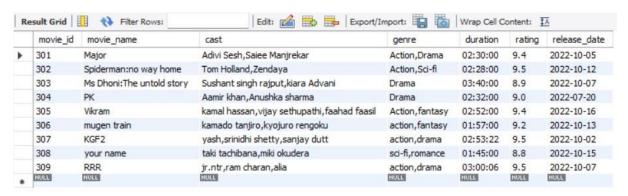
```
SERT INTO THEATRE VALUES(501, 'Siri', 'Vijayawada',220);
SERT INTO THEATRE VALUES(502, 'S2', 'Hanamkonda',120);
SERT INTO THEATRE VALUES(503, 'Devi', 'Warangal',100);
SERT INTO THEATRE VALUES(504, 'PVR Cinemas', 'Hyderabad',150);
SERT INTO THEATRE VALUES(505, 'IMAX', 'Delhi',200);
      SERT INTO THEATRE VALUES(506, 'Amrutha', 'Pune',100);
    SERT INTO THEATRE VALUES(507, 'Bhavani', 'kazipet',150);
     SERT INTO THEATRE VALUES(508, 'AMB', 'Hyderabad',50);
      SERT INTO THEATRE VALUES(509,'Mayuri','Kakinada',120);
       ERT INTO THEATRE VALUES(510, 'Rain cinema', 'Nellore',200);
   NSERT INTO SHOWS VALUES('Matinee show','2022-10-07',507,'02:30','telugu',301);
NSERT INTO SHOWS VALUES('First show','2022-10-16',503,'06:45','telugu',305);
NSERT INTO SHOWS VALUES('Morning show','2022-10-17',504,'10:45','english',302);
NSERT INTO SHOWS VALUES('First show','2022-10-16',505,'06:15','korean',308);
NSERT INTO SHOWS VALUES('Second show','2022-10-07',508,'09:45','telugu',309);
NSERT INTO SHOWS VALUES('First show','2022-10-06',506,'06:35','telugu',307);
NSERT INTO SHOWS VALUES('Second show','2022-10-18',501,'09:45','english',306);
NSERT INTO SHOWS VALUES('First show','2022-10-08',509,'06:30','telugu',307);
NSERT INTO SHOWS VALUES('First show','2022-10-11',510,'06:45','telugu',303);
NSERT INTO SHOWS VALUES('First show','2022-10-06',502,'6:00','hindi',304);
    |SERT 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(806,101,203, 'Matinee show', '2022-10-07',507);
    |SERT 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);
  NSERT INTO TICKET VALUES(809,101,208,'First show','2022-10-16',503);
 NSERT 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);
 MSERT INTO TICKET VALUES(812,102,203,'Morning show','2022-10-17',504);
      SERT INTO SEAT_TYPE VALUES('silver',507,80,100);
SERT INTO SEAT_TYPE VALUES('gold',507,100,50);
SERT INTO SEAT_TYPE VALUES('deluxe',503,200,30);
SERT INTO SEAT_TYPE VALUES('regular',503,125,70);
SERT INTO SEAT_TYPE VALUES('gold',504,200,30);
SERT INTO SEAT_TYPE VALUES('silver',504,150,80);
SERT INTO SEAT_TYPE VALUES('copper',504,100,20);
SERT INTO SEAT_TYPE VALUES('alatinum',505,200,40);
                  INTO SEAT_TYPE VALUES('copper',504,100,20);
INTO SEAT_TYPE VALUES('platinum',505,200,40);
INTO SEAT_TYPE VALUES('elite',505,100,160);
INTO SEAT_TYPE VALUES('upper balcony',506,30,150);
INTO SEAT_TYPE VALUES('lower balcony',506,70,100);
INTO SEAT_TYPE VALUES('sofas',508,200,30);
       SERT INTO SEAT_TYPE VALUES('deluxe seating',502,400,20);
SERT INTO SEAT_TYPE VALUES('deluxe seating',502,400,20);
SERT INTO SEAT_TYPE VALUES('elite',501,200,15);
SERT INTO SEAT_TYPE VALUES('regular',509,120,50);
SERT INTO SEAT_TYPE VALUES('sofas',510,200,20);
    ISERT INTO SEAT VALUES(806, 'B15', 'gold',507);
ISERT INTO SEAT VALUES(809, 'A12', 'regular',503);
ISERT INTO SEAT VALUES(810, 'A13', 'regular',503);
ISERT INTO SEAT VALUES(812, 'E14', 'gold',504);
ISERT INTO SEAT VALUES(801, 'F12', 'upper balcony',506);
ISERT INTO SEAT VALUES(801, 'F12', 'refer', 508');
ISERT INTO SEAT VALUES(801, 'F02', 'sefer', 508');
INSERT INTO SEAT VALUES(801, F12', upper balcony',
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);
```

## **TABLES CREATED:**

#### 1. CUSTOMER:



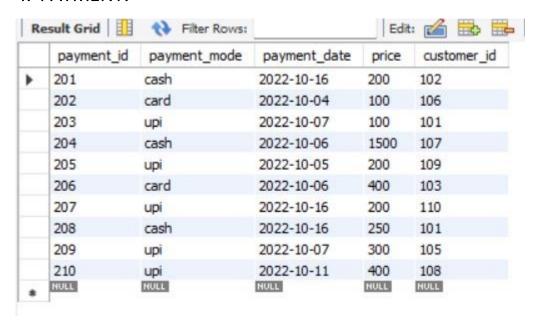
#### 2. MOVIE:



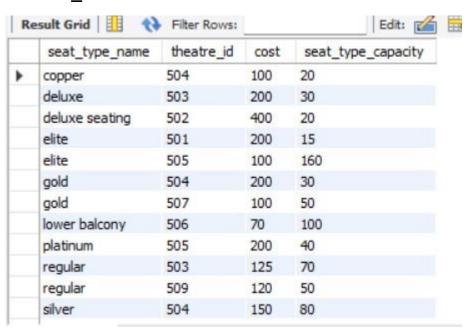
#### 3. THEATRE:



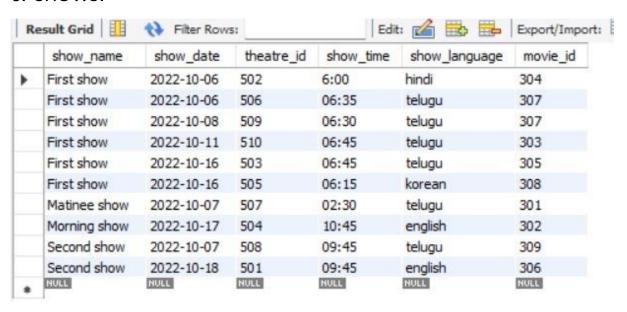
#### 4. PAYMENT:



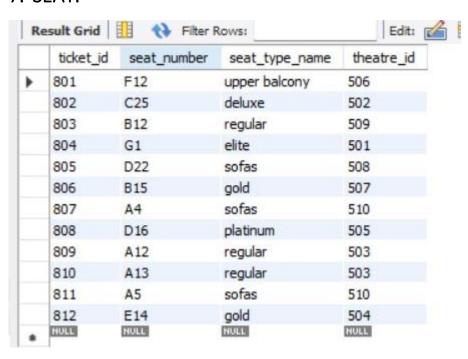
### 5. SEAT TYPE



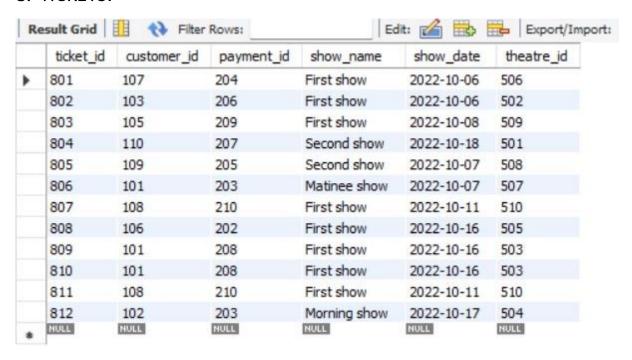
#### 6. SHOWS:



#### 7. SEAT:



#### 8. TICKETS:

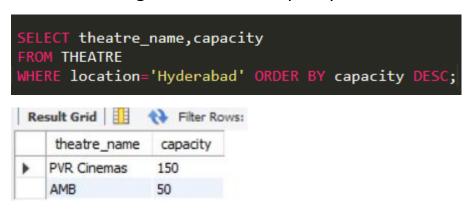


## **QUERIES:**

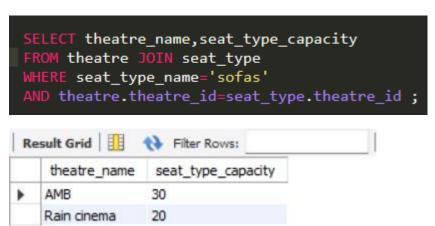
1. Display all movie names with rating greater than 9.3.



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



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.



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'))
);
```



# **THANK YOU**

Rahul Bomma 202110 Bitla Varun Kumar 202108 A Sai Prathyush 202104