

MOVIE THEATRE MANAGEMENT SYSTEM

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Abstract:

The project focuses on designing and implementing a relational database for an online movie ticket booking system, similar to "BookMyShow." The primary goal is to create a robust database that efficiently manages data related to movies, theaters, screens, showtimes, customers, and bookings. The database schema includes multiple interconnected tables that establish relationships between these entities, ensuring data integrity and supporting essential functionalities.

Key features of the database include the ability to search for movies, check showtimes, and book tickets, with built-in mechanisms to handle seat availability and prevent booking conflicts. The system also incorporates user management, allowing for customer registration, authentication, and profile management. Additionally, the database supports reporting and analytics, providing insights into booking trends, popular movies, and customer preferences.

This project lays the foundation for a scalable and efficient backend system capable of supporting the operations of an online movie ticketing platform. Future enhancements could include integrating real-time analytics and optimizing the database for higher performance under large-scale operations.

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MOVIE BOOKING SYSTEM

Project for SQL Module

This project involves the creation of a relational database designed to support an online movie ticket booking system, handling key functionalities such as movie searches, showtime management, and ticket bookings. Here's a brief description:

Objective:

The objective is to design and implement a comprehensive and efficient relational database for managing movie bookings, theater operations, and customer interactions in an online ticketing system.

Components:

- **Movies Table:** Stores details about the movies available for booking, including title, genre, duration, rating, release date, and language.
- **Theaters Table:** Contains information about the theaters, including location, number of screens, and other relevant details.
- **Screens Table:** Details about each screen in a theater, such as its capacity and associated theater.
- **Showtimes Table:** Manages the scheduling of movies, including start and end times, and the associated screen.
- **Customers Table:** Stores customer information necessary for booking and user management.
- **Tickets Table:** Tracks customer bookings, linking movies, showtimes, and customers.
- **Staff Table:** Details about staff members working in the company.

Functionality:

The database is designed to support various functions crucial for an online ticket booking system:

- **Search and Browse:** Users can search for movies based on various criteria such as title, genre, and language, and browse showtimes across different theaters.
- **Booking Management:** The system ensures that customers can book tickets for available showtimes, managing seat availability and ensuring that booking conflicts do not occur.
- **User Management:** Handles user registration, authentication, and profile management.

Analysis and Reporting:

- The database supports essential functionalities, including movie searches, showtime management, ticket bookings, and user account handling, ensuring smooth operations within the online ticketing system.
- The schema is designed with integrity constraints and indexing strategies to maintain data consistency, prevent booking conflicts, and optimize query performance.
- The system enables detailed reports on booking patterns, movie popularity, and customer demographics, providing valuable insights for business decision-making.

Overall, The project successfully implements a robust relational database to manage key aspects of an online movie ticketing system, including movie searches, bookings, and data-driven reporting

Database name - Bookmyshow

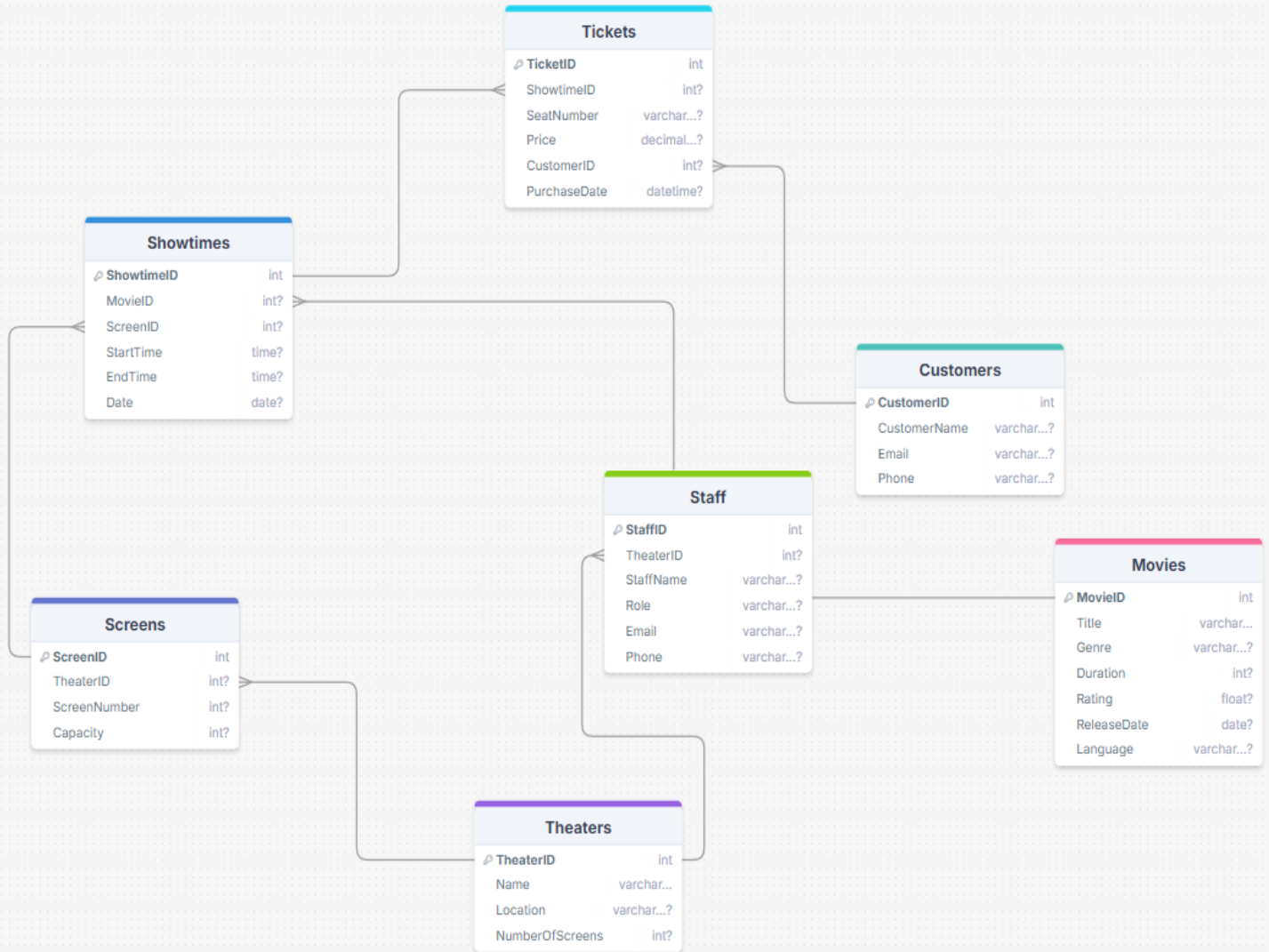
Schema name - Bookmyshow

Here are the table names corresponding to the schemas:

- 1. Movies**
- 2. Theaters**
- 3. Screens**
- 4. Showtimes**
- 5. Customers**
- 6. Tickets**
- 7. Staff**

How these tables/entities are related to each other is shown pictorially on next page through ER diagram, i.e., Entity Relationship Diagram.

2. ER-Diagram (Entity Relation – Diagram) for Movie Booking System:



3. Table Descriptions:

1. Movies:

Field	Type	NULL	Key	Extra
MovieID	int(11)	NO	PRI	auto_increment
Title	varchar(255)	NO		
Genre	varchar(100)	YES		
Duration	int(11)	YES		
Rating	float	YES		
ReleaseDate	date	YES		
Language	varchar(50)	YES		

2. Theatres:

Field	Type	NULL	Key	Extra
TheaterID	int(11)	NO	PRI	auto_increment
Name	varchar(255)	NO		
Location	varchar(255)	YES		
NumberOfScreens	int(11)	YES		

3. Screens:

Field	Type	NULL	Key	Extra
ScreenID	int(11)	NO	PRI	auto_increment
TheaterID	int(11)	YES	MUL	
ScreenNumber	int(11)	YES		
Capacity	int(11)	YES		

4.Showtimes:

Field	Type	NULL	Key	Extra
ShowtimeID	int(11)	NO	PRI	auto_increment
MovieID	int(11)	YES	MUL	
ScreenID	int(11)	YES	MUL	
StartTime	time	YES		
EndTime	time	YES		
Date	date	YES		

5.Customers:

Field	Type	NULL	Key	Extra
CustomerID	int(11)	NO	PRI	auto_increment
CustomerName	varchar(255)	YES		
Email	varchar(255)	YES		
Phone	varchar(20)	YES		

6.Tickets:

Field	Type	NULL	Key	Extra
TicketID	int(11)	NO	PRI	auto_increment
ShowtimeID	int(11)	YES	MUL	
SeatNumber	varchar(10)	YES		
Price	decimal(10,2)	YES		
CustomerID	int(11)	YES	MUL	
PurchaseDate	datetime	YES		

7.Staffs:

Field	Type	NULL	Key	Extra
StaffID	int(11)	NO	PRI	auto_increment
TheaterID	int(11)	YES	MUL	
StaffName	varchar(255)	YES		
Role	varchar(100)	YES		
Email	varchar(255)	YES		
Phone	varchar(20)	YES		

4. Commands:

-- CREATE TABLES QUERIES --

-- Movies Table

```
CREATE TABLE Movies (  
    MovieID INT PRIMARY KEY AUTO_INCREMENT,  
    Title VARCHAR(255) NOT NULL,  
    Genre VARCHAR(100),  
    Duration INT, -- in minutes  
    Rating float,  
    ReleaseDate DATE,  
    Language VARCHAR(50)  
);
```

-- Theaters Table

```
CREATE TABLE Theaters (  
    TheaterID INT PRIMARY KEY AUTO_INCREMENT,  
    Name VARCHAR(255) NOT NULL,  
    Location VARCHAR(255),  
    NumberOfScreens INT  
);
```

-- Screens Table

```
CREATE TABLE Screens (  
    ScreenID INT PRIMARY KEY AUTO_INCREMENT,  
    TheaterID INT,  
    ScreenNumber INT,  
    Capacity INT,  
    FOREIGN KEY (TheaterID) REFERENCES Theaters(TheaterID)  
);
```

-- Showtimes Table

```
CREATE TABLE Showtimes (  
    ShowtimeID INT PRIMARY KEY AUTO_INCREMENT,  
    MovieID INT,  
    ScreenID INT,  
    StartTime TIME,  
    EndTime TIME,  
    Date DATE,  
    FOREIGN KEY (MovieID) REFERENCES Movies(MovieID),  
    FOREIGN KEY (ScreenID) REFERENCES Screens(ScreenID)  
);
```

-- Customers Table


```

CREATE TABLE Customers (
    CustomerID INT PRIMARY KEY AUTO_INCREMENT,
    CustomerName VARCHAR(255),
    Email VARCHAR(255),
    Phone VARCHAR(20)
);
Desc Customers;

-- Tickets Table
CREATE TABLE Tickets (
    TicketID INT PRIMARY KEY AUTO_INCREMENT,
    ShowtimeID INT,
    SeatNumber VARCHAR(10),
    Price DECIMAL(10, 2),
    CustomerID INT,
    PurchaseDate DATETIME,
    FOREIGN KEY (ShowtimeID) REFERENCES Showtimes(ShowtimeID),
    FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID)
);

-- Staff Table
CREATE TABLE Staff (
    StaffID INT PRIMARY KEY AUTO_INCREMENT,
    TheaterID INT,
    StaffName VARCHAR(255),
    Role VARCHAR(100),
    Email VARCHAR(255),
    Phone VARCHAR(20),
    FOREIGN KEY (TheaterID) REFERENCES Theaters(TheaterID)
);

-- CODE FOR INSERTING DATA --

INSERT INTO Movies (MovieID, Title, Genre, Duration, Rating, ReleaseDate, Language)
VALUES
(101, 'Dilwale Dulhania Le Jayenge', 'Romance', 190, '8.1', '1995-10-20', 'Hindi'),
(102, 'Inception', 'Sci-Fi', 148, '8.8', '2010-07-16', 'English'),
(103, 'Baahubali: The Beginning', 'Action', 159, '8.0', '2015-07-10', 'Telugu'),
(104, '3 Idiots', 'Comedy', 170, '8.4', '2009-12-25', 'Hindi'),
(105, 'Interstellar', 'Sci-Fi', 169, '8.6', '2014-11-07', 'English'),
(106, 'Bajrangi Bhaijaan', 'Drama', 163, '8.0', '2015-07-17', 'Hindi'),
(107, 'The Dark Knight', 'Action', 152, '9.0', '2008-07-18', 'English'),
(108, 'PK', 'Comedy', 153, '8.1', '2014-12-19', 'Hindi'),
(109, 'Rangasthalam', 'Action', 179, '8.0', '2018-03-30', 'Telugu'),
(110, 'The Matrix', 'Sci-Fi', 136, '8.7', '1999-03-31', 'English'),

```

(111, 'Drishyam', 'Thriller', 163, '8.2', '2015-07-31', 'Hindi'),
 (112, 'Dangal', 'Biography', 161, '8.9', '2016-12-23', 'Hindi'),
 (113, 'Eega', 'Fantasy', 134, '7.8', '2012-07-06', 'Telugu'),
 (114, 'The Avengers', 'Action', 143, '8.0', '2012-05-04', 'English'),
 (115, 'K.G.F: Chapter 1', 'Action', 156, '8.2', '2018-12-21', 'Hindi'),
 (116, 'Avatar', 'Sci-Fi', 162, '7.8', '2009-12-18', 'English'),
 (117, 'Sye', 'Sports', 160, '7.6', '2004-09-23', 'Telugu'),
 (118, 'Lagaan', 'Drama', 224, '8.1', '2001-06-15', 'Hindi'),
 (119, 'Titanic', 'Romance', 195, '7.8', '1997-12-19', 'English'),
 (120, 'Magadheera', 'Fantasy', 166, '7.6', '2009-07-31', 'Telugu'),
 (121, 'Swades', 'Drama', 210, '8.2', '2004-12-17', 'Hindi'),
 (122, 'Black Panther', 'Action', 134, '7.3', '2018-02-16', 'English'),
 (123, 'M.S. Dhoni: The Untold Story', 'Biography', 184, '7.8', '2016-09-30', 'Hindi'),
 (124, 'The Lion King', 'Animation', 118, '8.5', '1994-06-24', 'English'),
 (125, 'Mahanati', 'Biography', 177, '8.6', '2018-05-09', 'Telugu');

INSERT INTO Theaters (TheaterID, Name, Location, NumberOfScreens)
 VALUES

(201, 'PVR Cinemas', 'Mumbai', 10),
 (202, 'INOX', 'Delhi', 8),
 (203, 'Cinepolis', 'Bangalore', 12),
 (204, 'Carnival Cinemas', 'Hyderabad', 7),
 (205, 'Sathyam Cinemas', 'Chennai', 9),
 (206, 'PVR Cinemas', 'Kolkata', 10),
 (207, 'INOX', 'Pune', 6),
 (208, 'Cinepolis', 'Ahmedabad', 8),
 (209, 'Carnival Cinemas', 'Lucknow', 5),
 (210, 'Sathyam Cinemas', 'Coimbatore', 6),
 (211, 'PVR Cinemas', 'Jaipur', 7),
 (212, 'INOX', 'Chandigarh', 6),
 (213, 'Cinepolis', 'Nagpur', 5),
 (214, 'Carnival Cinemas', 'Bhubaneswar', 4),
 (215, 'Sathyam Cinemas', 'Madurai', 5),
 (216, 'PVR Cinemas', 'Visakhapatnam', 8),
 (217, 'INOX', 'Indore', 6),
 (218, 'Cinepolis', 'Patna', 5),
 (219, 'Carnival Cinemas', 'Raipur', 4),
 (220, 'Sathyam Cinemas', 'Trivandrum', 6),
 (221, 'PVR Cinemas', 'Mysore', 7),
 (222, 'INOX', 'Guwahati', 5),
 (223, 'Cinepolis', 'Jodhpur', 4),
 (224, 'Carnival Cinemas', 'Ranchi', 3),
 (225, 'Sathyam Cinemas', 'Varanasi', 5);

INSERT INTO Screens (ScreenID, TheaterID, ScreenNumber, Capacity)

VALUES

(301, 201, 1, 200),
(302, 201, 2, 250),
(303, 202, 1, 180),
(304, 202, 2, 220),
(305, 203, 1, 150),
(306, 203, 2, 200),
(307, 204, 1, 175),
(308, 204, 2, 210),
(309, 205, 1, 190),
(310, 205, 2, 230),
(311, 206, 1, 170),
(312, 206, 2, 215),
(313, 207, 1, 160),
(314, 207, 2, 205),
(315, 208, 1, 180),
(316, 208, 2, 220),
(317, 209, 1, 140),
(318, 209, 2, 190),
(319, 210, 1, 150),
(320, 210, 2, 200),
(321, 211, 1, 165),
(322, 211, 2, 210),
(323, 212, 1, 170),
(324, 212, 2, 220),
(325, 213, 1, 180);

INSERT INTO Showtimes (ShowtimeID, MovieID, ScreenID, StartTime, EndTime, Date)

VALUES

(401, 101, 301, '10:00:00', '12:30:00', '2024-09-01'),
(402, 102, 302, '13:00:00', '15:30:00', '2024-09-01'),
(403, 103, 303, '16:00:00', '18:30:00', '2024-09-01'),
(404, 104, 304, '19:00:00', '21:30:00', '2024-09-01'),
(405, 105, 305, '10:00:00', '12:50:00', '2024-09-02'),
(406, 106, 306, '13:00:00', '15:40:00', '2024-09-02'),
(407, 107, 307, '16:00:00', '18:50:00', '2024-09-02'),
(408, 108, 308, '19:00:00', '21:30:00', '2024-09-02'),
(409, 109, 309, '10:00:00', '13:00:00', '2024-09-03'),
(410, 110, 310, '13:30:00', '15:50:00', '2024-09-03'),
(411, 111, 311, '16:00:00', '18:40:00', '2024-09-03'),
(412, 112, 312, '19:00:00', '21:30:00', '2024-09-03'),
(413, 113, 313, '10:00:00', '12:20:00', '2024-09-04'),

(414, 114, 314, '13:00:00', '15:30:00', '2024-09-04'),
(415, 115, 315, '16:00:00', '18:40:00', '2024-09-04'),
(416, 116, 316, '19:00:00', '21:50:00', '2024-09-04'),
(417, 117, 317, '10:00:00', '12:30:00', '2024-09-05'),
(418, 118, 318, '13:00:00', '16:00:00', '2024-09-05'),
(419, 119, 319, '16:30:00', '19:30:00', '2024-09-05'),
(420, 120, 320, '20:00:00', '22:30:00', '2024-09-05'),
(421, 121, 321, '10:00:00', '13:00:00', '2024-09-06'),
(422, 122, 322, '13:30:00', '15:30:00', '2024-09-06'),
(423, 123, 323, '16:00:00', '19:00:00', '2024-09-06'),
(424, 124, 324, '19:30:00', '21:30:00', '2024-09-06'),
(425, 125, 325, '10:00:00', '13:00:00', '2024-09-07');

INSERT INTO Customers (CustomerID, CustomerName, Email, Phone)
VALUES

(601, 'Ravi Kumar', 'ravikumar@gmail.com', '9876543210'),
(602, 'Amit Sharma', 'amitsharma@gmail.com', '9876543211'),
(603, 'Pooja Singh', 'poojasingh@gmail.com', '9876543212'),
(604, 'Rahul Verma', 'rahulverma@gmail.com', '9876543213'),
(605, 'Sneha Gupta', 'snehagupta@gmail.com', '9876543214'),
(606, 'Vikas Patel', 'vikaspatel@gmail.com', '9876543215'),
(607, 'Anita Joshi', 'anitajoshi@gmail.com', '9876543216'),
(608, 'Deepak Yadav', 'deepakyadav@gmail.com', '9876543217'),
(609, 'Nisha Mishra', 'nishamishra@gmail.com', '9876543218'),
(610, 'Suresh Rao', 'sureshrao@gmail.com', '9876543219'),
(611, 'Neha Desai', 'nehadesai@gmail.com', '9876543220'),
(612, 'Manish Chauhan', 'manishchauhan@gmail.com', '9876543221'),
(613, 'Sunita Bansal', 'sunitabansal@gmail.com', '9876543222'),
(614, 'Rohan Kapoor', 'rohankapoor@gmail.com', '9876543223'),
(615, 'Priya Saxena', 'priasaxena@gmail.com', '9876543224'),
(616, 'Arun Mehta', 'arunmehta@gmail.com', '9876543225'),
(617, 'Kavita Pandey', 'kavitapandey@gmail.com', '9876543226'),
(618, 'Gaurav Singh', 'gauravsingh@gmail.com', '9876543227'),
(619, 'Sheetal Agarwal', 'sheetalagarwal@gmail.com', '9876543228'),
(620, 'Ajay Sinha', 'ajaysinha@gmail.com', '9876543229'),
(621, 'Meera Nair', 'meeranair@gmail.com', '9876543230'),
(622, 'Vivek Dubey', 'vivekdubey@gmail.com', '9876543231'),
(623, 'Ruchi Bhatt', 'ruchibhatt@gmail.com', '9876543232'),
(624, 'Sanjay Naik', 'sanjaynaik@gmail.com', '9876543233'),
(625, 'Poonam Shah', 'poonamshah@gmail.com', '9876543234');

INSERT INTO Tickets (TicketID, ShowtimeID, SeatNumber, Price, CustomerID,
PurchaseDate)
VALUES

(501, 401, 'A1', 200, 601, '2024-08-25'),
(502, 402, 'A2', 250, 602, '2024-08-25'),
(503, 403, 'A3', 180, 603, '2024-08-26'),
(504, 404, 'A4', 220, 604, '2024-08-26'),
(505, 405, 'A5', 150, 605, '2024-08-27'),
(506, 406, 'A6', 200, 606, '2024-08-27'),
(507, 407, 'A7', 175, 607, '2024-08-28'),
(508, 408, 'A8', 210, 608, '2024-08-28'),
(509, 409, 'A9', 190, 609, '2024-08-29'),
(510, 410, 'A10', 230, 610, '2024-08-29'),
(511, 411, 'B1', 170, 611, '2024-08-30'),
(512, 412, 'B2', 215, 612, '2024-08-30'),
(513, 413, 'B3', 160, 613, '2024-08-31'),
(514, 414, 'B4', 205, 614, '2024-08-31'),
(515, 415, 'B5', 180, 615, '2024-09-01'),
(516, 416, 'B6', 220, 616, '2024-09-01'),
(517, 417, 'B7', 140, 617, '2024-09-02'),
(518, 418, 'B8', 190, 618, '2024-09-02'),
(519, 419, 'B9', 150, 619, '2024-09-03'),
(520, 420, 'B10', 200, 620, '2024-09-03'),
(521, 421, 'C1', 165, 621, '2024-09-04'),
(522, 422, 'C2', 210, 622, '2024-09-04'),
(523, 423, 'C3', 170, 623, '2024-09-05'),
(524, 424, 'C4', 220, 624, '2024-09-05'),
(525, 425, 'C5', 180, 625, '2024-09-06');

INSERT INTO Staff (StaffID, TheaterID, StaffName, Role, Email, Phone)
VALUES

(701, 201, 'Vijay Singh', 'Manager', 'vijaysingh@gmail.com', '9876543235'),
(702, 202, 'Rajesh Kumar', 'Assistant Manager', 'rajeshkumar@gmail.com', '9876543236'),
(703, 203, 'Pankaj Mishra', 'Cashier', 'pankajmishra@gmail.com', '9876543237'),
(704, 204, 'Arjun Verma', 'Technician', 'arjunverma@gmail.com', '9876543238'),
(705, 205, 'Megha Sharma', 'Usher', 'meghasharma@gmail.com', '9876543239'),
(706, 206, 'Suman Rao', 'Cleaner', 'sumanrao@gmail.com', '9876543240'),
(707, 207, 'Ashok Patel', 'Manager', 'ashokpatel@gmail.com', '9876543241'),
(708, 208, 'Gopal Naik', 'Assistant Manager', 'gopalnaik@gmail.com', '9876543242'),
(709, 209, 'Neeraj Chauhan', 'Cashier', 'neerajchauhan@gmail.com', '9876543243'),
(710, 210, 'Manoj Shah', 'Technician', 'manojshah@gmail.com', '9876543244'),
(711, 211, 'Kiran Mehta', 'Usher', 'kiranmehta@gmail.com', '9876543245'),
(712, 212, 'Ramesh Yadav', 'Cleaner', 'rameshyadav@gmail.com', '9876543246'),
(713, 213, 'Jatin Kapoor', 'Manager', 'jatinkapoor@gmail.com', '9876543247'),
(714, 214, 'Sarita Joshi', 'Assistant Manager', 'saritajoshi@gmail.com', '9876543248'),
(715, 215, 'Vivek Nair', 'Cashier', 'viveknair@gmail.com', '9876543249'),
(716, 216, 'Kamal Singh', 'Technician', 'kamalsingh@gmail.com', '9876543250'),
(717, 217, 'Deepa Pandey', 'Usher', 'deepapandey@gmail.com', '9876543251'),
(718, 218, 'Ravi Dubey', 'Cleaner', 'ravidubey@gmail.com', '9876543252'),

(719, 219, 'Sunil Saxena', 'Manager', 'sunilsaxena@gmail.com', '9876543253'),
(720, 220, 'Anjali Bansal', 'Assistant Manager', 'anjalibansal@gmail.com', '9876543254'),
(721, 221, 'Mohan Patel', 'Cashier', 'mohanpatel@gmail.com', '9876543255'),
(722, 222, 'Rekha Sharma', 'Technician', 'rekhasharma@gmail.com', '9876543256'),
(723, 223, 'Anand Rao', 'Usher', 'anandrao@gmail.com', '9876543257'),
(724, 224, 'Vinay Mishra', 'Cleaner', 'vinaymishra@gmail.com', '9876543258'),
(725, 225, 'Rohit Kumar', 'Manager', 'rohitkumar@gmail.com', '9876543259');

5.Join queries:

1. List All Movies and Their Showtimes, Including Movies with No Showtimes

```
SELECT
    Movies.Title AS MovieTitle,
    Showtimes.StartTime,
    Showtimes.Date
FROM
    Movies
LEFT JOIN
    Showtimes ON Movies.MovieID = Showtimes.MovieID;
```

	MovieTitle	StartTime	Date
▶	Dilwale Dulhania Le Jayenge	10:00:00	2024-09-01
	Inception	13:00:00	2024-09-01
	Baahubali: The Beginning	16:00:00	2024-09-01
	3 Idiots	19:00:00	2024-09-01
	Interstellar	10:00:00	2024-09-02
	Bajrangi Bhaijaan	13:00:00	2024-09-02
	The Dark Knight	16:00:00	2024-09-02
	PK	19:00:00	2024-09-02
	Rangasthalam	10:00:00	2024-09-03
	The Matrix	13:30:00	2024-09-03
	Drishyam	16:00:00	2024-09-03
	Dangal	19:00:00	2024-09-03
	Eega	10:00:00	2024-09-04
	The Avengers	13:00:00	2024-09-04
	K.G.F: Chapter 1	16:00:00	2024-09-04
	Avatar	19:00:00	2024-09-04
	Sye	10:00:00	2024-09-05
	Lagaan	13:00:00	2024-09-05
	Titanic	16:30:00	2024-09-05
	Magadheera	20:00:00	2024-09-05
	Swades	10:00:00	2024-09-06
	Black Panther	13:30:00	2024-09-06
	M.S. Dhoni: The Untold Story	16:00:00	2024-09-06
	The Lion King	19:30:00	2024-09-06
	Mahanati	10:00:00	2024-09-07

2.List All Showtimes and Their Corresponding Movies, Including Showtimes with No Movies

```
SELECT
    Showtimes.Date,
    Showtimes.StartTime,
```

```

Movies.Title AS MovieTitle
FROM
Showtimes
RIGHT JOIN
Movies ON Showtimes.MovieID = Movies.MovieID;

```

	Date	StartTime	MovieTitle
▶	2024-09-01	10:00:00	Dilwale Dulhania Le Jayenge
	2024-09-01	13:00:00	Inception
	2024-09-01	16:00:00	Baahubali: The Beginning
	2024-09-01	19:00:00	3 Idiots
	2024-09-02	10:00:00	Interstellar
	2024-09-02	13:00:00	Bajrangi Bhaijaan
	2024-09-02	16:00:00	The Dark Knight
	2024-09-02	19:00:00	PK PK
	2024-09-03	10:00:00	Rangasthalam
	2024-09-03	13:30:00	The Matrix
	2024-09-03	16:00:00	Drishyam
	2024-09-03	19:00:00	Dangal
	2024-09-04	10:00:00	Eega
	2024-09-04	13:00:00	The Avengers
	2024-09-04	16:00:00	K.G.F: Chapter 1
	2024-09-04	19:00:00	Avatar
	2024-09-05	10:00:00	Sye
	2024-09-05	13:00:00	Lagaan
	2024-09-05	16:30:00	Titanic
	2024-09-05	20:00:00	Magadheera
	2024-09-06	10:00:00	Swades
	2024-09-06	13:30:00	Black Panther
	2024-09-06	16:00:00	M.S. Dhoni: The Untold Story
	2024-09-06	19:30:00	The Lion King
	2024-09-07	10:00:00	Mahanati

3.List All Customers and Their Purchased Tickets

```

SELECT
Customers.CustomerName,
Tickets.SeatNumber,
Tickets.Price
FROM

```


Customers

INNER JOIN

Tickets ON Customers.CustomerID = Tickets.CustomerID;

	CustomerName	SeatNumber	Price
▶	Ravi Kumar	A1	200.00
	Amit Sharma	A2	250.00
	Pooja Singh	A3	180.00
	Rahul Verma	A4	220.00
	Sneha Gupta	A5	150.00
	Vikas Patel	A6	200.00
	Anita Joshi	A7	175.00
	Deepak Yadav	A8	210.00
	Nisha Mishra	A9	190.00
	Suresh Rao	A10	230.00
	Neha Desai	B1	170.00
	Manish Chauhan	B2	215.00
	Sunita Bansal	B3	160.00
	Rohan Kapoor	B4	205.00
	Priya Saxena	B5	180.00
	Arun Mehta	B6	220.00
	Kavita Pandey	B7	140.00
	Gaurav Singh	B8	190.00
	Sheetal Agarwal	B9	180.00
	Ajay Sinha	B10	200.00
	Meera Nair	C1	165.00
	Vivek Dubey	C2	210.00
	Ruchi Bhatt	C3	170.00
	Sanjay Naik	C4	220.00
	Poonam Shah	C5	180.00

4.List all theaters and the number of screens they have, including theaters that do not have any screens.

**SELECT Theaters.Name AS TheaterName, Screens.ScreenNumber
FROM Theaters
LEFT JOIN Screens ON Theaters.TheaterID = Screens.TheaterID;**

	TheaterName	ScreenNumber
►	PVR Cinemas	1
	PVR Cinemas	2
	INOX	1
	INOX	2
	Cinepolis	1
	Cinepolis	2
	Carnival Cinemas	1
	Carnival Cinemas	2
	Sathyam Cinemas	1
	Sathyam Cinemas	2
	PVR Cinemas	1
	PVR Cinemas	2
	INOX	1
	INOX	2
	Cinepolis	1
	Cinepolis	2
	Carnival Cinemas	1
	Carnival Cinemas	2
	Sathyam Cinemas	1
	Sathyam Cinemas	2
	PVR Cinemas	1
	PVR Cinemas	2
	INOX	1
	INOX	2
	Cinepolis	1

5.List all showtimes available at the cinema, including the following details:Showtime ID,,Movie Title,Showtime Start Time,Showtime End Time,Showtime Date,Screen Number,Screen Capacity

SELECT

**Showtimes.ShowtimeID,
Movies.Title AS MovieTitle,
Showtimes.StartTime,
Showtimes.EndTime,
Showtimes.Date,
Screens.ScreenNumber,
Screens.Capacity**

FROM

Showtimes

JOIN

Movies ON Showtimes.MovieID = Movies.MovieID

JOIN

Screens ON Showtimes.ScreenID = Screens.ScreenID;

	ShowtimeID	MovieTitle	StartTime	EndTime	Date	ScreenNumber	Capacity
▶	401	Dilwale Dulhania Le Jayenge	10:00:00	12:30:00	2024-09-01	1	200
	402	Inception	13:00:00	15:30:00	2024-09-01	2	250
	403	Baahubali: The Beginning	16:00:00	18:30:00	2024-09-01	1	180
	404	3 Idiots	19:00:00	21:30:00	2024-09-01	2	220
	405	Interstellar	10:00:00	12:50:00	2024-09-02	1	150
	406	Bajrangi Bhaijaan	13:00:00	15:40:00	2024-09-02	2	200
	407	The Dark Knight	16:00:00	18:50:00	2024-09-02	1	175
	408	PK	19:00:00	21:30:00	2024-09-02	2	210
	409	Rangasthalam	10:00:00	13:00:00	2024-09-03	1	190
	410	The Matrix	13:30:00	15:50:00	2024-09-03	2	230
	411	Drishyam	16:00:00	18:40:00	2024-09-03	1	170
	412	Dangal	19:00:00	21:30:00	2024-09-03	2	215
	413	Eega	10:00:00	12:20:00	2024-09-04	1	160
	414	The Avengers	13:00:00	15:30:00	2024-09-04	2	205
	415	K.G.F: Chapter 1	16:00:00	18:40:00	2024-09-04	1	180
	416	Avatar	19:00:00	21:50:00	2024-09-04	2	220
	417	Sye	10:00:00	12:30:00	2024-09-05	1	140
	418	Lagaan	13:00:00	16:00:00	2024-09-05	2	190
	419	Titanic	16:30:00	19:30:00	2024-09-05	1	150
	420	Magadheera	20:00:00	22:30:00	2024-09-05	2	200
	421	Swades	10:00:00	13:00:00	2024-09-06	1	165
	422	Black Panther	13:30:00	15:30:00	2024-09-06	2	210
	423	M.S. Dhoni: The Untold Story	16:00:00	19:00:00	2024-09-06	1	170
	424	The Lion King	19:30:00	21:30:00	2024-09-06	2	220
	425	Mahanati	10:00:00	13:00:00	2024-09-07	1	180

6.Sub-queries:

1. Find Movies with Ratings Higher Than the Average Rating

SELECT Title, Rating

FROM Movies

WHERE Rating > (SELECT AVG(Rating) FROM Movies);

	Title	Rating
▶	Inception	8.8
	3 Idiots	8.4
	Interstellar	8.6
	The Dark Knight	9
	The Matrix	8.7
	Drishyam	8.2
	Dangal	8.9
	K.G.F: Chapter 1	8.2
	Swades	8.2
	The Lion King	8.5
	Mahanati	8.6

2. List Showtimes for a Specific Movie

SELECT StartTime, EndTime, Date

FROM Showtimes

WHERE MovieID = (SELECT MovieID FROM Movies WHERE Title = 'Inception');

	StartTime	EndTime	Date
▶	13:00:00	15:30:00	2024-09-01

3.Find Customers Who Purchased Tickets for a Specific Showtime

SELECT CustomerName, Email

FROM Customers

WHERE CustomerID IN (SELECT CustomerID FROM Tickets WHERE ShowtimeID = 401);

	CustomerName	Email
▶	Ravi Kumar	ravikumar@gmail.com

4. Get All Movies with Duration Less Than the Average Duration

SELECT Title, Duration

FROM Movies

WHERE Duration < (SELECT AVG(Duration) FROM Movies);

	Title	Duration
▶	Inception	148
	Baahubali: The Beginning	159
	Bajrangi Bhaijaan	163
	The Dark Knight	152
	PK	153
	The Matrix	136
	Drishyam	163
	Dangal	161
	Eega	134
	The Avengers	143
	K.G.F: Chapter 1	156
	Avatar	162
	Sye	160
	Black Panther	134
	The Lion King	118

5. Find Staff Members Working at Theaters with More Than 8 Screens

SELECT StaffName, Role

FROM Staff

WHERE TheaterID IN (SELECT TheaterID FROM Theaters WHERE NumberOfScreens > 8);

	StaffName	Role
▶	Vijay Singh	Manager
	Pankaj Mishra	Cashier
	Megha Sharma	Usher
	Suman Rao	Cleaner

7. NORMAL QUERIES:

1. List All Movies

SELECT Title, Genre FROM Movies;

	Title	Genre
▶	Dilwale Dulhania Le Jayenge	Romance
	Inception	Sci-Fi
	Baahubali: The Beginning	Action
	3 Idiots	Comedy
	Interstellar	Sci-Fi
	Bajrangi Bhaijaan	Drama
	The Dark Knight	Action
	PK	Comedy
	Rangasthalam	Action
	The Matrix	Sci-Fi
	Drishyam	Thriller
	Dangal	Biography
	Eega	Fantasy
	The Avengers	Action
	K.G.F: Chapter 1	Action
	Avatar	Sci-Fi
	Sye	Sports
	Lagaan	Drama
	Titanic	Romance
	Magadheera	Fantasy
	Swades	Drama
	Black Panther	Action
	M.S. Dhoni: The Untold Story	Biography
	The Lion King	Animation
	Mahanati	Biography

2. Find Theaters with More Than 8 Screens

**SELECT Name, Location
FROM Theaters
WHERE NumberOfScreens > 8;**

	Name	Location
▶	PVR Cinemas	Mumbai
	Cinepolis	Bangalore
	Sathyam Cinemas	Chennai
	PVR Cinemas	Kolkata

3. Get Showtime Details for a Specific Movie

**SELECT StartTime, EndTime, Date
FROM Showtimes
WHERE MovieID = 101;**

	StartTime	EndTime	Date
▶	10:00:00	12:30:00	2024-09-01

4. Find Tickets Purchased by a Specific Customer

```
SELECT TicketID, ShowtimeID, SeatNumber, Price, PurchaseDate
FROM Tickets
WHERE CustomerID = 601;
```

	TicketID	ShowtimeID	SeatNumber	Price	PurchaseDate
▶	501	401	A1	200.00	2024-08-25 00:00:00
*	NULL	NULL	NULL	NULL	NULL

5. Count the Number of Screens in Each Theater

```
SELECT TheaterID, COUNT(ScreenID) AS NumberOfScreens
FROM Screens
GROUP BY TheaterID;
```

	TheaterID	NumberOfScreens
▶	201	2
	202	2
	203	2
	204	2
	205	2
	206	2
	207	2
	208	2
	209	2
	210	2
	211	2
	212	2
	213	1

8.CONCLUSION:

The project successfully achieves its goal of creating a relational database that effectively supports an online movie ticketing system. The database schema is well-structured, ensuring data integrity and optimizing performance for high transaction volumes. It handles essential operations such as movie searches, showtime management, ticket bookings, and user account handling. Additionally, the system provides valuable reporting and analytics capabilities, offering insights into customer behavior and booking trends. This database forms a solid foundation for scalable online ticketing operations, with potential for future enhancements like real-time analytics and further performance optimization.

THANK YOU