## **Problem Solving Case - BookMyShow**

I have designed four individual tables Theatre, Screen, Movie and Show which individually storing the respective data for movies with respective attributes:

## 

## **🎭 1. Theatre Table**

| **Attribute** | **Type** | **Description** |
| --- | --- | --- |
| theatre\_id | INT (PK) | Unique identifier for each theatre. Primary Key. |
| theatre\_name | VARCHAR(100) | Name of the theatre (e.g., PVR Cinemas, INOX). |
| location | VARCHAR(100) | City/area where the theatre is located. |

🔹 **Purpose:** Stores basic information about each theatre location.

## **🎥 2. Screen Table**

| **Attribute** | **Type** | **Description** |
| --- | --- | --- |
| screen\_id | INT (PK) | Unique identifier for each screen inside a theatre. |
| theatre\_id | INT (FK) | Foreign Key referencing Theatre(theatre\_id). Defines which theatre this screen belongs to. |
| screen\_name | VARCHAR(50) | Name/label for the screen (e.g., Screen 1, IMAX, Gold Class). |

🔹 **Purpose:** Represents different **auditorium halls** inside a theatre where shows are scheduled.

## **🎬 3. Movie Table**

| **Attribute** | **Type** | **Description** |
| --- | --- | --- |
| movie\_id | INT (PK) | Unique identifier for each movie. |
| title | VARCHAR(100) | Name of the movie (e.g., Inception, Avatar). |
| language | VARCHAR(50) | Primary language of the movie (e.g., Hindi, English, Tamil). |
| genre | VARCHAR(50) | Category of the movie (e.g., Action, Comedy, Sci-Fi). |
| duration | INT | Duration of the movie in minutes. |
| dimension | VARCHAR(10) | Format type of the movie, either 2D or 3D. Constraint applied. |

🔹 **Purpose:** Stores metadata about movies that can be scheduled in theatres.

## **🕒 4. Show Table**

| **Attribute** | **Type** | **Description** |
| --- | --- | --- |
| show\_id | INT (PK) | Unique identifier for each show entry. |
| screen\_id | INT (FK) | Foreign Key referencing Screen(screen\_id). Defines which screen is hosting the show. |
| movie\_id | INT (FK) | Foreign Key referencing Movie(movie\_id). Defines which movie is playing in the show. |
| show\_date | DATE | The calendar date on which the show runs. |
| show\_time | TIME | The start time of the show. |

🔹 **Purpose:** Represents an **instance of a movie screening** at a particular screen, date, and time.

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**List of DDL queries for each table**

-- 1. Theatre Table

CREATE TABLE Theatre (

theatre\_id INT PRIMARY KEY,

theatre\_name VARCHAR(100) NOT NULL,

location VARCHAR(100) NOT NULL

);

-- 2. Screen Table

CREATE TABLE Screen (

screen\_id INT PRIMARY KEY,

theatre\_id INT NOT NULL,

screen\_name VARCHAR(50),

FOREIGN KEY (theatre\_id) REFERENCES Theatre(theatre\_id)

);

-- 3. Movie Table

CREATE TABLE Movie (

movie\_id INT PRIMARY KEY,

title VARCHAR(100) NOT NULL,

language VARCHAR(50) NOT NULL,

genre VARCHAR(50),

duration INT, -- in minutes

dimension VARCHAR(10) CHECK (dimension IN ('2D','3D'))

);

-- 4. Show Table

CREATE TABLE Show (

show\_id INT PRIMARY KEY,

screen\_id INT NOT NULL,

movie\_id INT NOT NULL,

show\_date DATE NOT NULL,

show\_time TIME NOT NULL,

FOREIGN KEY (screen\_id) REFERENCES Screen(screen\_id),

FOREIGN KEY (movie\_id) REFERENCES Movie(movie\_id)

);

**List of DML queries for each table**

-- Insert Theatre

INSERT INTO Theatre VALUES (1, 'PVR Cinemas', 'Bandra, Mumbai');

INSERT INTO Theatre VALUES (2, 'INOX', 'Vile Parle, Mumbai');

-- Insert Screens

INSERT INTO Screen VALUES (1, 1, 'Screen 1');

INSERT INTO Screen VALUES (2, 1, 'Screen 2');

INSERT INTO Screen VALUES (3, 2, 'Screen 1');

-- Insert Movies

INSERT INTO Movie VALUES

(1, 'Inception', 'English', 'Sci-Fi', 148, '2D'),

(2, 'Avatar: The Way of Water', 'English', 'Sci-Fi/Adventure', 192, '3D'),

(3, '3 Idiots', 'Hindi', 'Comedy/Drama', 170, '2D'),

(4, 'KGF 2', 'Kannada', 'Action', 168, '2D');

-- Insert Shows

INSERT INTO Show VALUES (1, 1, 1, '2025-08-25', '18:00:00');

INSERT INTO Show VALUES (2, 1, 2, '2025-08-25', '21:30:00');

INSERT INTO Show VALUES (3, 2, 3, '2025-08-25', '19:00:00');

INSERT INTO Show VALUES (4, 3, 2, '2025-08-25', '20:00:00');

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Query to select the list of shows on particular day -

SELECT

t.theatre\_name,

m.title AS movie\_name,

m.language,

m.dimension,

s.screen\_name,

sh.show\_date,

sh.show\_time

FROM Show sh

JOIN Screen s ON sh.screen\_id = s.screen\_id

JOIN Theatre t ON s.theatre\_id = t.theatre\_id

JOIN Movie m ON sh.movie\_id = m.movie\_id

WHERE t.theatre\_name = 'PVR Cinemas' -- given theatre

AND sh.show\_date = '2025-08-25' -- given date

ORDER BY sh.show\_time;