**BookMyShow Database Design**

**Part 1: Entities, Attributes, and Table Structures**

**Entities and Attributes**

1. **Theatre**
   * TheatreID (Primary Key)
   * Name
   * Location
2. **Movie**
   * MovieID (Primary Key)
   * Title
   * Genre
   * Duration
3. **Show**
   * ShowID (Primary Key)
   * TheatreID (Foreign Key)
   * MovieID (Foreign Key)
   * ShowDate
   * ShowTime

**Table Structures and SQL Queries**

**1. Theatre Table**

CREATE TABLE Theatre (

TheatreID INT PRIMARY KEY AUTO\_INCREMENT,

Name VARCHAR(255) NOT NULL,

Location VARCHAR(255) NOT NULL

);

-- Sample entries

INSERT INTO Theatre (Name, Location) VALUES

('PVR', 'Downtown'),

('Moviemax', 'Uptown');

**2. Movie Table**

CREATE TABLE Movie (

MovieID INT PRIMARY KEY AUTO\_INCREMENT,

Title VARCHAR(255) NOT NULL,

Genre VARCHAR(100),

Duration INT -- Duration in minutes

);

-- Sample entries

INSERT INTO Movie (Title, Genre, Duration) VALUES

('Inception', 'Sci-Fi', 148),

('The Dark Knight', 'Action', 152);

**3. Show Table**

CREATE TABLE Show (

ShowID INT PRIMARY KEY AUTO\_INCREMENT,

TheatreID INT,

MovieID INT,

ShowDate DATE,

ShowTime TIME,

FOREIGN KEY (TheatreID) REFERENCES Theatre(TheatreID),

FOREIGN KEY (MovieID) REFERENCES Movie(MovieID)

);

-- Sample entries

INSERT INTO Show (TheatreID, MovieID, ShowDate, ShowTime) VALUES

(1, 1, '2024-06-17', '18:00:00'),

(1, 2, '2024-06-17', '21:00:00'),

(2, 1, '2024-06-18', '19:00:00');

### **Ensuring Normalization**

* **1NF**: All tables have atomic values.
* **2NF**: All non-key attributes are fully functional dependent on the primary key.
* **3NF**: No transitive dependencies exist.
* **BCNF**: Every determinant is a candidate key

**Part 2:** **Query to List Shows on a Given Date at a Given Theatre**

This query will list all shows on June 17, 2024, at the theatre named 'PVR' along with their respective show timing

SELECT

s.ShowID,

m.Title AS MovieTitle,

s.ShowDate,

s.ShowTime

FROM

Show s

JOIN

Movie m ON s.MovieID = m.MovieID

JOIN

Theatre t ON s.TheatreID = t.TheatreID

WHERE

s.ShowDate = '2024-06-17' AND

t.Name = 'PVR';