BookMyShow Assignment

P1: Entities, Attributes, and Table Structures

Entities:

1. Theatre - theatre_id (PK), name, location

2. Movie - movie_id (PK), title, language, format

3. Showtime - show_id (PK), movie_id (FK), theatre_id (FK), show_date, show_time, screen_type

SQL Scripts for Table Creation

```sql
CREATE TABLE Theatre (
    theatre_id INT PRIMARY KEY,
    name VARCHAR(100),
    location VARCHAR(100)
);
```

```sql
CREATE TABLE Movie (
    movie_id INT PRIMARY KEY,
    title VARCHAR(100),
    language VARCHAR(50),
    format VARCHAR(10)
);
```

```sql
CREATE TABLE Showtime (
```

```sql
    show_id INT PRIMARY KEY,

    movie_id INT,

    theatre_id INT,

    show_date DATE,

    show_time TIME,

    screen_type VARCHAR(50),

    FOREIGN KEY (movie_id) REFERENCES Movie(movie_id),

    FOREIGN KEY (theatre_id) REFERENCES Theatre(theatre_id)
);
```

SQL Scripts for Sample Data

```sql
-- Theatre
INSERT INTO Theatre VALUES (1, 'PVR: Nexus (Forum)', 'Bangalore');


-- Movie
INSERT INTO Movie VALUES
(1, 'Dasara', 'Telugu', '2D'),
(2, 'Kisi Ka Bhai Kisi Ki Jaan', 'Hindi', '2D'),
(3, 'Tu Jhoothi Main Makkaar', 'Hindi', '2D'),
(4, 'Avatar: The Way of Water', 'English', '3D');


-- Showtime
INSERT INTO Showtime VALUES
(101, 1, 1, '2023-04-25', '12:10:00', '4K Dolby 7.1'),
(102, 2, 1, '2023-04-25', '01:00:00', '4K ATMOS 4K'),
```

(103, 2, 1, '2023-04-25', '04:10:00', '4K ATMOS 4K'),

(104, 2, 1, '2023-04-25', '06:20:00', '4K Dolby 7.1'),

(105, 3, 1, '2023-04-25', '01:15:00', '4K'),

(106, 4, 1, '2023-04-25', '01:20:00', 'Playhouse 4K');

P2: Query to List Shows

```
SELECT
    M.title AS movie_title,
    M.language,
    M.format,
    S.show_time,
    S.screen_type
FROM
    Showtime S
JOIN
    Movie M ON S.movie_id = M.movie_id
JOIN
    Theatre T ON S.theatre_id = T.theatre_id
WHERE
    T.name = 'PVR: Nexus (Forum)'
    AND S.show_date = '2023-04-25'
ORDER BY
    S.show_time;
```


Normalization (1NF, 2NF, 3NF, BCNF)

All tables follow 1NF (atomic values, no multi-valued attributes), 2NF (non-prime attributes fully dependent on primary keys), 3NF (no transitive dependencies), and BCNF (each determinant is a candidate key).