

## Schema Design

- **Movies:** movie\_id, title, director\_id, genre\_id
- **Directors:** director\_id, name
- **Actors:** actor\_id, name
- **Genres:** genre\_id, genre\_name
- **Cast:** movie\_id, actor\_id, role
- **Ratings:** movie\_id, rating

\*\*\*\*\* CreateTable part \*\*\*\*\*

-- Movies table

```
CREATE TABLE Movies (  
    movie_id INT PRIMARY KEY,  
    title VARCHAR(255) NOT NULL,  
    director_id INT,  
    genre_id INT,  
    FOREIGN KEY (director_id) REFERENCES Directors(director_id),  
    FOREIGN KEY (genre_id) REFERENCES Genres(genre_id)  
);
```

-- Directors table

```
CREATE TABLE Directors (  
    director_id INT PRIMARY KEY,  
    name VARCHAR(255) NOT NULL  
);
```

-- Actors table

```
CREATE TABLE Actors (  
    actor_id INT PRIMARY KEY,  
    name VARCHAR(255) NOT NULL  
);
```

-- Genres table

```
CREATE TABLE Genres (  
    genre_id INT PRIMARY KEY,  
    genre_name VARCHAR(100) NOT NULL  
);
```

```
-- Cast table
CREATE TABLE Cast (
    movie_id INT,
    actor_id INT,
    role VARCHAR(255),
    PRIMARY KEY (movie_id, actor_id),
    FOREIGN KEY (movie_id) REFERENCES Movies(movie_id),
    FOREIGN KEY (actor_id) REFERENCES Actors(actor_id)
);
```

```
-- Ratings table
CREATE TABLE Ratings (
    movie_id INT,
    rating DECIMAL(3, 1) CHECK (rating >= 0 AND rating <= 10),
    PRIMARY KEY (movie_id),
    FOREIGN KEY (movie_id) REFERENCES Movies(movie_id)
);
```

\*\*\*\*\* Insertion Part \*\*\*\*\*.

```
-- Insert data into Directors table
INSERT INTO Directors (director_id, name) VALUES
(1, 'Christopher Nolan'),
(2, 'Steven Spielberg'),
(3, 'Quentin Tarantino');
```

```
-- Insert data into Genres table
INSERT INTO Genres (genre_id, genre_name) VALUES
(1, 'Action'),
(2, 'Drama'),
(3, 'Sci-Fi');
```

```
-- Insert data into Movies table
INSERT INTO Movies (movie_id, title, director_id, genre_id) VALUES
(1, 'Inception', 1, 3),
(2, 'Jurassic Park', 2, 1),
(3, 'Pulp Fiction', 3, 2);
```

```
-- Insert data into Actors table
INSERT INTO Actors (actor_id, name) VALUES
(1, 'Leonardo DiCaprio'),
(2, 'Sam Neill'),
(3, 'John Travolta');
```

-- Insert data into Cast table

```
INSERT INTO Cast (movie_id, actor_id, role) VALUES  
(1, 1, 'Dom Cobb'),  
(2, 2, 'Dr. Alan Grant'),  
(3, 3, 'Vincent Vega');
```

-- Insert data into Ratings table

```
INSERT INTO Ratings (movie_id, rating) VALUES  
(1, 8.8),  
(2, 8.1),  
(3, 8.9);
```

## Available Tables

### Actors

actor_id	name
1	Leonardo DiCaprio
2	Sam Neill
3	John Travolta

### Cast

movie_id	actor_id	role
1	1	Dom Cobb
2	2	Dr. Alan Grant
3	3	Vincent Vega

### Directors

director_id	name
1	Christopher Nolan
2	Steven Spielberg
3	Quentin Tarantino

### Genres

genre_id	genre_name
1	Action
2	Drama
3	Sci-Fi

### Movies

movie_id	title	director_id	genre_id
1	Inception	1	3
2	Jurassic Park	2	1
3	Pulp Fiction	3	2

### Ratings

movie_id	rating
1	8.8
2	8.1
3	8.9

1. List all actors along with the titles of movies in which they appeared.

```
SELECT a.name AS actor_name, m.title AS movie_title
FROM Actors a
JOIN Cast c ON a.actor_id = c.actor_id
JOIN Movies m ON c.movie_id = m.movie_id;
```

Output

actor_name	movie_title
Leonardo DiCaprio	Inception
Sam Neill	Jurassic Park
John Travolta	Pulp Fiction

2. List all movies and their directors, including movies that don't have an assigned director.

```
SELECT m.title AS movie_title, d.name AS director_name
FROM Movies m
LEFT JOIN Directors d ON m.director_id = d.director_id;
```

Output

movie_title	director_name
Inception	Christopher Nolan
Jurassic Park	Steven Spielberg
Pulp Fiction	Quentin Tarantino

3. List all actors and the roles they played, including actors who haven't been cast in any movie.

```
SELECT a.name AS actor_name, COALESCE(c.role, 'Not Cast') AS role
FROM Actors a
LEFT JOIN Cast c ON a.actor_id = c.actor_id;
```

Output

actor_name	role
Leonardo DiCaprio	Dom Cobb
Sam Neill	Dr. Alan Grant
John Travolta	Vincent Vega

4. *List all movies and the genres, including genres without any movies and movies without an assigned genre.*

```
SELECT m.title AS movie_title, g.genre_name
FROM Movies m
LEFT JOIN Genres g ON m.genre_id = g.genre_id;
```

Output	
movie_title	genre_name
Inception	Sci-Fi
Jurassic Park	Action
Pulp Fiction	Drama

5. *List all pairs of movies directed by the same director.*

```
SELECT m1.title AS movie_1, m2.title AS movie_2, d.name AS director_name
FROM Movies m1
JOIN Movies m2 ON m1.director_id = m2.director_id
JOIN Directors d ON m1.director_id = d.director_id
WHERE m1.movie_id < m2.movie_id;
```

### Subquery in WHERE clause(any one below)

1. *Find the titles of movies that received a rating higher than the average rating of all movies.*

```
SELECT title
FROM Movies
WHERE movie_id IN (
    SELECT movie_id
    FROM Ratings
    WHERE rating > (
        SELECT AVG(rating) FROM Ratings
    )
);
```

Output	
title	
Inception	
Pulp Fiction	

2. Find the names of all directors who have directed more than 5 movies.

```
SELECT name
FROM Directors
WHERE director_id IN (
    SELECT director_id
    FROM Movies
    GROUP BY director_id
    HAVING COUNT(movie_id) > 5
);
```