

Tutorial 06

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Learning outcomes:

- Identify situations where different database programming constructs are applicable
 - Write database programs using T-SQL to cater requirements of database users
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Consider the following relations in a movie database.

Movie (title:char(25), year:int, length:float, language:char(15), type:char(1), directorName: char(30))

MovieStar (name: char (15), country:varchar(40), gender:char(1), birthdate: date)

StarsIn (movieTitle:char(25), movieYear:int, starname:char(15), role:varchar(15))

Theater (theaterName: char (20), country: varchar (40), city: varchar (20), capacity: int)

Show (showId: int, movieTitle: char (25), theaterName: char (20), Date: datetime, ticketPrice: real, spectators: int)

Booking (ShowId: int, CustName: Char (50), numTickets: int)

The attributes of the Movie relation are title of the movie, year it was made, language, filmtype which may be 'F' or 'D' for feature or documentary respectively and the name of the director of the movie. The MovieStar relation has attributes to record the name, country, gender ('M' or 'F'), and birthday of stars. StarsIn relation associates the movie with stars that acted in them and contains the role ('lead', 'support', or 'other') they played. The Theater relation has attributes to store the name, country, city and the capacity of theaters. Show relation stores information movies shown in theaters. It stores the title of the movie shown, theater where the movie is shown, price of the ticket to see the movie and the number of spectators who are there to see the movie. The Booking table stores information related to customer bookings.

Answer the following questions

1. Create a view to show the title of the movie being shown, theater name, country and city for shows which the theater is fully booked.
2. Create a view to show the name, country, and number of movies each actor has starred in.
3. Create a function which returns the total earning given a movie title.
4. Create a function which returns the number of remaining seats in a given show.
5. Create a stored procedure which is capable of inserting a booking to the booking table. The procedure should accept the show id, customer name and number of tickets as the parameters and it should update the number of spectators in the show table.

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6. Assume that each movie star is assigned with a rank based on the number of lead roles he/she had played. Create a procedure to update a rank attribute added to the MovieStar table for each movie star.
7. Create a trigger to ensure that the number of spectators in the show table does not exceed the capacity of the theater its shown in.
8. Assuming that the Movie Star table already store the rank of each movie star based on the criteria in 5, write a trigger to update the rank when the movie star appears in a new movie.

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Movie

| title | year | length | language | filmtype | DirectorName |
|----------------|------|--------|----------|----------|-----------------|
| Avengers | 2018 | 3 | English | F | Anthony Russo |
| Black Panther | 2018 | 3 | English | F | Ryan Coogler |
| Ghost in Shell | 2017 | 2.5 | English | D | Rupert Sanders |
| Jurassic World | 2018 | 2.75 | English | D | Colin Trevorrow |
| Passengers | 2016 | 2.75 | English | F | Morten Tyldum |
| Spider-man | 2018 | 2.5 | English | F | Jon Watts |

MovieStar

| name | country | gender | birthdate |
|--------------------|---------|--------|------------|
| Bryce Howard | America | F | 3/2/1981 |
| Chadwick Boseman | America | M | 11/29/1977 |
| Chris Pratt | England | M | 6/21/1979 |
| Jennifer Lawrence | America | F | 8/15/1990 |
| Robert Downey | America | M | 4/4/1963 |
| Scarlett Johansson | America | F | 11/22/1984 |
| Tom Holland | England | M | 6/1/1996 |

Theater

| theaterName | country | city | capacity |
|-------------|-----------|-----------|----------|
| Beverly | America | LA | 300 |
| Cinemaworld | Australia | Melbourne | 250 |
| Electric | England | London | 275 |
| Grand Rex | France | Paris | 300 |
| Nitehawk | America | New York | 200 |

Booking

| showId | CustName | numTickets |
|--------|------------|------------|
| 1 | John Wicks | 4 |
| 1 | Anne Mary | 2 |

StarsIn

| movieTitle | movieYear | starname | role |
|----------------|-----------|--------------------|---------|
| Avengers | 2018 | Chadwick Boseman | lead |
| Avengers | 2018 | Robert Downey | lead |
| Avengers | 2018 | Scarlett Johansson | lead |
| Black Panther | 2018 | Chadwick Boseman | lead |
| Black Panther | 2018 | Robert Downey | support |
| Ghost in Shell | 2017 | Scarlett Johansson | lead |
| Jurassic World | 2018 | Bryce Howard | lead |
| Jurassic World | 2018 | Chris Pratt | lead |
| Passengers | 2016 | Chris Pratt | lead |
| Passengers | 2016 | Jennifer Lawrence | lead |
| Spider-man | 2018 | Robert Downey | support |
| Spider-man | 2018 | Tom Holland | lead |

Show

| showId | movieTitle | theaterName | datetime | ticketPrice | spectators |
|--------|----------------|-------------|----------|-------------|------------|
| 1 | Spider-man | Electric | 00:00.0 | 200 | 275 |
| 2 | Spider-man | Grand Rex | 00:00.0 | 200 | 200 |
| 3 | Avengers | Grand Rex | 00:00.0 | 200 | 98 |
| 4 | Black Panther | Beverly | 00:00.0 | 200 | 205 |
| 5 | Black Panther | Grand Rex | 00:00.0 | 300 | 300 |
| 6 | Passengers | Nitehawk | 00:00.0 | 200 | 219 |
| 7 | Ghost in Shell | Cinemaworld | 00:00.0 | 200 | 101 |
| 8 | Black Panther | Grand Rex | 00:00.0 | 200 | 200 |
| 9 | Jurassic World | Cinemaworld | 00:00.0 | 200 | 188 |
| 10 | Black Panther | Nitehawk | 00:00.0 | 200 | 219 |
| 11 | Jurassic World | Nitehawk | 00:00.0 | 200 | 176 |