

GROUP NUMBER: 37

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GRADED HOMEWORK NUMBER: 2

COURSE: CS/DSA-4513 - DATABASE
MANAGEMENT

SECTION: 001

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INSTRUCTOR: LE GRUENWALD

SCORE

Group Questions for Problem 2 (GQ3-GQ5):

Given a relational database that consists of the following relation schemas:

Performer (pid: integer, pname: string, years_of_experience: integer, age: integer)

Movie (mname: string, genre: string, minutes: integer, release_year: integer, did: integer)

Acted (pid: integer, mname: string)

Director (did: integer, dname: string, earnings: real)

GQ3: Use SQL statements to create the relations for the database

```
Run Cancel Disconnect Change Database: cs-dsa-4513-sql-db
1 DROP TABLE IF EXISTS Performer;
2 DROP TABLE IF EXISTS Director;
3 DROP TABLE IF EXISTS Acted;
4 DROP TABLE IF EXISTS Movie;
5
6 CREATE TABLE Performer(
7     pid INT,
8     pname VARCHAR(64),
9     years_of_experience INT,
10    age INT,
11    PRIMARY KEY (pid)
12 )
13 CREATE TABLE Director(
14     did INT,
15     dname VARCHAR(64),
16     earnings REAL,
17     PRIMARY KEY (did)
18 )
19
20 CREATE TABLE Movie(
21     mname VARCHAR(64),
22     genre VARCHAR(20),
23     minutes INT,
24     release_year INT,
25     did INT,
26     PRIMARY KEY (mname),
27     FOREIGN KEY (did) REFERENCES Director
28 )
29 CREATE TABLE Acted(
30     pid INT,
31     mname VARCHAR(64),
32     PRIMARY KEY (pid, mname),
33     FOREIGN KEY (pid) REFERENCES Performer,
34     FOREIGN KEY (mname) REFERENCES Movie
35 )
```

Output:

Messages

20:43:57 Started executing query at Line 1
Commands completed successfully.
Total execution time: 00:00:00.141

GQ4: Populate the relations using SQL statements with the given data posted on Canvas.

```
Run Cancel Disconnect Change Database: cs-dsa-4513-sql-db Estimated Plan Enable Actual Plan Parse
36
37 insert into Performer values
38     (1, 'Morgan', 48, 67),
39     (2, 'Curz', 14, 28),
40     (3, 'Adams', 1, 16),
41     (4, 'Perry', 18, 32),
42     (5, 'Hanks', 36, 55),
43     (6, 'Hanks', 15, 24),
44     (7, 'Lewis', 13, 32)
45
46 insert into Director values
47     (1, 'Parker', 580000),
48     (2, 'Black', 2500000),
49     (3, 'Black', 30000),
50     (4, 'Stone', 820000)
51
52 insert into Movie values
53     ('Jurassic Park', 'Action', 125, 1984, 2),
54     ('Shawshank Redemption', 'Drama', 105, 2001, 2),
55     ('Fight Club', 'Drama', 144, 2015, 2),
56     ('The Departed', 'Drama', 130, 1969, 3),
57     ('Back to the Future', 'Comedy', 89, 2008, 3),
58     ('The Lion King', 'Animation', 97, 1990, 1),
59     ('Alien', 'Sci-Fi', 115, 2006, 3),
60     ('Toy Story', 'Animation', 104, 1978, 1),
61     ('Scarface', 'Drama', 124, 2003, 1),
62     ('Up', 'Animation', 111, 1999, 4);
63
64
65 INSERT INTO Acted (pid, mname)
66 VALUES
67     (4, 'Fight Club'),
68     (5, 'Fight Club'),
69     (6, 'Shawshank Redemption'),
70     (4, 'Up'),
71     (5, 'Shawshank Redemption'),
72     (1, 'The Departed'),
73     (2, 'Fight Club'),
74     (3, 'Fight Club'),
75     (4, 'Alien');
```

Output:

Messages

20:46:51 Started executing query at Line 1
(7 rows affected)
(4 rows affected)
(10 rows affected)
(9 rows affected)
Total execution time: 00:00:00.113

GQ5: Implement the SQL queries for the following

1. Display all the data you store in the database to verify that you have populated the relations correctly.

```
SELECT * FROM Performer
```

Output:

| Results | | Messages | | |
|---------|-----|----------|---------------------|-----|
| | pid | pname | years_of_experience | age |
| 1 | 1 | Morgan | 48 | 67 |
| 2 | 2 | Curz | 14 | 28 |
| 3 | 3 | Adams | 1 | 16 |
| 4 | 4 | Perry | 18 | 32 |
| 5 | 5 | Hanks | 36 | 55 |
| 6 | 6 | Hanks | 15 | 24 |
| 7 | 7 | Lewis | 13 | 32 |

```
SELECT * FROM Director
```

Output:

| Results | | Messages | |
|---------|-----|----------|----------|
| | did | dname | earnings |
| 1 | 1 | Parker | 580000 |
| 2 | 2 | Black | 2500000 |
| 3 | 3 | Black | 30000 |
| 4 | 4 | Stone | 820000 |

```
SELECT * FROM Movie
```

Output:

| Results | | Messages | | | | |
|---------|----------------------|-----------|---------|--------------|-----|--|
| | mname | genre | minutes | release_year | did | |
| 1 | Alien | Sci-Fi | 115 | 2006 | 3 | |
| 2 | Back to the Future | Comedy | 89 | 2008 | 3 | |
| 3 | Fight Club | Drama | 144 | 2015 | 2 | |
| 4 | Jurassic Park | Action | 125 | 1984 | 2 | |
| 5 | Scarface | Drama | 124 | 2003 | 1 | |
| 6 | Shawshank Redemption | Drama | 105 | 2001 | 2 | |
| 7 | The Departed | Drama | 130 | 1969 | 3 | |
| 8 | The Lion King | Animation | 97 | 1990 | 1 | |
| 9 | Toy Story | Animation | 104 | 1978 | 1 | |
| 10 | Up | Animation | 111 | 1999 | 4 | |

```
SELECT * FROM Acted
```

Output:

| Results | | Messages | |
|---------|-----|----------------------|--|
| | pid | mname | |
| 1 | 1 | The Departed | |
| 2 | 2 | Fight Club | |
| 3 | 3 | Fight Club | |
| 4 | 4 | Alien | |
| 5 | 4 | Fight Club | |
| 6 | 4 | Up | |
| 7 | 5 | Fight Club | |
| 8 | 5 | Shawshank Redemption | |
| 9 | 6 | Shawshank Redemption | |

-
- Find the names of all Action movies.

```
select mname from Movie where genre='Action'
```

Output:

| Results | | Messages |
|---------|---------------|----------|
| | mname | |
| 1 | Jurassic Park | |

3. For each genre, display the genre and the average length (minutes) of movies for that genre.

```
select genre, avg(minutes) as 'average length (minutes)' from Movie group by genre
```

Output:

| Results | | Messages |
|---------|-----------|--------------------------|
| | genre | average length (minutes) |
| 1 | Action | 125 |
| 2 | Animation | 104 |
| 3 | Comedy | 89 |
| 4 | Drama | 125 |
| 5 | Sci-Fi | 115 |

4. Find the names of all performers with at least 20 years of experience who have acted in a movie directed by Black.

```
select distinct pname from Performer where years_of_experience >= 20 and pid in  
(select pid from Acted where mname in  
(select mname from Movie where did in  
(select did from Director where dname = 'Black')))
```

Output:

| Results | | Messages |
|---------|--------|----------|
| | pname | |
| 1 | Hanks | |
| 2 | Morgan | |

5. Find the age of the oldest performer who is either named "Hanks" or has acted in a movie named "The Departed"

```
select max(age) as 'age (oldest performer)' from Performer where pname='Hanks' or pid in
(select pid from Acted where mname = 'The Departed')
```

Output:

| Results | | Messages |
|---------|------------------------|----------|
| | age (oldest performer) | ▼ |
| 1 | 67 | |

6. Find the names of all movies that are either a Comedy or have had more than one performer act in them.

```
select mname from Movie where genre = 'Comedy' or mname IN
(select mname from Acted group by mname having count(pid) > 1)
```

Output:

| Results | | Messages |
|---------|----------------------|----------|
| | mname | ▼ |
| 1 | Back to the Future | |
| 2 | Fight Club | |
| 3 | Shawshank Redemption | |

7. Find the names and pid's of all performers who have acted in at least two movies that have the same genre

```
select pname, pid from Performer where pid in
(select Acted.pid from Acted, Movie
where Acted.mname = Movie.mname group by Acted.pid, Movie.genre
Having count(Acted.mname) >=2)
```

Output:

| Results | | Messages |
|---------|-------|----------|
| | pname | pid |
| 1 | Hanks | 5 |

8. Decrease the earnings of all directors who directed “Up” by 10%.

```
update Director set earnings = (earnings - (earnings * 10 / 100))
where did in (
select did from movie where mname = 'Up')
select * from Director
```

Output:

| Results | | Messages | | |
|---------|-----|----------|----------|--|
| | did | dname | earnings | |
| 1 | 1 | Parker | 580000 | |
| 2 | 2 | Black | 2500000 | |
| 3 | 3 | Black | 30000 | |
| 4 | 4 | Stone | 664200 | |

9. Delete all movies released in the 70's and 80's (1970 <= release_year <= 1989).

```
DELETE FROM Acted WHERE mname IN (SELECT mname FROM Movie WHERE
release_year BETWEEN 1970 AND 1989)
DELETE FROM Movie WHERE release_year BETWEEN 1970 AND 1989
SELECT * FROM Acted
SELECT * FROM Movie
```

Output:

Results Messages

| | pid | mname |
|---|-----|----------------------|
| 1 | 1 | The Departed |
| 2 | 2 | Fight Club |
| 3 | 3 | Fight Club |
| 4 | 4 | Alien |
| 5 | 4 | Fight Club |
| 6 | 4 | Up |
| 7 | 5 | Fight Club |
| 8 | 5 | Shawshank Redemption |
| 9 | 6 | Shawshank Redemption |

Results grid

| | mname | genre | minutes | release_year | did |
|---|----------------------|-----------|---------|--------------|-----|
| 1 | Alien | Sci-Fi | 115 | 2006 | 3 |
| 2 | Back to the Future | Comedy | 89 | 2008 | 3 |
| 3 | Fight Club | Drama | 144 | 2015 | 2 |
| 4 | Scarface | Drama | 124 | 2003 | 1 |
| 5 | Shawshank Redemption | Drama | 105 | 2001 | 2 |
| 6 | The Departed | Drama | 130 | 1969 | 3 |
| 7 | The Lion King | Animation | 97 | 1990 | 1 |
| 8 | Up | Animation | 111 | 1999 | 4 |