

GROUP NUMBER: 37

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GRADED HOMEWORK NUMBER: 3

COURSE: CS/DSA-4513 - DATABASE MANAGEMENT
SECTION: 001

SEMESTER: FALL 2023

INSTRUCTOR: LE GRUENWALD
SCORE

GQ1)

a)

Run Cancel Disconnect Change Database: cs-dsa-4513-sql-db Estimated Plan Enable Actual Plan Parse Enable SQLCMD To Notebook

```
1 --a) One insertion query that violates the uniqueness of the primary key of a table.
2 insert into Director values
3 (4, 'Sujata', 500000)
```

Messages

19:12:06

Started executing query at Line 1
Msg 2627, Level 14, State 1, Line 1
Violation of PRIMARY KEY constraint 'PK_Director__D877D2169292D5E7'. Cannot insert duplicate key in object 'dbo.Director'. The duplicate key value is (4).
The statement has been terminated.
Total execution time: 00:00:00.084

b)

--b) One insertion query that violates the not-null value of the primary key of a table.

```
insert into Director values
(NULL, 'Stone', 500000)
```

Msg 515, Level 16, State 2, Line 6

Cannot insert the value NULL into column 'did', table 'cs-dsa-4513-sql-db.dbo.Director'; column does not allow nulls. INSERT fails.

The statement has been terminated.

Total execution time: 00:00:00.086

c)

```
--GQ1 c.
-- Inserting a record with a non-existent 'did' value in the Movie table, where 'did' is a foreign key to Director(did)
INSERT INTO Movie (mname, genre, minutes, release_year, did)
VALUES ('Jayy', 'Action', 140, 2022, 111); -- 111 doesn't exist in Director table

-- Deleting a Director record while there are related Movie records
-- This will violate the foreign key constraint, Director did is a foreign key in the Movie table
DELETE FROM Director WHERE did = 1; -- there are movies with did = 1

-- Attempt to update the 'did' value of the movie to a non-existent director 'did'
UPDATE Movie
SET did = 111 -- 111 doesn't exist in the Director table
WHERE mname = 'Jayy';
```

Msg 547, Level 16, State 0, Line 170

The INSERT statement conflicted with the FOREIGN KEY constraint "FK_Movie_did_558FB948". The conflict occurred in database "cs-dsa-4513-sql-db", table "dbo.Director", column 'did'.
The statement has been terminated.

Msg 547, Level 16, State 0, Line 175

The DELETE statement conflicted with the REFERENCE constraint "FK_Movie_did_558FB948". The conflict occurred in database "cs-dsa-4513-sql-db", table "dbo.Movie", column 'did'.
The statement has been terminated.

(0 rows affected)

Total execution time: 00:00:01.297

d)

```
-- Creating Performer table
CREATE TABLE Performer(
    pid INT,
    pname VARCHAR(64),
    years_of_experience INT,
    age INT CHECK (age >= 15 AND age <= 70),
    PRIMARY KEY (pid)
)
```

```
94 |
95 | select pid, age from Performer where age =100;
96 |
```

Results Messages

Results grid

pid	age
-----	-----

GQ2)

We opted for indexing the 'Movie' table because one of the queries filters movies by their genre. Creating an index on the 'genre' column can substantially enhance the speed and efficiency of this specific query.

Through the establishment of an index on the 'genre' column, the database can swiftly fetch all movies categorized under 'Action,' resulting in a more expedient and effective query.

This is an example of a secondary index because the movie genre is not sorted in the main file, but it's created to optimize query performance based on the genre attribute commonly used in queries.

```
--We opted for indexing the 'Movie' table because one of the quer:
```

```
-- Creating an index on the 'genre' column in the 'Movie' table
```

```
CREATE INDEX Movie_Genre ON Movie (genre);
```

```
--Through the establishment of an index on the 'genre' column, the
```

```
--This is an example of a secondary index because the movie genre
```

```
--Now, we will rerun the query #2 (Find the names of all Action mo
```

```
-- 2. Find the names of all Action movies
```

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

Results Messages

	mname
1	Jurassic Park

