

CL219- Database Systems Lab

Tuesday, June 23, 2020

Course Instructor

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Serial No:

Final Term Exam
Spring Semester 2020

Max Time: 3 Hour

Max Marks: 50

Exam Weight (Out of 100). 40-50

Roll No

Section

Guidelines:

1. You should submit only one PDF/Word document and **all text should be typed**. Equations, figures can be taken as pictures (all figures/equations can be pasted as images inside that document).
2. You must submit your solution before due time via **Slate/Google Classroom**. Submissions submitted after the due time shall not be considered.
3. If you don't finish every part of a question, don't worry! You can still submit what you've done to get marks based on your efforts.
4. In case of copied or plagiarized solutions in exam Or If a student provided help to another student during exam both will be awarded "F" grade and it will affect the student CGPA.
5. Viva of any student can be conducted by the instructor after conducting an online exam in case of any doubt.
6. This document should be submitted through LMS (**Slate/Google Classroom**). But in worst case, you can email it within the deadline.

Instructions for Submission

- Create a word file and name as **roll#_section.docx**.
- Take a screenshot of query as well as results with Database name and Server Name (**clarity of screenshot must be considered**).
- You have to copy and paste your query (**code**) as well in word file.
- Problem number must be mentioned on your word file according to question paper.
- Submit your **PDF file** on **slate**.
- You have 3 hours to attempt the paper and 15 extra minutes to submit the paper on SLATE.

Question 1: (5 marks)

USE TABLE FILE “Q1-Q2 Tables”

PLAYER (PlayerId, Name, Team, Height, Birthday, PlayedMatches, Scored_Runs)

TEAM (Team, Coach, WonGames)

MATCH (MatchId, Date, Team1, Team2, WonSetsTeam1, WonSetsTeam2, Referee)

PLAYED (MatchId, PlayerId, Role, ScoredPoints)

Consider the following schema and create these tables (provided on Slate/Google Classroom) in your own database.

Note: (Database Name= “Your roll no”: For Example: 18f-XXXX).

Write a SQL query by using **Corelated Query** to Find the player ID and Name of player who played every match.

Question 2: (5 marks)

USE TABLE FILE “Q1-Q2 Tables”

Consider the following tables and create these tables/data (provided on Slate/Google Classroom) with appropriate attributes and their types in your existing database (18F-XXXX).

property

pId	price	owner	sqrFeet	managedBy	location
1	100,000	Alice	560	Property Pete	Lake View
2	3,400,000	Bob	2,000	Hyde Park Prop	Hyde Park
3	1,200,000	Bob	1,200	Property Pete	Hyde Park
4	5,000,000	Martha	800	Fancy Rentals	Evanston

management

mgmName	location	yearlyProfit
Property Pete	Lincoln Park	34,000,000
Hyde Park Prop	Downtown	3,000,000
Fancy Rental	Lake View	25,000,000

Write a SQL query by using **Subquery/Nested Query** to display the property ID, owner name, location and price of every property whose price is more than the average of yearly profit.

Question 3: (15 marks)

Consider the following tables and create these tables/data with appropriate attributes and their types in your existing database i.e. (18F-XXXX). (6 marks)

imdb_small and imdb:

id	name	year	rank
112290	Fight Club	1999	8.5
209658	Meet the Parents	2000	7
210511	Memento	2000	8.7
...			

movies

actor_id	movie_id	role
433259	313398	Capt. James T. Kirk
433259	407323	Sgt. T.J. Hooker
797926	342189	Herself
...		

roles

id	first_name	last_name	gender	film_count
433259	William	Shatner	M	162
797926	Britney	Spears	F	65
831289	Sigourney	Weaver	F	72
...				

actors

director_id	movie_id
24758	112290
66965	209658
72723	313398
...	

movies_directors

id	first_name	last_name
24758	David	Fincher
66965	Jay	Roach
72723	William	Shatner
...		

directors

movie_id	genre
209658	Comedy
313398	Action
313398	Sci-Fi
...	

movies_genres

Roles in Pi

Show all roles played in the movie named Pi. To achieve this, join the movies table with the roles table and filter out all records except those in Pi. You shouldn't need to know the movie ID of Pi ahead of time to do the query (3 marks).

Sample result:

```

+-----+
| role          |
+-----+
| Man Delivering Suitcase |
| Brad          |
| ...           |
| Devi          |
+-----+
```

Actors in Pi:

Show the first/last names of all actors who appeared in Pi, along with their roles. You will need to join all three tables. (3 marks)

Sample result:

first_name	last_name	role
Abraham	Aronofsky	Man Delivering Suitcase
Peter	Cheyenne	Brad
...		
Samia	Shoaib	Devi

Actors and Genres

List all roles in a Horror or Sci-Fi movie with the first and last name of the actor who played the role, as well as the movie name. Order the results by last name alphabetically, breaking ties by first name alphabetically, further breaking ties by movie name alphabetically.

(3 marks).

Sample result:

first_name	last_name	role	movie_name
Steve	Altes	Dad	Hollow Man
Julian	Arahanga	Apoc	Matrix, The
William (I)	Armstrong	Lydecker	Aliens
Abraham	Aronofsky	Man Delivering Suitcase	Pi
Graham	Ashley	Gold Five	Star Wars
Jennifer	Aspen	Nina	Vanilla Sky
...			
Bill(I)	Young	Lieutenant	Matrix, The

Question 4: (12 marks)

- I. Triggers are best way to enforce the database policies, write a trigger for the given situation; suppose you have to create a table that should have at most one row. How can you assure this? (5 marks)
- II. Assume you have a table with schema of PIA travelling costs in between two cities as **FlightExpense (from_city, to_city, fare)**. Assuming the fare from Lahore to Karachi and Karachi to Lahore is same which not the case is often, to store fare for both sides is creating redundancy. How can you assure that the table will not store the fare from Lahore to Karachi if the fare from Karachi to Lahore is already stored by using Trigger? (7 marks)

Question 5: (13 marks)

**USE TABLES (DEPARTMENT, EMPLOYEE, PROJECT, WORKS_ON) in
(Function.sql on classroom/slate)**

- a) Star Textile Limited has decided to revise their employees' salaries across all departments for their annual appreciation. As a database developer, you are required to create a SQL Server function SALARY_INCREMENT:
- As input arguments, function will use the employee number, and “percentage of the raise” in the employee salary.
 - The value of the “percentage of the raise” argument can be calculated manually by using last two digits of your own roll number. For example, if your NUCES ID is 17F-1254 then last two digits are 54 and your percentage of raise will be 5.4% in this case. Everyone is required to calculate accordingly and pass this calculated value while calling the function (2 marks).
 - Function will return the new salary after increasing the salary to the percentage of the raise in the current salary of the employee (6 marks).
- b) Write a query to increase the salary only for those employees who are working on at least one project using the function SALARY_INCREMENT and only display employee number, project budget, employee old salary, and employee new salary named as NewSalary (5 marks).

GOOD LUCK