CSE311L: Database Management Systems Lab

Lab Final Examination - Summer-2021

Total Marks: 50 Duration: 90 Minutes

Schema:

TA (ID, Name, Semester, GPA)

English: There is a TA (Teaching Assistant) with ID, Name, Semester (represents in which semester he/she currently in), GPA (Current GPA)

TA_INFO (ID, Position)

English: TA_INFO represents the position of TA (UGA = Undergraduate Teaching Assistant, GA =GRADUATE Teaching Assistant). Each TA is identified by ID.

Friend (ID1, ID2)

English: The TA with ID1 is friends with the TA with ID2. Friendship is mutual, so if (123, 456) is in the Friend table, so is (456, 123).

REVIEW_TA (ID1, ID2)

English: The TA with ID1 reviews a TA with ID2. Reviewing someone is not necessarily mutual, so if (123,456) is in the REVIEW_TA table, there is no guarantee that (456, 123) is also present.

Answer the following Questions

1. Find the names of all Graduate TAs' who are friends with 'Ananotara'.

Name
Konica

2. Find the name, GPA of all TAs' who are reviewed by more than one other TA and the TAs who are the reviewer are Graduate Teaching Assistant.

Name	GPA
Jahid	3.36

3. For each situation where TA X reviews TA Y, and TA Y reviews different TA Z,and TA X is a Graduate TA, return the result in the following format "X reviews Y, and Y reviews Z '', and rename the column as Message.

Message
Gonesh reviews Alamin, and Alamin reviews Kashfia

4. Find the name and semester of the Undergraduate TAs' who have Third Highest GPA.

Name	Semester
Hasan	10
Jessica	11

5. Return the average number of friends per TA? (Your result should be just one number.) Hint: Read the description of the FRIEND table again to find out the mutual status.

AVG(A)
2.5000

6. Find the number of TAs who are either friends with Chandra or are friends of friends of Chandra. (Do not count Chandra, even though technically she is a friend of a friend).

Total
7

7. Consider the following Query:

```
ALTER TABLE review_ta
ADD CONSTRAINT fk_review_ta_to_ta
FOREIGN key(ID1)
REFERENCES TA(ID)
ON UPDATE SET null
ON DELETE SET null
```

This query returns an error in SQL Syntax. However, this error still can be solved by changing the structure of the referenced table. Your task is to make the necessary changes in the

referenced table so that the above Query can be executed without any error.

8. It's the end of Summer-21, time to update the TA list.
   a. Promote everyone to next semester.
   b. Department wants to remove anyone who doesn't fulfil the Minimum Requirement of UGA and GA. If a TA is removed from ta table, corresponding entries related to him should also have to be removed from other tables. Minimum Requirement for UGA is having a GPA 3.3, and for GA is 3.5.
      Your task is to design a trigger on the 'ta' table to achieve the desired result.

9. Department is planning to promote all of the UGAs who are in 12th and 13th semester to GA. The requirement for a GA position is to have a minimum GPA 3.5. Newly promoted GA will be marked as" GA_N". Do not promote anyone as "GA_N" who are marked as "GA".

10.
   A. Create a Procedure as 'difference_with_highest_gpa' that takes the ID of a TA and returns the positive difference between his/her GPA and the Highest GPA in the TA table. You can't use more than one Stored Procedure Parameters.

   B. Find the difference of GPA for ID=316 using the designed stored procedure in Question: A. Mention all the queries including setting session variables and calling the stored procedure. Round the result to three decimal places.

   Difference
   0.490