Assignment 2

Note: Submit properly formatted queries in an SQL file. Name your file First and Last name and Assignment 2. For Example: Vinod-Ahuja-Assignment-2.sql

Question 1 (1 Point)

Using the university schema provided, write an SQL query to find the ID and name of each instructor who has never taught a course at the university. Use an outer join to solve this problem.

Question 2 (1 Point)

Using the university schema provided, create a view called students_without_advisor that shows the ID and name of each student who has never been assigned an advisor. Write a query to create the view and then select all records from the view.

Question 3 (1 Point)
Using the university schema provided, write an SQL query to list the names of instructors, along with the titles of the courses they teach in the Spring 2018 semester, and include the room numbers where these courses are taught.

Question 4 (1 Point)
The database administrator at a university wants to create a view to simplify access to information about the instructors and the number of students they are advising. The view should include the instructor's name, the department name, and the total number of students assigned to each instructor as an advisor. Write the SQL query to create this view.

Question 5 (1 Point)

The registrar at a university needs to update the teaching assignments for an instructor named Srinivasan who is switching from teaching "Robotics" to "Image Processing" for the Spring 2018 semester.

Srinivasan's instructor ID is 10101, the course_id for "Robotics" is CS-315, and for "Image Processing" is CS-319.

Write an SQL transaction in PostgreSQL that safely removes Srinivasan from teaching "Robotics" and assigns them to teach "Image Processing" for the Spring 2018 semester. Ensure the transaction maintains database integrity by rolling back if either operation fails.

Question 6 (1 Point)

A university database administrator has accidentally dropped the instructor table. The task is to recreate the table with the same structure as before, but with an additional constraint to ensure that the salary column has values greater than 35,000. This constraint should be named salary_check.

Part A

Write an SQL statement to create the instructor table, ensuring the new constraint salary_check is included.

Part B

After reviewing the university's salary policies, it has been decided that the salary_check constraint is no longer needed. Write an SQL statement to remove the salary_check constraint from the instructor table.

Question 7 (1 Point)

A university's academic affairs department wants to track students who have earned at least 60 total credits to identify those eligible for upper-level courses. To achieve this, they decided to create a new table, upper_level_students, that will store records from the student table but only for students with tot_cred ≥ 60.

Part A:

Write an SQL statement to create the upper_level_students table, ensuring it includes only students who have earned 60 or more total credits.

Part B:

To enhance query performance on this new table, frequent searches will be performed based on student ID and department name. Write SQL statements to create indexes on these columns to optimize query performance.