

Viva Due: 1. Queries i to p and 3. a to s (12/09/2024)

Moodle Due: 17/09/2024 at 11 PM

1. Write the following as **triggers** on the corresponding schema mentioned which you have already developed. In each case, disallow if it does not satisfy the stated constraint. You may assume that the desired condition holds before any change to the database is attempted. Also, prefer to modify the database, even if it means inserting tuples with NULL or default values, rather than rejecting the attempted modification.

Employee Schema (*already given as part of S5 So, no need to do this again if you have done already. In that case, proceed from Flight Schema*)

- a. Assure that deleting details of an employee deletes his dependent records also.
- b. Whenever a department with exactly one project is shifted to a new location, ensure that the project is also shifted to the new location.
- c. Assure at all times that there are no departments with more than 3 projects.
- d. Assure that no employees work for more than one department.
- e. Whenever a project is dropped, dissociate all the employees from the particular project.
- f. When a new department is inaugurated, ensure that it is not co-located with any other departments.
- g. For every employee, ensure that his dependent Birthdate is less than his Birthdate.
- h. Increment 1000 rupees to the salary for those employees if any of his/her dependent expire.

Flight Schema

- i. Create a trigger that handles an update command to find the total salary of all pilots. Check the condition such that the new tuples inserted should not be null and salary should be more than 50,000.
 - j. Create a trigger to set salary as 30,000 if there is a NULL present in it. Also check whether a salary of a pilot is greater than the salary of a non pilot.
 - k. Create a trigger to foil any attempt to lower the salary of an employee.
 - l. When inserting a new certification for an employee, check that the aircraft id exists in the Aircraft.
 - m. When making any modifications to the Aircraft table, check that the cruisingrange is greater than or equal to distance of flights.
 - n. When a new certification is inserted into Certified, also insert an employee with the id of that employee and a NULL salary.
 - o. Terminate pilots and their certification when the pilot retires.
 - p. Write a trigger for the condition mentioned: Suppose we want to prevent the average salary of an employee from dropping below Rs. 50,000. This constraint could be violated by an insertion, a deletion, or an update to the salary column of Employee Table.
2. Write the following as **Cursors** on the corresponding Schema.

Employee Schema

- q. Develop a stored procedure to insert a new attribute 'address' in DEPENDENT and update the same as that of the employee's address.

- r. Develop a stored procedure to display the fname, ssn and salary, grade of an employee. Handle the condition such that if salary of an employee is 1 - 10000, assign grade3, grade2 if salary in between 10000 and 50000 and grade1 if salary > 50000. Handle exception with an error message when an invalid case occurs.
- s. Create a stored procedure to display deptno, avgsalary and #employees in each department. Handle exceptions with an error message when invalid deptno is given.

Flight Schema

- t. Develop a stored procedure to update an employee record given the employee id. Print a message after the update is successfully done with an exception handling of a invalid employee id.
- u. Develop a stored procedure to display the name, salary of each employee from employee table. Handle the condition such that if salary of an employee is above 50,000 rank them as Grade 'A' else as Grade 'B'.
- v. Develop a stored procedure that builds a name list of all employees who are certified for a Boeing aircraft and handle an exception with an error message.

Some other keyword based Queries in MySQL

3. On the Company Relational Schema, execute the following queries.

- a. Display all odd numbered alternate records from 'Employee' table.
- b. Display all even numbered alternate records from 'Employee' table.
- c. Find year from birth date when the date is a VARCHAR column instead of the proper DATE data type.
- d. Select first 3 characters of first name.
- e. Find duplicate rows in a table of your choice.
- f. Delete the duplicate records retrieved using the above query without using a temporary table.
- g. Delete the duplicate records retrieved using the above query using a temporary table.
- h. Extract the 3rd maximum salary. Also find n^{th} max salary.
- i. Get first 3 max salaries. Also find first n max salaries.
- j. Display year, month, day as separate attributes from employee's date of birth.
- k. Retrieve the date part of the date or datetime expression.
- l. Get position of 'a' in name 'Sundar Pitchai' from employee table.
- m. Get fname from employee table after removing white spaces from left side.
- n. Get length of fname from employee table.
- o. Get fname from employee table after replacing 'o' with '*'.
- p. Get fname and lname as a single attribute from employee table separated by a '_ '.
- q. Find all employee records containing the word "Jai", regardless of whether it was stored as JAI, Jai, or jai.

- r. Find the number of employees according to the gender whose DOB is between 05/01/1980 to 31/12/2024.
- s. Retrieve the mysql username and password.
- t. Find all the employee first name/s whose name consists of three or more words.
- u. Get employee details from employee table whose first name ends with 'n' and name contains 4 letters.
- v. Get employee details from employee table whose joining month is "January".
- w. Fetch data that are common in two query results.
- x. Get first names of employees who has '*' in last_name.
- y. Find department from dept table after replacing special character with a white space.
- z. Retrieve the number of employees joined with respect to a particular year and a particular month from employee table.
- aa. Extract characters within a specified range of length from department field.
- bb. Convert the name of the employee to lowercase and then as uppercase.
- cc. Select FIRST *n* records from a department table.
- dd. Select LAST *n* records from a department table.
- ee. Select first name from employee table which contain only numbers.
- ff. Get fname, lname from employee table as separate rows.
- gg. Create an empty table *emptem* with the same structure as *emp*.
- hh. If there are two tables *emp1* and *emp2*, and both have common records, fetch all the records, but common records only once.
- ii. Extract only common records from two tables *emp1* and *emp2*.
- jj. Retrieve all records of *emp1* those should not present in *emp2*?
- kk. Find rows that contain at least one of the two words 'mysql', 'oracle'.
- ll. In a string attribute of the company schema, match the following using **regular expression**.
 - i) Beginning of the string.
 - ii) Match any character (including carriage return and newline).
 - iii) Match the end of a string.
 - iv) Any sequence of zero or more characters.
 - v) Either of the sequences *xy* or *abc*.

---THE END---