CS246: Database Management Systems Lab

Lab # 06 (1 Questions, 56 Points)
Timings: 14:00 to 18:00 Hours Pages: 3
IIT Guwahati
Submission: 18:30 Hrs, 14-Feb-2022
14 Feb 2022 (Mon)

Question 1: (56 points)

Using `MySQL` perform the following tasks:

Task 01 (1 Mark) Create a database named *assignment06*

Task 02 (5 Marks) Create the following tables

1. (1 Mark) `course` having the columns
   `cid` course id (or course number) (primary key)
   `cname` course name
   `l` lecture hours
   `t` tutorial hours
   `p` practical hours
   `c` total credits
   You are given a `course.csv` file where the corresponding data is present
2. (1 Mark) `course_coordinator`
   `cid` course id (or course number) (primary key)
   `cstart` course start date
   `cend` course end date
   `gsubmission` grade submission date for the course
   `coordinator` course coordinator
   `exam_date` end semester exam date for the course
   You are given a `course_coordinator.csv` file where the corresponding data is present
3. (1 Mark) `course_eligibility`
   `cid` course id (or course number) NOT NULL
   `program` Program which is eligible for crediting the course
   `batch_year` batch's year which is eligible for crediting the course
   `batch_month` batch's month which is eligible for crediting the course
   `eligibility` the description
   You are given a `course_eligibility.csv` file where the corresponding data is present
4. (1 Mark) `course_instructor`
   `cid` course id (or course number)

`instructor` faculty name

You are given a `course_instructor.csv` file where the corresponding data is present

5. (1 Mark) `faculty`

   `dept` department for which a faculty works (primary key)

   `instructor` faculty name (primary key)

   You are given a `faculty.csv` file where the corresponding data is present

Task 03 (5 Marks) load the data corresponding to all the above tables using the shared csv files.

Task 04 (36 Marks) Implement all the following sub-questions using

- Nested queries
- Correlated nested queries

Q1 (nested query - 2 Marks, correlated nested query - 2 Marks) List each course name and the number of eligible programs that are allowed by the course to credit the course

Q2 (nested query - 2 Marks, correlated nested query - 2 Marks) List the course id, course name and faculty such that the course id has maximum number of instructors. You have to display the course id, course name, and faculty name. If there is more than one course having identical maximum value, list the information for all such courses. You may use multiple queries to arrive at the solution. You can create intermediate tables as explained in lecture: Wednesday-27-jan-2021, slide no. 116 and use them for obtaining your solution.

Q3 (nested query - 2 Marks, correlated nested query - 2 Marks) List the courses whose credit structure is *incorrect in the database*; Every course has L-T-P-C. Here C = 2 * L + 2 * T + 1 * P. Whenever there is a violation of this credit structure, list the course name and department name. Note that Half courses are denoted by a trailing H in cid. Their credit structure is C = (2 * L + 2 * T + P)/2

Q4 (nested query - 2 Marks, correlated nested query - 2 Marks) List the course name and coordinator in which coordinator is not an instructor of the course Note: for set difference and set intersection operation you may use IN/NOT IN operator as discussed in the class)

Q5 (nested query - 2 Marks, correlated nested query - 2 Marks) List course name, grade submission date for each course

Q6 (nested query - 2 Marks, correlated nested query - 2 Marks) List course name, end semester exam date for each course which are not half courses

Q7 (nested query - 2 Marks, correlated nested query - 2 Marks) List course id, course name, instructor name such that the course has number of eligible programs greater than or equal to 10.

`An example is: BT206 has 12 programs that are eligible to credit the course. These are:`

cid	program	batch_year	batch_month	el
BT206	B.Tech Biosciences and Bioengineering	2014	AUG	De
BT206	B.Tech Biosciences and Bioengineering	2015	AUG	De
BT206	B.Tech Biosciences and Bioengineering	2016	AUG	De
BT206	B.Tech Biosciences and Bioengineering	2017	AUG	De
BT206	B.Tech Biosciences and Bioengineering	2018	AUG	De
BT206	B.Tech Biosciences and Bioengineering	2019	AUG	De
BT206	B.Tech Biotechnology	2014	AUG	De
BT206	B.Tech Biotechnology	2015	AUG	De
BT206	B.Tech Biotechnology	2016	AUG	De
BT206	B.Tech Biotechnology	2017	AUG	De
BT206	B.Tech Biotechnology	2018	AUG	De
BT206	B.Tech Biotechnology	2019	AUG	De

You should display

cid	cname	instructor
BT206	MicroBiology	Dr. Shirisha Nagotu
BT206	MicroBiology	Prof. Sanjukta Patra

That is all cid's having more than 10 eligible programs, you have to list cid, cname and instructor name. You can create intermediate tables as explained in lecture: Wednesday-27-jan-2021, slide no. 116.

Q8 (nested query - 2 Marks, correlated nested query - 2 Marks) List the faculty name, department and which course (id) the faculty is offering.

Q9 (nested query - 2 Marks, correlated nested query - 2 Marks) List department wise, name of the faculty who is not offering a course.

Task 05 (9 Marks) Create a view for each of the above queries in Task 04 which use nested queries.

Instructions Adhere to the following

.sql file Write all the SQL statements in a text file.

File naming text file name should be [Your roll number].sql

Independent efforts You should make an honest and independent effort in obtaining the solution to the above problem.

Submission Procedure You should write all SQL statements in a text file named [Your roll number].sql. Upload the file in the MS assignments site.