CS246: Database Management Systems Lab

Lab # 06 (1 Questions, 103 Points)
Held on 13-Feb-2023
Lab Timings: 14:00 to 18:00 Hours   Pages: 3
Submission: 18:00 Hrs, 13-Feb-2023
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a. This lab assignment is based on the concepts covered in chapter 3 **introduction to SQL** in the previous to previous week CS245 theory class.

b. You can refer to the text book for SQL syntax.

Question 1: (103 points)

Using `MySQL` perform the following tasks:

Task 01 - 3 Marks Create a database named *week06*

Task 02 Create tables

a. (3 marks) A table `student` containing the following

1st column	`cid`	string of characters of fixed size 7
2nd column	`roll_number`	string of characters of fixed size 10
3rd column	`name`	string of characters of fixed size 100
4th column	`approval_status`	string of characters of fixed size 20
5th column	`credit_status`	string of characters of fixed size 10

with the following constraints:

- `roll_number` and `cid` as primary key.
- `name` cannot take null values

Note - `credit_status` takes two values `Credit` and `Audit`
`approval_status` takes two values `Approved` and `Pending`

b. (3 marks) A table `course` containing the following

1st column	`cid`	string of characters of fixed size 7
2nd column	`name`	string of characters of fixed size 100

with the following constraints:

- `cid` as primary key.
- `name` cannot take null values

c. (3 marks) A table `credit` containing the following

1st column	`cid`	string of characters of fixed size 7
2nd column	`l` (lecture)	integer
3rd column	`t` (tutorial)	integer
4th column	`p` (practical)	integer
5th column	`c` (credits)	float

with the following constraints:

- `cid` as primary key.
- `l` cannot take null values
- `t` cannot take null values
- `p` cannot take null values
- `c` cannot take null values

d. (3 marks) A table `faculty` containing the following

| 1st column | `cid` | string of characters of fixed size 7 |
| 2nd column | `name` | string of characters of fixed size 50 |

e. (3 marks) A table `semester` containing the following

1st column	`dept`	string of characters of fixed size 4
2nd column	`number`	string of characters of fixed size 4
3rd column	`cid`	string of characters of fixed size 7

Task 03 Populate data

- (5 marks) populate data from the file `students-credits.csv` into table `student`
- (5 marks) populate data from the file `courses.csv` into table `course`
- (5 marks) populate data from the file `credits.csv` into table `credit`
- (5 marks) populate data from the file `faculty-course.csv` into table `faculty`
- (5 marks) populate data from the file `semester.csv` into table `semester`

Use any one of the following methods to populate the data

- Using several insert statements, each insert statement corresponding to one line of the data file into a table. These insert statements are generated using a C program
- Using MySQL `load` statement

Task 04 Answer the following

a. (5 marks) Compute the total number of lectures offered
b. (5 marks) Compute List the total number of credits offered by ECE department
c. (5 marks) Compute List the total practical hours involved in design department

Task 05 Answer the following

a. (5 marks) List `cid` and number of students auditing in each of the minor courses
b. (5 marks) List the department and associated total number of credits offered by that department
c. Hint: For department name, extract substring from `cid` and use the same in the query

Task 06 Answer the following

- (5 marks) List the `cid` and number of students auditing the course in which at least four audit students are the in the course.

- (5 marks) List the `cid`, `name` of course and number of faculty involved in teaching such that the number of faculty is involved in teaching the course is more than one.
- (5 marks) List the `name` of the faculty and number of courses the faculty is teaching such that the number of courses teaching is more than one course.

Task 07 Answer the following

- (5 marks) List the course `cid, name` which offers minimum number of credits
- (5 marks) List the `cid` and faculty `name` who is teaching course with minimum number of credits in CSE department

Task 08 Answer the following

- (5 marks) List semester numbers of BSBE department where the total credits offered in those semester is less than ANY of the semester's total credits offered by design department.
- (5 marks) List semester numbers of BSBE department where the total credits offered in those semesters is greater than or equal to ALL of the semester's total credits offered by design department
- Hint: You may create a temporary table which is result of a select query using an SQL statement (note: this is a representative SQL query only) similar to the following `create table table_name as (your select query);` and use the temporary table further.

Instructions Adhere to the following

SQL statements Write the SQL statements corresponding to each task in a text.

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

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

Mobile phones are not allowed inside the lab

Submission Procedure You should upload all the SQL files and C program files in MS assignments site.

Marking Scheme Mentioned against each task/sub task