
CS246: Database Management Systems Lab

Lab # 08 (1 Questions, 75 Points)

Held on 13-Mar-2023

Lab Timings: 14:00 to 18:00 Hours Pages: 5

Submission: 18:00 Hrs, 13-Mar-2023

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- a. This lab assignment is based on the concepts covered in chapter 4 **intermediate SQL** in the CS245 theory class.
- b. **Some of the questions are so designed to yield errors.**
- c. You can refer to the text book for SQL syntax.

Question 1: (75 points)

Using MySQL perform the following tasks:

Task 01 (1 mark) Create a database named *week08*

Task 02 (6 marks) **Create tables**

- a. (1 mark) A table `cs245_student` with the following description

| | | |
|------------------------|---------------------------|--|
| 1 st column | <code>roll_number</code> | string of characters of fixed size 9 |
| 2 nd column | <code>name</code> | string of characters of fixed size 100 |
| 3 rd column | <code>reg_status</code> | string of characters of fixed size 20 |
| 4 th column | <code>audit_credit</code> | string of characters of fixed size 10 |
| 5 th column | <code>email</code> | string of characters of fixed size 50 |
| 6 th column | <code>phone</code> | string of characters of fixed size 8 |

with `roll_number` as primary key

- b. (1 mark) A table `cs245_marks` with the following description

| | | |
|------------------------|--------------------------|--------------------------------------|
| 1 st column | <code>roll_number</code> | string of characters of fixed size 9 |
| 2 nd column | <code>marks</code> | integer |

with `roll_number` as primary key.

`roll_number` also is a foreign key referring to `cs245_student`.

- c. (1 mark) A table `cs245_grade` with the following description

| | | |
|------------------------|---------------------------|--------------------------------------|
| 1 st column | <code>roll_number</code> | string of characters of fixed size 9 |
| 2 nd column | <code>letter_grade</code> | string of characters of fixed size 2 |

with `roll_number` as primary key.

`roll_number` also is a foreign key referring to `cs245_student`.

- d. (1 mark) A table `cs246_student` with the following description

| | | |
|------------------------|---------------------------|--|
| 1 st column | <code>roll_number</code> | string of characters of fixed size 9 |
| 2 nd column | <code>name</code> | string of characters of fixed size 100 |
| 3 rd column | <code>reg_status</code> | string of characters of fixed size 20 |
| 4 th column | <code>audit_credit</code> | string of characters of fixed size 10 |
| 5 th column | <code>email</code> | string of characters of fixed size 50 |
| 6 th column | <code>phone</code> | string of characters of fixed size 8 |

with `roll_number` as primary key

- e. (1 mark) A table `cs246_marks` with the following description

| | | |
|------------------------|--------------------------|--------------------------------------|
| 1 st column | <code>roll_number</code> | string of characters of fixed size 9 |
| 2 nd column | <code>marks</code> | integer |

with `roll_number` as primary key.

`roll_number` also is a foreign key referring to `cs246_student`.

- f. (1 mark) A table `cs246_grade` with the following description

| | | |
|------------------------|---------------------------|--------------------------------------|
| 1 st column | <code>roll_number</code> | string of characters of fixed size 9 |
| 2 nd column | <code>letter_grade</code> | string of characters of fixed size 2 |

with `roll_number` as primary key.

`roll_number` also is a foreign key referring to `cs246_student`.

Task 03 (6 marks) populate data

- Populate data from file `cs245_student.csv` into table `cs245_student`
- Populate data from file `cs245_marks.csv` into table `cs245_student`
- Populate data from file `cs245_grade.csv` into table `cs245_student`
- Populate data from file `cs246_student.csv` into table `cs246_student`
- Populate data from file `cs246_marks.csv` into table `cs246_student`
- Populate data from file `cs246_grade.csv` into table `cs246_student`

Task 04 (4 marks) As a `root` user,

- (4 marks) Create the following users
 - `headTA` with a chosen password
 - `saradhi` with a chosen password
 - `pbhaduri` with a chosen password
 - `doaa` with a chosen password

Task 05 (16 marks) Answer the following

- (6 marks) As a `root` user, provide privileges to users as described in the following table

| user | privilege | table |
|-----------------------|-------------------------------------|----------------------------|
| <code>headTA</code> | <i>read, insert, update</i> | <code>cs245_marks</code> |
| <code>headTA</code> | <i>read, insert, update</i> | <code>cs246_marks</code> |
| <code>saradhi</code> | <i>read, update</i> | <code>cs246_grade</code> |
| <code>pbhaduri</code> | <i>read, update</i> | <code>cs245_grade</code> |
| <code>doaa</code> | <i>read, insert, update, delete</i> | <code>cs245_student</code> |
| <code>doaa</code> | <i>read, insert, update, delete</i> | <code>cs246_student</code> |

- b. (10 marks) For each of the above privileges, perform the following queries
- As `headTA` user, retrieve the marks of the student with roll number 270123065 from `cs246_marks`.
 - As `headTA` user, delete the student with roll number 210123065 from the `cs245_marks` table.
 - As `saradhi` user, delete the grade record of the student with `roll_number=270101005`.
 - As `saradhi` user, update the grade of student with `roll_number = 270101005` to BC for the course `cs246`.
 - As `pbhaduri` user, update the marks of student with `roll_number = 270101064` to 95 in `cs245` course.
 - As `pbhaduri` user, show the grade of student with `roll_number = 270101064`.
 - As `doaa`, user add a new student "Alex" with `roll_number = 270123089`, who got course Approved and is Crediting the course `cs245`, whose email is `alex@protonmail.edu` and phone number is 960-7830.
 - As `doaa` user, add 67 marks record for the new student `roll_number = 270123089` in the `cs245_marks` table.
 - As `saradhi` user, update the grade of student with `roll_number = 270101053` to DD for the course `cs245`.
 - As `pbhaduri` user, delete the grade of students with `roll_number = 270101004, 270101019, 270101029, 270101039, 270101049, 270101059` from `cs246` course.

Task 06 (15 marks) Answer the following:

- a. (5 marks) As a `root` user, provide the *selected column* of a given table specified privileges to a given user as described in the following table

| user | privilege | table | columns |
|----------|-----------------------------|---------------|---|
| headTA | <i>read only</i> | cs245_student | roll_number name, email |
| headTA | <i>read only</i> | cs246_student | roll_number name, email |
| pbhaduri | <i>read only</i> | cs245_student | roll_number name, email |
| saradhi | <i>read only</i> | cs246_student | roll_number name, email |
| doaa | <i>read, insert, update</i> | cs246_student | roll_number, name, reg_status, audit_credit |

- b. (10 marks) Answer the following:
- As `headTA` user, retrieve `email`, `phone` of Craig Salazar in the `cs245` course
 - As `headTA` user, retrieve `roll_number`, `email` of Lionel Battle in the `cs245` course

- iii. As `headTA` user, delete the record of the student with name `Jenette Parks` in the `cs246` course
- iv. As `headTA` user, update the email of `Jenette Parks` in the `cs246` course to `jparks@aol.ca`
- v. As `saradhi` user, update the `roll_number` of `270101051` to `290101051` in the student table for the course `cs246`.
- vi. As `saradhi` user, obtain `email`, `marks` of student with name `Garrison Donovan` in the course `cs246`
- vii. As `pbhaduri` user, update the course `reg_status` to `Approved` and `audit_credit` status to `'Audit'` of students with emails ending with `icloud.couk`
- viii. As `pbhaduri` user, obtain `email`, `grade` of student with name `Benedict Warren` in the course `cs245`.
- ix. as `doaa` user, insert a new `roll_number` `'270123436'` with name `'Anjali'` course registration status `'Pending'` and phone number `'844-5838'` (do not specify any value for the remaining fields).
- x. as `doaa` user, update the `audit_credit` status of `semper.tellus.id@google.net` to `Audit` in the course `cs245`

Task 07 (5 marks) Answer the following:

- a. As `saradhi` user, create a view that contains `roll_number`, `name`, `email`, `letter_grade` for the course `cs246`.
- b. as `headTA` user, create a view that contains `roll_number`, `name`, `email`, `marks` for the course `cs245`.
- c. as `headTA` user, create a view that contains `roll_number`, `name`, `email`, `letter_grade` in for the course `cs245`.
- d. Answer the following sub-tasks
 - i. As `saradhi` user, write a query to delete the record with email `quisque.porttitor@google.couk` from the view.
 - ii. As `headTA` user, update the grade of student with name `Zenaida Fleming` to `AA`.

Task 08 (3 marks) Answer the following

- a. as `root` user, allow `saradhi` to issue `grant` privilege to other users on the `cs246_grade` table.
- b. as `saradhi`, allow `headTA` *read only* privilege to `cs246_grade` table.
- c. as `headTA` list the `roll_number`, `name`, `email`, `marks` and `letter_grade` of `cs246` student.

Task 09 (14 marks) Answer the following

- a. (1 mark) As `saradhi` user, remove *read only* privilege from `headTA` on `cs246_grade` table.
- b. (1 mark) As `headTA` user, list the `roll_number`, `name`, `email`, `marks` and `letter_grade` of `cs246` student.

- c. (1 mark) As `doaa` user, remove *read*, *insert*, *update* privileges on the table `cs246_student` for the columns `roll_number`, `name`, `reg_status`, `audit_credit`
- d. (5 marks) As `root` user, remove the privileges shown in table given in Task 06.
- e. (6 marks) As `root` user, remove the privileges shown in table given in Task 05.

Task 10 (5 marks) Answer the following

- a. As `root` user, delete the user `headTA`
- b. As `root` user, delete the user `saradhi`
- c. As `root` user, delete the user `pbhaduri`
- d. As `root` user, delete the user `doaa`
- e. Demonstrate that each of the above users do not exist on the database server

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 honest and independent 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