CS246: Database Management Systems Lab

Lab # 07 (1 Questions, 75 Points)
Timings: 14:00 to 17:00 Hours Pages: 3

IIT Guwahati

12 Mar 2020 (Thu)

Question 1: (75 points)

You are given the following files:

Input files description

courses04.csv Each line contains information about one course. The following attributes are given for each course

- Course id
- name of the course

room-allocation.csv Each line of this file contains information about one student. The exam this student is taking (mid/end), date on which the exam is held, time of the examination, room number in which student will write the exam.

- Course id
- Date
- Time duration
- Room id
- Roll number

rooms.csv Each line of this file contains description about one room

- Room id
- Room location

Problem Statement Your task is to:

Database Create a database named `exam_schedule_db`. The following SQL statement helps in this regard

1. Create database: `CREATE DATABASE exam_schedule_db;`
2. Using database: `USE exam_schedule_db;`

Tables Create three tables

1. `courses`
2. `rooms`
3. `room_allocation` (hint: use CHAR data type for date)

Table constraints Following constraints to be placed on the above tables.

Primary key Constraint

- courses: `course id`; Name the constraint as cid01
- rooms: `room id`; Name the constraint as rid01
- room_allocation: `course id, room id, date, time, roll_number`; Name the constraint as cid01_rid01_rollno

Foreign key Constraint

- room_allocation: `course id` on delete/update do cascading effect; name the constraint as: fcid01
- room_allocation: `room id` on delete/update do cascading effect; name the constraint as frid01

Populating tables In each of the file above, insert rows from the files `courses04.csv`, `rooms.csv` and `room-allocation.csv`. For this you have to write several `INSERT` statements. Write a C/C++ program that generate these INSERT statements

- To insert records from `courses04.csv` into `courses` table. Save these insert statements into a file `courses04.sql`. Execute `source courses04.sql` at the mysql command prompt.
- To insert records from `rooms.csv` into `rooms` table. Save these insert statements into a file `rooms.sql`. Execute `source rooms.sql` at the mysql command prompt.
- To insert records from `room-allocation.csv` into `room_allocation` table. Save these insert statements into a file `rooms_allocation.sql`. Execute `source rooms_allocation.sql`.

Queries Write SQL queries for the following

1. List the room numbers in which the following courses exams are scheduled: `BT101 or CE201 or CH211 or CL205 or CS101 or DD111 or EE206 or HS113 or MA102 or ME101 or PH102 or RT515`
2. List the roll numbers and room numbers who are write the exam CS101
3. List the distinct names of the course and location which are held on 03-05-2020 during 14:00 to 17:00 hours.
4. List the course numbers which are scheduled in Core V or Gallery II
5. List the course number which are scheduled in Core I but not in Lecture Hall
6. List the courses scheduled in minimum number of rooms
7. List the courses scheduled in maximum number of rooms
8. List the room id and course id which have maximum number of students of a particular course allotted in a room
9. List the course ids having only mid semester exam
10. List the course ids having only end semester exam

Instructions Adhere to the following

File naming Prepend C/C++ program file names with your roll number. Adhere to the input and output file naming convention as given in the problem description.

Write SQL statements in a file and store them.

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

one data structures and algorithms text book and one programming language text book of your choice.

Discussions with fellow students are not allowed.

Internet Use of internet during lab hours is not allowed.

Mobile phones Use of mobile phones in the lab hours is not allowed.

Evaluation At the end of 17:00 hours, TAs will come and evaluate your program. Leave the lab once your evaluation is completed.

Marking Scheme The evaluation criteria is as follows:

50 Marks Each question above carries 5 marks

10 Marks Data population

10 Marks Constraint placement

5 Marks Naming constraints