
CS345: Database Laboratory

Database Regular Lab Session (1 Questions, 20 Points)

Time: 09:00–12:00 (3.0 hours.) Pages: 3

IIT Guwahati

25 Jan 2018 (Thu) Lab session: ML5

Question 1: (20 points)

You are given a database (database-19-jan-2018) containing three distinct schemas:

- **exam-time-table.csv:** `course_id`, `exam_date`, `start_time`, `end_time`
- **course-credits.csv:** `course_id`, `number_of_credits`
- **course-wise-student-list** `serial_number`, `roll_number`, `name`, `email`
- **Note:** Login to mysql through the command: `mysql -uroot -p` (Maths and Computing students: password is abc123)

1. Problem Statement - Tables Creation: Refer to <https://dev.mysql.com/doc/refman/5.7/en/create-table.html>

- (a) Create database using the following SQL statement: `create database 25jan2018;`
- (b) Go into the created database with SQL statement: `use 25jan2018;`
- (c) Create tables for the two schemas with names `ett` for exam-time-table, `cc` for course-credits.
- (d) Create a table with name `cws1` having `cid` attribute (course id) in addition to the attributes given files of course-wise-student-list directory.
- (e) Define data types for each of the attribute in every schema given above. Justify your reasons in the comment line of the table creation.
- (f) Place attribute constraints (key, single value, domain, default, not null) for every attributes. Justify your decision in the comment line of the table creation.
- (g) Name every primary key constraint.
- (h) Name every unique constraint.
- (i) Create **TEMPORARY** tables with names `ett_temp`, `cc_temp` and `cws1_temp` and repeat steps (a) to (h).
- (j) Clone the table schemas `ett`, `cc` and `cws1`. Cloned table names should be: `ett_clone`, `cc_clone` and `cws1_clone`.
- (k) Every SQL statement associated with points (a) to (j) should be written in a separated line and stored in a file with name: `(roll_number).sql` file.

2. Populating data

- (a) Generate a file `roll_number_ett.sql` through a function of C program (file name: `roll_number.c`). This function should generate a series of INSERT statements one for every line in the file `exam-time-table.csv`¹. Write every IN-

¹Refer to Section 3.1 of the text book: *Database Management Systems* by Raghu Ramakrishnan and Johannes Gehrke

SERT statement in a separate line. Insert statements should be able to perform insert operation into three distinct tables you have created namely `ett`, `ett_temp`, `ett_clone`.

- (b) Generate a file `roll_number_cc.sql` through a distinct function of C program (file name: `roll_number.c`). This function should generate a series of INSERT statements one for every line in the file `course-credits.csv`. Write every INSERT statement in a separate line. The insert statements should be able to perform insert operation into three distinct tables you have created namely `cc`, `cc_temp`, `cc_clone`.
- (c) Generate a file `roll_number_cwsl.sql` through one more distinct function of C program (file name: `roll_number.c`). This function should generate a series of INSERT statements one for each line in every directory and every file of course-wise-student-list directory structure. The insert statements should be able to perform insert operation into three distinct tables you have created namely `cwsl`, `cwsl_temp`, `cwsl_clone`.

Note 1: Table schema for `cwsl` has one additional column `cid`. This has to be filled while generating INSERT statements. For example, the file `course-wise-student-list/bt/BT101.csv` containing first line

1,120102051,RAVI KIRAN JATAV,r.jatav
should be viewed as

BT101,1,120102051,RAVI KIRAN JATAV,r.jatav. This new line should be subject to INSERT statement generation.

- (d) Load every generated sql file using the statement `source roll_number_ett.sql;`
`source roll_number_cc.sql;` `source roll_number_cwsl.sql.`

3. Instructions

- (a) You must use SQL and C programming language to achieve this task.
- (b) **Naming convention:** Strictly following the file naming convention given above. Any other file naming than the specified one WILL NOT BE SUBJECT TO EVALUATION.
- (c) **File to be submitted:** You should submit a `tgz` file (with name `roll_number.tgz`) containing following:
 - i. `roll_number.sql`
 - ii. `roll_number.c`
- (d) **Submission Policy:**
 - i. **On time submission:** Assignments which are submitted on or before **25-Jan-2018, 12:00:00:00 hours** are considered as on time submissions. There is NO penalty associated with these submissions.
 - ii. **Late submission policy:** Every 30 minutes delay in submission after on time submission is subject to 20 percent marks reduction. Submissions

received after **25-Jan-2018, 14:00:01:00 hours** WILL NOT BE EVALUATED.

iii. **Double submission policy:** This is a case when a student already has submitted the assignment on time and would like to update the submission:

- A. When a second (or higher) submission is received it WILL be considered without any further dialogue.
- B. If your second (or higher) submission reaches on time there will be NO penalty.
- C. If your second (or higher) submission reaches after the dead line late submission policy will come into play automatically without any further dialogue.

iv. **Series of valid excuses:** Students who would like to submit after 14:00:00:01 SHOULD excuse the instructor.

- (e) **CSE student only:** You are not allowed to perform **mysql** installation during the lab session. If you have not installed **mysql** please leave the lab without disturbing fellow students.
- (f) **Maths & Computing students only:** Changing of the root password of mysql server will invite disciplinary action.
- (g) **Mobile phones** are not allowed inside the lab.
- (h) **Silence:** Any discussion among students should take place outside the lab. TAs have every right to maintain order in lab.
- (i) **Submitting your solution:** email to vijaya.saradhi@gmail.com. Subject: CS345: Your roll number.

4. Marking Policy

- (a) Main table(s) creation: 7 marks (key, single value, domain, default, NOT NULL, constraint naming etc) deliberation of attribute constraints)
- (b) Temporary tables creation: 2 marks
- (c) Cloning tables creation: 1 marks
- (d) Data creation for exam time table: 3 marks
- (e) Data creation for course credits: 2 marks
- (f) Data creation for course wise student list: 5 marks