DASC 5333 Database Systems for Data Science
CSCI 4333 Design of Database Systems
Fall 2024
Homework #5 Even More SQL

This assignment uses the toyu database in MySQL or MariaDB:
https://dcm.uhcl.edu/yue/courses/joinDB/fall2024/notes/toyu/toyu.html.

Provide the MySQL commands for the following queries. Make sure that your queries produce the exact output as shown below (however, row orders can be different).

The solution should be put in an executable .sql file. Name the file: CSCI4333_S<<Section Number>>_H5_<<Your name>>_<<Your Student ID>>.<<extension>>. Replace 'CSCI4333' by 'DASC533' if needed. For example: DASC5333_S1_H5_Smith_Mary.sql.txt. Submit your homework through Canvas. Add the extra extension .txt to submit to Canvas as it may disallow the upload of .sql file.

[1] Show the numbers of faculty in departments and colleges in the following manner.

```
+-----------------------------------+----------------+-----------------------------------+-----------------+
| college                           | # faculty (coll) | department                        | # faculty (dept) |
+-----------------------------------+----------------+-----------------------------------+-----------------+
| BUS: Business                     |              1 | ACCT: Accounting                  |               1 |
| CSE: Science and Engineering      |              8 | ITEC: Information Technology       |               2 |
| CSE: Science and Engineering      |              8 | MATH: Mathematics                 |               0 |
| CSE: Science and Engineering      |              8 | CINF: Computer Information Systems |               2 |
| CSE: Science and Engineering      |              8 | CSCI: Computer Science            |               4 |
| EDU: Education                    |              0 |                                   |               0 |
| HSH: Human Sciences and Humanities |             2 | ENGL: English                     |               1 |
| HSH: Human Sciences and Humanities |             2 | ARTS: Arts                        |               1 |
+-----------------------------------+----------------+-----------------------------------+-----------------+
8 rows in set
```

[2] The postal office in the university using toyu stores mail code information in an Excel file. It is now converted to a .csv file: mailcode.csv. The postal office desires to store the mail code information in toyu. It has been decided that a new table, Mailcode, should be created for that purpose. Study the .csv file and design and execute the SQL statement to create the table schema. List the assumption you made between deptCode and mailCode.

mailcode.csv.:

```
Department Code,Mail Code,Building,Room
ACCT,1290,"Bayou Building",1341
ARTS,1123,"Bayou Building",1022
CINF,1900,"Delta Building",160
CSCI,1901,"Delta Building",160
ENGL,1125,"Bayou Building",1022
ITEC,1902,"Delta Building",160
MATH,2001,"Delta Building",3130
```

[3] Use the "LOAD DATA" command in MySQL to load mailcode.csv into the table MailCode in toyu. Show the command in your submission. Tips: (a) LOAD DATA may load local client files or server-side files. (b) End of line is represented as \r\n in Windows.

```
SELECT * FROM MailCode;

+----------+----------+----------------+------+
| mailCode | deptCode | Building       | Room |
+----------+----------+----------------+------+
| 1123     | ARTS     | Bayou Building | 1022 |
| 1125     | ENGL     | Bayou Building | 1022 |
| 1290     | ACCT     | Bayou Building | 1341 |
| 1900     | CINF     | Delta Building | 160  |
| 1901     | CSCI     | Delta Building | 160  |
| 1902     | ITEC     | Delta Building | 160  |
| 2001     | MATH     | Delta Building | 3130 |
+----------+----------+----------------+------+
7 rows in set
```

[4] Create a view for the use of the postal office. Executing "SELECT * FROM MailView;" should show the following.

```
+----------+----------------+------+----------+-----------------------------+------------+------------------------------+-------+----------+----------+
| MailCode | Building       | Room | deptCode | department                  | schoolCode | schoolName                   | facId | facLName | facFName |
+----------+----------------+------+----------+-----------------------------+------------+------------------------------+-------+----------+----------+
| 1123     | Bayou Building | 1022 | ARTS     | Arts                        | HSH        | Human Sciences and Humanities | 1018 | Allister | Art      |
| 1125     | Bayou Building | 1022 | ENGL     | English                     | HSH        | Human Sciences and Humanities | 1020 | Bajaj    | Katrina  |
| 1290     | Bayou Building | 1341 | ACCT     | Accounting                  | BUS        | Business                     | 1021  | Neymar   | Jorginlo |
| 1900     | Delta Building | 160  | CINF     | Computer Information Systems | CSE        | Science and Engineering      | 1015  | Kim      | Daniel   |
| 1900     | Delta Building | 160  | CINF     | Computer Information Systems | CSE        | Science and Engineering      | 1016  | Byre     | Andrew   |
| 1901     | Delta Building | 160  | CSCI     | Computer Science            | CSE        | Science and Engineering      | 1011  | Smith    | Paul     |
| 1901     | Delta Building | 160  | CSCI     | Computer Science            | CSE        | Science and Engineering      | 1012  | Tran     | Mary     |
| 1901     | Delta Building | 160  | CSCI     | Computer Science            | CSE        | Science and Engineering      | 1013  | Love     | David    |
| 1901     | Delta Building | 160  | CSCI     | Computer Science            | CSE        | Science and Engineering      | 1014  | Mannes   | Sharon   |
| 1902     | Delta Building | 160  | ITEC     | Information Technology       | CSE        | Science and Engineering      | 1017  | Gump     | Deborah  |
| 1902     | Delta Building | 160  | ITEC     | Information Technology       | CSE        | Science and Engineering      | 1019  | Yu       | Benjamin |
| 2001     | Delta Building | 3130 | MATH     | Mathematics                 | CSE        | Science and Engineering      | NULL  | NULL     | NULL     |
+----------+----------------+------+----------+-----------------------------+------------+------------------------------+-------+----------+----------+
12 rows in set
```

[5] Write a function getMailCode to accept a schoolCode and return a list of mail codes for the school in the following manner. You must use the view MailView.

```
CREATE OR REPLACE FUNCTION getMailCode(sCode CHAR(4)) RETURNS VARCHAR(255) …
```

```
SELECT getMailCode('CSE');
+------------------------+
| getMailCode('CSE')     |
+------------------------+
| 1900; 1901; 1902; 2001 |
+------------------------+
```

[6] Write a MySQL procedure to take one input parameter: the name of a table inside the toyu database. It should set one output parameter row_count to count the number of rows in the table.

```
CREATE OR REPLACE PROCEDURE count_rows(
    IN table_name VARCHAR(64),
    OUT row_count INT
)
…

CALL count_rows('student', @row_count);
Query OK, 1 row affected (0.001 sec)

MariaDB [toyu]> SELECT @row_count;
+------------+
| @row_count |
+------------+
|         11 |
+------------+
1 row in set (0.000 sec)

MariaDB [toyu]>
MariaDB [toyu]> CALL count_rows('enroll', @row_count);
Query OK, 1 row affected (0.000 sec)

MariaDB [toyu]> SELECT @row_count;
+------------+
| @row_count |
+------------+
|         22 |
+------------+
1 row in set (0.000 sec)
```