Database Systems
Spring 2026
Homework #5 Even More SQL

This assignment uses the database toyu and information_schema in MySQL or MariaDB. Please carefully study the documentation of toyu.

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 h5.sql. If Canvas disallows the upload of .sql file, add .txt at the end.

Your code should use the database tinker. Thus, the first three lines of your h5.sql should be:

```
DROP SCHEMA IF EXISTS tinker;
CREATE SCHEMA tinker;
USE tinker;
```

The last line of your h5.sql:

```
DROP SCHEMA IF EXISTS tinker;
```

[1] Write a MySQL function, GetNumClasses, to use the database toyu. It accepts a student id and returns the number of classes the student has enrolled in. For example:

```
+-----------------------+
| GetNumClasses(100000) |
+-----------------------+
|                     6 |
+-----------------------+
1 row in set
```

[2] Write a procedure, GetDBTableInfo, to accept the name of a database (schema) in MySQL and output the names of tables in the database, and the number of columns of each table. For example:

```
MariaDB [tinker]> CALL GetDBTableInfo('toyu');
+------------+-------------------+
| Table name | Number of columns |
+------------+-------------------+
| class      |                 6 |
| course     |                 5 |
| department |                 4 |
| enroll     |                 4 |
| faculty    |                 5 |
```

```
| grade      |                 2 |
| school     |                 2 |
| student    |                 7 |
+------------+-------------------+
8 rows
```

[3] Write a view, TableInfo, for information of every table in MySQL. For each table, there should be four columns: [1] db_name: name of the database, [2] table_name: name of the table, [3] num_columns: number of columns of the table, [4] num_tables: number of rows of the table.

The following example illustrates how the view should be constructed.

```
MariaDB [tinker]> SELECT *
    -> FROM TableInfo
    -> WHERE db_name = 'swim';
+---------+----------------+-------------+----------+
| db_name | table_name     | num_columns | num_rows |
+---------+----------------+-------------+----------+
| swim    | caretaker      |           5 |        6 |
| swim    | coach          |           5 |        5 |
| swim    | commitment     |           9 |       13 |
| swim    | event          |          28 |       11 |
| swim    | level          |           3 |       10 |
| swim    | levelhistory   |           5 |       14 |
| swim    | meet           |           7 |        3 |
| swim    | othercaretaker |           5 |        6 |
| swim    | participation  |           9 |       24 |
| swim    | swimmer        |          10 |        6 |
| swim    | venue          |           7 |        3 |
| swim    | v_task         |           5 |        6 |
| swim    | v_tasklist     |           6 |        3 |
+---------+----------------+-------------+----------+
13 rows in set
```

[4] Write MySQL code to use the toyu database and return the number of faculty in departments, colleges, and the university in the following manner.

```
+------------------------------+----------+------------------+------------+---------+------------+
| college                      | deptCode | number of faculty | department | college | university |
+------------------------------+----------+------------------+------------+---------+------------+
| Business                     | ACCT     |         =>       |          1 |       1 |         11 |
| Education                    |          |         =>       |          0 |       0 |         11 |
| Human Sciences and Humanities | ENGL     |         =>       |          1 |       2 |         11 |
| Human Sciences and Humanities | ARTS     |         =>       |          1 |       2 |         11 |
| Science and Engineering      | ITEC     |         =>       |          2 |       8 |         11 |
| Science and Engineering      | MATH     |         =>       |          0 |       8 |         11 |
| Science and Engineering      | CINF     |         =>       |          2 |       8 |         11 |
| Science and Engineering      | CSCI     |         =>       |          4 |       8 |         11 |
+------------------------------+----------+------------------+------------+---------+------------+
8 rows in set
```