

**CISS430: Database Systems**  
**Assignment 2**

**OBJECTIVES**

1. Write basic SQL statement to create a database.
2. Write basic SQL statement to create a table that includes a primary key constraint.
3. Write basic SQL statement to create a table that includes basic foreign key constraint.
4. Write basic SQL to insert rows into a table.
5. Write basic SQL statement to select and join tables.

**SUBMISSION**

1. Create a directory a01.
2. For each question create a directory inside a01. For Q1, create directory a01/a01q01, for Q2, create directory a01/a01q02, etc.
3. All the work for Q1 must be placed in a01/a01q01, all the work for Q2 must be placed in a01/a01q02, Etc.
4. For Q1-Q3, you need to write SQL statements, one file per question.
5. Archive and compress your a01:

```
tar -cvf a01.tar a01; gzip a01.tar
```
6. Email [yliow.submit@gmail.com](mailto:yliow.submit@gmail.com) your a02.tar.gz from your college email account. The subject line of your email must be **ciss430 a02**.
7. If you have any questions about submission, make sure you talk to me or check with someone in class.

The following must be done with MySQL. You must avoid (as much as possible) features specific to MySQL, i.e., you should use standard SQL as much as possible.

Read the whole pdf before you start work. Understand and interpret the scenario and the problem before you dive in. Q1, Q2, Q3 are related and should be done in sequence.

Q1. File: a02/a02q01/main.sql.

Write SQL statements to create a database. Name the database **cms**.

Dr. Liow needs a database for his classes. Here's what you need to know.

An example of a class/section is "Spring 2017 CISS430A Database Systems". Note that Dr. Liow teaches several classes each semester. Also, note that each semester has a season (Fall or Spring) and a year (integer). Furthermore, a semester (of course) must have a starting and an ending date. Note that the A in the above is called a section, or more specifically the section letter.

The course number CISS430 is made up of CISS and 430. CISS is called the program and 430 is called the number. Besides that, each course has a name. For instance CISS430's name is Database Systems.

From the above given information, the following tables must be present

- **year**
- **season**
- **semester**
- **course**
- **section**

There should also be a **person** table with firstname, lastname, email, user, password (all varchar data type). The user and password is for logging into the college information system. Ultimately all faculty members, staff, students, etc. will be entered into the **person** table. There's also an **instructor** table. The **instructor** table references the **person** table. (For now, the **instructor** table does not have data other than an **id** column and a column to reference the **person** table.) From the above, the following tables must be present

- **person**
- **instructor**

(Students and staff are not considered yet for this assignment – do not create tables for them in this assignment.)

Every table must start with an **id** column with data type INT which is a primary key for that table. For instance in the **year** table, there's a **id** column of INT data type.

Ensure that you have appropriate constraints, default values, etc. You must minimize data redundancies as much as possible.

Foreign key (simple case) naming convention follows what is used in the notes. For instance if each row of table B points to (or references) a row in table A, then B must have a column named **A\_id** which is used to join to table A's **id** column. See notes.

Q2. File: a02/a02q02/main.sql.

Write SQL statements to insert the relevant data into the database.

Enter the following data into the database.

- Faculty information:
  - Dr. Liow's information. Firstname: Yihsiang, lastname: Liow, user: `yliow`, password: `password`.
  - Dr. John Doe's information. Firstname: John, Lastname: Doe, user: `jdoe`, password: `secret`.
- Semester information:
  - The Spring 2017 semester starts Jan 15 and ends May 15.
  - The Fall 2017 semester starts Aug 15 and ends Dec 15.
  - The Spring 2018 semester starts Jan 15 and ends May 15.
- Course information:
  - CISS145 Python Programming
  - CISS240 Introduction to Programming
  - CISS245 Advanced Programming
  - CISS350 Data Structures and Advanced Algorithms
  - CISS430 Database Systems
  - MATH225 Discrete Mathematics I
  - MATH325 Discrete Mathematics II
- Teaching information:
  - In Spring 2017, Dr. Yihsiang Liow is teaching CISS240A, CISS350A, CISS430A.
  - In Spring 2017, Dr. John Doe is teaching CISS145B, CISS240B.
  - In Fall 2017, Dr. Yihsiang Liow is teaching CISS245C, CISS350C, MATH325C.
  - In Fall 2017, Dr. John Doe is teaching CISS240A, CISS350A, MATH225A.
  - In Spring 2018, Dr. Yihsiang Liow is teaching CISS245A, CISS350A, CISS430A.

Do not be fooled by the amount of data for this database. Most databases are huge and can contain millions/billions of rows of terabytes of data. In future assignments, you will be working with larger dataset from public government datasets or public corporate datasets.

Q3. File: a02/a02q03/main.sql.

Write an SQL statement to generate a report of all sections taught for the year 2017 (fall and spring). The output should contain

1. semester, as in season and year
2. instructor firstname,
3. instructor lastname,
4. course and section, as in program and number and course name and section letter,

sorted in the above order. Here's an example of a row in the output (the data shown is not correct):

Spring 9999 Tom Smith CISS 123 B Underwater Pottery

Do not include any information not stated above.

Note that correctness is not based on your SQL output but based on the correctness of your SQL select statement.