- Directions to submit the homework.
  - Perform all SQL queries in Problems 1 ~ 7 using SQLite in Jupyter notebook, and save queries and results as hw1_StudentID.ipynb, where StudentID is a student identifier given to a GIST student.
  - For each query in Jupyter notebook, the Problem number should be specified using comment – or /* */ . For example, Problem 2 should start as follows. Note that you can specify more than one **create table** and **insert into** commands if %%sql used. Here, two queries should be separated by the symbol ;.

```
%%sql -- Problem 2
create table person (
```

```
%%sql   /* Problem 2 */
create table person (
```

  - Upload the hw1_StudentID.ipynb file to the GEL system 09:00 pm on April 13th, 2021.
  - Late submission policy: For every day after due date, 20% of gained marks are deducted.
  - Do not copy other students' answers.

1. (35 pts) Write the following queries in SQL, using the university schema. You need to actually run these queries on the db_univ7.db database.

   (1) Find the titles of courses in the Comp. Sci. department that have 3 credits.
   (2) Find the IDs of all students who were taught by an instructor named Einstein; make sure there are no duplicates in the result.
   (3) Find the highest salary of any instructor.
   (4) Find all instructors earning the highest salary (there may be more than one with the same salary).
   (5) Find the enrollment of each section that was offered in Fall 2017. Output course_id, sec_id, and enrollment of the corresponding section.
   (6) Find the maximum enrollment, across all sections, in Fall 2017.
   (7) Find the sections that had the maximum enrollment in Fall 2017. Output course_id and sec_id of the corresponding sections.

2. (25 pts) Write a CREATE TABLE command to create tables for **Insurance database** with **person, car, accident, owns,** and **participated** relations. Primary keys are underlined. For example, (driver_id, license_plate) are a primary key of owns. Make any reasonable assumptions about data types, and be sure to declare foreign keys. You need to specify

integrity constraints including primary key and foreign key constraints when creating tables.

person (driver_id, name, address)
car (license_plate, model, year)
accident (report_number, year, location)
owns (driver_id, license_plate)
participated (report_number, license_plate, driver_id, damage_amount)

3. (20 pts) (1) Insert tuples into the five relations in **Insurance database** created in Problem 2: **person, car, accident, owns,** and **participated**. Make sure that you need to insert tuples with values that can output nonempty relation for Problems 4 ~ 7.
   (2) List all tuples in the person relation.
   (3) List all tuples in the car relation.
   (4) List all tuples in the accident relation.
   (5) List all tuples in the owns relation.
   (6) List all tuples in the participated relation.

- Use **Insurance database** created in Problem 2 for Problems 4 – 7.

4. (5pts) Write a SQL query to find the total number of people who owned cars that were involved in accidents in 2021.

5. (5pts) Write a SQL query to find the number of accidents involving a car belonging to a person named "John Smith".

6. (5pts) Delete all year-2010 cars belonging to the person whose ID is '12345'.

7. (5pts) Update the damage amount for the car with license plate "AABB2000" in the accident with report number "AR2197" to $3000.