COMP3013 2025 Fall

Assignment 1

This assignment covers lecture 1 – 2 and lab 1 – 3.

Note: there is no requirement on ER diagram drawing. You are allowed to draw ER diagrams using any tool. But you need to make sure that your drawing is clear enough. TAs have rights to remove marks if your graph unreadable. Please do not try to challenge us.

Student are expected to submit two files.

- "COMP3013_25F_A1_XXX.sql", where "XXX" is your student ID. This SQL file contains all the SQL queries for Q1. First line of the file should contain your name and ID as a comment. And question number for each question is also included as a comment. SQL comments are quoted by the sign /*…*/.
- "COMP3013_25F_A1_XXX.pdf", for the ER diagram of Q2.

Submissions which do not following the guideline may **not be marked**.

Q1. The schema of a database is given as follows. Keys are underlined.

- `student=(sID,sname,gender,age,gpa,pname)`
  `// gender` is either `male` or `female`.
- `program=(pname,division)`
  `// pgname` is the program name
- `course=(cID,cname,pname,credit)`
  `// credit` is an integer and $1 \leq$ `credit` ≤ 3.
- `enroll=(sID,cID,grade)`
  //`grade` is one of `A`, `B`, `C`, `D`, or `F`.

Write a query for each following question. Please submit your answers of this question via **iSpace Feedback**. (8 marks for each)

a) Find the GPA of Goliath (student name).
b) Find the division which offers the course Computer Organization (course name).
c) Find the name of courses taken by at least one student whose gpa is 4.0.
d) Find the name of girls who have taken Database (course name).
e) Find the name of boys who have taken Database or Algorithm (course names).
f) Find the name of students who have enrolled some 1-credit courses.
g) Find the name of students who have received `F` (grade) for a 3-credit course.
h) Find the name of students who have enrolled courses from different divisions.

Q2. Suppose you are an administration staff at BNBU. You want to design a relational database to manage alumni status. Now, you are at the conceptual design stage. Thus, please design an ER diagram to model alumni, universities, degrees, companies, etc. under the following assumptions. (36 marks)

- Each alumnus is described as ID, name, gender, date of birth, enrollment year, graduation year, major, phone number, and email.

- Every university is described as ID, name, country.
- Each degree is described as ID, title, and program.
- Degrees are offered by universities.
- Some alumni continue their studies for some degrees. For the further study of each alumnus, you also need to model the enrollment year and the graduation year.
- Each company is described as ID, name, location, type, and functional area.
- Some alumni are working at some companies with a title and salary.

You do not need to make more assumptions on your design.