EE5178
111-2 Homework 3

End of lecture 6
20230411

Homework 3

Based on the ER model and relational database you built in Homework 1 and 2 , we design SQL statements to extract useful or interesting information in this homework. We will use 'MySQL Command line client - Unicode'. For your homework, please design:

Basic select

Write a SELECT statement on one table that contains three or more conditions connected by AND, OR, and NOT comparison operators. You must use AND, OR, NOT each at least once.

Basic projection

Write a SELECT statement on one table to show the effect of projection (show less attributes than there are attributes in the table.)

Basic Rename

Write a SELECT statement that selects some tuples from a table, and uses rename to make the names for all the attributes easier to read.

UNION

- Write a statement to demonstrate the UNION operation between two tables in your database. If your database do not already have two tables that are union-compatible, you need to create a new table so that you have two union-compatible tables. If that's the case, you need submit your CREATE TABLE statement for the new table along with your UNION statement.

Equijoin

Write a SELECT statement that performs an equijoin between two tables.

Natural join

Write a SELECT statement that performs a natural join between two tables.

Theta join

Write a SELECT statement that performs a theta join between two tables which is not a equijoin.

- Hint: for the last 3 problems, you need clearly understand the definition of equijoin, natural join and theta join.

Homework 3 (2)

Three table join

- Write a SELECT statement that performs joins among three tables

Aggregate

Write a SELECT statement that demonstrates aggregate functionality by using GROUP BY and MAX, MIN, and COUNT

Aggregate 2

Write a SELECT statement that demonstrates aggregate functionality by using GROUP BY and HAVING clauses and AVG, SUM, and COUNT

IN

Write a SELECT statement that uses IN operator and explicit set value

IN 2

Write a SELECT statement that uses IN operator and dynamic set value

Correlated nested query

Write a SELECT statement that implements a correlated nested query using the IN operator

Correlated nested query 2

Write a SELECT statement that implements a correlated nested query using the EXIST operator

3% bonus 1

Write a SELECT statement that implement a left outer join in MySQL.

2% bonus 2

Write a SELECT statement that implement correlated nested query using the NOT EXIST operator

Homework 3 (3)

- Note:
  - For you to get points for each problem in this homework, you need to make sure the result of each of your SQL statement is not an empty relation. For this, you may need to insert additional rows into your table. You do not need to show these insert statements in your homework submission. Just insert the necessary row to ensure that none of your statement result is empty.
  - If one of your SQL statement returns an empty relation, you will not get points for that problem, even if the syntax of your SQL statement is correct.

- Hint:
  - For your get good points for this homework, the best way is to ensure you fully understand the definitions of all related SQL operators, clauses, and commands before you start to solve each of your homework problems.
  - You can/should MySQL documentation for correct syntax of SQL statement

TA Grading Guidelines

- 5% Basic select
- 5% Basic projection
- 5% Basic Rename
- 5% UNION
- 10% Equijoin
- 10% Natural join
- 10% Theta join
- 10% Three table join
- 5% Aggregate
- 5% Aggregate 2
- 5% IN
- 5% IN 2

- 10% Correlated nested query
- 10% Correlated nested query 2
- Total 100%
- 3% 3% bonus 1
- 2% 2% bonus 2
- Total 105%

Homework 3 submission

- Deadline: **4/25 Tue. 23:59 (GMT+8)**
- File name :
  - 將檔案命名為 hw3_{student_id}.sql (例如: hw3_r07000001.sql)
  - 格式錯誤一律扣10分
- Submission : NTU Cool
  - 參照NTU Cool 作業區檔案example.sql
  - 請將SQL command 依照下列段落排列整齊，每段以註解開頭
  - 程式碼不能跳error，有error 一個扣10 分
  - 只要交程式碼，不需要交執行結果。

Homework 3 submission

- Others :
  - 若因作業需求小幅更動是可以的，此次不用再將更動部份額外打成pdf，交程式碼即可
- Delay
  - One day: original score * 0.8
  - More than two days: get no points
- TA hour: Mon. 09:00 – 11:00 @ 博理603
- TA mail: ntudbms2023.ta@gmail.com
- Q&A : NTU COOL 討論區 || TA mail