THE UNIVERSITY OF HONG KONG
FACULTY OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE

COMP3278B Introduction to Database Management Systems

SQL on VPL

Deadline: 26 April, 2022 (Tue) 17:00 pm

Consider the following three tables in a Cookbook database.
- `Ingredient (iID, iname, madeIn)`
- `Dish (dID, dname, cuisine, vegetarian, introduction)`
- `Recipe (dID, iID, usageDec)`
  - Since a dish can use multiple ingredients, the relation `Recipe` matches up `Ingredient`(identified by `iID`) with `Dish` (identified by `dID`) and stores the usage (`usageDec`) of the ingredient in the cooking progress.

1. List the `iID`, `iname`, `usageDec` of the ingredient(s) in the recipe of the dish with `dID` as 2.

   o In descending order of `iID`.

2. List the `dID`, `dname` of all Korean cuisine vegetarian dish(es) without using peanut in its recipe.

   o In descending order of `dID`, remove duplicates.

3. List the `iID`, `iname` of the ingredient(s) in the recipe of the Chinese cuisine dish(es) with "crab" appear in the introduction.

   o Case insensitive matching, in descending order of `iID`, remove duplicates.

4. List the `dID`, `dname` of the dish(es) that uses the ingredient "King Crab Legs" (iname) from "Alaska" (madeIn) in its recipe.

   o In descending order of `dID`, remove duplicates.

5. List the `iID`, `iname` of the ingredient(s) that are not in the recipe of any Chinese cuisine dishes.

   o In descending order of `iID`, remove duplicates.

6. List the `dID`, `dname` of the dish(s) that use all 3 ingredients ("Ginger", "Onion" and "Garlic") in its recipe.

   o In descending order of `dID`, remove duplicates.

7. List the `iID`, `iname` of the common ingredient(s) among the dishes ("Garlic Crab Legs", "Crab Salad", and "Fried Shrimp")

   o In descending order of `iID`, remove duplicates.

8. List the `dID, numOfIngredients` of dish(es) with 3 to 5 ingredients in its recipe.

   o `numOfIngredients` is the number of ingredients used in the recipe of the dish.

   o In descending order of `dID`.

9. Find the `dishCount` for the ingredient called "Geoduck".

   o `dishCount` is the number of dish(es) that use "Geoduck" in its recipe.

   o You can assume that there is at least one dish that use "Geoduck" in its recipe in the cookbook.

10. For all ingredients madeIn "Japan", list the `iID, numOfKoreanDishes`.

    o `numOfKoreanDishes` is the number of Korean cuisine dishes using that ingredient in its recipe.

    o in descending order of `iID`.

11. List the `iID, iname` of all the ingredients among all Chinese cuisine dishes.

    o In descending order of the popularity (use times in the Chinese cuisine recipes) of the ingredients.

    o In case of a tie, resolve by listing the ingredients with smaller `iID` first.

End of Questions

Attention:

1. Please submit your SQL to **Moodle Virtual Programming Lab (VPL)**, you may evaluate to see if it scores full mark. Reminder: ; is needed at the end of SQL.

2. VPL is using sqlite3 instead of mysql, and they have slightly different grammar. Your code **MUST pass the VPL** to score marks. The score will be given immediately on VPL.

3. The database instances is provided (file "A4_Data.sql") for your reference.

4. If you have any question about the assignment, please feel free to discuss with the teaching team and other students on Moodle forum.