Assessment Details

Part 1 (40 marks)

Given the academics database provided in the file academics.sql, answer the following queries in relational algebra **and** SQL. (8 marks/query, 4 marks for the relational algebra and 4 marks for the SQL).

1. Find the family and given names of academics who are interested in the field number 292.
2. Find the paper number and title of papers containing the word “database” in their title.
3. Find the family and given names of academics who have authored at least one paper with the word “database” in the paper’s title.
4. Find the family and given names of academics who have not authored any paper.
5. Find the family and given names of academics who are working for the “University of Canberra” who have not authored any paper.

Part 2 (60 marks)

Given the academics database provided in the file academics.sql, answer the following queries only in SQL. (6 marks/query)

1. Find the total number of academics who have an interest in databases (you should look for the word “database” in both the Interest and Field tables).
2. Find how many academics are interested in the field number 292.
3. Find how many academics are interested in each field, and order the results by the most popular fields first. List the field number and the number of academics interested in each respective field.The most popular field is the field with the largest number of academics interested in it. There could be many fields equal for the first place.
4. Find the field number of the most popular field(s). Note: there could be many fields equal for the first place.
5. Find the family and given names of the academics who are interested in the most popular field(s). Note: there could be many fields equal for the first place. [Update:] HINT: You may have to use 'AS' in your sub-query from now on.
6. Find the average number of academics interested in each field.
7. Find the number of papers authored by each academic. List the academic number,family and given names of each academic along with the number of papers they authored. Order your results by the largest number of papers first. Don’t forget to include the academics who are not the author of any paper.
8. Write 3 different SQL queries answering the following query: Find the family and given names of the academics who are interested in less than 2 fields.
   * Answer this query using a GROUP BY.
   * Answer this query using a non correlated sub-query and without using a GROUP BY.
   * Answer this query using a correlated sub-query and without using a GROUP BY.

Submission Instruction

1. You have to submit 2 files: one text Document (name: s1234567-ISYS2077-A2.*EXT*, can be a doc, docx or pdf), containing the relational algebra answers, and one text file, created with PyCharm any text editor like notepad++ (name: s1234567-ISYS2077-A2.sql), containing your SQL answers to the questions above. Do not forget to replace 1234567 with your actual student ID.
2. The text document must follow the following rules. Failure to follow these rules will result in a loss of marks.
   * Write your name and student ID at the top right of the first page of your document.
   * Label your answers very clearly.
   * Write your relational algebra answer. Use the built-in equation editor. Since there is no join operator symbol in this software, use ⊗ to represent the join in your relational algebra answers.Format your document with Times New Roman and font size 12.
3. The text file should contain all your SQL queries in text format only. All your queries should be terminated by a semi-colon ‘;’ and you should have one empty line in between your queries. Your text file should look like the .sql files provided to you in previous examples available on Canvas.You should submit a file that does not produce any SQL errors. Test your file before you submit it.
4. Failure to follow the directives may result in a loss of marks.
5. You can use the online verification system to verify your answer. This system verifies if your SQL answers output the same tuples as the respective solutions for a particular database instance. Hence, this system does NOT guarantee that your answer is correct (for all database instances).
   * Access to the site [to be updated]