

# Inf1B Data and Analysis

## Tutorial 4 (week 6)

11 Feb 2009

- Please answer all questions on this worksheet in advance of the tutorial, and bring with you all work, including printouts of code and other results. Tutorials cannot function properly unless you do the work in advance.
- Data & Analysis tutorial exercises are not assessed, but are a compulsory and important part of the course. If you do not do the exercises then you are unlikely to pass the exam.
- Attendance at tutorials is obligatory; please let your tutor know if you cannot attend.
- *Required Reading:* Chapter 5 (SQL) of ‘Database Management Systems’ (Raghu Ramakrishnan and Johannes Gehrke, 2003).

## 1 Introduction

In the previous tutorial you formulated some queries in relational algebra and tuple-relational calculus in the air travel domain. In this tutorial, you will formulate queries for the same tables in SQL. You will also interact with a database using *OpenOffice Base* using the queries you have formulated.

### 1.1 OpenOffice Base

In this tutorial, you will be using *OpenOffice Base*. To set up the program on a DICE machine, you need to follow the following steps:

- (a) Download `Comp.odt` from the course webpage:  
<http://www.inf.ed.ac.uk/teaching/courses/inf1/da/>

- (b) From the desktop, choose **Applications -> Office -> Database Development** (alternatively, you can open a terminal window and type `oobase &`)
- (c) When the *Database Wizard* window appears, choose ‘*Open an existing database file*’.
- (d) Click <Open>.
- (e) Locate `Comp.odt` and click <Open>.

Air travel data are now loaded and you are ready to start the tutorial. Please note that *OpenOffice Base* may sometimes respond somewhat slowly and may even crash on occasion, so make sure you regularly save any data you wish to keep!

## 1.2 SQL Trivia

- SQL is *not* case sensitive. So keywords, table names, column names etc., can be written upper-case, lower-case or mixed upper/lower-case without affecting meaning.
- Nevertheless, often keywords are written in upper case, and it is good practice to maintain a consistent approach to the cases used in table and field names.
- In contrast to the above, strings *are* case sensitive.
- Note that strings are written using single quotation marks (apostrophes) as delimiters, *viz:* `'this is a string'`.

## 2 Queries in SQL

The tables in this database have the same design as the last tutorial. There are four tables - Airport, Passenger, Flight and Seat. For each of the questions do the following.

- formulate the specified query in SQL
- run the query on the Comp database
- write down the output table from your query

To run the query on the Comp database, you need to follow the following steps:

- Click on **Queries** in the left column on the **Comp**-window.
- In the **Tasks**-view, choose ‘*Create Query in SQL View*’.
- Enter your query in the white space in the window that opens.

- Save the query (Ctrl + S) as *QueryN*.
  - Go back to the **Comp**-window and double-click on *QueryN*. Results will be displayed in a new window.
  - To edit the query, right click on it in the **Comp**-window and choose '*Edit in SQL View*'.
- (a) Retrieve all the rows in Airport table for all the airports in London city. The schema of the output table should be same as that of the Airport table.
  - (b) Retrieve all British and French passengers. The schema of the output table should be same as that of the Passenger table.
  - (c) Retrieve the names of all the passengers.
  - (d) Retrieve the flight number, Departure and Arrival airports of all British Airways flights.
  - (e) Retrieve the name of every passenger together with their flight number and the associated flight company.
  - (f) Retrieve all flights from all airports in London. The output schema should be same as that of Flight table.
  - (g) Retrieve the ticket numbers and names of all passengers departing from London.
  - (h) Retrieve the flight number and flight company of all flights from London to Paris.
  - (i) Retrieve the ticket numbers and names of all passengers travelling in Business class.
  - (j) Retrieve the names and nationalities of all the Business class passengers travelling from London to Paris.