School of Computing and Information Technology
University of Wollongong

Session: **Autumn 2017**
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CSIT115/CSIT815 Data Management and Security
Laboratory 5
15 April 2017

Scope

This laboratory includes the tasks related to application of Data Manipulation statements and simple `SELECT` statements of SQL.

The outcomes of the laboratory work are due by **Saturday, 29 April, 2017, 7.00 pm.**

This laboratory contributes to 2% of the total evaluation in the subject.

A submission procedure is explained at the end of specification.

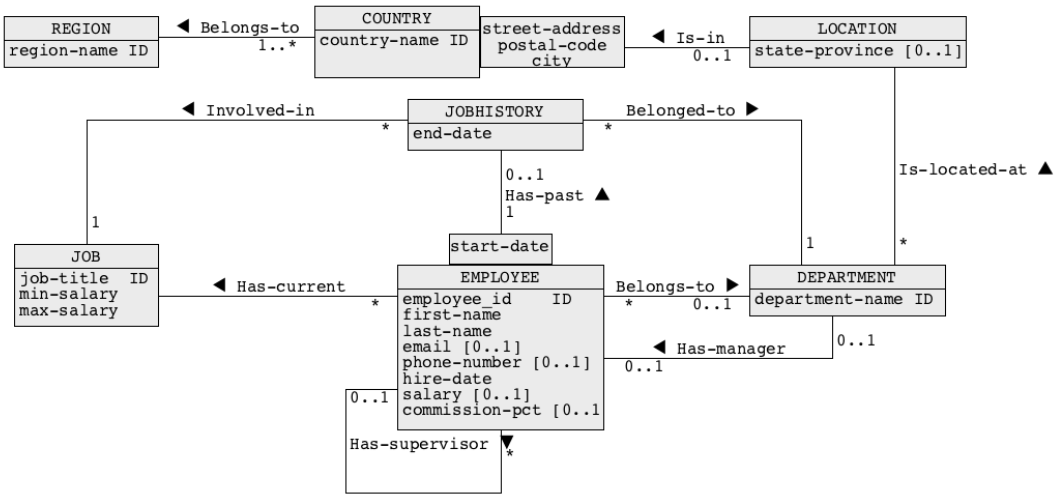
This laboratory consists of 2 tasks and specification of each task starts from a new page.

It is strongly recommended to solve the problems included in this specification **before coming to a laboratory class** and bring the preliminary solutions to a laboratory class such that any doubts, question, problems, etc can be discussed with a tutor in a laboratory class. Such procedure allows for more effective use of time spent in a supervised laboratory class.

Prologue

Download and unzip a file `laboratory5-all-files.zip`. You should get the files `Laboratory5.pdf`, `dbcreate.sql`, `dbdrop.sql`, and `dbload.sql`. Copy the files to your USB drive such that you can access both files either through command line interface mysql or graphical user interface MySQL Workbench. You can also email a file `laboratory5-all-files.zip` to yourself such that you can access it on different systems. Finally, the simplest solution is to download the file directly to Ubuntu Linux from `http://www.uow.edu.au/~jrg/115/LABORATORIES/LABORATORY5`.

Connect to MySQL either through command line interface mysql or graphical user interface MySQL Workbench and execute script files `dbcreate.sql` and `dbload.sql`. The script files create and load data into a database that contain information about a company and its employees. The company consists of several departments located in the cities all over the world. The database also contains information about the present and past jobs of its employees and about the present managerial structure. A conceptual schema of the database is given below.



Tasks

Task1 (1 mark)

Your task is to use `INSERT`, `DELETE`, and `UPDATE` statements of SQL to implement a script file `solution1.sql` that performs the database manipulation operations listed below. An important condition is that you are **NOT ALLOWED** to alter and/or drop any consistency constraints before and during execution of the script!

(1) Insert into the database information about an employee.

`Harry Potter`, employee id `300`, phone number `515.123.8182`, hired at `10 February 2010`. His email is `harrypotter@gmail.com`. He has been hired as a `Programmer`. His salary is `7000` and his commission percentage is `50%`. He works in the department of `Information Technology` and his supervisor id is `103`.

(2) An employee with an employee id equal to `206` is not a supervisor of any other employee. The employee decided to leave a company. Remove from a database all information about the employee.

(3) A department `Human Resources` has been moved to a new location. The new address is `100 Century Avenue`, `Shanghai`, `China`. Post code is `200120`.

When ready execute SQL scrip `solution1.sql` and save a report from the processing of the script in a file `solution1.rpt`.

Hint: You can find a lot of applications of database manipulation statements in the "*Cookbook*".

Deliverables

Submit a report file `solution1.rpt` with a report from processing of SQL script `solution1.sql`. The report MUST have no errors and the report MUST list all SQL statements processed. The report MUST include ONLY SQL statements and control statements that implement a specification of Task 1 and NO OTHER statements.

A report that contains no listing of executed SQL statements scores no marks !

A report that contains any kind of errors scores no marks !

Processing of the script on an empty database scores no marks !

Processing of the script that contains statements other from `INSERT`, `DELETE`, `UPDATE`, `source`, `notee` scores no marks !

Submission of a file with a different name and/or different extension and/or different type scores no marks !

Task 2 (1 mark)

Connect to MySQL either through command line interface mysql or graphical user interface MySQL Workbench and execute the script files `dbdrop.sql`, `dbcreate.sql`, and `dbload.sql` to refresh the contents of the sample database

Implement the following queries as `SELECT` statements of SQL and save the statements in SQL script file `solution2.sql`.

(1) Find the names of departments located in `Sydney`, `Australia`.

(2) Find the titles of jobs that offer salary in a range between `7500` and `8500` inclusive. Note, that a job with a salary range between `7600` and `8000` should be included in the answer.

(3) Find the full names of employees who are the topmost level supervisors, i.e. who are not supervised by any other employee.

(4) Find the employee ids and job titles of employees whose jobs ended in `1998`.

(5) List the full names of all departments and full names of employees working in each department. The results should be displayed in the descending order of department names and the full names of employees from the same department must be listed in the ascending order of the last names.

When ready execute SQL scrip `solution2.sql` and save a report from execution in a file `solution2.rpt`.

Hint: You can find similar `SELECT` statement already implemented in the "*Cookbook*".

Deliverables

Submit a file `solution2.rpt` with a report from processing of SQL script `solution2.sql`. The report MUST have no errors and the report MUST list all SQL statements processed. The report MUST include ONLY SQL statements and control statements that implement a specification of Task 2 and NO OTHER statements.

A report that contains no listing of executed SQL statements scores no marks !

A report that contains processing errors scores no marks !

Processing of the script on an empty database scores no marks !

Processing of the script that contains statements other from `SELECT`, `source`, `notee` scores no marks !

Submission of a file with a different name and/or different extension and/or different type scores no marks !

Submission

Note, that you have only one submission. So, make it absolutely sure that you submit correct files with the correct contents. No other submission is possible!

Submit the files **`solution1.rpt`**, and **`solution2.rpt`** through Moodle in the following way:

(1) Access Moodle at **`http://moodle.uowplatform.edu.au/`**
(2) To login use a **`Login`** link located in the right upper corner the Web page or in the middle of the bottom of the Web page
(3) When logged select a site **`CSIT815/CSIT115 (S117) Data Management and Security`**
(4) Scroll down to a section **`Submissions`**
(5) Click at a link **`In this place you can submit the outcomes of Laboratory 5`**
(6) Click at a button **`Add Submission`**
(7) Move a file **`solution1.rpt`** into an area **`You can drag and drop files here to add them`**. You can also use a link **`Add`**...
(8) Repeat step (7) for a file **`solution2.rpt`**.
(8) Click at a button **`Save changes`**
(9) Click at a button **`Submit assignment`**
(10) Click at the checkbox with a text attached: **`By checking this box, I confirm that this submission is my own work,`** ... in order to confirm the authorship of your submission.
(11) Click at a button **`Continue`**

A policy regarding late submissions is included in the subject outline.

Only one submission of the outcomes of Laboratory 5 is allowed and only one submission per student is accepted.

A submission marked by Moodle as "late" is always treated as a late submission no matter how many seconds it is late.

A submission that contains an incorrect file attached is treated as a correct submission with all consequences coming from the evaluation of the file attached.

It is expected that all tasks included within **Laboratory 5** will be solved **individually without any cooperation** with the other students. If you have any doubts, questions, etc. please consult your lecturer or tutor during lab classes or office hours. Plagiarism will result in a **FAIL** grade being recorded for that assessment task.

The evaluated outcomes of Laboratory 5 will be electronically returned to the students before 11.55pm on Saturday, 13 May, 2017.

End of specification