

## **CSIT115/CSIT815 Data Management and Security Laboratory 4**

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### **Scope**

This laboratory includes a task related to SQL statements.

### **Important messages**

**Please read the messages listed below before implementation of a task included in a specification of Laboratory 4.**

More implementation related information can be found in "How to ... ?" Cookbook available through Moodle or at:

<http://www.uow.edu.au/~jrg/115/COOKBOOK>.

The outcomes of Laboratory 4 are due by **Saturday, 8 September, 2018, 11.55 pm (sharp)**.

Laboratory 4 contributes to 3% of the total evaluation in the subject. 2 tasks are included in this laboratory.

A submission procedure is explained at the end of this document.

Only one submission of Laboratory 4 is allowed and only one submission per student is accepted. Please make sure that you submit the correct files.

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.

Compressed (zipped, rared, tared, etc) files will not be evaluated.

All files left on Moodle in a state "Draft (not submitted) " will not be evaluated.

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

A policy regarding late submissions is included in CSIT115/815 Subject Outline.

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## **Prologue**

Download the files `dbcreate.sql`, `dbdrop.sql`, `dbload.sql`, template files `solution1.sql` and `solution2.sql`, and `dbschema.pdf`. Copy the files to your USB drive or email the files to yourself such that you can access all of them either through command line interface `mysql` or graphical user interface MySQL Workbench.

Connect to MySQL database server either through command line interface `mysql` or graphical user interface MySQL Workbench.

When connected, select a database `csit115` with a command

```
use csit115
```

It is strongly recommended to process SQL script file `dbdrop.sql` to drop all relational tables used for implementation of the previous assessment task.

To re-create the relational tables of a sample database, process SQL script `dbcreate.sql`.

To load data into the relational tables created in the previous step process SQL script `dbload.sql`.

To list the names of relational tables created, use a command `show tables`.

To list a structure of a relational table `<table-name>` use a command: `describe <table-name>`.

Use a pdf viewer to open a file `dbschema.pdf` with a conceptual schema of the sample database.

No report is expected from the implementation of the steps listed above.

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## Tasks

### **Task1 (1.5 marks)**

Your task is to implement SQL script in a given template file `solution1.sql` under each question number that performs the database definition and manipulation operations listed below. **An important condition is that you are not allowed to alter, disable and/or drop any consistency constraints defined in the script file `dbcreate.sql` during execution of the script!**

- (1) Add a foreign key constraint in the database that a department manager is an employee.
- (2) Add a check constraint in the database that the value of relationship for a dependent is either SON, or DAUGHTER, or SPOUSE, or OTHER.
- (3) We would like to store information in the database about the percentage of an employee works on a project. The value of a percentage is between 0 and 1. For example, 0.25 means 25%, and 1.0 means 100%.
- (4) Add check constraints in the database that the value of the attribute Sex is either M or F.
- (5) It is possible that the salary of an employee can be up to \$9999999.99.

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

Start mysql command line in a terminal by

```
mysql -u csit115 -p -v -c
```

Then input a password `csit115`. It allows MySQL database server to display comments and SQL script for each question in a report.

Use the commands as follows to generate a report for Task 1.

```
tee solution1.rpt;  
source solution1.sql;  
notee;
```

Hint: You can find a lot of applications of database definitions and manipulation statements in the "COOKBOOK".

**Deliverables**

A 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.

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

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

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**Task 2 (1.5 marks)**

Process SQL script file `dbdrop.sql` to drop all relational tables used for implementation of the previous task.

To re-create the relational tables of a sample database, process SQL script `dbcreate.sql`.

To load data into the relational tables created in the previous step process SQL script `dbload.sql`.

**No report is expected from the implementation of the steps listed above.**

Implement the SQL script in a given template script file `solution2.sql` for the questions below. **An important condition is that you are not allowed to alter, disable and / or drop any consistency constraints defined in the script file `dbcreate.sql` during execution of the script!**

- (1) Insert into the database information about a new project. The project number is 1006, title is `Puzzle`, the sponsor is `Education committee`, done by the department number 3, and budget is `$80000.00`.

Two employees work on the new project. Employee 00107 has been assigned to the project. She spends 15 hours on the new project. Employee 00187 project has been changed to this new one. He spends 30 hours on the new project.

- (2) An employee 00187 (neither a manager nor a supervisor) decided to quit a job. Remove all information about the employee from the database.
- (3) The project 1005 has been cancelled. Remove the related data from the database.

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

Start mysql command line in a terminal by

```
mysql -u csit115 -p -v -c
```

Then input a password `csit115`. It allows MySQL database server to display comments and SQL script for each question in a report.

Use the commands as follows to generate a report for Task 2.

```
tee solution2.rpt;  
source solution2.sql;
```

notee;

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

**Deliverables**

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.

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

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

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### **Submission**

Submit files **solution1.rpt** and **solution2.rpt** to 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 **CSIT115/DPIT115/CSIT815 (S218) Data Management & Security**
- (4) Scroll down to a section **Submissions**
- (5) Click at a link **In this place you can submit the outcomes of Laboratory 4**
- (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 the file **solution2.rpt**.
- (9) Click at a button **Save changes**
- (10) Click at a button **Submit assignment**
- (11) 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
- (12) Click at a button **Continue**.

It is expected that a problem included within **Laboratory 4** 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.

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*End of specification*