CSIT115/CSIT815 Data Management and Security
Laboratory 4
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Scope
This laboratory includes the tasks related to application of data definition (DDL) and data manipulation (DML) statements of SQL.

The outcomes of the laboratory work are due by **Saturday 20 April 2019, 7.00 pm (sharp).**

Please read very carefully information listed below.
This laboratory contributes to 3% of the total evaluation in a subject CSIT115 and it contributes to 3% of the total evaluation in a subject CSIT815.

A submission procedure is explained at the end of specification.

This laboratory work consists of 1 task.

It is recommended to solve the problems before attending the laboratory classes in order to efficiently use supervised laboratory time.

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 the subject outline.

A submission of compressed files (zipped, gzipped, rared, tared, 7-zipped, lhzed, … etc) is not allowed. The compressed files will not be evaluated.

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

An implementation that does not compile due to one or more syntactical errors scores no marks and implementation that has the processing errors scores no marks.

It is expected that all tasks 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 **<u>FAIL</u>** grade being recorded for the assessment task.

<u>Important</u>

If you plan to use MySQL Workbench for implementation of this task then just after starting MySQL Workbench navigate to:

`Edit -> Preferences` …

and then to:

`SQL Editor`

and scroll down to the bottom of Workarea Preferences window and turn off an option `Safe Updates`.

Then, quit MySQL Workbench and restart it again.

<u>Prologue</u>

Connect to Moodle and download the files `dbcreate.sql`, `dbdrop.sql`, `dbload.sql`, `dbcount.sql`, and `dbschema.pdf` from Sample database section on Moodle.

SQL script `dbcreate.sql` can be used to create the relational tables of a sample database. SQL script `dbdrop.sql` can be used to drop the tables of a sample database. SQL script `dbload.sql` can be used to load data into a sample database. SQL script `dbcount.sql` can be used to display the total number of rows in each table included in a sample database. Finally, a file `dbschema.pdf` contains a conceptual schema of a sample database.

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`.

To 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>`.

To list the total number of rows in each relational table process a script `dbcount.sql`.

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 actions listed above.

Tasks
Task 1 (3 marks)
Your task is to create and to process SQL script `solution1.sql` that performs the following modifications of the structures and the contents of the sample database.

(1) Use SQL statement to modify a structure of a sample database such that after a modification it is possible to add information about the total number of orders submitted by each customer. Assume that, a customer can submit no more than 999999 orders.

(2) Use SQL statement to set the total number of orders submitted by each customer to zero.

(3) Use SQL statement to modify a structure of a sample database such that after a modification it is possible to store in the database information about the customers living in the cities whose names are up to 100 characters long.

(4) Use SQL statement to insert information about a new customer living in a city whose name is longer than 15 characters.

(5) Use SQL statements to modify a structure of a sample database such that after a modification it is possible to store in the database information about unit prices up to 999,999,999.99 in any currency. You may need more than one statement to perform the modifications.

(6) Use SQL statements to add 100,000,000 to a value of unit price of a product `Pavlova`. You may need more than one statement to perform all modifications.

(7) Use SQL statement to add to the database an association CUSTOMER Prefers SUPPLIER to the database. Assume, that a customer can prefer more than one supplier and a supplier can be preferred by more than one customer.

(8) Use SQL statements to add to the database information that a customer with a code `KOENE` prefers the suppliers `Exotic Liquids` and `Karkki Oy.`

(9) Use SQL statement to add to the database an association EMPLOYEE Recommends SHIPPER. Assume that an employee can recommend only one shipper and a shipper can be recommended by more than one employee.

(10) Use SQL statements to add to the database information about employees number `5` and `6` who recommend a shipper `Speedy Express.`

You can find a lot of information about application of data definition statements and data manipulation statements of SQL in a presentation 09 SQL - Data Definition Language (DDL)

and in Cookbook, How to use data definition and basic data manipulation statements of SQL, Recipe 4.1 How to create and how to alter the relational tables?

To implement and to test SQL script file `solution1.sql` you can either use graphical user interface MySQL Workbench or command line interface mysql.

It is recommended to use a script `dbdrop.sql` to drop all relational tables modified during the processing of a script `solution1.sql` and then to re-create the original database with a script `dbcreate.sql`. In such a way your script always operates on the original structures of the sample database.

When ready connect to MySQL server using command based interface mysql and create a report from processing of SQL script `solution1.sql`. Save your report in a file `solution1.rpt`.

We have already practiced saving a report from processing of SQL script in the Laboratories 1 and 3. You can also find more information about creating reports from processing of SQL scripts in Cookbook, Recipe 3.1 How to use "mysql? Command based interface to MySQL database server? Step 4 How to save the results of SQL processing in a file?"

Your report must contain a listing of all SQL statements processed. You can find more information on how to display SQL statements while a script is processed in Cookbook, Recipe 3.1 How to use "mysql? Command based interface to MySQL database server? Step 3 How to process SQL script ?"

A report that contains no listing of processed SQL statements scores no marks and report that contains errors of any kind also scores no marks !

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.

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 a file **solution1.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/CSIT815 (S119) 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) 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**

End of specification