School of Computing and Information Technology
University of Wollongong

Session: **Autumn 2018**
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CSIT115/CSIT815 Data Management and Security
Laboratory 1
26 February 2018

Scope

This laboratory includes the tasks related to the simple applications of the software systems that will be used in a subject CSIT115/815 Data Management and Security in Autumn session 2018 and to CSIT115/815 Subject Outline.

Important messages

Please read the messages listed below before implementation of the tasks included in a specification of Laboratory 1.

Please bring with you to a laboratory class USB memory stick or USB external drive needed to save an exported appliance (Ubuntu 14.04 operating system together with installation of MySQL 5.7.9 Community edition). Your external persistent memory must have at least 8 Gbytes of free space. In all laboratory and assignment specifications we refer to "USB memory stick or USB external drive" as to "USB drive".

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 1 are due by **Saturday, 10 March, 2018, 10.00 pm (sharp).**

Laboratory 1 contributes to 2% of the total evaluation in the subject.

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

Only one submission of the outcomes of Laboratory 1 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.

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.

Tasks

Task 1 (0.4 mark)

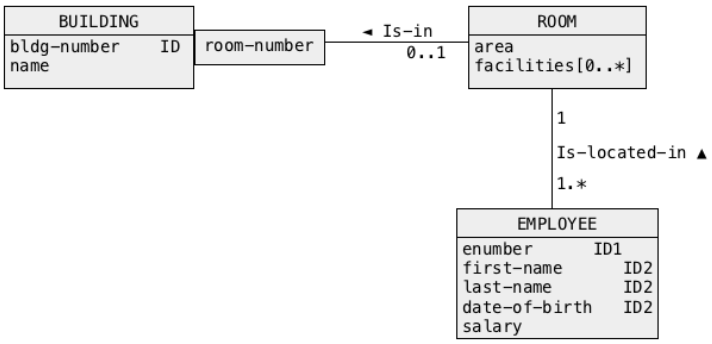
Perform the following steps.

(1) Start and connect to your Windows 7 system.

(2) UMLet is a simplified tool for drawing UML diagrams. To start UMLet use a shortcut `UMLet 14.2` available on Desktop. The shortcut has an icon that consists of a red circle crossed with a horizontal dark blue bar.

(3) When UMLet is started navigate to the right upper corner of UMLet window and pick a palette `CSIT115-815Palette`. Do not use any other palette !

(4) Use UMLet application to draw a diagram given below. It is explained in the Cookbook, Recipe 2.1, Steps 1 and 2 "How to create very simple conceptual schemas with UMLet?" how to use UMLet to create class diagrams.



(5) When ready, add one more attribute to a class `BUILDING` and one more association between the classes `ROOM` and `EMPLOYEE`. A new attribute and a new association are up to you.

(6) Use an option File->Save to save your diagram in a file `solution1.uxf`. Do not delete a file `solution1.uxf`.

(7) Use an option File->Export as... to export your diagram into a file `solution1.bmp` in `BMP` format. Do not delete an exported file. You will submit it as one of the deliverables from your laboratory work.

Deliverables

A file `solution1.bmp` that contains a diagram given above extended with an attribute and with an association. A submission of a file `solution1.uxf` is not expected and it

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

Task 2 (0.4 mark)
Perform the following steps.

(1) Start and connect to your Windows 7 system.

(2) Next, start Oracle VirtualBox. A shortcut to VirtualBox is available on Desktop. It is explained in Cookbook, Recipe 1.1, Step 1 "How to start VirtualBox ?" how to start VirtualBox.

(3) Import an appliance `Ubuntu14.04-32bits-MySQL5.7.16-05-NOV-2016` located on a drive `VMs(E:)` in a folder `Virtual Machines\CSIT115`. It is explained in Cookbook, Recipe 1.1 Step 2 "How to import an appliance to VirtualBox ?" how to import an appliance.

(4) Connect your USB drive to VirtualBox. It is explained in Cookbook, Recipe 1.1 Step 3 "How to connect USB drive to VirtualBox ?" how to connect USB drive to VirtualBox.

(5) Export a virtual machine to your USB drive. It is explained in Cookbook, Recipe 1.1 Step 5 "How to export an appliance from VirtualBox ?" how to export a virtual machine. Note, that exporting a virtual machine takes some time, usually more than 5 minutes.

(6) When your virtual machine is exported, navigate to a folder on your USB drive where the exported files have been saved.

    To take an image of a screen, simultaneously press "Shift" and "Print Scrn" buttons.

    Next, start Paint program to save the image in a file. A path to start Paint program is: "Start button->Accessories->Paint". When started, simultaneously press the keys CTRL V to load the image into Paint. To save the image in a file `solution2.png` use "Save" button (small disk icon in the topmost menu). When saved you can quit Paint and move to the next task.

    Make sure that the saved screen image contains the names of files created by VirtualBox after an appliance has been exported in the previous step. Do not delete a file `solution2.png`. It will be submitted as one of the deliverables from your laboratory work.

Deliverables
A file `solution2.png` that contains a saved screen image with the names of files created by VirtualBox after appliance has been exported. Submission of a file with a different name and/or different extension and/or different type scores no marks.

Task 3 (0.4 mark)
It is strongly recommended to read from Cookbook all steps of Recipe 3.1 "How to use mysql a command based interface to MySQL database server ?" before implementation of this task.

Perform the following steps.
If an appliance `Ubuntu14.04-32bits-MySQL5.7.16-05-NOV-2016` is already imported then skip step (1), (2), and (3) and start from a step (4).

(1) Otherwise, start connect to your Windows 7 system.

(2) Next, start VirtualBox. A shortcut to VirtualBox is available on a desktop. Cookbook, Recipe 1.1, Step 1 "How to start VirtualBox ?" explains how to start VirtualBox.

(3) Import an appliance `Ubuntu14.04-32bits-MySQL5.7.16-05-NOV-2016` located on a drive `VMs(F:)` in a folder `Virtual Machines\CSIT115`. It is explained in Cookbook, Recipe 1.1 Step 2 "How to import an appliance to VirtualBox ?" how to import an appliance.

(4) Power on a virtual machine `Ubuntu14.04-32bits-MySQL5.7.16-05-NOV-2016`. It is explained Cookbook, Recipe 1.1 Step 4 "How to power on a virtual machine ?" how to power on a virtual machine.

(5) When prompted by Ubuntu 14.04 operating system to type in a password to login as `CSIT115` user enter `csit115` and press Enter key. Then, wait until operating system displays a column of icons on the left-hand side of a screen.

(6) Start Terminal program (a black rectangle icon with white frame in a column of icons).

(7) Next, in Terminal window type `gedit task3.sql` and press `Enter` key top open a text editor with a new file `task3.sql`.

(8) Type into gedit window the following lines.

```
CREATE TABLE HELLO( message VARCHAR(20) NOT NULL);
INSERT INTO HELLO VALUES('Hello world today:');
SELECT message, CURDATE()
FROM HELLO;
```

and save it a file `task3.sql`. Note, that there is no blank between "`CURDATE`" and "`()`" ! Quit gedit editor.

(9) Type at command prompt:

```
mysql –u csit115 –p –v
```

and press Enter key to start a command based interface to MySQL database server. A password is csit115.

(10) When a command based interface to MySQL database server is started execute a command:

```
use csit115;
```

at mysql> prompt to select csit115 database.

(11) Next, execute a command:

```
source task3.sql;
```

at mysql> prompt to submit a script task3.sql for processing by MySQL.

(10) When ready shrink a window with VirtualBox and save screen image in a file solution3.png in the same way as you did it in Task 2.

Make sure that the results from processing of a script task3.sql are visible in an image. Do not delete a file solution3.png. It will be submitted as one of the deliverables from your laboratory work.

Deliverables

A file solution3.png that contains a saved screen image with the results from processing of a script task3.sql. Submission of a file with a different name and/or different extension and/or different type scores no marks.

Task 4 (0.4 mark)
It is strongly recommended to read from Cookbook all steps of Recipe 3.2 " How to use a graphical interface to MySQL database server ?" before implementation of this task.

It is assumed that after implementation of Task 3 your appliance is up and running. If it is not, then start VirtualBox, import your appliance, and run it in the same way as you did it in Task 3.

Perform the following steps.

(1) To start MySQL Workbench graphical interface click at a blue icon 12th from top with a silhouette of a white dolphin.

(2) Next, click at a small "+" sign located after "MySQL Connections" string to create a new connection. Type into a field Connection Name your connection name (use a name different from `csit115`), into a filed Username `csit115`, and into a field Default Schema `csit115`. Finally, click at OK button.

(3) To open your new connection leftclick at a rectangle that represents a new connection in a front panel of MySQL Workbench. Next, type in a password: `csit115` of `csit115` database user and click at OK button.

(4) Leftclick at the second icon of left with text SQL and a small image of a folder, i.e. Open SQL script file in a new query tab icon. Select a file `task3.sql` and click at Open button.

(5) To submit a script for processing by MySQL database server leftclick at the first line of a script and later on leftclick at "yellow lightning" icon just above a workspace with the script. You should get the results of processing in a workspace below.

(6) When ready shrink a window with VirtualBox and save screen image in a file `solution4.png` in the same way as you did it in Task 3.

Make sure that the results from processing of a script `task3.sql` are visible in an image. Do not delete a file `solution4.png`. It will be submitted as one of the deliverables from your laboratory work.

Deliverables
A file `solution4.png` that contains a saved screen image with the results from processing of a script `task3.sql`. Submission of a file with a different name and/or different extension and/or different type scores no marks.

Task 5 (0.4 mark)
It is strongly recommended to read CSIT115/815 Subject Outline before implementation of this task.

Answer the following questions and save your answers in a file `solution5.pdf`. You may find the answers in CSIT115/815 Subject Outline.

(1) Explain what does it mean that the subject is *6 credits point subject*, i.e. how much time you have to invest into your work on 6 credits points subject ?

(2) Explain what happens when you skip more than 2 laboratory classes in a session ?

(3) Explain what happens when your result from the final examination is below 40% of the total marks available for the final examination.

(4) Explain what you must declare when submitting the outcomes from an assessment task (laboratory or assignment work).

Deliverables
A file `solution5.pdf` with the answers to the questions listed above. 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.bmp`**, **`solution2.png`**, **`solution3.png`**, **`solution4.png`**, and **`solution5.pdf`** 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 (S118) 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 1`**
(6) Click at a button **`Add Submission`**
(7) Move a file **`solution1.bmp`** 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 files **`solution2.png`**, **`solution3.png`**, **`solution4.png`**, and **`solution5.pdf`**
(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 all tasks included within **Laboratory 1** 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.

End of specification