

CSIT115/CSIT815 Data Management and Security
Laboratory 1
27 February 2017

Scope

This laboratory includes the tasks related to the simple applications of the software systems that will be used in a subject CSIT115/CSIT815 Data Management and Security in Autumn session 2017.

Important message

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 the laboratory work are due by **Saturday, 11 March, 2017, 7.00 pm (sharp)**.

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

A submission procedure is explained at the end of specification.

Specification of each task starts from a new page.

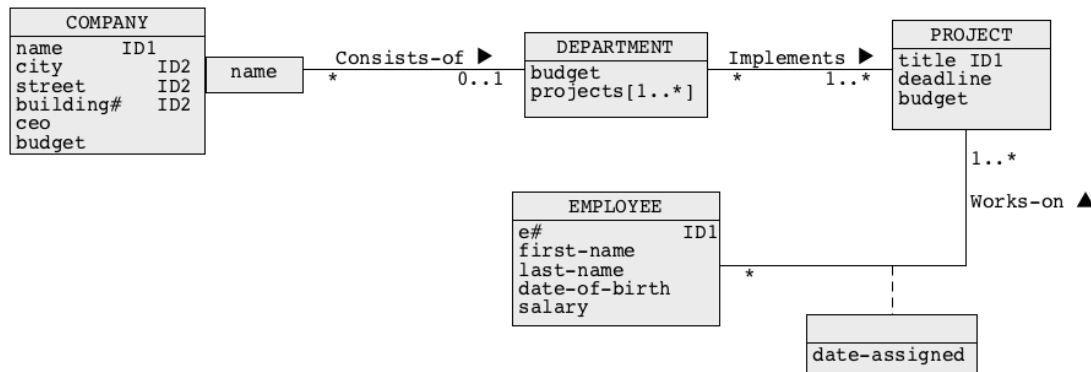
It is recommended to solve the problems before attending an enrolled laboratory class in order to efficiently use supervised laboratory time.

Tasks

Task1 (0.5 mark)

Perform the following steps.

- (1) Start and connect to your Windows 7 system (if it is not started yet and you are not connected). UMLetlet is a simplified tool for drawing UML class diagrams. To start UMLetlet navigate to a drive Local Disk (C:) and later on to a folder UMLetlet-14.2.
- (2) Start UMLet application (an icon consists of a red circle crossed with a horizontal dark blue bar).
- (3) Use UMLet application to draw the following diagram.



It is explained in the Cookbook, Recipe 2.1, Steps 1 and 2 "How to create very simple conceptual schemas with UMLetlet ?" how to use UMLetlet to create the diagrams.

- (4) Add one more attribute to a class **DEPARTMENT** and one more attribute to a class **PROJECT**. The names of attributes are up to you. Make one of the attributes optional.
- (5) Use an option File->Save to save your diagram in a file `solution1.uxf`. Do not delete a file `solution1.uxf`.
- (6) 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 above extended with two attributes. 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 (0.5 mark)

Perform the following steps.

- (1) Start and connect to your Windows 7 system (if it is not started yet and you are not connected) and then start Oracle VM VirtualBox. A shortcut to VirtualBox is available on a desktop. It is explained in the Cookbook, Recipe 1.1, Step 1 "How to start VirtualBox ?" how to start VirtualBox.
- (2) 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 the Cookbook, Recipe 1.1 Step 2 "How to import an appliance to VirtualBox ?" how to import an appliance.
- (3) Connect your USB drive to VirtualBox. It is explained in the Cookbook, Recipe 1.1 Step 3 "How to connect USB drive to VirtualBox ?" how to connect USB drive to VirtualBox.
- (4) Export a virtual machine to your USB drive. It is explained in the 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.
- (5) 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 (0.5 mark)

Before implementation of this task it is strongly recommended to read from the Cookbook all steps of Recipe 3.1 "How to use mysql a command based interface to MySQL database server ?".

Perform the following steps.

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

- (1) Otherwise, start and login to your Windows 7 system (if it is not started yet and you are not connected). Next, start Oracle VM VirtualBox. A shortcut to VirtualBox is available on a desktop. Cookbook, Recipe 1.1, Step 1 "How to start VirtualBox ?" how to start VirtualBox.
- (2) 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.
- (3) 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.
- (4) 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.
- (5) Start Terminal program (a black rectangle icon with white frame in a column of icons). Next, in Terminal window type `gedit task3.sql` and press Enter key to open a text editor with a new file `task3.sql`.
- (6) Type into gedit window the following lines.

```
SELECT CURDATE() "Today is:"  
FROM DUAL;
```

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

- (7) Type at command prompt:

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

and press Enter key to start command based interface to MySQL database server.

- (8) When started execute a command:

```
use csit115;
```

at mysql> prompt to select `csit115` database.

(9) 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 a 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 (0.5 mark)

Before implementation of this task it is strongly recommended to read from the Cookbook all steps of Recipe 3.2 "How to use a graphical interface to MySQL database server?".

It is assumed that after implementation of Task 3 your appliance is up and running. If not, then start VirtualBox, import your appliance, and run it.

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 field 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 a Task 2.

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.

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**, and **solution4.png** 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 (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 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**, and **solution4.png**.
- (8) Click at a button **Save changes**
- (9) Click at a button **Submit assignment**
- (10) Click at a button **Continue**

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

Only one submission of the outcomes of Laboratory 1 is allowed and only one submission per student is accepted.

A submission marked by Moodle as "late" is 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 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.

The evaluated outcomes of Laboratory 1 will be electronically returned to the students before 11.55pm on Saturday, 1 April, 2017.

End of specification