

CSIT115/CSIT815 Database Management and Security Laboratory 1

Scope

This laboratory includes the tasks related to the simple applications of software systems that used in a subject CSIT115/CSIT815 Data Management and Security in Autumn session 2016.

Important message

Please bring with you to a laboratory class USB memory stick or USB external drive needed to save an exported appliance (Ubuntu 15.04 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/HOWTO>.

This outcomes of the laboratory work are due by **Saturday, 12 March, 2016, 7.00 pm.**

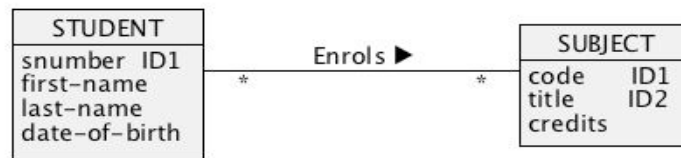
Specification of each task starts from a new page.

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). To start UMLetLet navigate to a drive Local Disk (C:) and later on to a folder UMLetLet.
- (2) Start UMLet application (an icon consists of a red circle crossed with a horizontal dark blue bar).
- (3) Implement in UMLetLet 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 STUDENT and one more attribute to a class SUBJECT. The names of attributes are up to you. Make one of the attributes optional.
- (5) Use option "File->Save" to save your diagram in a file `solution1.uxf`. Do not delete a file `solution1.uxf`. It will be submitted at the end of laboratory exercise.

Deliverables

A file `solution1.uxf` that contains a diagram above extended with two attributes.

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 `Ubuntu15.04-32bits-08-DEC-2015` located on a drive `VMs(F:)` in a folder `VirtualMachines\CSIT115\ Ubuntu15.04-32bits-08-DEC-2015`. 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 `solution1.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 appliance has been exported in the previous step. Do not delete a file `solution2.png`. It will be submitted at the end of laboratory exercise.

Deliverables

A file `solution2.png` that contains a saved screen image with the names of files create by VirtualBox after appliance has been exported.

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 `Ubuntu15.04-32bits-08-DEC-2015` 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 `Ubuntu15.04-32bits-08-DEC-2015` located on a drive `VMs(F:)` in a folder `VirtualMachines\CSIT115\ Ubuntu15.04-32bits-08-DEC-2015`. 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 `Ubuntu15.04-32bits-08-DEC-2015`. 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 15.04 operating system to type in a password to login as `csit115` operating system 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 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 bit 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 at the end of laboratory exercise.

Deliverables

A file `solution3.png` that contains a saved screen image with the results from processing of a script `task3.sql`.

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 11th 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, 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 at the end of laboratory exercise.

Deliverables

A file `solution4.png` that contains a saved screen image with the results from processing of a script `task3.sql`.

End of specification