Course: Database management
Unit: Introduction to SQL
Assignment: Dockerized database
Teamwork: Groups of two or three

If you want to submit more than one file, submit separate files. Please don't compress all of them in a single file.

PART I: Docker
A) Use google's cloud shell (https://console.cloud.google.com/cloudshell?pli=1) to launch a "hello-world" container.
B) Show the list of images in the local repository.
C) Show the list of running containers.
D) Show the list of all containers, including those that are not running.
E) Run a dockerized nginx.
F) In a different console, find out the address of the nginx server.
G) Use to curl to connect to the server and verify that it is working.
H) Look at the list of running containers.
I) Stop the nginx container.
J) Delete all containers.
K) Delete all images.

PART II: Docker database
L) Run a mysql docker database in detached mode. Use an environment variable to set the password.
M) Find the IP address of the database docker.
N) Connect to the database.
O) Create a database.
P) Use the database.
Q) Create a table 'department' with columns 'id', 'name','building' and 'budget'.
R) Insert a row into the table with values 'Physics', 'Watson', '110000.00'.
S) Exit the mysql client.
T) Create a directory named sql.
U) Use mysqldump to dump your database into a file called school.sql in the directory created in the previous step.
V) Create a new container with a volume connecting the directory you created with /docker-entrypoint-initdb.d . This will automatically populate the database of your new container. Run it in detached mode.
W) Find the IP address of the new container.
X) Use the mysql client to connect to the new container.
Y) Verify that the table and its contents are available.
Z) Exit the mysql client.
AA)   List all running containers.
BB)   Stop all running containers.

CC)   Delete the containers.
DD)   Delete the directory you created and its contents.

Provide feedback about the difficulties you encountered and the things you have learned.