SAINT MARY'S UNIVERSITY SINCE 1802 | FACULTY OF SCIENCE

MCDA5570.Linux: Assignment 2

Due date: June 29, 2019 (midnight)

Assignment description

Follow the steps below to write a bash script. All work should be done on ***lnx.cs.smu.ca*** server.
Submit the **script_ACCOUNT.sh** file via Brightspace where ACCOUNT is your account name at ***lnx.cs.smu.ca*** (e.g., script_t_test.sh). Also, leave the script in your **~/script** directory. If the script can't be found in your ~/script directory, you'll lose 25% of your final points for the assignment.
In case of any questions please send an email to **nikita.neveditsin@smu.ca**

Grading

- 85% for a correctly working script that meets all the requirements from the steps (excluding an optional step)
- 15% for a nice script code (use functions where appropriate, leave short comments, tell the user about the progress, use traps, etc.) and proper error handling.

Steps

Write a bash script that performs the following actions on the ***lnx.cs.smu.ca*** *server:*

1. Create the folder "**out**" in the folder where the script is running. If the folder already exists, remove it first

2. Go to that folder

3. Download a **Dockerfile** and **app.py** file from the in-class docker exercise to that folder (files are located at ***http://lnx.cs.smu.ca/docker/***)

4. Replace "Hello World!" in app.py file by the following message:
   - If today is an even day of the month (2,4,6…30) then the message should be "***Today is an even day***"
   - Otherwise, the message should be "***Today is an odd day***"

5. Build a docker image from the Dockerfile with the following name "ACCOUNT_a2" where ACCOUNT is your account name (e.g., t_test_a2)

6. Run the docker image and bind container's 80 port to the first available port after 1999 at lnx.cs.smu.ca (i.e., check if port 2000 is in use: if yes, then check port 2001, and so on while you find an available port)

7. Find the container's IP address and print it to STDOUT:
   - "Container's IP is XXX.XXX.XXX.XXX"

8. Check if the web page served by the Docker container works correctly (it must work). If not, then terminate the script with an error. Don't forget to perform cleanup if exit on error (stop the docker container, remove the container and image)

9. Save the webpage as "serv.html" in the current working directory

10. (optional: 15 bonus points if done correctly) Set up remote port forwarding with **dev.cs.smu.ca**: map port from step 6 to the same port at dev.cs.smu.ca. Remotely call wget on dev.cs.smu.ca to check if forwarding works well. Print dev's wget output to STDIO. Kill the ssh tunnel.

11. Exit the script with "success" exit code. Before exit, you should stop the docker container, remove the container and image.

NOTE: if script is terminated unexpectedly, you have to make sure that the docker container is stopped and removed, docker image should be removed as well. You can use a trap on exit/on signals to achieve it.

Academic Integrity

You are required to demonstrate academic integrity in all of the work that you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Unless stated otherwise, it is expected that all the work you submit for this course, is your OWN work.

Lack of knowledge of the academic integrity policy is not a reasonable explanation for a violation. You are encouraged to consult the Academic Integrity and Student Code of Conduct sections of the Academic Regulations in the Academic Calendar, in order to be well informed on the consequences of dishonest behavior. Please visit the links below for more information. Links: http://www.smu.ca/academics/academic-calendar.html http://www.smu.ca/academics/calendar/academic-integrity.html