Assignment Name: Virtualization(QEMU) and Containerization(Docker)
Duration : 2 weeks (Deadline : June 13th , 2025)
Operation system: Ubuntu 22.04 LTS or latest

Note: Completed assignments should be submitted https://school.wso2.com/
Assignment answer file should be named as
Virtualization_QEMU_and_Containerization_Docker.pdf

Create a detailed document outlining the steps you followed to answer each question. Ensure the instructions are clear and comprehensive enough for someone else to reproduce the task accurately by following your documentation.

Please add screenshots of each step you followed where necessary and in addition to steps you followed.

Assignment Title:
Virtualization and Containerization

Assignment Path:

Task 1

1. In this task you need to build a custom Linux container following the shared git repository. https://github.com/gnudeep/simple-container
2. After building the project run the environment building script to create the container environment with the relevant devices.
3. Run the **simple-container** binary to run a shell in a container.
4. Create a network connection from the host machine to the container.
5. Validate the network connection status by ping from the host machine to the container and ping from container to the host machine.

Task 2

1. In this task you need to build a Linux container image using the following git repository. https://github.com/gnudeep/scratch-container/tree/main
2. Build the application and build the container image.
3. Run the application in the container image and do a web request to the service.

Task 3

1. Create a Ubuntu 24.04 based virtual machine using QEMU virtual machine monitor. Use the information in the following repository. https://github.com/gnudeep/qemu-vm-demo
2. Connect to the virtual machine and connect to the virtual machine via VNC protocol
3. Connect the virtual machine using SSH protocol.