Exercise 3

Go through the Docker Hands On Tutorial (Part-2).

1) Create an image for containers with the X11 demo app Xeyes. Start a container so that the X11 app runs visibly.
   Note: Mount `/tmp/.X11-unix of` the Docker host (VM) in the same location `/tmp/.X11-unix in` the container as a volume.
   Note: Remember to allow access from the container to the X11 server of the surrounded host
   (e.g. via `xhost +`)

2) Experiment - oriented on the tutorial - with the two variants for creating persistence, especially with regard to the persistence of data during container deletions.
   Document your experiments as succinctly as possible, recording your findings.

3) (optional)
   Read at the place
   https://docs.docker.com/engine/reference/commandline/volume_create
   and try volume container variants.

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4) Develop a Dockerfile to create the image 'simple_router' (see tutorial) and make this image available for further use.
   The packages 'dnsutils', 'net-tools', 'iproute2', 'iptables', 'iputils-ping', 'procps' and 'netcat-openbsd' should be installed in the image, optionally 'libcap2-bin'.

5) Build the simple network example 'Tracing the network example using Docker' (see tutorial) and document your setup and finally the flow of a network connection. For this purpose, you will need to learn about
   - creating networks in Docker (Driver Bridge) ...
   - ... and access to it from containers,
   - the granting of capabilities
   For easier and documented setup and teardown of your network experiment, combine the required docker commands into one shell script.
   Document your approach and results as succinctly as possible, but in a comprehensible manner.

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6) (optional)

Combining the docker commands required to set up and tear down your network experiment into shell script(s) is inflexible and not very convenient.

Replace this functionality with a `docker-compose.yml` file that you use via `docker-compose commands to` set up and tear down your experiment.

The required documentation can be found at
https://docs.docker.com/compose

Note: The `docker-compose` tool should have already been installed in your VM via Vagrantfile.