Docker Lab

1. Update the installed packages and packages cache on your instance.

```
sudo yum update -y
```

2. Install the most recent Docker Community Edition package.

```
sudo amazon-linux-extras install docker
```

3. Start the Docker service.

```
sudo service docker start
```

4. Add the `ec2-user` to the `docker` group so you can execute Docker commands without using `sudo`.

```
sudo usermod -a -G docker ec2-user
```

5. Verify that the `user` can run Docker commands

```
sudo docker info
```

To create a Docker image of a simple web application

1. Create a file called `Dockerfile`. A Dockerfile is a manifest that describes the base image to use for your Docker image and what you want installed and running on it. For more information about Dockerfiles, go to the Dockerfile Reference.

```
touch Dockerfile
```

2. Edit the `Dockerfile` you just created using vi/any other editor and add the following content.

```
FROM ubuntu:16.04

# Install dependencies
RUN apt-get update
RUN apt-get -y install apache2

# Install apache and write hello world message
RUN echo 'Hello World!' > /var/www/html/index.html

# Configure apache
RUN echo '. /etc/apache2/envvars' > /root/run_apache.sh
RUN echo 'mkdir -p /var/run/apache2' >> /root/run_apache.sh
RUN echo 'mkdir -p /var/lock/apache2' >> /root/run_apache.sh
RUN echo '/usr/sbin/apache2 -D FOREGROUND' >> /root/run_apache.sh
RUN chmod 755 /root/run_apache.sh

EXPOSE 80

CMD /root/run_apache.sh
```

This Dockerfile uses the Ubuntu 16.04 image. The `RUN` instructions update the package caches, install some software packages for the web server, and then write the "Hello World!" content to the web server's document root. The `EXPOSE` instruction exposes port 80 on the container, and the `CMD` instruction starts the web server.

3. Build the Docker image from your Dockerfile.

   Note - Some versions of Docker may require the full path to your Dockerfile in the following command, instead of the relative path shown below.

```
docker build -t hello-world .
```

4. Run **docker images** to verify that the image was created correctly.

```
docker images --filter reference=hello-world
```

   Output:

```
REPOSITORY          TAG                 IMAGE ID            CREATED
SIZE
hello-world         latest              e9ffedc8c286        4 minutes
ago       241MB
```

5. Run the newly built image. The `-p 80:80` option maps the exposed port 80 on the container to port 80 on the host system. For more information about **docker run**, go to the Docker run reference.

```
docker run -t -i -p 80:80 hello-world
```

6. Open a browser and point to the server that is running Docker and hosting your container.

Note : If you are using an EC2 instance, this is the **Public DNS** value for the server, which is the same address you use to connect to the instance with SSH. Make sure that the security group for your instance allows inbound traffic on port 80.

7. Stop the Docker container by typing **Ctrl + c**.