UNIVERSITY INSTITUTE of COMPUTING
Asia's Fastest Growing University

NAAC GRADE A+ ACCREDITED UNIVERSITY

Experiment No. 2.1

Student Name: Gaurav Kumar
UID: 22MCC20177
Branch: MCA–CCD
Section/Group: MCD-1/A
Semester: III
Date of Performance: 15th Oct 23
Subject Name: CONTAINERIZATION WITH DOCKER
Subject Code: 22CAH-742

1. **Aim/Overview of the practical:**
   a) Understanding the Docker file for Customizing images.

2. **Code for practical: (a)**

Creating a container through CLI

Step 1 : First we have to create a folder using **mkdir** command.

Step 2 : Enter that folder using the command **cd**.

```
kg @ kg-Nitro in docker
❯ mkdir DockerApp
mkdir: created directory 'DockerApp'

kg @ kg-Nitro in docker
❯ cd DockerApp/
/home/kg/Documents/docker/DockerApp
```

Step 3 : Create a File **helloworld.py** using command **echo.**

```
kg @ kg-Nitro in DockerApp
❯ echo 'print("Hello World")' >> helloworld.py

kg @ kg-Nitro in DockerApp
❯ cat helloworld.py
print("Hello World")
```

Step 4 : Create a Dockerfile using command **nano Dockerfile.**

```
FROM ubuntu
RUN apt update
RUN apt install python3 -y
ADD helloworld.py /
CMD ["python3","./helloworld.py"]
```

→ Use the **FROM** instruction to specify the base image for your container.

→ **COPY: Copy** files and directories from the host system into the container image.

→ **ADD:** Similar to **COPY**, but more versatile. It can download files from URLs and extract compressed archives.

→ **WORKDIR:** Set the working directory for subsequent instructions. Any relative paths specified will be relative to this directory.

→ **EXPOSE: Expose** the ports on which the container listens for incoming connections (for documentation purposes):

→ **CMD:** is use to run the commands in container.

Step 5 : Build the image using command "docker build -t DockerApp".

```
kg @ kg-Nitro in DockerApp
sudo docker build -t dockerapp .
[+] Building 43.3s (9/9) FINISHED                                docker:default
 => [internal] load build definition from Dockerfile                      1.5s
 => => transferring dockerfile: 152B                                      0.0s
 => [internal] load .dockerignore                                         1.5s
 => => transferring context: 2B                                           0.0s
 => [internal] load metadata for docker.io/library/ubuntu:latest          1.3s
 => [1/4] FROM docker.io/library/ubuntu@sha256:2b7412e6465c3c7fc5bb21d3e6  0.0s
 => [internal] load build context                                         0.2s
 => => transferring context: 34B                                          0.0s
 => CACHED [2/4] RUN apt update                                           0.0s
 => [3/4] RUN apt install python3 -y                                     33.9s
 => [4/4] ADD helloworld.py /home/helloworld.py                           1.2s
 => exporting to image                                                    3.4s
 => => exporting layers                                                   3.0s
 => => writing image sha256:f06bfef023c92cc9269e2e1d2703c57ad82e6e35c2826  0.1s
 => => naming to docker.io/library/dockerapp                              0.2s
```

Step 6 : Run the image using command **docker run DockerApp**.

```
kg @ kg-Nitro in DockerApp
sudo docker run dockerapp
Hello World
```