Task 2

Part 1

1-Build python flask image with the name “ITI-flask-lab2” from repo https://github.com/meldafrawi/basic-flask-app.git

1- yum install git
2- gitclone https://github.com/meldafrawi/basic-flask- app.git

```
[root@khaled ~]# git clone https://github.com/meldafrawi/basic-flask-app.git
Cloning into 'basic-flask-app'...
remote: Enumerating objects: 32, done.
remote: Counting objects: 100% (19/19), done.
remote: Compressing objects: 100% (11/11), done.
remote: Total 32 (delta 8), reused 8 (delta 8), pack-reused 13
Receiving objects: 100% (32/32), 274.91 KiB | 182.00 KiB/s, done.
Resolving deltas: 100% (8/8), done.
```

2-The Image is preferred to be based on “alpine:3.10” or ubuntu

```
[root@khaled basic-flask-app]# vi Dockerfile
[root@khaled basic-flask-app]# docker build -t iti-flask-lab2 .
[+] Building 133.4s (9/9) FINISHED                                                              docker:default
 => [internal] load build definition from Dockerfile                                                      0.2s
 => => transferring dockerfile: 605B                                                                      0.0s
 => [internal] load .dockerignore                                                                         0.1s
 => => transferring context: 2B                                                                           0.0s
 => [internal] load metadata for docker.io/library/python:2.7-alpine                                      7.7s
 => [1/4] FROM docker.io/library/python:2.7-alpine@sha256:724d0540eb56ffaa6dd770aa13c3bc7dfc829dec561d87cb36b2f5b9ff8a760a  71.7s
 => => resolve docker.io/library/python:2.7-alpine@sha256:724d0540eb56ffaa6dd770aa13c3bc7dfc829dec561d87cb36b2f5b9ff8a760a   0.1s
 => => sha256:724d0540eb56ffaa6dd770aa13c3bc7dfc829dec561d87cb36b2f5b9ff8a760a 1.65kB / 1.65kB            0.0s
 => => sha256:b9ca0d225d42fd188bd636148229d121586fe7dcf3dcccfb23237b6401df4951 1.16kB / 1.16kB            0.0s
 => => sha256:8579e446340f415fece00398a37dbdc4fff1f16901af2e173d6ae8c0bdbb9505 7.51kB / 7.51kB            0.0s
 => => sha256:aad63a9339440e7c3e1fff2b988991b9bfb81280042fa7f39a5e327023056819 2.80MB / 2.80MB           21.1s
 => => sha256:259d822268fbc4235d84b0d1faa8a4ff933c0a92944c91b096a41066701f78d2 301.29kB / 301.29kB        6.1s
 => => sha256:10ba96d218d3fd7421879dbfa14bc0d3938be28dc820993773c2621dd57993fd 20.28MB / 20.28MB         67.5s
 => => sha256:44ba9f6a4209726dd57b562c3913b59c103767d1065f54bef7fbddabcc009431 1.89MB / 1.89MB           16.5s
 => => extracting sha256:aad63a9339440e7c3e1fff2b988991b9bfb81280042fa7f39a5e327023056819                 0.6s
 => => extracting sha256:259d822268fbc4235d84b0d1faa8a4ff933c0a92944c91b096a41066701f78d2                 0.3s
 => => extracting sha256:10ba96d218d3fd7421879dbfa14bc0d3938be28dc820993773c2621dd57993fd                 2.7s
 => => extracting sha256:44ba9f6a4209726dd57b562c3913b59c103767d1065f54bef7fbddabcc009431                 0.5s
 => [internal] load build context                                                                         0.4s
 => => transferring context: 607.05kB                                                                     0.2s
 => [2/4] WORKDIR /app                                                                                    2.8s
 => [3/4] COPY . /app                                                                                     0.2s
 => [4/4] RUN pip install --no-cache-dir -r requirements.txt                                             47.9s
 => exporting to image                                                                                    1.9s
 => => exporting layers                                                                                   1.3s
 => => writing image sha256:13ea988d81507bed30e00a335d72e6ed5f1f93e31480b91c73afc8af4c0782d0              0.2s
 => => naming to docker.io/library/iti-flask-lab2                                                         0.4s
```

```
[root@khaled basic-flask-app]# vi Dockerfile
[root@khaled basic-flask-app]# cat Dockerfile
# Use the base image with Python and Flask on Alpine Linux
FROM python:2.7-alpine

# Set the working directory
WORKDIR /app

# Copy the current directory contents into the container at /app
COPY . /app

# Install any needed packages specified in requirements.txt
RUN pip install --no-cache-dir -r requirements.txt

# Make port 5000 available to the world outside this container
EXPOSE 5000

# Define environment variable
ENV NAME World

# Run app.py when the container launches
CMD ["python", "app.py"]


[root@khaled basic-flask-app]#
```

3-Run the image with memory limit 100MB ,Make sure that the image runs successfully on your machine and publish port 127.0.0.1:5000 to port 80 ON THE HOST

```
[root@khaled basic-flask-app]# docker run -d --name iti-flask-lab22   -m 100m -p 127.0.0.1:80:5000 iti-flask-lab2
31a00c81a367d714a7248ff12ff85f86d4134ff280f9bc0f1285c787936bf1bf
```

5-Create a Docker hub account

https://hub.docker.com/
Click on Sign Up for Docker Hub.

Username:nk613

```
[root@khaled basic-flask-app]# docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store
```

6-Push the image to your docker hub

7-Send the Dockerfile for this image

```
[root@khaled basic-flask-app]# docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
[root@khaled basic-flask-app]# docker tag iti-flask-lab22 nk613/iti-flask-lab22
[root@khaled basic-flask-app]# docker push nk613/iti-flask-lab22
Using default tag: latest
The push refers to repository [docker.io/nk613/iti-flask-lab22]
9130538201dc: Mounted from nk613/iti-flask-lab2
042107d4ef11: Mounted from nk613/iti-flask-lab2
3bdfe79378cb: Mounted from nk613/iti-flask-lab2
879c0d8666e3: Mounted from nk613/iti-flask-lab2
20a7b70bdf2f: Mounted from nk613/iti-flask-lab2
3fc750b41be7: Mounted from nk613/iti-flask-lab2
beee9f30bc1f: Mounted from nk613/iti-flask-lab2
latest: digest: sha256:a519d38413330062b1ee87901cb80169bf1bb2227a120913e146d64219975f2f size: 1789
[root@khaled basic-flask-app]#
obaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net
```

Part 2

- Create a new network and name it “iti-network”The new network should be a bridge driver and uses a subnet 10.0.0.0/8

```
[root@khaled basic-flask-app]# cd
[root@khaled ~]# mkdir lab2
[root@khaled ~]# docker network create --subnet=10.0.0.0/8 --driver=bridge iti-network
49ca1eca1686c944adf2182e784eead64b146703a5661139568620874704 2fe9
```

```
[root@khaled ~]# docker network ls
NETWORK ID     NAME          DRIVER    SCOPE
7758fc48e141   bridge        bridge    local
0ee023f3c4a2   host          host      local
49ca1eca1686   iti-network   bridge    local
d5c9094d5098   none          null      local
[root@khaled ~]#
```

- Run the image **nginx:alpine or httpd**, and the container should:
  - Have the name “nginx-alpine-iti”
  - Publish the port 80 from within the container to port 8080
  - The index page should have the text in <h1>Lab 2 ITI - (your name)</h1>
- You should use volumes for the index page

Docker run -d --name nginx-alpine-iti -p 8080:80

-v /tmp/nginxdir:/usr/share/nginx/html nginx:alpine

touch /tmp/nginxdir/index.html

vi /tmp/nginxdir/index.html

```
[root@khaled ~]# docker run -d --name nginx-alpine-iti  -p 8080:80  -v /tmp/nginxdir:/usr/share/nginx/html nginx:alpine
e2077200a537c9dd523e2676dcd3d08a376ca1e3541cc5674062bab8384cdbb7
[root@khaled ~]# touch /tmp/nginxdir/index.html
[root@khaled ~]# vi  /tmp/nginxdir/index.html
[root@khaled ~]# cat /tmp/nginxdir/index.html
</head>
<body>
    <h1>Lab 2 ITI - Nada Khaled</h1>
```