

Name: Moneeb Toor

Roll No: 221048

Section: BSIT-5-B

Course: DevOps

Submitted Too: Mam Warda Aslam

Lab 5

Task 1:

```
C:\Users\PAKISTAN>docker run nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
a480a496ba95: Already exists
f3ace1b8ce45: Pull complete
11d6fdd0e8a7: Pull complete
f1091da6fd5c: Pull complete
40eea07b53d8: Pull complete
5476794e50f4: Pull complete
70850b3ec6b2: Pull complete
Digest: sha256:28402db69fec7c17e179ea87882667f1e054391138f77ffa0c3eb388efc3ffb
Status: Downloaded newer image for nginx:latest
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2024/10/19 07:55:39 [notice] 1#1: using the "epoll" event method
2024/10/19 07:55:39 [notice] 1#1: nginx/1.27.2
2024/10/19 07:55:39 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2024/10/19 07:55:39 [notice] 1#1: OS: Linux 5.15.153.1-microsoft-standard-WSL2
2024/10/19 07:55:39 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2024/10/19 07:55:39 [notice] 1#1: start worker processes
2024/10/19 07:55:39 [notice] 1#1: start worker process 29
2024/10/19 07:55:39 [notice] 1#1: start worker process 30
2024/10/19 07:55:39 [notice] 1#1: start worker process 31
2024/10/19 07:55:39 [notice] 1#1: start worker process 32
2024/10/19 07:55:39 [notice] 1#1: start worker process 33
2024/10/19 07:55:39 [notice] 1#1: start worker process 34
2024/10/19 07:55:39 [notice] 1#1: start worker process 35
2024/10/19 07:55:39 [notice] 1#1: start worker process 36
```

Task 2:

```
C:\Users\PAKISTAN>docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS        NAMES
f45a9c03da32   nginx    "/docker-entrypoint...." 24 seconds ago Up 24 seconds 80/tcp       laughing_chatelet
```

Task 3:

```
Command Prompt
Error: failed to start containers: nginx

:\Users\PAKISTAN>docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS        NAMES
45a9c03da32   nginx    "/docker-entrypoint...." 3 minutes ago  Exited (0) 59 seconds ago          laughing_chatel
t
e54e54eeabe   ubuntu   "/bin/bash"             14 hours ago  Exited (0) 14 hours ago          fervent_jones
be8d55f0903   ubuntu   "echo Hello"            14 hours ago  Exited (0) 14 hours ago          jolly_curie
bf9fc635870   hello-world "/hello"                14 hours ago  Exited (0) 14 hours ago          vibrant_mendelee
v
b4e2b063ff6   redis    "docker-entrypoint.s..." 14 hours ago  Exited (0) 14 hours ago          festive_shtern
086e5d9baa1   redis    "docker-entrypoint.s..." 14 hours ago  Exited (0) 14 hours ago          eager_gauss
1eb73cd7aed   python   "python3"               15 hours ago  Exited (0) 15 hours ago          py

:\Users\PAKISTAN>docker start 8086e5d9baa1
8086e5d9baa1

:\Users\PAKISTAN>docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS        NAMES
086e5d9baa1   redis    "docker-entrypoint.s..." 14 hours ago  Up 8 seconds  6379/tcp     eager_gauss

:\Users\PAKISTAN>docker stop 8086e5d9baa1
8086e5d9baa1

:\Users\PAKISTAN>docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS        NAMES

:\Users\PAKISTAN>docker rm 8086e5d9baa1
8086e5d9baa1

:\Users\PAKISTAN>docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS        NAMES
45a9c03da32   nginx    "/docker-entrypoint...." 4 minutes ago  Exited (0) 2 minutes ago          laughing_chatele
e54e54eeabe   ubuntu   "/bin/bash"             14 hours ago  Exited (0) 14 hours ago          fervent_jones0be
d55f0903   ubuntu   "echo Hello"            14 hours ago  Exited (0) 14 hours ago          jolly_curie
bf9fc635870   hello-world "/hello"                14 hours ago  Exited (0) 14 hours ago          vibrant_mendelee
b4e2b063ff6   redis    "docker-entrypoint.s..." 14 hours ago  Exited (0) 14 hours ago          festive_shtern
1eb73cd7aed   python   "python3"               15 hours ago  Exited (0) 15 hours ago          py
```

Task 4:

```
C:\Users\PAKISTAN>docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
<none>        <none>    e52fa35906ac   14 hours ago   117MB
ubuntu        latest    59ab366372d5   8 days ago     78.1MB
python        latest    9c11e9a29f6a   11 days ago     1.02GB
redis         latest    f02a7f566928   2 weeks ago     117MB
nginx         latest    3b25b682ea82   2 weeks ago     192MB
hello-world    latest    d2c94e258dcb   17 months ago   13.3kB

C:\Users\PAKISTAN>docker rmi d2c94e258dcb
Untagged: hello-world:latest
Untagged: hello-world@sha256:d211f485f2dd1dee407a80973c8f129f00d54604d2c90732e8e320e5038a0348
Deleted: sha256:d2c94e258dcb3c5ac2798d32e1249e42ef01cba4841c2234249495f87264ac5a
Deleted: sha256:ac28800ec8bb38d5c35b49d45a6ac4777544941199075dff8c4eb63e093aa81e

C:\Users\PAKISTAN>docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
<none>        <none>    e52fa35906ac   14 hours ago   117MB
ubuntu        latest    59ab366372d5   8 days ago     78.1MB
python        latest    9c11e9a29f6a   11 days ago     1.02GB
redis         latest    f02a7f566928   2 weeks ago     117MB
nginx         latest    3b25b682ea82   2 weeks ago     192MB
```

Task 5:

```
C:\Users\PAKISTAN>cd desktop
C:\Users\PAKISTAN\Desktop>mkdir docker-project
C:\Users\PAKISTAN\Desktop>cd docker-project
C:\Users\PAKISTAN\Desktop\docker-project>
```

Task 6:

```
Dockerfile - Notepad
File Edit Format View Help
# Use an official Python runtime as a parent image
FROM python:3.8-slim-buster

# Set the working directory in the container
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 80 available to the world outside this container
EXPOSE 80

# Define environment variable
ENV NAME World

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

FROM python:3.8-slim-buster

WORKDIR /app
```

Ln 1, Col 1 100% Windows (CRLF) UTF-8

Task 7:

```
Select Command Prompt
C:\Users\PAKISTAN>docker build -t my-python-app .
[+] Building 53.8s (13/13) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 2.88kB
=> resolve image config for docker-image://docker.io/docker/dockerfile:1
=> [auth] docker/dockerfile:pull token for registry-1.docker.io
=> docker-image://docker.io/docker/dockerfile:1@sha256:865e5dd094beca432e8c0a1d5e1c465db5f998dca4e439981029b3b8 23.3s
=> => resolve docker.io/docker/dockerfile:1@sha256:865e5dd094beca432e8c0a1d5e1c465db5f998dca4e439981029b3b81fb39 0.0s
=> => sha256:865e5dd094beca432e8c0a1d5e1c465db5f998dca4e439981029b3b81fb39ed5 8.40kB / 8.40kB
=> => sha256:e3171ba32039ebf6fef09a7cbe2578e43a0ca25e087c67b49bfad5fe728db1e 850B / 850B
=> => sha256:a1637aae1ee9435ad8372f51bdf6f05ed49e4a3beeba0f442980a4c23a418d74 1.26kB / 1.26kB
=> => sha256:1e45ed8b8be3fcf5baec105c530196be8d0b853893e209e4adf6c0e925079ff0 12.49MB / 12.49MB
=> => extracting sha256:1e45ed8b8be3fcf5baec105c530196be8d0b853893e209e4adf6c0e925079ff0 0.3s
=> [internal] load metadata for docker.io/library/alpine:latest
=> [auth] library/alpine:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 671B
=> [base 1/1] FROM docker.io/library/alpine:latest@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367ef 21.7s
=> => resolve docker.io/library/alpine:latest@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc 0.0s
=> => sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d 1.85kB / 1.85kB
=> => sha256:33735bd63cf84d7e388d9f6d297d348c523c044410f553bd878c6d7829612735 528B / 528B
=> => sha256:91ef0af61f39ece4d6710e465df5ed6ca12112358344fd51ae6a3b886634148b 1.47kB / 1.47kB
=> => sha256:43c4264eed91be63b206e17d93e75256a6097070ce643c5e8f0379998b44f170 3.62MB / 3.62MB
=> => extracting sha256:43c4264eed91be63b206e17d93e75256a6097070ce643c5e8f0379998b44f170 0.6s
=> [build 1/2] RUN echo -e '#!/bin/sh\necho Hello world from $(whoami)! In order to get your application running 0.6s
=> [final 1/2] RUN adduser --disabled-password --gecos "" --home "/nonexistent" --shell "/sbin/n 0.6s
=> [build 2/2] RUN chmod +x /bin/hello.sh 1.1s
=> [final 2/2] COPY --from=build /bin/hello.sh /bin/ 0.1s
=> exporting to image 0.2s
=> => exporting layers 0.1s
=> => writing image sha256:fc6cb7cc50e222ce170e800218a4dfd27e5b7f1be251f975d4d57b2a70784092 0.0s
=> => naming to docker.io/library/my-python-app 0.0s

2 warnings found (use docker --debug to expand):
- FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 19)
- FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 29)

What's next:
View a summary of image vulnerabilities and recommendations -> docker scout quickview
```

Task 8:

```
C:\Users\PAKISTAN>docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
my-python-app       latest          fc6cb7cc50e2    About a minute ago  7.8MB
<none>              <none>          e52fa35906ac    19 hours ago     117MB
ubuntu              latest          59ab366372d5    8 days ago       78.1MB
python              latest          9c11e9a29f6a    11 days ago      1.02GB
redis               latest          f02a7f566928    2 weeks ago      117MB
nginx               latest          3b25b682ea82    2 weeks ago      192MB
```

Task 9:

```
C:\Users\PAKISTAN>docker run -d --name Rayan-app my-python-app
b033a90398bc5ff5e5371f95e9abced57c9b4caf9c892ab78120a3df187a1bca
```

Task 10:

Dockerfile - Notepad

File Edit Format View Help

```
# Base image with Python 3.8
FROM python:3.8-slim-buster
```

```
# Set the working directory in the container
WORKDIR /app
```

```
# Copy files from local machine (Windows) to container
COPY . /app
```

```
# Install Python dependencies
RUN pip install --no-cache-dir -r requirements.txt
```

```
# Expose port 80 for the application
EXPOSE 80
```

```
# Define environment variable
ENV NAME World
```

```
# Command to run the app
CMD ["python", "app.py"]
```

```
C:\Users\PAKISTAN>docker build -t my-python-app .
[+] Building 16.0s (13/13) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile                0.0s
=> => transferring dockerfile: 2.88kB                             0.0s
=> resolve image config for docker-image://docker.io/docker/dockerfile:1 5.3s
=> [auth] docker/dockerfile:pull token for registry-1.docker.io  0.0s
=> CACHED docker-image://docker.io/docker/dockerfile:1@sha256:865e5dd094beca432e8c0a1d5e1c465db5f998dca4e4399810 0.0s
=> [internal] load metadata for docker.io/library/alpine:latest  10.0s
=> [auth] library/alpine:pull token for registry-1.docker.io     0.0s
=> [internal] load .dockerignore                                   0.0s
=> => transferring context: 671B                                    0.0s
=> [base 1/1] FROM docker.io/library/alpine:latest@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367eff 0.0s
=> CACHED [final 1/2] RUN adduser --disabled-password --gecos "" --home "/nonexistent" --shell " 0.0s
=> CACHED [build 1/2] RUN echo -e '#!/bin/sh\necho Hello world from $(whoami)! In order to get your application 0.0s
=> CACHED [build 2/2] RUN chmod +x /bin/hello.sh                  0.0s
=> CACHED [final 2/2] COPY --from=build /bin/hello.sh /bin/       0.0s
=> exporting to image                                             0.0s
=> => exporting layers                                           0.0s
=> => writing image sha256:fc6cb7cc50e222ce170e800218a4dfd27e5b7f1be251f975d4d57b2a70784092 0.0s
=> => naming to docker.io/library/my-python-app                  0.0s
```

```
2 warnings found (use docker --debug to expand):
- FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 19)
- FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 29)
```

What's next:

View a summary of image vulnerabilities and recommendations → [docker scout quickview](#)

```
C:\Users\PAKISTAN>docker run -d -p 80:80 my-python-app
c285393257a68fb6d610e6d531e9e5280af39ac67cd8a7d74be861ce8fa88fef
```

Task 11:



Dockerfile - Notepad

File Edit Format View Help

```
# Base image with Python 3.8
FROM python:3.8-slim-buster

# Set the working directory in the container
WORKDIR /app

# Copy files from local machine (Windows) to container
COPY . /app

# Install Python dependencies
RUN pip install --no-cache-dir -r requirements.txt

# Expose port 80 for the application
EXPOSE 80

# Define environment variable
ENV NAME World

# Command to run the app
CMD ["python", "app.py"]

# Add environment variables
ENV APP_ENV=development
ENV NAME=World
```

```
C:\Users\PAKISTAN>docker run -it my-python-app bash
\\Hello world from appuser! In order to get your application running in a container, take a look at the comments in the
Dockerfile to get started.
```

Task 12:

```
C:\Users\PAKISTAN>
C:\Users\PAKISTAN>docker build -t my-python-app .
[+] Building 6.1s (13/13) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 2.88kB
=> resolve image config for docker-image://docker.io/docker/dockerfile:1
=> [auth] docker/dockerfile:pull token for registry-1.docker.io
=> CACHED docker-image://docker.io/docker/dockerfile:1@sha256:865e5dd094beca432e8c0a1d5e1c465db5f998dca4e439981029b3b81fb39e
=> [internal] load metadata for docker.io/library/alpine:latest
=> [auth] library/alpine:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 671B
=> [base 1/1] FROM docker.io/library/alpine:latest@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d
=> CACHED [final 1/2] RUN adduser --disabled-password --gecos "" --home "/nonexistent" --shell "/sbin/nologin" --no-create-home --login-name root
=> CACHED [build 1/2] RUN echo -e '#!/bin/sh\nnecho Hello world from $(whoami)! In order to get your application running in a
=> CACHED [build 2/2] RUN chmod +x /bin/hello.sh
=> CACHED [final 2/2] COPY --from=build /bin/hello.sh /bin/
=> exporting to image
=> => exporting layers
=> => writing image sha256:fc6cb7cc50e222ce170e800218a4dfd27e5b7f1be251f975d4d57b2a70784092
=> => naming to docker.io/library/my-python-app

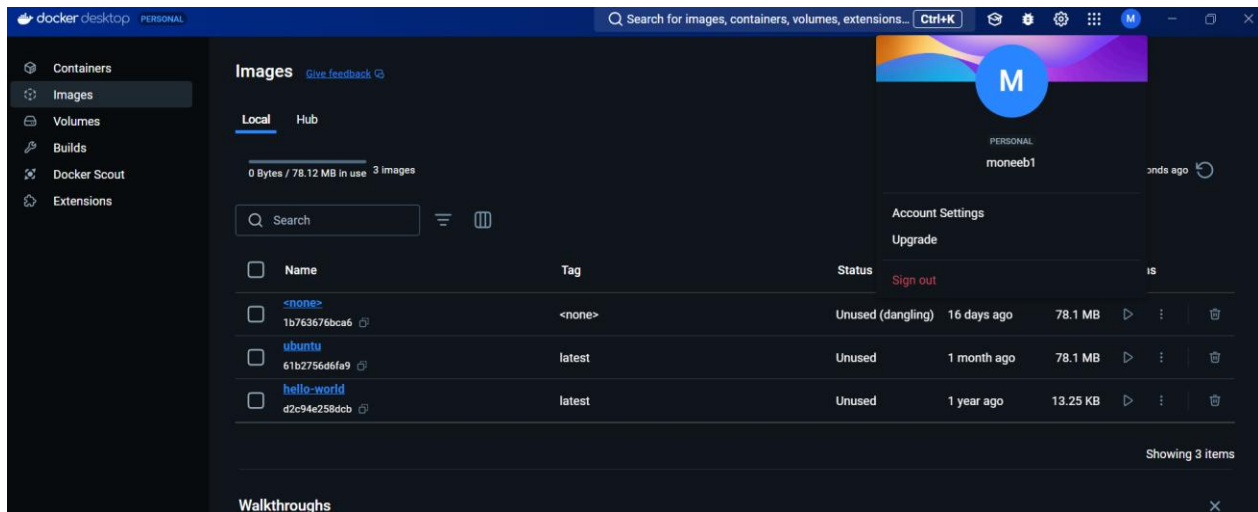
2 warnings found (use docker --debug to expand):
- FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 19)
- FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 29)

What's next:
  View a summary of image vulnerabilities and recommendations → docker scout quickview
```

Task 13:

```
C:\Users\PAKISTAN>docker run -d -p5000:5000 my-python-app .
8dfa588fd8e23099b7d97caefdf762a739b74251fb8c893165aeae715e98848d
```

Task 14:



Task 15:

```
C:\Users\PAKISTAN>docker login
Authenticating with existing credentials...
Login Succeeded
```

Task 16:


```
C:\Users\PAKISTAN>docker tag my-python-app rayan651/my-python-app
```

Task 17:

```
C:\Users\PAKISTAN>docker push rayan651/my-python-app:latest
The push refers to repository [docker.io/rayan651/my-python-app]
a1668912dc8e: Pushed
00e6fbbd021d: Pushed
63ca1fbbd43ae: Mounted from library/alpine
Patch "https://registry-1.docker.io/v2/rayan651/my-python-app/blobs/uploads/5922da72-a2c7-4415-ae17-bcff74cf5ade?_state=gdeHvgkcs4i5tMPV7hsQyIfk2WriaZHa
bWUioI3yYXhbjY1MS9teS1weXRob24tYXBwIiw1VVVJRClGfjU5MjJkYTYcyLWEYcZctNDQxNS1hZTE3LWJzY3NGNmMWFkZS1IsK9mZnNldCI6MCwiU3RlcnRlZEF0fjoIjMjAeN0c0X0c0VQX0NDZaIn0%3D": net/http: TLS handshake timeout
```

Task 18:

```
C:\Users\PAKISTAN>docker pull rayan651/my-python-app
Using default tag: latest

What's next:
    View a summary of image vulnerabilities and recommendations → docker scout quickview rayan651/my-python-app
Error response from daemon: manifest for rayan651/my-python-app:latest not found: manifest unknown: manifest unknown
```

```
C:\Users\PAKISTAN>docker run -d -p 5000:5000 rayan651/my-python-app
214e0b6b20df2370ae7c671b08b8467f0d5f89298bd99043a73cbf6d5006bc85
```

Task 19:


```
C:\Users\PAKISTAN>docker network create my-custom-network
da9afb591a6ca6a7fcc20ee2a40ceb7d8a3b3baf5315513f8c2b72b058d36b28
```

```
C:\Users\PAKISTAN>docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
758b1724409b        bridge              bridge              local
70cf1d7f17f4        host                host                local
da9afb591a6c        my-custom-network   bridge              local
3c21ac6c137f        none                null                local
```

```
C:\Users\PAKISTAN>docker run -d --name python-app --network my-custom-network my-python-app
1a184b143693fe3e70076d115c4461670f6c1a0e7e2d4d10c34093be5b62b645
```

```
C:\Users\PAKISTAN>docker run -d --name redis-server --network my-custom-network redis
2f39e05303e4f2010378ade8b7471172b95b4d484ce852c40ad7df289c99213d
```

```
C:\Users\PAKISTAN>docker network inspect my-custom-network
[
  {
    "Name": "my-custom-network",
    "Id": "da9afb591a6ca6a7fcc20ee2a40ceb7d8a3b3baf5315513f8c2b72b058d36b28",
    "Created": "2024-10-19T14:08:31.942910619Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.18.0.0/16",
          "Gateway": "172.18.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
```