

# DevOps Assignment # 01

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## TASK # 01

```
root@kali:~# docker --version
Docker version 26.1.5+dfsg1, build a72d7cd
```

```
root@kali:~# docker info
Client:
  Version: 26.1.5+dfsg1
  Context: default
  Debug: false
  Plugins:
    buildx: Docker Buildx (Docker Inc.)
    Version: 0.13.1+ds1
    Path: /usr/libexec/docker/cli-plugins/docker-buildx

Server:
  Containers: 1
  Running: 0
  Paused: 0
  Stopped: 1
  Images: 2
  Server Version: 26.1.5+dfsg1
  Storage Driver: overlay2
  Backing Filesystem: extfs
  Supports d_type: true
  Native Overlay Diff: true
  usernamespace: false
  Logging Driver: json-file
  Cgroup Driver: systemd
  Cgroup Version: 2
  Plugins:
    Volume: local
    Network: bridge host ipvlan macvlan null overlay
    Log: awslogs fluentd gelf journald json-file local splunk syslog
  Swarm: inactive
  Runtime: containerd.runc.v2 runc
  Default Runtime: runc
  Init Binary: docker-init
  containerd version: 1.7.24-ds1-8
  runc version: 1.1.15+ds1-2+b4
  init version: 0.19.0-dev
  Security Options:
    apparmor
    seccomp
      Profile: builtin
    cgroups
  Kernel Version: 6.11.2-amd64
  Operating System: Kali GNU/Linux Rolling
  OS Type: linux
```

```
root@kali:~# sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
   Active: active (running) since Wed 2025-10-08 12:26:16 EDT; 4min 29s ago
     Docs: https://docs.docker.com
  TriggeredBy: ● docker.socket
 Main PID: 2168 (dockerd)
   Tasks: 9
    Memory: 116M (peak 119M)
       CPU: 5.288s
      Group: /system.slice/docker.service
           └─ 2168 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Oct 08 12:26:16 kali (dockerd)[2168]: docker: warning: Reference to socket environment variable must be an empty string: DOCKER_0_IP
Oct 08 12:26:16 kali (dockerd)[2168]: time="2025-10-08T12:26:16.099,943627556-04:00" level=info msg="Starting up"
Oct 08 12:26:11 kali (dockerd)[2168]: time="2025-10-08T12:26:11.555288329-04:00" level=info msg="graphdriver using prior storage driver: overlay2"
Oct 08 12:26:11 kali (dockerd)[2168]: time="2025-10-08T12:26:11.855984784-04:00" level=info msg="Loading containers: start."
Oct 08 12:26:11 kali (dockerd)[2168]: time="2025-10-08T12:26:11.855984784-04:00" level=info msg="No containers found. Will poll for new containers to load"
Oct 08 12:26:15 kali (dockerd)[2168]: time="2025-10-08T12:26:15.322876886-04:00" level=info msg="Loading containers: done"
Oct 08 12:26:15 kali (dockerd)[2168]: time="2025-10-08T12:26:15.720341334-04:00" level=info msg="Docker daemon" commit=411e817 containerd-snapshotter=false storage-driver=overlay2 version=26.1.5+dfsg1
Oct 08 12:26:15 kali (dockerd)[2168]: time="2025-10-08T12:26:15.720341334-04:00" level=info msg="Daemon has completed initialization"
Oct 08 12:26:16 kali (dockerd)[2168]: time="2025-10-08T12:26:16.000000000-04:00" level=info msg="API listen on /run/docker.sock"
Oct 08 12:26:16 kali [systemd]: Started Docker Service - Docker Application Container Engine.
```

```
root@kali:~# sudo systemctl enable docker
Synchronizing state of docker.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable docker
```

```

[~] root@kali:~]
└─# sudo systemctl enable docker
Synchronizing state of docker.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/lib/systemd/systemd-sysv-install enable docker
[~] root@kali:~]
└─# 
[~] root@kali:~]
└─# sudo systemctl is-enabled docker
enabled
[~] root@kali:~]
└─#

```

## TASK # 02

```

File Actions Edit View Help
File Actions Edit View Help
root@kali:~]
└─# 
[~] root@kali:~]
└─# 
[~] root@kali:~]
└─# sudo systemctl is-enabled docker
enabled
[~] root@kali:~]
└─# mkdir mydockerrapp
[~] root@kali:~]
└─# cd mydockerrapp
[~] root@kali:~/mydockerrapp]
└─# echo <h1>Your Name - Roll No: 12345</h1> > index.html
[~] root@kali:~/mydockerrapp]
└─# nano Dockerfile
[~] root@kali:~/mydockerrapp]
└─# docker build -t mynginx:1.0 .
[*] Building 196.4s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> [internal] load metadata for docker.io/library/ubuntu:20.04
[internal] load metadata for docker.io/library/ubuntu:20.04sha256:8febad8ca5354def3d8fc2a43717141ce31e2c428701f6682bd2fafe15388214
=> [internal] load metadata for docker.io/library/ubuntu:20.04
=> [internal] load build context: 2B
[1/1] FROM docker.io/library/ubuntu:20.04@sha256:8febad8ca5354def3d8fc2a43717141ce31e2c428701f6682bd2fafe15388214
=> [internal] load metadata for docker.io/library/ubuntu:20.04
=> [internal] load build context: 2B
=> sha256:13b7e93b9469fd63d75a3207099035c6acfe6f7548576abcf03d1b92a64c99c2476 27.51MB / 27.51MB
=> sha256:cde6478f86ed5a38bb0a340d8108f81714e21abb9c73f6568c4bea56a179d54a 424B / 424B
=> sha256:cde6478f86ed5a38bb0a340d8108f81714e21abb9c73f6568c4bea56a179d54a 424B / 424B
=> sha256:cde6478f86ed5a38bb0a340d8108f81714e21abb9c73f6568c4bea56a179d54a 424B / 424B
=> [internal] load build context
=> [internal] transfer context: 7B
[2/2] RUN apt-get update && apt-get install -y nginx
=> [2/2] COPY index.html /var/www/html/
=> [2/2] exporting image
=> [2/2] exporting layers
=> [2/2] writing image sha256:33df23e8be5e9345791e54bde1e8ee04139e658c3ab62521cb4148ddd055fa5c
=> [2/2] naming to docker.io/library/mynginx:1.0
[~] root@kali:~/mydockerrapp]
└─#

```

```

File Actions Edit View Help
File Actions Edit View Help
root@kali:~]
└─# 
[~] root@kali:~]
└─# 
[~] root@kali:~]
└─# sudo systemctl is-enabled docker
enabled
[~] root@kali:~]
└─# mkdir mydockerrapp
[~] root@kali:~]
└─# cd mydockerrapp
[~] root@kali:~/mydockerrapp]
└─# echo <h1>Your Name - Roll No: 12345</h1> > index.html
[~] root@kali:~/mydockerrapp]
└─# nano Dockerfile
[~] root@kali:~/mydockerrapp]
└─# docker build -t mynginx:1.0 .
[*] Building 196.4s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> [internal] load metadata for docker.io/library/ubuntu:20.04
[internal] load metadata for docker.io/library/ubuntu:20.04
=> [internal] load build context: 1B
[1/1] FROM docker.io/library/ubuntu:20.04@sha256:8febad8ca5354def3d8fc2a43717141ce31e2c428701f6682bd2fafe15388214
=> [internal] load metadata for docker.io/library/ubuntu:20.04
=> [internal] load build context: 1B
=> sha256:b7bab04f9aa0c771e5730fb0f8cc7cfb93fd694645983d9896126e5af45d713 2.30KB / 2.30KB
=> sha256:cde6478f86ed5a38bb0a340d8108f81714e21abb9c73f6568c4bea56a179d54a 424B / 424B
=> [internal] load build context
=> [internal] transfer context: 7B
[2/2] RUN apt-get update && apt-get install -y nginx
[2/2] COPY index.html /var/www/html/
=> [2/2] exporting image
=> [2/2] exporting layers
=> [2/2] writing image sha256:33df23e8be5e9345791e54bde1e8ee04139e658c3ab62521cb4148ddd055fa5c
=> [2/2] naming to docker.io/library/mynginx:1.0
[~] root@kali:~/mydockerrapp]
└─# docker image ls
REPOSITORY          TAG      IMAGE ID      CREATED       SIZE
mynginx             1.0      33df23e8bce5  41 seconds ago  910MB
gitchatbot-frontend   v1      f7e46db33398  13 days ago   913MB
gitchatbotacr2533.azurecr.io/gitchatbot-frontend   v1      f7e46db33398  13 days ago   913MB
hello-world          latest   1044053e06a  2 months ago  10.1kB
[~] root@kali:~/mydockerrapp]
└─#

```

```

root@kali:~/mydockerapp
File Actions Edit View Help
mynginx          1.0      35df23a8bc55  41 seconds ago  190MB
gitchatbot-frontend    v1      f7e46d833398  13 days ago   913MB
gitchatbotacr2533.azurecr.io/gitchatbot-frontend v1      f7e46d833398  13 days ago   913MB
hello-world      latest   1b44b5a3e06a  2 months ago  10.1kB

[root@kali]-(~/mydockerapp]
# docker run -d -p 8080:80 mynginx:1.0
76faef2d30bfc61e3a143ef0e0d7fc50e02ef9f4e63da7df4003b741522634

[root@kali]-(~/mydockerapp]
# cd mydockerapp
cd: no such file or directory: mydockerapp
[root@kali]-(~/mydockerapp]
# nano index.html

[root@kali]-(~/mydockerapp]
# docker build -t mynginx:1.1 .
[*] Building 4.6s (8/8) FINISHED
  => [internal] load build definition from Dockerfile
  => [internal] load metadata for docker.io/library/ubuntu:20.04
  => [internal] load .dockerignore
  => [internal] transfer context: 8B
  => [internal] 8B
  => [internal] FROM docker.io/library/ubuntu:20.04@sha256:8feb4d8ca5354def3d8fce243717141ce31e2c428701f6682bd2faf15388214
  => [internal] CACHED [2/3] RUN apt-get update && apt-get install -y nginx
  => [internal] RUN cp index.html /var/www/html/
  => exporting to image
  => exporting layers
  => writing image sha256:d1c382a5ba09ed34c1e7c817cdda0068b6a95c2324ff9969238a6cb762d9b2b
  => naming to docker.io/library/mynginx:1.1

[root@kali]-(~/mydockerapp]
# docker image ls
REPOSITORY          TAG      IMAGE ID      CREATED        SIZE
mynginx            1.0      d1c382a5ba9  20 seconds ago  190MB
mynginx            latest   d1c382a5ba9  20 seconds ago  190MB
gitchatbot-frontend    v1      f7e46d833398  13 days ago   913MB
gitchatbotacr2533.azurecr.io/gitchatbot-frontend v1      f7e46d833398  13 days ago   913MB
hello-world      latest   1b44b5a3e06a  2 months ago  10.1kB

[root@kali]-(~/mydockerapp]

```

## TASK # 03

```

root@kali:~/mydockerapp
File Actions Edit View Help
[root@kali]-(~/mydockerapp]
# docker run -d -p 8080:80 --name webapp mynginx:1.0
349f37a3d8ec mynginx:1.0 "nginx -g 'daemon off;'" 19 seconds ago Up 17 seconds 0.8.8.8:8080->80/tcp, :::8080->80/tcp webapp

[root@kali]-(~/mydockerapp]
# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
349f37a3d8ec mynginx:1.0 "nginx -g 'daemon off;'" 19 seconds ago Up 17 seconds 0.8.8.8:8080->80/tcp, :::8080->80/tcp webapp

[root@kali]-(~/mydockerapp]
# docker pause webapp
webapp

[root@kali]-(~/mydockerapp]
# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
349f37a3d8ec mynginx:1.0 "nginx -g 'daemon off;'" 2 minutes ago Up 2 minutes (Paused) 0.8.8.8:8080->80/tcp, :::8080->80/tcp webapp

[root@kali]-(~/mydockerapp]
# docker unpause webapp
webapp

[root@kali]-(~/mydockerapp]
# docker restart webapp
webapp

[root@kali]-(~/mydockerapp]
# docker stop webapp
webapp

[root@kali]-(~/mydockerapp]
# docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
349f37a3d8ec mynginx:1.0 "nginx -g 'daemon off;'" 3 minutes ago Exited (0) 14 seconds ago webapp
d8398ec4899 mynginx:1.0 "nginx -g 'daemon off;'" 12 minutes ago Created modest_banzai
3b3b269cfac2 mynginx:1.0 "nginx -g 'daemon off;'" 12 minutes ago Created interesting_keller
d1ff29efefca hello-world "/hello" 13 days ago Exited (0) 13 days ago laughing_cham

[root@kali]-(~/mydockerapp]

```

Marsad Rasheed - Roll No:FA22-BSE-032

```

5fcb7e546dc207d70144cf9b811236f2fff0a2aa1befe4db72d467b57d44db82
[root@kali] -[~/mydockerapp]

```

Bind for 0.0.0.0:8080 failed: port is already allocated.

f938f3cce41b9003): Bind for 0.0.0.0:8080 failed: port is already allocated.

## TASK # 04

```

File Actions Edit View Help
[root@kali] -[~/mydockerapp]
└─# docker login
Log in with your Docker ID or email address to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com/ to create one.
You can log in with your password or a Personal Access Token (PAT). Using a limited-scope PAT grants better security and is required for organizations using SSO. Learn more at https://docs.docker.com/go/access-tokens/
Username: marsadi
Password:
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@kali] -[~/mydockerapp]
└─# docker tag mynginx:1.0 marsadi1/mynginx:1.0
[root@kali] -[~/mydockerapp]
└─# docker image ls
REPOSITORY          TAG      IMAGE ID      CREATED     SIZE
mynginx            1.1      d1c382a5ba09  17 minutes ago  190MB
mynginx            1.0      33df23e8bce5  22 minutes ago  190MB
marsadi1/mynginx   1.0      33df23e8bce5  22 minutes ago  190MB
gitchatbot-frontend v1      f7e46d033398  13 days ago   913MB
gitchatbotscr2533.azurecr.io/gitchatbot-frontend v1      f7e46d033398  13 days ago   913MB
hello-world        latest   194405a3e09a  2 months ago  18.1kB
[root@kali] -[~/mydockerapp]
└─# docker push marsadi1/mynginx:1.0
The push refers to a repository [docker.io/marsadi1/mynginx]
95193797acde: Preparing
a4a235f60740: Preparing
470b66ea5123: Preparing
denied: requested access to the resource is denied
[root@kali] -[~/mydockerapp]
└─# docker images | grep mynginx
mynginx            1.1      d1c382a5ba09  20 minutes ago  190MB
mynginx            1.0      33df23e8bce5  25 minutes ago  190MB
marsadi1/mynginx   1.0      33df23e8bce5  25 minutes ago  190MB
[root@kali] -[~/mydockerapp]
└─# docker push marsadi1/mynginx:1.0

```

The screenshot shows the Docker Personal access tokens page. On the left, there's a sidebar with a user icon for 'marsad1' and links like Home, Hub, Build Cloud, Hardened Images, Scout, Testcontainers Cloud, Docker Desktop, Settings, Account information, and Email. The main content area is titled 'Personal access tokens / New access token'. It shows a single token entry for 'Copy access token' with the following details:

- Access token description: for linux webapp22
- Expires on: Nov 07, 2025 at 23:59:59
- Access permissions: Read, Write, Delete

Instructions for using the token with the Docker CLI client are provided, along with a step 1: Run.

```
(root㉿kali)-[~/mydockerapp]
# docker push marsad1/mynginx:1.0
The push refers to repository [docker.io/marsad1/mynginx]
957aa797ac20: Pushed
a4a235f00740: Pushed
470b66ea5123: Pushed
1.0: digest: sha256:44097d10d19a9acff130839440c7ee316183e23d20dc23b2c9bfff6c3c8edcb98 size: 948
(root㉿kali)-[~/mydockerapp]
# 
```

The screenshot shows the Docker Hub repository page for 'marsad1/mynginx'. At the top, it says 'marsad1/mynginx' by 'marsad1 · Updated 3 minutes ago'. There are tabs for 'IMAGE' and 'Tags'. Below that, there's a 'No overview available' message with a note that the repository doesn't have an overview. To the right, there's a 'Manage Repository' button and a 'Tag summary' section. The 'Tag summary' section includes:

- Recent tags: 1.0
- Content type: Image
- Digest: sha256:44097d10d19a9acff130839440c7ee316183e23d20dc23b2c9bfff6c3c8edcb98
- Size: 948

```
(root@kali)-[~/mydockerapp]
└# docker rmi marsad1/mynginx:1.0

Untagged: marsad1/mynginx:1.0
Untagged: marsad1/mynginx@sha256:44097d10d19a9acff130839440c7ee316183e23d20dc23b2c9bff6c3c8edcb98

(root@kali)-[~/mydockerapp]
└# docker pull marsad1/mynginx:1.0

1.0: Pulling from marsad1/mynginx
Digest: sha256:44097d10d19a9acff130839440c7ee316183e23d20dc23b2c9bff6c3c8edcb98
Status: Downloaded newer image for marsad1/mynginx:1.0
docker.io/marsad1/mynginx:1.0

(root@kali)-[~/mydockerapp]
└#
```

```
(root@kali)-[~/mydockerapp]
└# docker rmi marsad1/mynginx:1.0

Untagged: marsad1/mynginx:1.0
Untagged: marsad1/mynginx@sha256:44097d10d19a9acff130839440c7ee316183e23d20dc23b2c9bff6c3c8edcb98

(root@kali)-[~/mydockerapp]
└# docker pull marsad1/mynginx:1.0

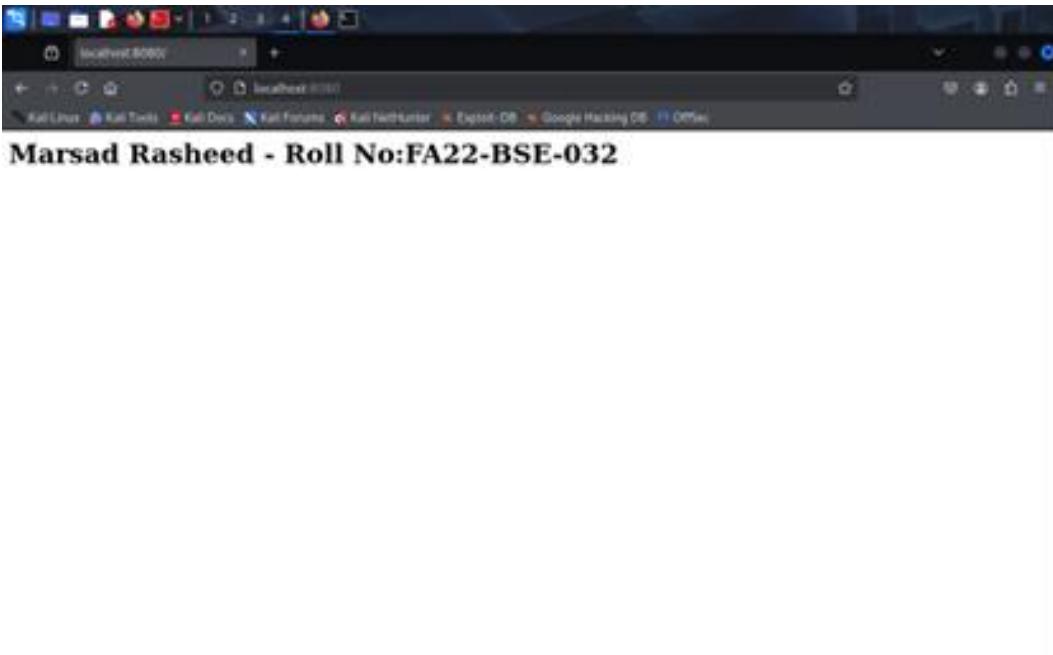
1.0: Pulling from marsad1/mynginx
Digest: sha256:44097d10d19a9acff130839440c7ee316183e23d20dc23b2c9bff6c3c8edcb98
Status: Downloaded newer image for marsad1/mynginx:1.0
docker.io/marsad1/mynginx:1.0
```

```
(root@kali)-[~/mydockerapp]
└# docker run -d -p 8080:80 --name webapp marsad1/mynginx:1.0
8b83203c6a5d0c40635a1f0ef3d833fa297201512abcf0797cb7ccf1e4a9863

(root@kali)-[~/mydockerapp]
└# docker ps

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
8b83203c6a5d marsad1/mynginx:1.0 "nginx -g 'daemon of..." 21 seconds ago Up 19 seconds 0.0.0.0:8080→80/tcp, :::8080→80/tcp webapp

(root@kali)-[~/mydockerapp]
└#
```



```
[root@kali]~/.mydockerapp]
# docker stop webapp
webapp

[root@kali]~/.mydockerapp]
# docker rm webapp
webapp

[root@kali]~/.mydockerapp]
# docker rmi marsad1/mynginx:1.0
Untagged: marsad1/mynginx:1.0
Untagged: marsad1/mynginx@sha256:44097d10d19a9acff130839440c7ee316183e23d20dc23b2c9bff6c3c8edcb98

[root@kali]~/.mydockerapp]
```