

SOFTWARE ENGINEERING LAB

EXERCISE – 7

TOPIC – 2

MODIFY AND PUSH DOCKER IMAGE

By following these Commands, you will learn how to:

- Create and modify a container (E.g. Ubuntu).
- Save the changes to a custom image.
- Push the image to Docker Hub.
- Pull and reuse the image. This workflow is useful for creating reusable and shareable container environments.

• **Note: At every step take screenshots and save in a document**

1. Pull the Ubuntu image

```
docker pull ubuntu
```

•What it does: Downloads the official Ubuntu base image from Docker Hub to your local system. This image is like a minimal operating system ready to run inside a Docker container.

2. Run a container from the Ubuntu image

```
docker run -it --name newubuntu -d ubuntu
```

- What it does: Creates and starts a new container from the Ubuntu image.
- it: Allows you to interact with the container (interactive terminal mode).
- name newubuntu: Names the container "newubuntu" for easy identification.

- d: Runs the container in the background (detached mode).

3. List all running containers

docker ps

- What it does: Displays a list of all currently running containers, showing details like the container ID, name, image used, and uptime.

4. Access the running container

docker exec -it 885a01bcdbe0 bash

- What it does: Opens a shell (terminal) inside the running container.
- exec: Executes a command in a running container.
- it: Allows interactive access.
- 885a01bcdbe0: The unique container ID of the running container.
- bash: Opens the bash shell inside the container.

5. Check if Git is installed

git --version

- What it does: Checks the version of Git installed in the container.
- Why it failed: The error bash: git: command not found means Git is not installed in the container.

6. Update the package list

apt update

- What it does: Updates the list of available software packages in the container. It prepares the system for installing new software by fetching the latest versions from online repositories.

7. Install Git

```
apt install git -y
```

- What it does: Installs Git inside the container.
- y: Automatically confirms the installation (avoids asking for "yes/no").

8. Verify Git installation

```
git --version
```

- What it does: Checks if Git is installed correctly and displays its version (e.g., git version 2.43.0).

9. Exit the container

```
exit
```

- What it does: Closes the shell session inside the container and returns to your host system.

10. Stop the running container

```
docker stop 885a01bcdbe0
```

- What it does: Stops the running container. It doesn't delete the container, but it halts its operation.

11. Save the container as an image

```
docker commit 885a01bcdbe0 budarajumadhurika/newubuntu2024
```

- What it does: Creates a new image from the stopped container with all the changes (like the Git installation).
- budarajumadhurika/newubuntu2024: Names the new image with a custom name and tag.

12. List all local images

```
docker images
```

- What it does: Shows all the Docker images stored on your system, including the newly created image budarajumadhurika/newubuntu2024.

13. Log in to Docker Hub

```
docker login
```

- What it does: Logs you into your Docker Hub account so you can upload (push) your image.
- It will prompt for your Docker Hub username and password.

14. Push the image to Docker Hub

```
docker push budarajumadhurika/newubuntu2024
```

- What it does: Uploads the newly created image to your Docker Hub account so it can be accessed from anywhere.

15. Log out of Docker Hub

```
docker logout
```

- What it does: Logs you out of Docker Hub for security.

16. Remove the container

```
docker rm 885a01bcdbe0
```

- What it does: Deletes the stopped container permanently from your system.

17. Remove the local image

```
docker rmi budarajumadhurika/newubuntu2024
```

- What it does: Deletes the custom image from your local system, freeing up space. (The image is still available on Docker Hub.)

18. Pull the image from Docker Hub

```
docker pull budarajumadhurika/newubuntu2024
```

- What it does: Downloads the custom image budarajumadhurika/newubuntu2024 from Docker Hub to your local system.

19. Run a container from the custom image

```
docker run --name newubuntu2024 -it budarajumadhurika/newubuntu2024
```

- What it does: Starts a new container from the custom image.
- `--name newubuntu2024`: Assigns a name to the container for easy reference.
- `-it`: Allows interactive access to the container.

20. Check Git version

```
git --version
```

- What it does: Verifies that Git is still installed in the new container, confirming that the custom image retains the installed software.

21. Exit the container

```
exit
```

- What it does: Closes the shell session inside the container.

22. List all containers (including stopped ones)

```
docker ps -a
```

- What it does: Displays all containers on your system, including those that are stopped.

23. Remove the container

```
docker rm 28aee36085cb
```

- What it does: Deletes the container created from the custom image.

24. Remove the custom image

```
docker rmi budarajumadhurika/newubuntu2024
```

- What it does: Deletes the custom image from your local system again.