7-Day Docker Learning Plan for DevOps

Day 1: Docker Introduction & Installation

- What is Docker?
- Containers vs VMs
- Docker architecture (client, daemon, image, container, registry)
- Install Docker on your Linux system
- Run your first container: docker run hello-world

Practice: docker version, docker info

Day 2: Docker CLI Basics

- Run containers: docker run -it ubuntu bash
- Manage containers: ps, stop, start, rm, logs
- Images: docker pull, docker images, rmi
- Difference between run, exec, attach

Practice: docker run -d nginx, docker exec -it <container_id> bash

Day 3: Dockerfile & Custom Images

- What is a Dockerfile?
- Key instructions: FROM, RUN, COPY, CMD, EXPOSE, ENV, WORKDIR
- Build an image: docker build -t myapp .

Sample Dockerfile: FROM ubuntu

RUN apt update && apt install -y curl

CMD ["bash"]

Day 4: Docker Volumes & Data Management

- What are volumes?
- Bind mount vs named volume
- Volume commands: docker volume create, inspect, rm
- Share data between host and container

Practice: docker run -v /home/jagan/data:/data ubuntu

Day 5: Docker Networking

- Bridge, host, none networks
- Create your own Docker network

- Connect multiple containers

Practice: docker network create mynet

```
docker run -d --name db --network mynet mysql
docker run -it --network mynet ubuntu bash
```

Day 6: Docker Compose

- What is docker-compose?
- Write docker-compose.yml
- Commands: up, down, logs, build

Example:

```
version: '3'
services:
  web:
    image: nginx
    ports:
      - "8080:80"
```

Run it: docker-compose up -d

Day 7: Docker in DevOps Pipelines & Security

- How Docker is used in Jenkins/GitHub Actions
- Use Docker inside a pipeline
- Security tips: smaller images, user permissions
- Push to Docker Hub

Practice:

```
docker login
docker tag myapp jaganbehera009/myapp:v1
docker push jaganbehera009/myapp:v1
```

Bonus Resources

- https://labs.play-with-docker.com/
- https://dockerlabs.collabnix.com/docker/cheatsheet/
- https://docs.docker.com/