DevOps

Day – 3

Assignment

Name: Debehaa J

Roll No:22CSR037

Step 1: Update and Install Prerequisites

- Keeping your system up to date ensures you have the latest security patches and software versions.
- curl and wget are used for downloading files from the internet.
- apt-transport-https enables access to repositories over HTTPS.

sudo apt update && sudo apt upgrade -y

sudo apt install -y curl wget apt-transport-https gnupg lsb-release

Step 2: Install Git

Git is a version control system used to manage your source code.

It allows you to collaborate, track changes, and maintain code versions.

sudo apt install -y git

git --version

git config --global user.name

git config --global user.email

Step 3: Install Maven

Apache Maven is a build automation tool used for Java projects.

It manages project dependencies, builds, and packaging.

Step 4: Install Docker

Add Docker GPG Key and Repository:

curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg

echo "deb [arch=amd64 signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null

Step 5: Install Jenkins

Jenkins is a Continuous Integration/Continuous Deployment (CI/CD) tool.

It automates the build, test, and deployment process.

Install Java (Required for Jenkins)

sudo apt install -y openjdk-11-jdk

java -version

sudo apt update

sudo apt install -y Jenkins

sudo systemctl enable jenkins

sudo systemctl start Jenkins

sudo cat /var/lib/jenkins/secrets/initialAdminPassword

Step 6: Install Minikube

Minikube allows you to run a local Kubernetes cluster.

It’s ideal for testing and development.

curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64

sudo install minikube-linux-amd64 /usr/local/bin/minikube

minikube start --driver=docker

Step 7: Install kubectl

- kubectl is a command-line tool used to interact with Kubernetes clusters.
- You use it to manage and deploy applications.

Commands:

curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"

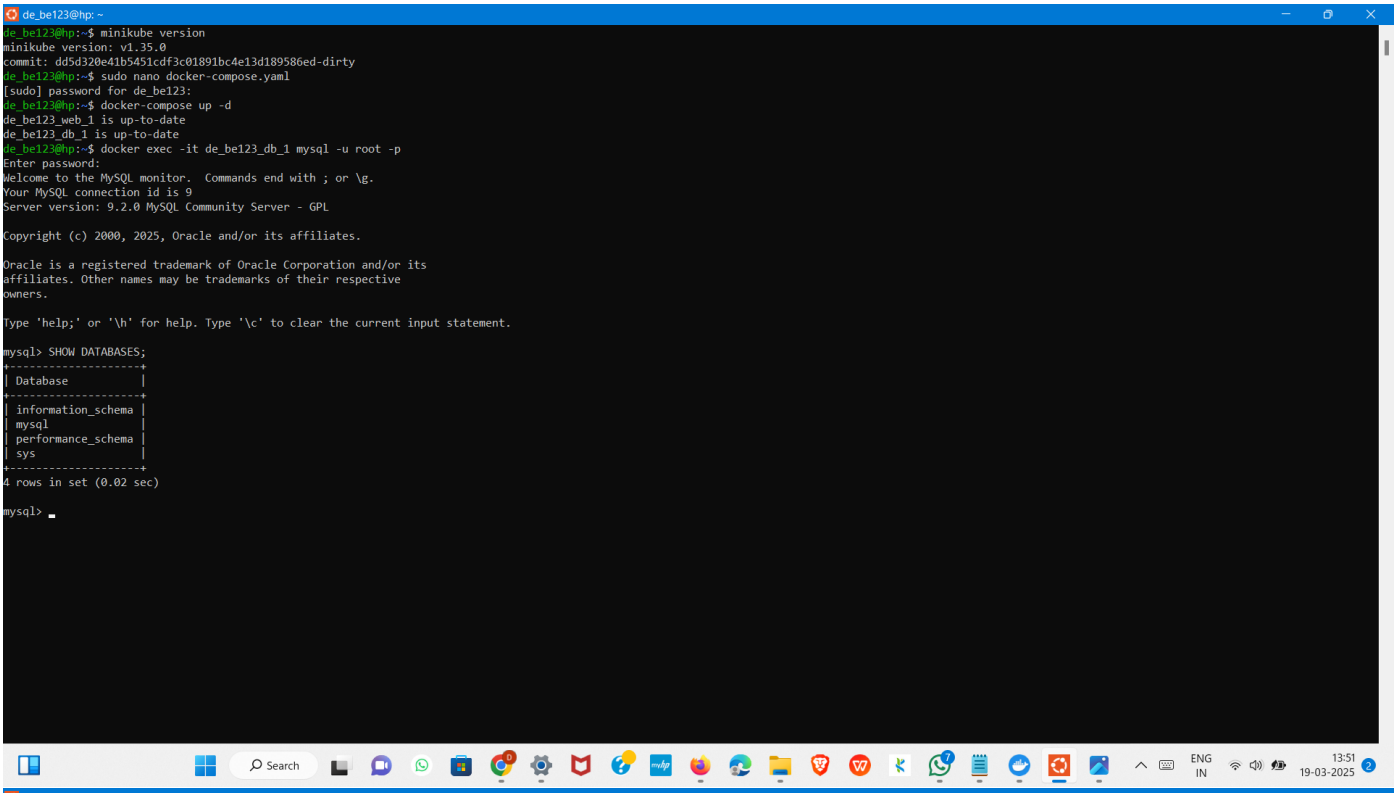
sudo install kubectl /usr/local/bin/kubectl

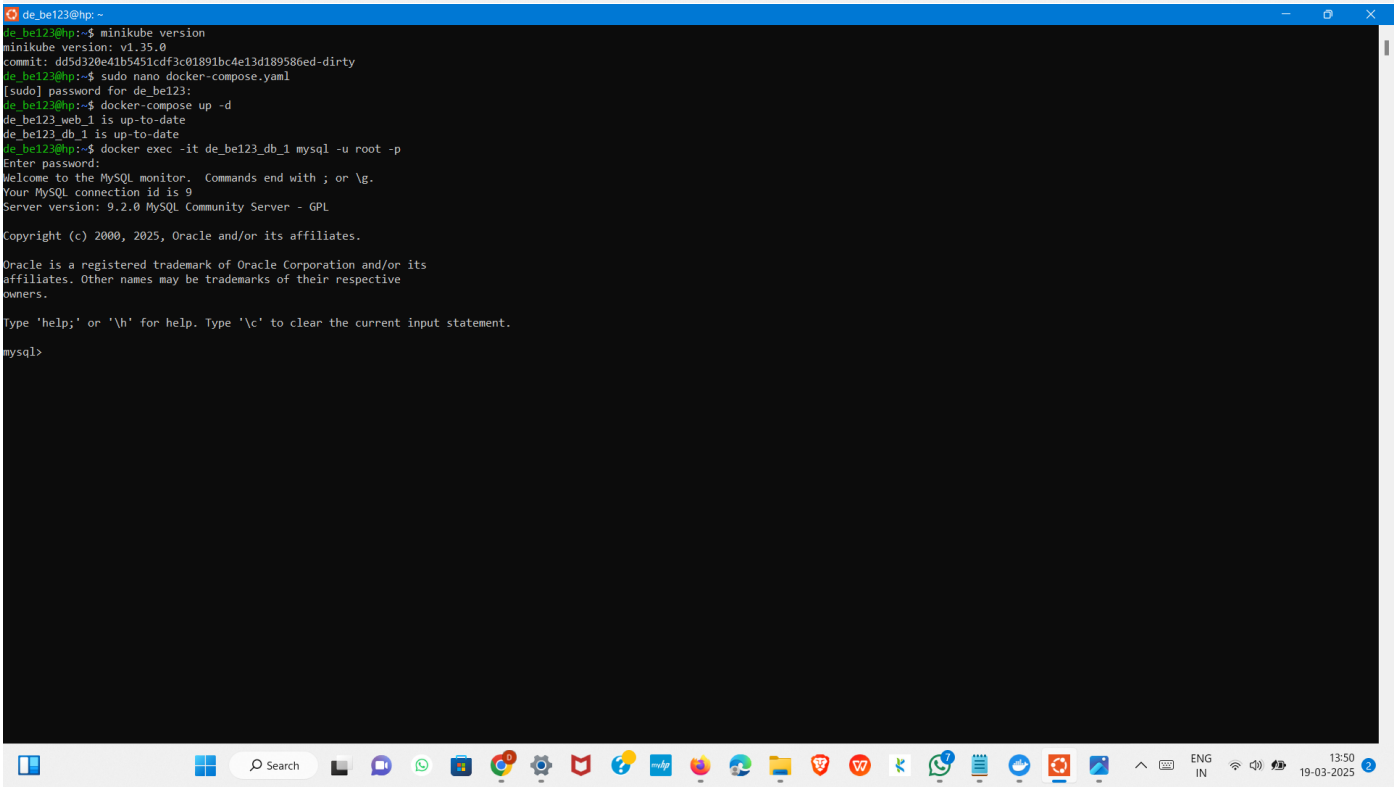
kubectl version –client

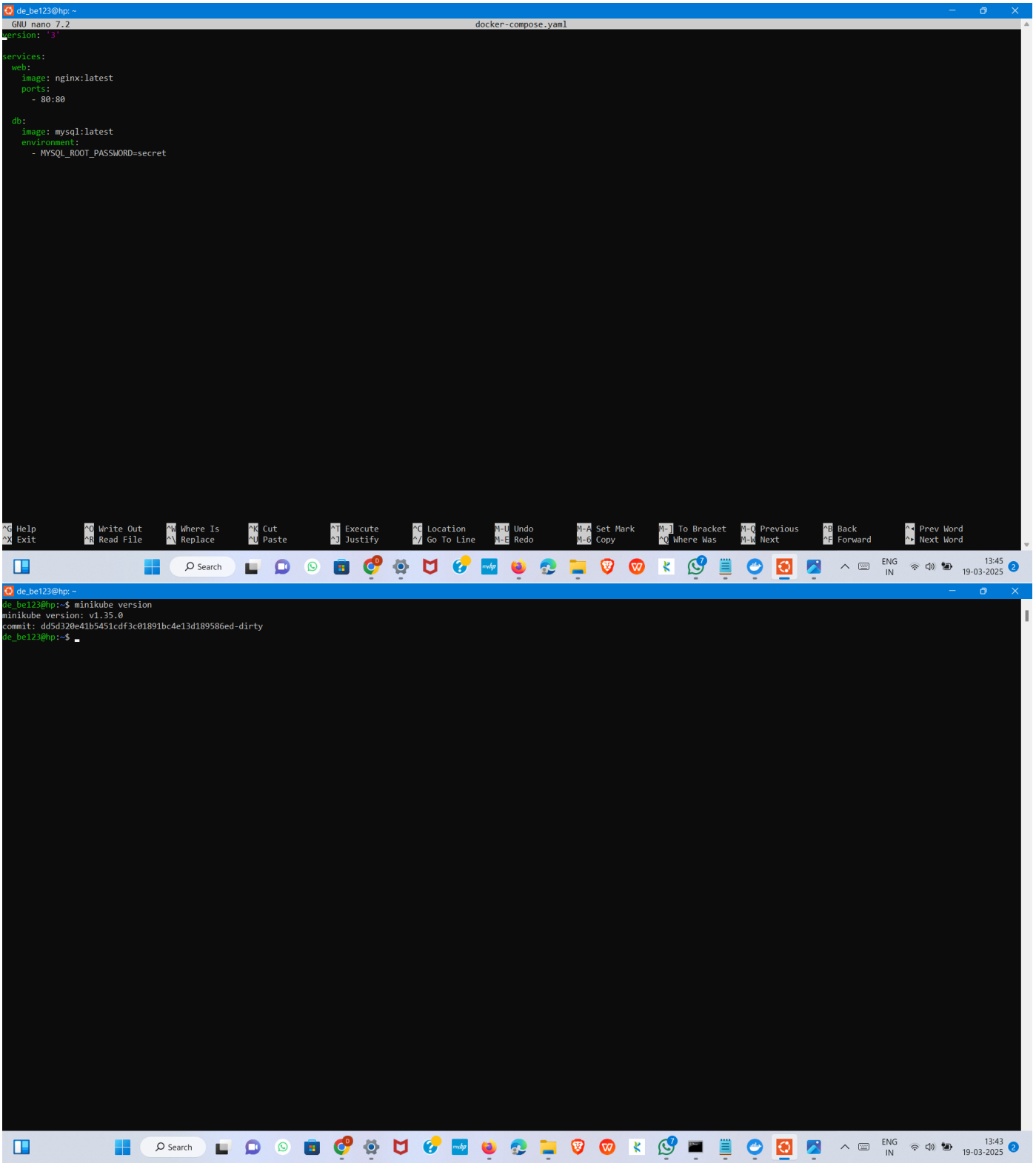
Step 8: Create and Build a Maven Project

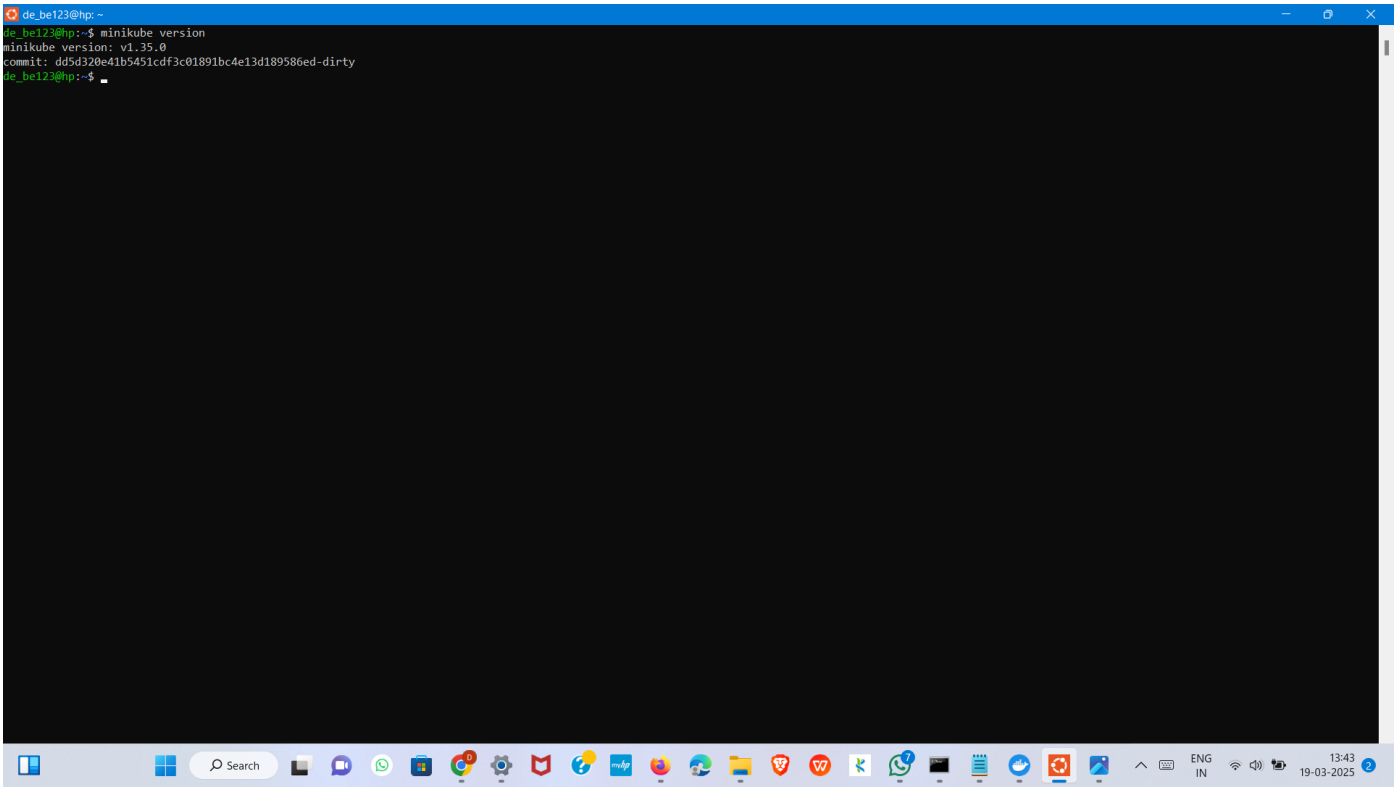
docker build -t my-app .

docker run -p 8080:8080 my-app


de_be123@hp: ~
de_be123@hp:~$ minikube version
minikube version: v1.35.0
commit: dd5d320e41b5451cdf3c01891bc4e13d189586ed-dirty
de_be123@hp:~$ sudo nano docker-compose.yaml
[sudo] password for de_be123:
de_be123@hp:~$ docker-compose up -d
de_be123_web_1 is up-to-date
de_be123_db_1 is up-to-date
de_be123@hp:~$ docker exec -it de_be123_db_1 mysql -u root -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 9.2.0 MySQL Community Server - GPL
Copyright (c) 2000, 2025, Oracle and/or its affiliates.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql> SHOW DATABASES;
+--------------------+
| Database |
+--------------------+
| information_schema |
| mysql |
| performance_schema |
| sys |
+--------------------+
4 rows in set (0.02 sec)
mysql>
Search
ENG
IN
13:51
19-03-2025


de_be123@hp: ~
de_be123@hp:~$ minikube version
minikube version: v1.35.0
commit: dd5d320e41b5451cdf3c01891bc4e13d189586ed-dirty
de_be123@hp:~$ sudo nano docker-compose.yaml
[sudo] password for de_be123:
de_be123@hp:~$ docker-compose up -d
de_be123_web_1 is up-to-date
de_be123_db_1 is up-to-date
de_be123@hp:~$ docker exec -it de_be123_db_1 mysql -u root -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 9.2.0 MySQL Community Server - GPL
Copyright (c) 2000, 2025, Oracle and/or its affiliates.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql>
Search
ENG
IN
13:50
19-03-2025


de_be123@hp: ~
GNU nano 7.2
docker-compose.yaml
version: '3'
services:
web:
image: nginx:latest
ports:
- 80:80
db:
image: mysql:latest
environment:
- MYSQL_ROOT_PASSWORD=secret
^G Help
^X Exit
^O Write Out
^R Read File
^W Where Is
^\ Replace
^K Cut
^U Paste
^T Execute
^J Justify
^C Location
^/ Go To Line
M-U Undo
M-E Redo
M-A Set Mark
M-6 Copy
M-] To Bracket
^Q Where Was
M-Q Previous
M-W Next
^B Back
^F Forward
^◂ Prev Word
^▸ Next Word
Search
ENG
IN
13:45
19-03-2025
de_be123@hp: ~
de_be123@hp:~$ minikube version
minikube version: v1.35.0
commit: dd5d320e41b5451cdf3c01891bc4e13d189586ed-dirty
de_be123@hp:~$
Search
ENG
IN
13:43
19-03-2025


de_be123@hp: ~
de_be123@hp:~$ minikube version
minikube version: v1.35.0
commit: dd5d320e41b5451cdf3c01891bc4e13d189586ed-dirty
de_be123@hp:~$
Search
ENG
IN
13:43
19-03-2025