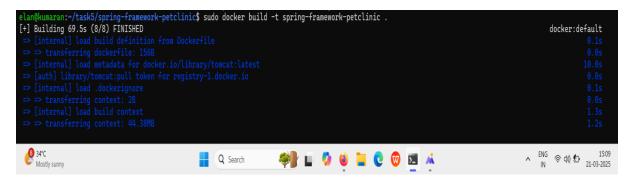# Task 5:

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Roll No: 22CSR053

Step 1: Install Maven

```
elan@kumaran:~$ sudo apt install maven
[sudo] password for elan:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
maven is already the newest version (3.8.7-2).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

Step 2: Clone a java repository with docker and Jenkins file and run mvn install and mvn package in it.

```
elan@kumaran:~/task5/spring-framework-petclinic$ mvn install
[INFO] Scanning for projects...
[INFO]
[INFO] -------< org.springframework.samples:spring-framework-petclinic >-------
[INFO] Building Spring Framework Petclinic 6.1.4
[INFO] --------------------------------[ war ]---------------------------------
[INFO]
[INFO] --- maven-enforcer-plugin:3.4.1:enforce (enforce-maven) @ spring-framework-petclinic ---
[INFO] Rule 0: org.apache.maven.enforcer.rules.version.RequireMavenVersion passed
[INFO]
[INFO] --- jacoco-maven-plugin:0.8.11:prepare-agent (prepare-agent) @ spring-framework-petclinic ---
[INFO] argLine set to -javaagent:/home/elan/.m2/repository/org/jacoco/org.jacoco.agent/0.8.11/org.jacoco.agent-0.8.1
time.jar=destfile=/home/elan/task5/spring-framework-petclinic/target/jacoco.exec
[INFO]
[INFO] --- maven-resources-plugin:3.3.1:resources (default-resources) @ spring-framework-petclinic ---
[INFO] Copying 21 resources from src/main/resources to target/classes
[INFO]
[INFO] --- maven-compiler-plugin:3.11.0:compile (default-compile) @ spring-framework-petclinic ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:3.3.1:testResources (default-testResources) @ spring-framework-petclinic ---
[INFO] Copying 11 resources from src/test/java to target/test-classes
[INFO] Copying 1 resource from src/test/resources to target/test-classes
[INFO]
[INFO] --- maven-compiler-plugin:3.11.0:testCompile (default-testCompile) @ spring-framework-petclinic ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-surefire-plugin:3.2.3:test (default-test) @ spring-framework-petclinic ---
```

```
elan@kumaran:~/task5/spring-framework-petclinic$ mvn package
[INFO] Scanning for projects...
[INFO]
[INFO] -------< org.springframework.samples:spring-framework-petclinic >-------
[INFO] Building Spring Framework Petclinic 6.1.4
[INFO] --------------------------------[ war ]---------------------------------
[INFO]
[INFO] --- maven-enforcer-plugin:3.4.1:enforce (enforce-maven) @ spring-framework-petclinic ---
[INFO] Rule 0: org.apache.maven.enforcer.rules.version.RequireMavenVersion passed
[INFO]
[INFO] --- jacoco-maven-plugin:0.8.11:prepare-agent (prepare-agent) @ spring-framework-petclinic ---
[INFO] argLine set to -javaagent:/home/elan/.m2/repository/org/jacoco/org.jacoco.agent/0.8.11/org.jacoco.agent-0.8.11-r
ntime.jar=destfile=/home/elan/task5/spring-framework-petclinic/target/jacoco.exec
[INFO]
[INFO] --- maven-resources-plugin:3.3.1:resources (default-resources) @ spring-framework-petclinic ---
[INFO] Copying 21 resources from src/main/resources to target/classes
[INFO]
[INFO] --- maven-compiler-plugin:3.11.0:compile (default-compile) @ spring-framework-petclinic ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:3.3.1:testResources (default-testResources) @ spring-framework-petclinic ---
[INFO] Copying 11 resources from src/test/java to target/test-classes
[INFO] Copying 1 resource from src/test/resources to target/test-classes
[INFO]
[INFO] --- maven-compiler-plugin:3.11.0:testCompile (default-testCompile) @ spring-framework-petclinic ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-surefire-plugin:3.2.3:test (default-test) @ spring-framework-petclinic ---
```

Step 3: check the name of the war file and the file name in docker and build the docker image

```
elan@kumaran:~/task5/spring-framework-petclinic$ sudo docker build -t spring-framework-petclinic .
[+] Building 69.5s (8/8) FINISHED                                                      docker:default
 => [internal] load build definition from Dockerfile                                             0.1s
 => => transferring dockerfile: 156B                                                             0.0s
 => [internal] load metadata for docker.io/library/tomcat:latest                                10.0s
 => [auth] library/tomcat:pull token for registry-1.docker.io                                    0.0s
 => [internal] load .dockerignore                                                               0.1s
 => => transferring context: 2B                                                                  0.0s
 => [internal] load build context                                                                1.3s
 => => transferring context: 44.38MB                                                             1.2s
```

```
34°C
Mostly sunny         Q Search                                    ENG   15:09
                                                                 IN    21-03-2025
```

Step 4: push the image to docker hub

```
elan@kumaran:~$ docker login -u elankumaran21

ℹ Info → A Personal Access Token (PAT) can be used instead.
         To create a PAT, visit https://app.docker.com/settings

Password:

WARNING! Your credentials are stored unencrypted in '/home/elan/.docker/config.json'.
Configure a credential helper to remove this warning. See
https://docs.docker.com/go/credential-store/
```

```
34°C
Mostly sunny         Q Search                                    ENG   15:08
                                                                 IN    21-03-2025
```

```
gcr.io/k8s-minikube/kicbase     v0.0.46     e72c4cbe9b29   2 months ago   1.31GB
elan@kumaran:~$ docker tag spring-framework-petclinic elankumaran21/petclinic:latest
elan@kumaran:~$ sudo docker images
REPOSITORY                TAG          IMAGE ID       CREATED        SIZE
```
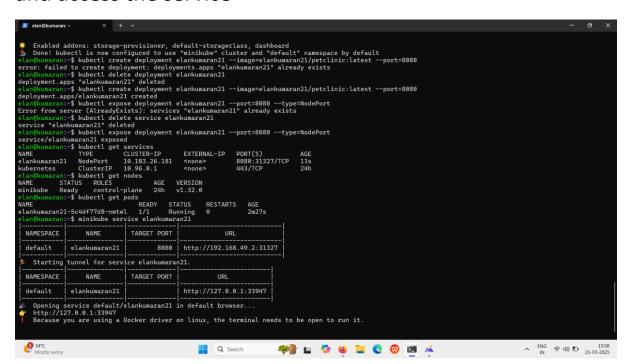
```
elan@kumaran:~$ docker push elankumaran21/petclinic:latest
The push refers to repository [docker.io/elankumaran21/petclinic]
d5a5ba3a0db6: Pushed
5f70bf18a086: Mounted from library/tomcat
6fbdf02a6a33: Mounted from library/tomcat
49cb1bc2daeb: Mounted from library/tomcat
4e5b554b7345: Mounted from library/tomcat
39cf0ac89a5a: Mounted from library/tomcat
f844dcf94898: Mounted from library/tomcat
3359bc3d7a6a: Mounted from library/tomcat
4b7c01ed0534: Mounted from library/tomcat
latest: digest: sha256:244be181665733fb4862abc2784f79735ccc96318c4a37b613d3a98e299c89e7 size: 2413
```

Step 5: start minikube

```
latest: digest: sha256:244be181665733fb4862abc2784f79735ccc96318c4a37b613d3a98e299c89e7 size: 2413
elan@kumaran:~$ minikube start
😄  minikube v1.35.0 on Ubuntu 24.04 (amd64)
✨  Using the docker driver based on existing profile
👍  Starting "minikube" primary control-plane node in "minikube" cluster
🚜  Pulling base image v0.0.46 ...
🏃  Updating the running docker "minikube" container ...
🐳  Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
🔎  Verifying Kubernetes components...
    ▪ Using image docker.io/kubernetesui/dashboard:v2.7.0
    ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
    ▪ Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
💡  Some dashboard features require the metrics-server addon. To enable all features please run:

	minikube addons enable metrics-server
```

Step 6: Create and expose deployment for the docker image and access the service

```
🌟  Enabled addons: storage-provisioner, default-storageclass, dashboard
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
elan@kumaran:~$ kubectl create deployment elankumaran21 --image=elankumaran21/petclinic:latest --port=8080
error: failed to create deployment: deployments.apps "elankumaran21" already exists
elan@kumaran:~$ kubectl delete deployment elankumaran21
deployment.apps "elankumaran21" deleted
elan@kumaran:~$ kubectl create deployment elankumaran21 --image=elankumaran21/petclinic:latest --port=8080
deployment.apps/elankumaran21 created
elan@kumaran:~$ kubectl expose deployment elankumaran21 --port=8080 --type=NodePort
Error from server (AlreadyExists): services "elankumaran21" already exists
elan@kumaran:~$ kubectl delete service elankumaran21
service "elankumaran21" deleted
elan@kumaran:~$ kubectl expose deployment elankumaran21 --port=8080 --type=NodePort
service/elankumaran21 exposed
elan@kumaran:~$ kubectl get services
NAME            TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)          AGE
elankumaran21   NodePort    10.103.26.181   <none>        8080:31327/TCP   13s
kubernetes      ClusterIP   10.96.0.1       <none>        443/TCP          24h
elan@kumaran:~$ kubectl get nodes
NAME       STATUS   ROLES           AGE   VERSION
minikube   Ready    control-plane   24h   v1.32.0
elan@kumaran:~$ kubectl get pods
NAME                           READY   STATUS    RESTARTS   AGE
elankumaran21-5c4df77d8-nmtwl  1/1     Running   0          2m27s
elan@kumaran:~$ minikube service elankumaran21
|-----------|---------------|-------------|---------------------------|
| NAMESPACE |     NAME      | TARGET PORT |            URL            |
|-----------|---------------|-------------|---------------------------|
| default   | elankumaran21 |        8080 | http://192.168.49.2:31327 |
|-----------|---------------|-------------|---------------------------|
🏃  Starting tunnel for service elankumaran21.
|-----------|---------------|-------------|------------------------|
| NAMESPACE |     NAME      | TARGET PORT |          URL           |
|-----------|---------------|-------------|------------------------|
| default   | elankumaran21 |             | http://127.0.0.1:33947 |
|-----------|---------------|-------------|------------------------|
🎉  Opening service default/elankumaran21 in default browser...
👉  http://127.0.0.1:33947
❗  Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```