Assignment

Application Deployment with Docker, Kubernetes, and CI/CD

Name : Selmi Nazeeb

Github url : SelmiNazeeb/spring-boot-hello-world: A simple Spring Boot app to send hello world message to a user

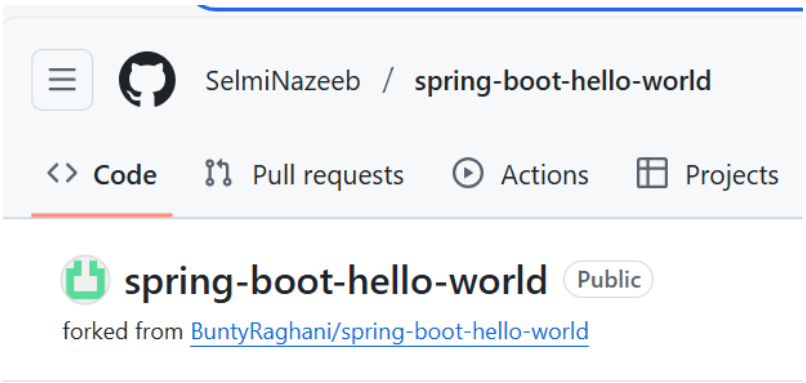
Dockerhub: https://hub.docker.com/repository/docker/selmi1999/spring-boot-hello-world

Deployment.yaml : spring-boot-hello-world/deployment.yaml at main · SelmiNazeeb/spring-boot-hello-world

Service.yaml: spring-boot-hello-world/service.yaml at main · SelmiNazeeb/spring-boot-hello-world

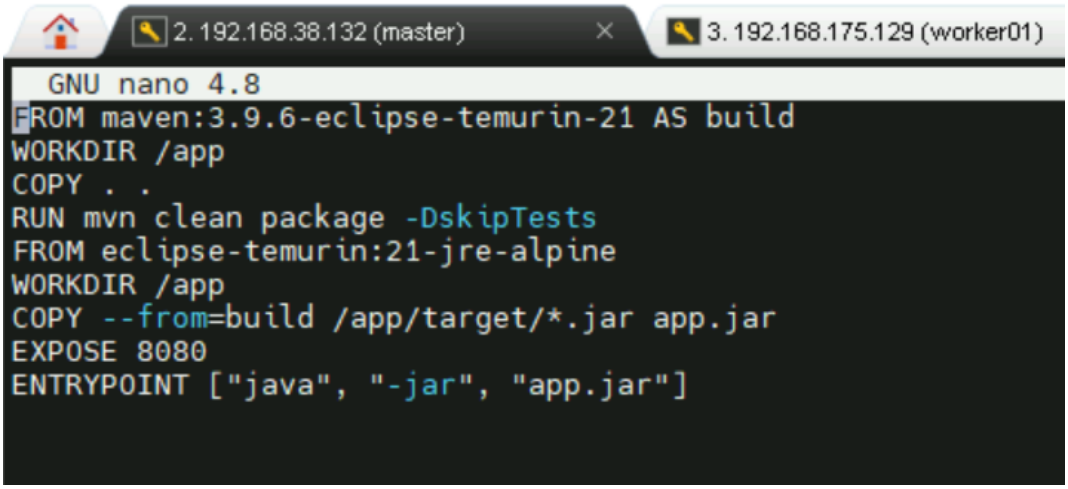
TASK 1

1. Fork and clone a sample application repository

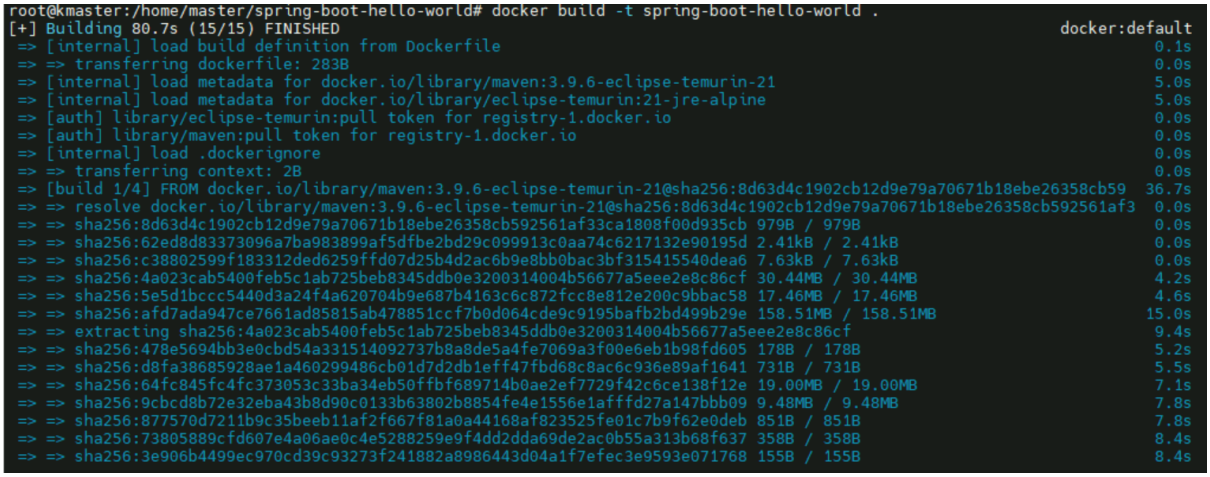



```
root@kmaster:/home/master# git clone https://github.com/SelmiNazeeb/spring-boot-hello-world
Cloning into 'spring-boot-hello-world'...
remote: Enumerating objects: 44, done.
remote: Counting objects: 100% (19/19), done.
remote: Compressing objects: 100% (11/11), done.
remote: Total 44 (delta 9), reused 8 (delta 8), pack-reused 25 (from 1)
Unpacking objects: 100% (44/44), 5.95 KiB | 380.00 KiB/s, done.
root@kmaster:/home/master#
```

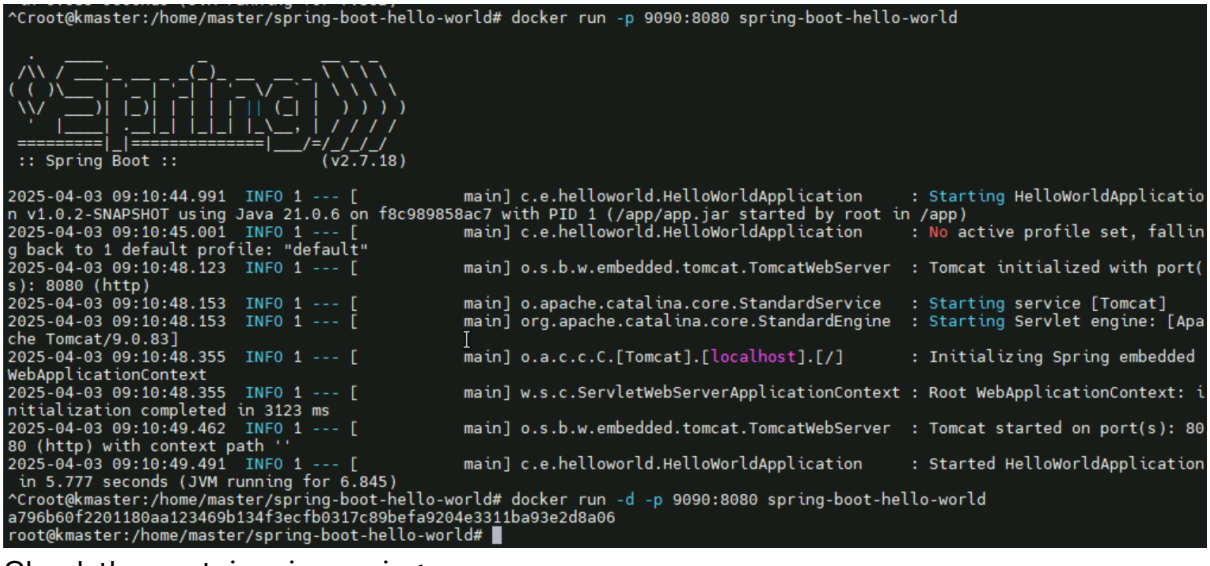
2. Create docker file



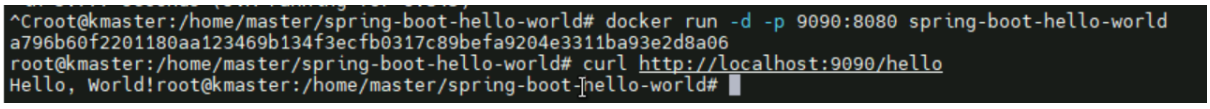
3. Build docker image



Run the container

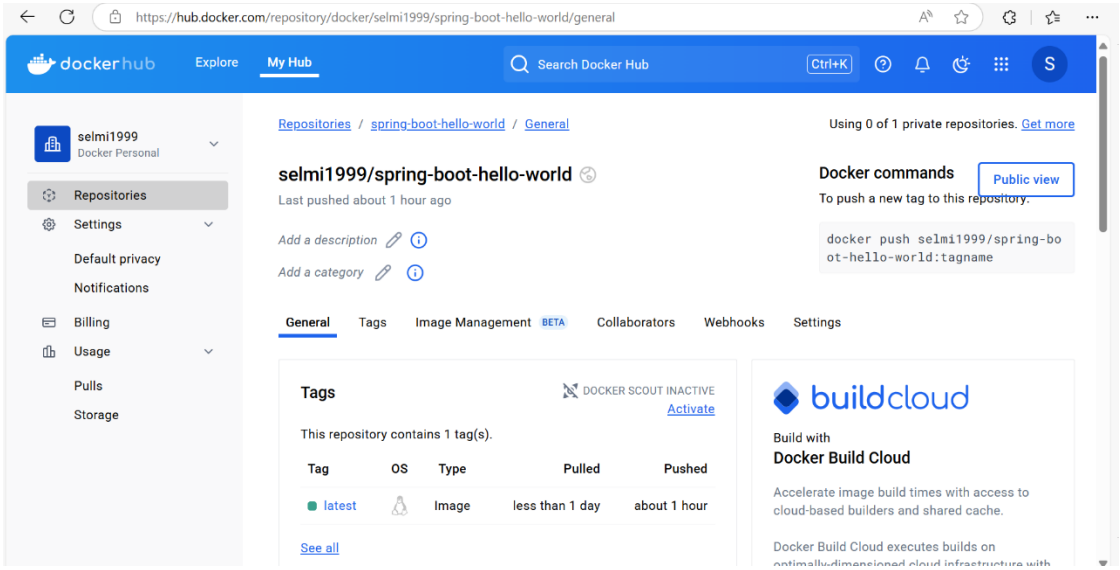


Check the container is running



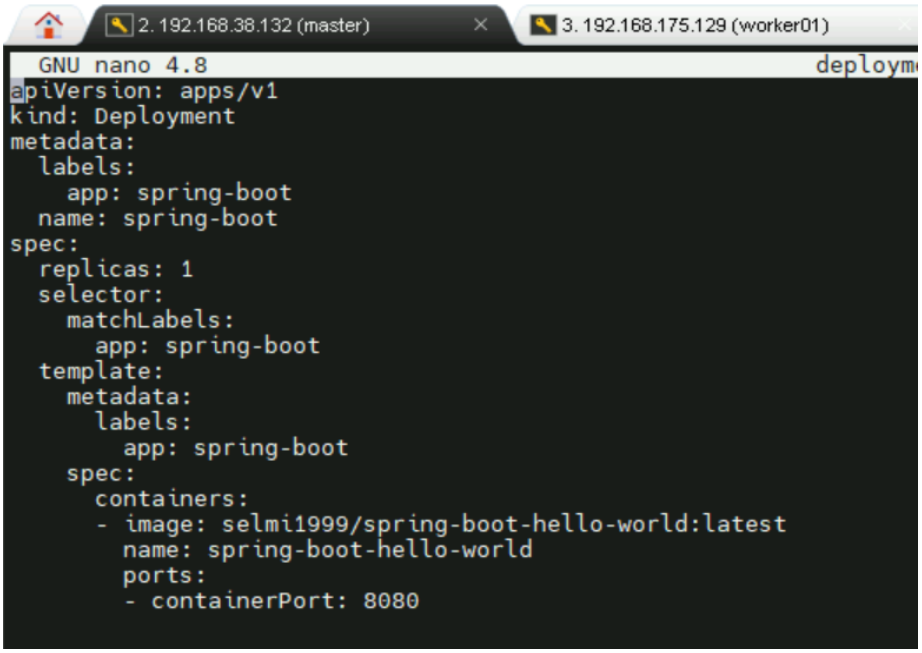
4. Push the image to docker hub

```
root@kmaster:/home/master/spring-boot-hello-world# docker tag spring-boot-hello-world selmi1999/spring-boot-hello-world:latest
root@kmaster:/home/master/spring-boot-hello-world# docker push selmi1999/spring-boot-hello-world:latest
The push refers to repository [docker.io/selmi1999/spring-boot-hello-world]
42700f4cbb92: Pushed
d3533269056a: Pushed
4a31297e6baa: Pushed
822032205b9c: Pushed
93509ae705ea: Pushed
8f5df01935a3: Pushed
08000c18d16d: Pushed
latest: digest: sha256:48e1a7ca0bd6a95c92d6c78eb423af6f5ddb3f0562aae808e8ef6c43b85654f4 size: 1785
root@kmaster:/home/master/spring-boot-hello-world#
```



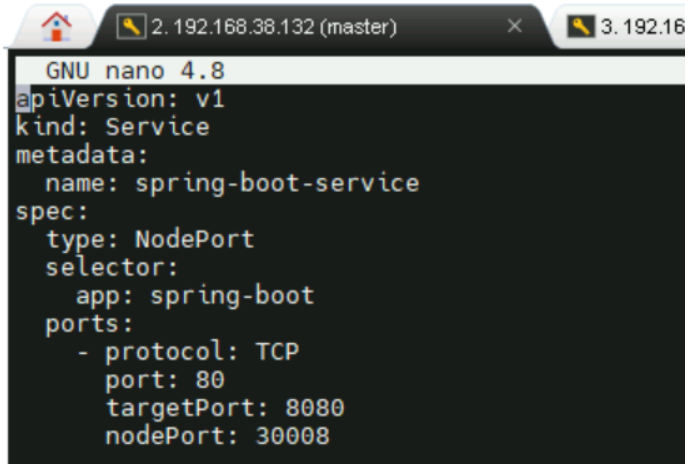
TASK 2

1. Create deployment.yaml



```
root@kmaster:/home/master/spring-boot-hello-world# nano deployment.yaml
root@kmaster:/home/master/spring-boot-hello-world# kubectl apply -f deployment.yaml
deployment.apps/spring-boot created
root@kmaster:/home/master/spring-boot-hello-world# kubectl get pod
NAME                           READY   STATUS              RESTARTS   AGE
spring-boot-5f48f85d58-q7prt   0/1     ContainerCreating   0          12s
root@kmaster:/home/master/spring-boot-hello-world# kubectl get pod
NAME                           READY   STATUS    RESTARTS   AGE
spring-boot-5f48f85d58-q7prt   1/1     Running   0          30s
root@kmaster:/home/master/spring-boot-hello-world# kubectl get deploy
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
spring-boot   1/1     1            1           2m21s
root@kmaster:/home/master/spring-boot-hello-world#
```

2. Expose deployment to Nodeport service ad curl




```
root@kmaster:/home/master/spring-boot-hello-world# curl http://192.168.38.132:30008/hello
Hello, World!root@kmaster:/home/master/spring-boot-hello-world# nano service.yaml
root@kmaster:/home/master/spring-boot-hello-world# kubectl get service
NAME                 TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
kubernetes           ClusterIP   10.96.0.1       <none>        443/TCP        17d
spring-boot-service  NodePort    10.109.12.151   <none>        80:30008/TCP   7m41s
root@kmaster:/home/master/spring-boot-hello-world# curl http://192.168.38.132:30008/hello
Hello, World!root@kmaster:/home/master/spring-boot-hello-world#
```

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TASK 3

1. Scale up the deployment to 3 replicas

```
root@kmaster:/home/master/spring-boot-hello-world# kubectl scale deployment spring-boot --replicas=3
deployment.apps/spring-boot scaled
root@kmaster:/home/master/spring-boot-hello-world# kubectl get pods
NAME                           READY   STATUS    RESTARTS   AGE
spring-boot-5f48f85d58-6ddlf   1/1     Running   0          86m
spring-boot-5f48f85d58-b572f   1/1     Running   0          8s
spring-boot-5f48f85d58-q7prt   1/1     Running   0          89m
root@kmaster:/home/master/spring-boot-hello-world# kubectl get deploy
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
spring-boot   3/3     3            3           89m
```

2. Scale down the deployment to 1 replica