

ASSIGNMENT/03-04-2025

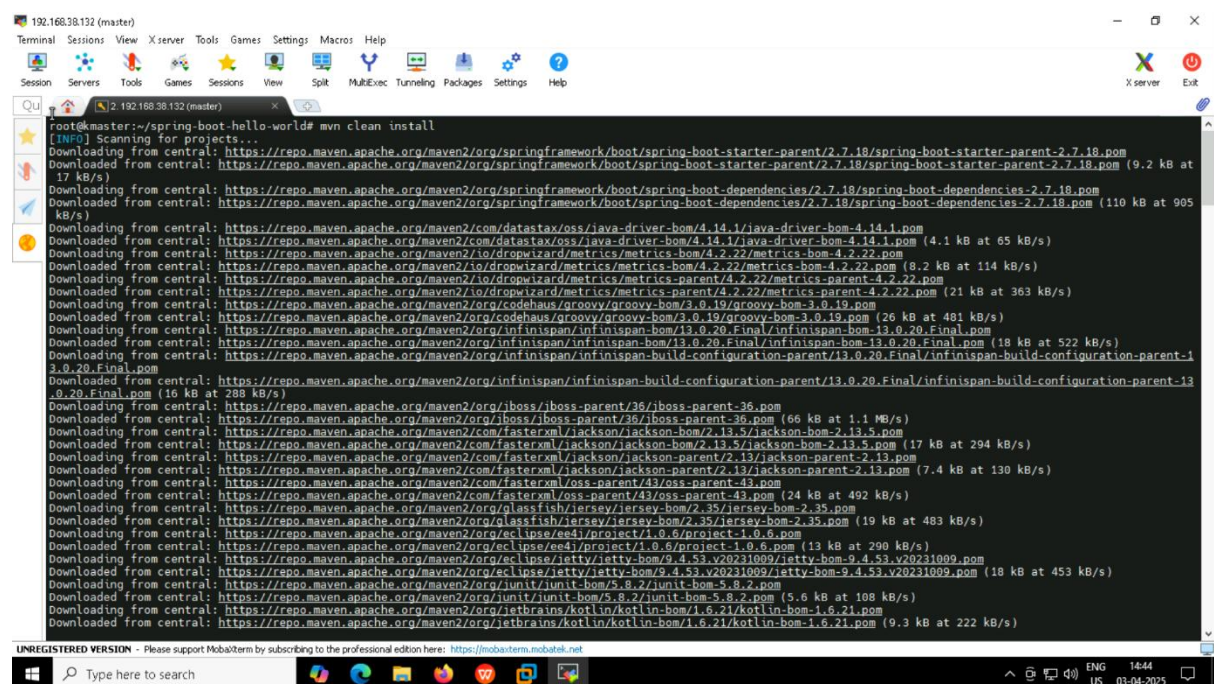
Github repo: [devanarayanantm/spring-boot-hello-world](https://github.com/devanarayanantm/spring-boot-hello-world): A simple Spring Boot app to send hello world message to a user

Dockerhub imagelink: [devanarayanantm/spring-boot-hello-world](https://hub.docker.com/r/devanarayanantm/spring-boot-hello-world) general | Docker Hub

Deployment yaml: [spring-boot-hello-world/deployment.yaml](https://github.com/devanarayanantm/spring-boot-hello-world/blob/main/deployment.yaml) at main · devanarayanantm/spring-boot-hello-world

Service yaml: [spring-boot-hello-world/service.yaml](https://github.com/devanarayanantm/spring-boot-hello-world/blob/main/service.yaml) at main · devanarayanantm/spring-boot-hello-world

Package the application



```
192.168.38.132 (master)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultExec Tunneling Packages Settings Help
root@master:~/spring-boot-hello-world# mvn clean install
[INFO] Scanning for projects...
Downloading from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-boot-starter-parent/2.7.18/spring-boot-starter-parent-2.7.18.pom (9.2 kB at 17 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-boot-dependencies/2.7.18/spring-boot-dependencies-2.7.18.pom (110 kB at 905 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/com/datastax/oss/java-driver-bom/4.14.1/java-driver-bom-4.14.1.pom (4.1 kB at 65 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/io/dropwizard/metrics/metrics-bom/4.2.22/metrics-bom-4.2.22.pom (8.2 kB at 114 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/io/dropwizard/metrics/metrics-parent/4.2.22/metrics-parent-4.2.22.pom (21 kB at 363 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/groovy/groovy-bom/3.0.19/groovy-bom-3.0.19.pom (26 kB at 401 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/infinispan/infinispan-bom/13.0.20.Final/infinispan-bom-13.0.20.Final.pom (18 kB at 522 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/infinispan/infinispan-build-configuration-parent/13.0.20.Final/infinispan-build-configuration-parent-13.0.20.Final.pom (16 kB at 288 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/jboss/jboss-parent/36/jboss-parent-36.pom (66 kB at 1.1 MB/s)
Downloading from central: https://repo.maven.apache.org/maven2/com/fasterxml/jackson/jackson-bom/2.13.5/jackson-bom-2.13.5.pom (17 kB at 294 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/com/fasterxml/jackson/jackson-parent/2.13/jackson-parent-2.13.pom (7.4 kB at 130 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/com/fasterxml/oss-parent/43/oss-parent-43.pom (24 kB at 492 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/glassfish/jersey/jersey-bom/2.35/jersey-bom-2.35.pom (19 kB at 483 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/eclipse/jetty/jetty-bom/9.4.53.v20231009/jetty-bom-9.4.53.v20231009.pom (18 kB at 453 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/junit/junit-bom/5.8.2/junit-bom-5.8.2.pom (5.6 kB at 108 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/jetbrains/kotlin/kotlin-bom/1.6.21/kotlin-bom-1.6.21.pom (9.3 kB at 222 kB/s)
```

Dockerfile created

```

root@kmaster:~/spring-boot-hello-world#
root@kmaster:~/spring-boot-hello-world# nano Dockerfile
root@kmaster:~/spring-boot-hello-world#
root@kmaster:~/spring-boot-hello-world# docker build -t spring-boot-hello-world .
[+] Building 27.1s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 197B
=> [internal] load metadata for docker.io/library/openjdk:17-jdk-slim
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/3] FROM docker.io/library/openjdk:17-jdk-slim@sha256:aaa3b3cb27e3e520b8f116863d0580c438ed55ecfa0bc126b41f68c3f62f9774
=> => resolve docker.io/library/openjdk:17-jdk-slim@sha256:aaa3b3cb27e3e520b8f116863d0580c438ed55ecfa0bc126b41f68c3f62f9774
=> => sha256:779635c0c3d23cc8dbab2d8c1ee4cf2a9202e198dfc8f4c0b279824d9b8e0f22 953B / 953B
=> => sha256:37cb44321d0423bc5726a5bf658daf00478e4cdf2d3b8001f785310534256d 4.80kB / 4.80kB
=> => sha256:1fe172e4850f03bb45d41a20174112bc119fbfec42a650eddbd8491aee32e3c3 21.38MB / 31.38MB
=> => sha256:44d3aa8d076675d4d9d85180b0ced9dae210fe4fdff4b4bb422b9cf384e591d0 1.58MB / 1.58MB
=> => sha256:6ce99fd16e86bd02f6ad66a0e1334878520b54b5487850a76e0c08a7a27d56 187.90MB / 187.90MB
=> => sha256:aaa3b3cb27e3e520b8f116863d0580c438ed55ecfa0bc126b41f68c3f62f9774 547B / 547B
=> => extracting sha256:1fe172e4850f03bb45d41a20174112bc119fbfec42a650eddbd8491aee32e3c3
=> => extracting sha256:44d3aa8d076675d4d9d85180b0ced9dae210fe4fdff4b4bb422b9cf384e591d0
=> => extracting sha256:6ce99fd16e86bd02f6ad66a0e1334878520b54b5487850a76e0c08a7a27d56
=> [internal] load build context
=> => transferring context: 17.82MB
=> [2/3] WORKDIR /app
=> [3/3] COPY target/spring-boot-2-hello-world-1.0.2-SNAPSHOT.jar app.jar
=> exporting to image
=> exporting layers
=> writing image sha256:09d26bc0be62cd7f66845f2b03255c24c3419f25a4e72c3b5bcbe487977d79c3
=> naming to docker.io/library/spring-boot-hello-world
root@kmaster:~/spring-boot-hello-world# docker image ps

```

Docker image created

```

root@kmaster:~/spring-boot-hello-world# docker image ls
REPOSITORY          TAG         IMAGE ID      CREATED        SIZE
spring-boot-hello-world latest      09d26bc0be62  16 seconds ago 426MB

```

Docker container created and apply curl

```

root@kmaster:~/spring-boot-hello-world# docker run -d -p 8080:8080 spring-boot-hello-world
0b199b23f662b9c5e802c586d4e6138b3d728e0238ca1a89f4877e7d537f81c4
root@kmaster:~/spring-boot-hello-world# docker ps
CONTAINER ID   IMAGE                  COMMAND                  CREATED        STATUS        PORTS                               NAMES
0b199b23f662   spring-boot-hello-world "java -jar app.jar"      6 seconds ago Up 5 seconds  0.0.0.0:8080->8080/tcp, [::]:8080->8080/tcp   festive_snyder
root@kmaster:~/spring-boot-hello-world# curl localhost:8080/hello
Hello, World!
root@kmaster:~/spring-boot-hello-world#

```

Image pushed

```

root@kmaster:~/spring-boot-hello-world# docker login -u devanarayanantm

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 '/root/.docker/config.json'.
Configure a credential helper to remove this warning. See
https://docs.docker.com/go/credential-store/

Login Succeeded

root@kmaster:~/spring-boot-hello-world# docker tag spring-boot-hello-world devanarayanantm/spring-boot-hello-world:latest
root@kmaster:~/spring-boot-hello-world# docker push devanarayanantm/spring-boot-hello-world:latest
The push refers to repository [docker.io/devanarayanantm/spring-boot-hello-world]
60db64c2f3d0: Pushed
f2b9fc651189: Pushed
6be690267e47: Mounted from library/openjdk
13a34b6fff78: Mounted from library/openjdk
9c1b6dd6c1e6: Mounted from library/openjdk
latest: digest: sha256:4f6b13d63affa86865216e43f7a403421882dc87ad5a2c8c49223e52ce7c7976 size: 1371

```

Deployment created

```
root@kmaster:~/spring-boot-hello-world# vi deployment.yaml
root@kmaster:~/spring-boot-hello-world# kubectl apply -f deployment.yaml
deployment.apps/spring-boot-hello-world created
```

```
root@kmaster:~/spring-boot-hello-world# k get all
NAME                                READY    STATUS    RESTARTS   AGE
pod/mypod                          1/1     Running   0           170m
pod/spring-boot-hello-world-6cc7484b7-wlgzv  1/1     Running   0           43s

NAME                TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)    AGE
service/kubernetes  ClusterIP   10.96.0.1     <none>         443/TCP    3h

NAME                                READY    UP-TO-DATE    AVAILABLE    AGE
deployment.apps/spring-boot-hello-world  1/1      1             1            43s

NAME                                DESIRED    CURRENT    READY    AGE
replicaset.apps/spring-boot-hello-world-6cc7484b7  1          1          1        43s
root@kmaster:~/spring-boot-hello-world#
```

Service Cretaed

```
root@kmaster:~/spring-boot-hello-world# nano service.yaml
root@kmaster:~/spring-boot-hello-world# k apply -f service.yaml
service/spring-boot-hello-world created
root@kmaster:~/spring-boot-hello-world# k get svc
NAME                TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)    AGE
kubernetes          ClusterIP   10.96.0.1     <none>         443/TCP    3h24m
spring-boot-hello-world  NodePort    10.108.220.168 <none>         8080:32738/TCP 5s
```

```
root@kmaster:~/spring-boot-hello-world# curl localhost:32738/hello
Hello, World!root@kmaster:~/spring-boot-hello-world#
```

Scale in

```
root@kmaster:~/spring-boot-hello-world# k scale deploy spring-boot-hello-world --replicas=4
deployment.apps/spring-boot-hello-world scaled
root@kmaster:~/spring-boot-hello-world# k get po
NAME                                READY    STATUS    RESTARTS   AGE
mypod                              1/1     Running   0           3h21m
spring-boot-hello-world-6cc7484b7-jbmvs  0/1     ContainerCreating   0           6s
spring-boot-hello-world-6cc7484b7-rx8jl  0/1     ContainerCreating   0           6s
spring-boot-hello-world-6cc7484b7-sn9sl  1/1     Running      0           6s
spring-boot-hello-world-6cc7484b7-wlgzv  1/1     Running      0           31m
root@kmaster:~/spring-boot-hello-world# k get po
NAME                                READY    STATUS    RESTARTS   AGE
mypod                              1/1     Running   0           3h21m
spring-boot-hello-world-6cc7484b7-jbmvs  1/1     Running   0           13s
spring-boot-hello-world-6cc7484b7-rx8jl  1/1     Running   0           13s
spring-boot-hello-world-6cc7484b7-sn9sl  1/1     Running   0           13s
spring-boot-hello-world-6cc7484b7-wlgzv  1/1     Running   0           31m
root@kmaster:~/spring-boot-hello-world#
```

Scale out

```
root@kmaster:~/spring-boot-hello-world# k scale deployment.apps/spring-boot-hello-world --replicas=1
deployment.apps/spring-boot-hello-world scaled
root@kmaster:~/spring-boot-hello-world# k get po
NAME                                READY   STATUS    RESTARTS   AGE
mypod                               1/1     Running   0           3h22m
spring-boot-hello-world-6cc7484b7-wlgzv 1/1     Running   0           32m
root@kmaster:~/spring-boot-hello-world#
```

Current states of deployments,service,pods

```
root@kmaster:~/spring-boot-hello-world# k get all
NAME                                READY   STATUS    RESTARTS   AGE
pod/mypod                           1/1     Running   0           3h27m
pod/spring-boot-hello-world-6cc7484b7-wlgzv 1/1     Running   0           37m

NAME                                TYPE          CLUSTER-IP      EXTERNAL-IP   PORT(S)          AGE
service/kubernetes                  ClusterIP      10.96.0.1        <none>         443/TCP          3h37m
service/spring-boot-hello-world     NodePort       10.108.220.168  <none>         8080:32738/TCP   12m

NAME                                READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/spring-boot-hello-world 1/1     1             1           37m

NAME                                DESIRED   CURRENT   READY   AGE
replicaset.apps/spring-boot-hello-world-6cc7484b7 1         1         1       37m
root@kmaster:~/spring-boot-hello-world#
```

Deployment logs

```
root@kmaster:~/spring-boot-hello-world# k logs -l app=spring-boot-hello-world
2025-04-03 10:11:49.203 INFO 1 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(s): 8080 (http)
2025-04-03 10:11:49.228 INFO 1 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2025-04-03 10:11:49.229 INFO 1 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.83]
2025-04-03 10:11:49.476 INFO 1 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2025-04-03 10:11:49.477 INFO 1 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 2991 ms
2025-04-03 10:11:51.135 INFO 1 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8080 (http) with context path ''
2025-04-03 10:11:51.163 INFO 1 --- [main] c.e.helloworld.HelloWorldApplication : Started HelloWorldApplication in 7.504 seconds (JVM running for 9.373)
2025-04-03 10:36:52.182 INFO 1 --- [nio-8080-exec-3] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
2025-04-03 10:36:52.183 INFO 1 --- [nio-8080-exec-3] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'
2025-04-03 10:36:52.187 INFO 1 --- [nio-8080-exec-3] o.s.web.servlet.DispatcherServlet : Completed initialization in 4 ms
root@kmaster:~/spring-boot-hello-world#
```