

Deploying a Java Spring Boot Application in Azure Kubernetes Service(AKS)

```
root@anushaapplication: ~/spring-petclinic
[INFO] You have 0 Checkstyle violations.
[INFO]
[INFO] --- jacoco-maven-plugin:0.8.12:prepare-agent (default) @ spring-petclinic ---
Downloading from spring-snapshots: https://repo.spring.io/snapshot/org/codehaus/plexus/plexus-utils/3.0.24/plexus-utils-3.0.24.pom
Downloading from spring-milestones: https://repo.spring.io/milestone/org/codehaus/plexus/plexus-utils/3.0.24/plexus-utils-3.0.24.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.0.24/plexus-utils-3.0.24.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.0.24/plexus-utils-3.0.24.pom (4.1 kB at 516 kB/s)
Downloading from spring-snapshots: https://repo.spring.io/snapshot/org/codehaus/plexus/plexus-utils/3.4.2/plexus-utils-3.4.2.pom
Downloading from spring-milestones: https://repo.spring.io/milestone/org/codehaus/plexus/plexus-utils/3.4.2/plexus-utils-3.4.2.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.4.2/plexus-utils-3.4.2.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.4.2/plexus-utils-3.4.2.pom (8.2 kB at 1.4 MB/s)
Downloading from spring-snapshots: https://repo.spring.io/snapshot/org/codehaus/plexus/plexus/8/plexus-8.pom
Downloading from spring-milestones: https://repo.spring.io/milestone/org/codehaus/plexus/plexus/8/plexus-8.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus/8/plexus-8.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus/8/plexus-8.pom (25 kB at 4.2 MB/s)
Downloading from spring-snapshots: https://repo.spring.io/snapshot/org/jacoco/org.jacoco.agent/0.8.12/org.jacoco.agent-0.8.12.pom
Downloading from spring-milestones: https://repo.spring.io/milestone/org/jacoco/org.jacoco.agent/0.8.12/org.jacoco.agent-0.8.12.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/jacoco/org.jacoco.agent/0.8.12/org.jacoco.agent-0.8.12.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/jacoco/org.jacoco.agent/0.8.12/org.jacoco.agent-0.8.12.pom (3.5 kB at 500 kB/s)
Downloading from spring-snapshots: https://repo.spring.io/snapshot/org/jacoco/org.jacoco.core/0.8.12/org.jacoco.core-0.8.12.pom
Downloading from spring-milestones: https://repo.spring.io/milestone/org/jacoco/org.jacoco.core/0.8.12/org.jacoco.core-0.8.12.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/jacoco/org.jacoco.core/0.8.12/org.jacoco.core-0.8.12.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/jacoco/org.jacoco.core/0.8.12/org.jacoco.core-0.8.12.pom (2.1 kB at 417 kB/s)
Downloading from spring-snapshots: https://repo.spring.io/snapshot/org/ow2/asm/asm/9.7/asm-9.7.pom
Downloading from spring-milestones: https://repo.spring.io/milestone/org/ow2/asm/asm/9.7/asm-9.7.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm/9.7/asm-9.7.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm/9.7/asm-9.7.pom (2.4 kB at 474 kB/s)
Downloading from spring-snapshots: https://repo.spring.io/snapshot/org/ow2/asm/asm-commons/9.7/asm-commons-9.7.pom
Downloading from spring-milestones: https://repo.spring.io/milestone/org/ow2/asm/asm-commons/9.7/asm-commons-9.7.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-commons/9.7/asm-commons-9.7.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-commons/9.7/asm-commons-9.7.pom (2.8 kB at 398 kB/s)
Downloading from spring-snapshots: https://repo.spring.io/snapshot/org/ow2/asm/asm-tree/9.7/asm-tree-9.7.pom
Downloading from spring-milestones: https://repo.spring.io/milestone/org/ow2/asm/asm-tree/9.7/asm-tree-9.7.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-tree/9.7/asm-tree-9.7.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-tree/9.7/asm-tree-9.7.pom (2.6 kB at 432 kB/s)
```

```
root@anushaapplication: ~/spring-petclinic
2024-08-23T14:49:28.762Z INFO 8296 --- [eam--1648485162] tc.mysql:8.4 : Pulling image layers: 0 pending, 10 downloaded, 10 extracted, (161 MB/161 MB)
2024-08-23T14:49:28.810Z INFO 8296 --- [ main] tc.mysql:8.4 : Image mysql:8.4 pull took PT28.209643773S
2024-08-23T14:49:28.810Z INFO 8296 --- [eam--1648485162] tc.mysql:8.4 : Pull complete. 10 layers, pulled in 25s (downloaded 161 MB at 6 MB/s)
2024-08-23T14:49:28.826Z INFO 8296 --- [ main] .b.t.c.SpringBootTestContextBootstrapper : Found @SpringBootConfiguration org.springframework.samples.petclinic.PetClinicApplication for test class org.springframework.samples.petclinic.MySqlIntegrationTests
2024-08-23T14:49:28.838Z INFO 8296 --- [ main] tc.mysql:8.4 : Creating container for image: mysql:8.4
2024-08-23T14:49:28.961Z INFO 8296 --- [ main] tc.mysql:8.4 : Container mysql:8.4 is starting: 3c9447eb3414842757359c1fa91082bde431f3541d1fab4b363e6bfff9f4c10
2024-08-23T14:49:29.481Z INFO 8296 --- [ main] tc.mysql:8.4 : Waiting for database connection to become available at jdbc:mysql://localhost:32769/test using query 'SELECT 1'
2024-08-23T14:49:48.086Z INFO 8296 --- [ main] tc.mysql:8.4 : Container mysql:8.4 started in PT19.247734934S
2024-08-23T14:49:48.087Z INFO 8296 --- [ main] tc.mysql:8.4 : Container is started (JDBC URL: jdbc:mysql://localhost:32769/test)
2024-08-23T14:49:48.097Z INFO 8296 --- [ main] o.s.b.d.r.RestartApplicationListener : Restart disabled due to context in which it is running

:: Built with Spring Boot :: 3.3.2

2024-08-23T14:49:48.145Z INFO 8296 --- [ main] o.s.s.petclinic.MySqlIntegrationTests : Starting MySqlIntegrationTests using Java 17.0.12 with PID 8296 (started by root in /root/spring-petclinic)
2024-08-23T14:49:48.145Z INFO 8296 --- [ main] o.s.s.petclinic.MySqlIntegrationTests : The following 1 profile is active:
```

```
root@anushaapplication: ~/spring-petclinic

2024-08-23T14:50:18.4922 INFO 8296 --- [main] o.s.s.petclinic.vet.VetControllerTests : Starting VetControllerTests using
Java 17.0.12 with PID 8296 (started by root in /root/spring-petclinic)
2024-08-23T14:50:18.4942 INFO 8296 --- [main] o.s.s.petclinic.vet.VetControllerTests : No active profile set, falling bac
k to 1 default profile: "default"
2024-08-23T14:50:19.1592 INFO 8296 --- [main] o.s.b.t.m.w.SpringBootTestMockServletContext : Initializing Spring TestDispatcher
Servlet ''
2024-08-23T14:50:19.1592 INFO 8296 --- [main] o.s.t.web.servlet.TestDispatcherServlet : Initializing Servlet ''
2024-08-23T14:50:19.1612 INFO 8296 --- [main] o.s.t.web.servlet.TestDispatcherServlet : Completed initialization in 2 ms
2024-08-23T14:50:19.1782 INFO 8296 --- [main] o.s.s.petclinic.vet.VetControllerTests : Started VetControllerTests in 0.73
6 seconds (process running for 150.092)
[INFO] Tests run: 2, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.278 s -- in org.springframework.samples.petclinic.vet.VetContr
ollerTests
[INFO] Running org.springframework.samples.petclinic.vet.VetTests
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.048 s -- in org.springframework.samples.petclinic.vet.VetTests
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 47, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] --- jacoco-maven-plugin:0.8.12:report (report) @ spring-petclinic ---
[INFO] Loading execution data file /root/spring-petclinic/target/jacoco.exec
[INFO] Analyzed bundle 'petclinic' with 21 classes
[INFO]
[INFO] --- maven-jar-plugin:3.4.2:jar (default-jar) @ spring-petclinic ---
[INFO] Building jar: /root/spring-petclinic/target/spring-petclinic-3.3.0-SNAPSHOT.jar
[INFO]
[INFO] --- spring-boot-maven-plugin:3.3.2:repackage (repackage) @ spring-petclinic ---
[INFO] Replacing main artifact /root/spring-petclinic/target/spring-petclinic-3.3.0-SNAPSHOT.jar with repackaged archive, adding nested
dependencies in BOOT-INF/.
[INFO] The original artifact has been renamed to /root/spring-petclinic/target/spring-petclinic-3.3.0-SNAPSHOT.jar.original
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 06:50 min
[INFO] Finished at: 2024-08-23T14:50:23Z
[INFO]
[INFO]
root@anushaapplication:~/spring-petclinic#
```

```
root@anushaapplication: ~/spring-petclinic

root@anushaapplication:~/spring-petclinic# ls
Dockerfile      gradlew      readme.md
LICENSE.txt     gradlew.bat  settings.gradle
build.gradle    mvnw        spring-petclinic
docker-compose.yml mvnw.cmd    src
gradle          pom.xml     target
root@anushaapplication:~/spring-petclinic# ls -la
.      .gitignore      gradle      settings.gradle
..     .gitpod.yml     gradlew     spring-petclinic
.devcontainer .mvn            gradlew.bat src
.editorconfig Dockerfile       mvnw        target
.git      LICENSE.txt     mvnw.cmd
.gitattributes build.gradle    pom.xml
.github   docker-compose.yml readme.md
root@anushaapplication:~/spring-petclinic# docker build -t ImageName
me .
[+] Building 0.0s (0/0)                                docker:default
ERROR: invalid tag "ImageName": repository name must be lowercase
root@anushaapplication:~/spring-petclinic# docker build -t ImageName .
[+] Building 0.0s (0/0)                                docker:default
ERROR: invalid tag "ImageName": repository name must be lowercase
root@anushaapplication:~/spring-petclinic# nano Dockerfile
root@anushaapplication:~/spring-petclinic# docker build -t springbootapp .
[+] Building 16.2s (8/8) FINISHED                        docker:default
=> [internal] load build definition from Dockerfile      0.0s
=> => transferring dockerfile: 324B                      0.0s
=> [internal] load metadata for docker.io/library/openjdk:latest 2.3s
=> [internal] load .dockerignore                          0.0s
=> => transferring context: 2B                             0.0s
=> [1/3] FROM docker.io/library/openjdk:latest@sha256:9b448de897d211c9e0ec635a485650aed6e28d4ecalefbc34940560a480b3f1f 12.3s
=> => resolve docker.io/library/openjdk:latest@sha256:9b448de897d211c9e0ec635a485650aed6e28d4ecalefbc34940560a480b3f1f 0.1s
=> => sha256:9b448de897d211c9e0ec635a485650aed6e28d4ecalefbc34940560a480b3f1f 1.04kB / 1.04kB 0.0s
=> => sha256:fe05457a5e9b9403f0e72eeba507ae80a4237d2d2d3f219fa62ccb128482a9ee 954B / 954B 0.0s
=> => sha256:71260f256d19f4ae5c762601e5301418d2516ca591103b13761063be0b7ba056 4.46kB / 4.46kB 0.0s
=> => sha256:197cladcd755131915cd019bdd58658d44445b3638f65449932c18ee39b6047c 44.56MB / 44.56MB 1.0s
=> => sha256:57b698b7af4b18900b53c768746b1dfb603d3b9aee1ee328fdac86d37001e2a 12.26MB / 12.26MB 0.7s
=> => sha256:95a27dbe0150755fca4304b4af0dd7d6dd6a40ede6f6d30da8568e9e8cdf23a9 188.74MB / 188.74MB 3.9s
=> => extracting sha256:197cladcd755131915cd019bdd58658d44445b3638f65449932c18ee39b6047c 2.6s
```

```
root@anushaapplication: ~/spring-petclinic
=> => extracting sha256:197cladcd755131915cd019bdd58658d4445b3638f65449932c18ee39b6047c 2.6s
=> => extracting sha256:57b698b7af4b18900b53c768746b1dfb603dfb9aec1eea328fdac86d37001e2a 0.5s
=> => extracting sha256:95a27dbe0150755fca4304b4afd0d7d6dd6a40ede6fdb30da8568e9e8cdf23a9 3.5s
=> [internal] load build context 1.4s
=> => transferring context: 61.20MB 1.3s
=> [2/3] WORKDIR /app 0.1s
=> [3/3] COPY target/spring-petclinic-3.3.0-SNAPSHOT.jar app.jar 0.5s
=> exporting to image 0.8s
=> => exporting layers 0.7s
=> => writing image sha256:4521a716cebe19d26933644128bffd3f97f09a2f9e55e95ecb86dda9df45434 0.0s
=> => naming to docker.io/library/springbootapp 0.0s
root@anushaapplication:~/spring-petclinic# docker login
Log in with your Docker ID or email address to push and pull image
s from Docker Hub. If you don't have a Docker ID, head over to htt
ps://hub.docker.com/ to create one.
You can log in with your password or a Personal Access Token (PAT)
. Using a limited-scope PAT grants better security and is required
for organizations using SSO. Learn more at https://docs.docker.co
m/go/access-tokens/

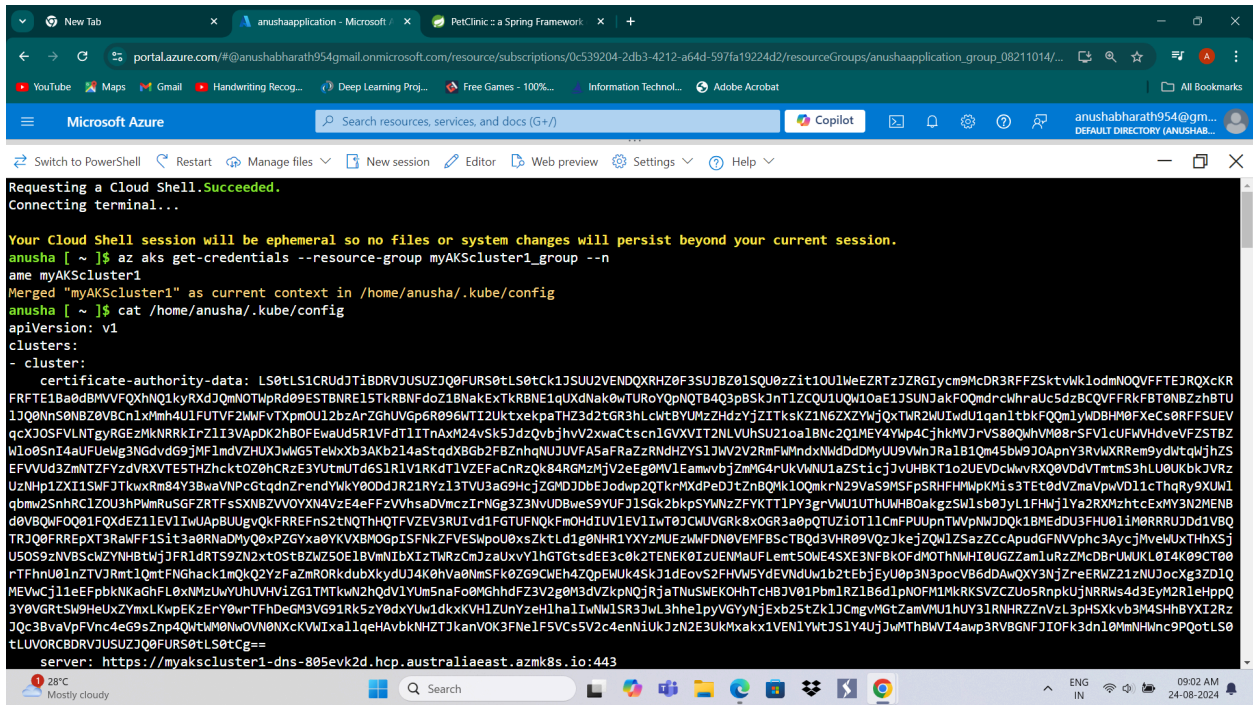
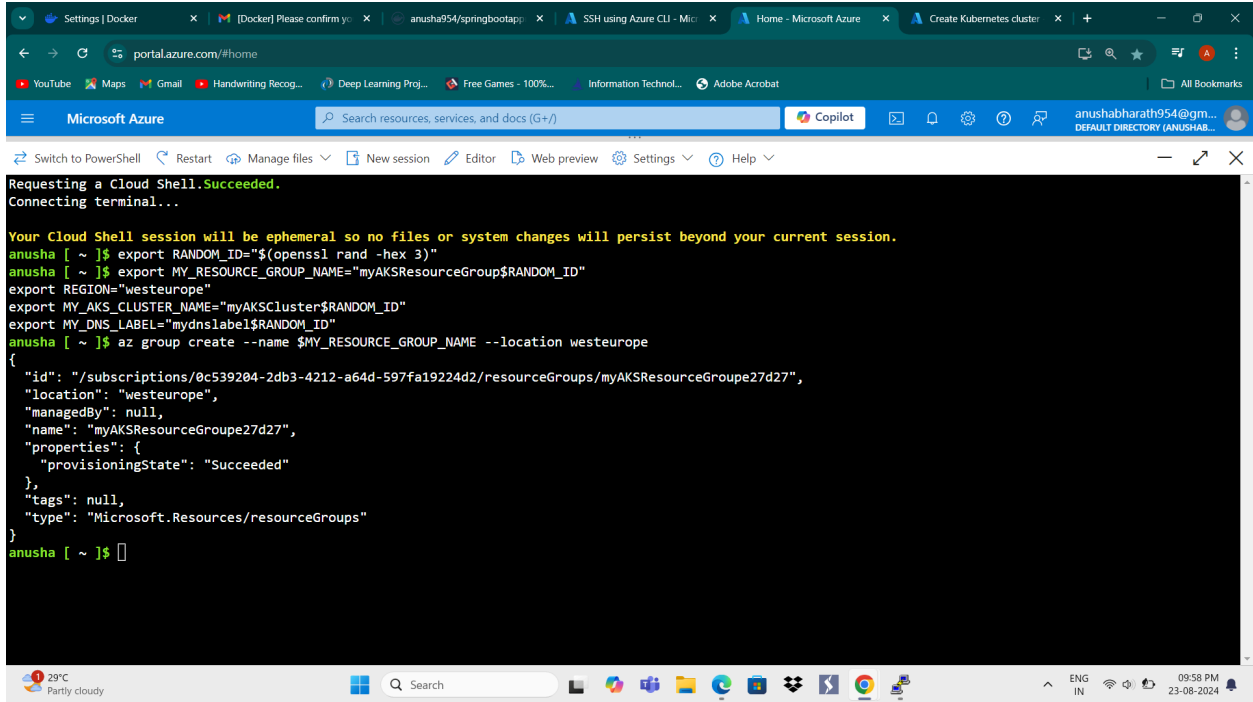
Username: anusha954
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

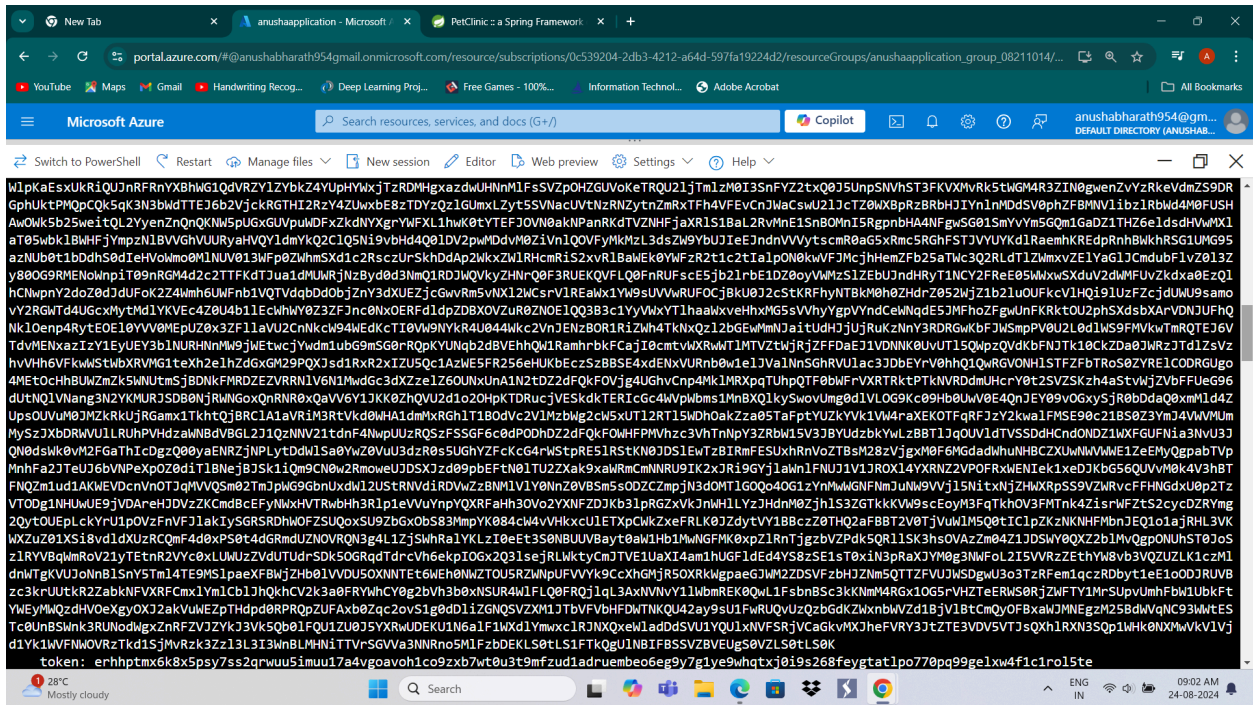
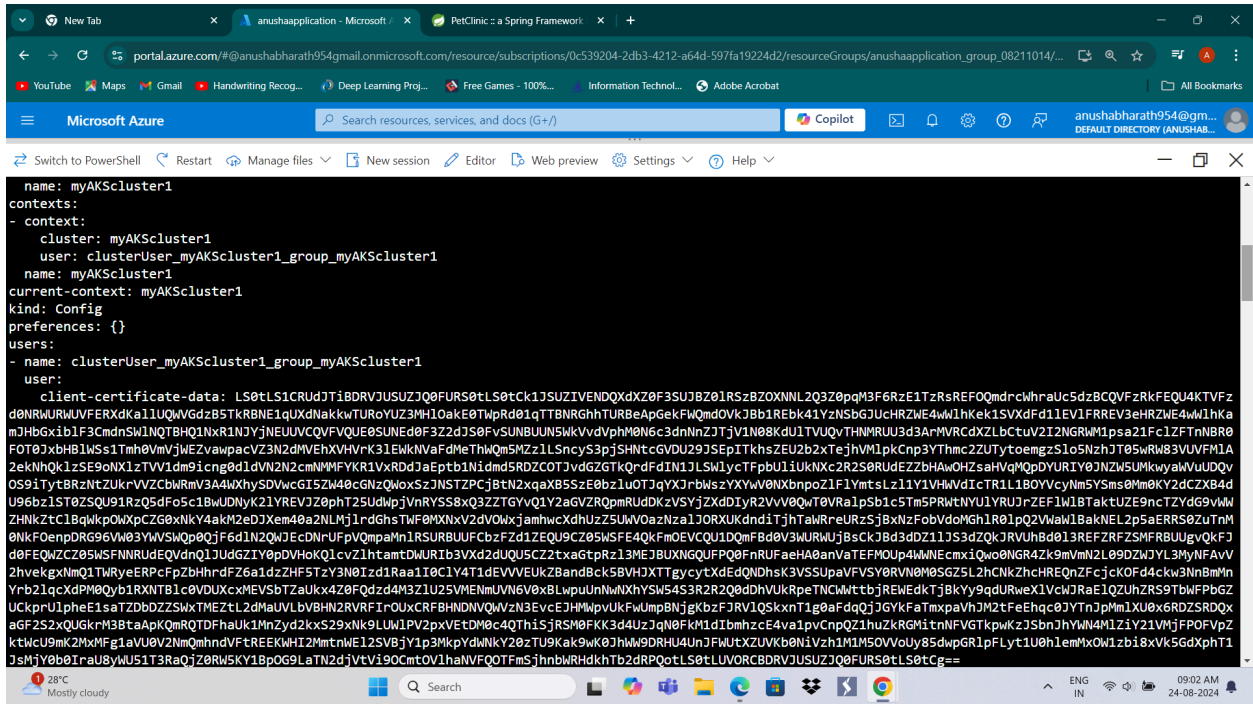
Login Succeeded
root@anushaapplication:~/spring-petclinic# docker image ls -a
REPOSITORY          TAG          IMAGE ID       CREATED        SI
ZE
springbootapp        latest       4521a716cebe   15 minutes ago  53
1MB
mysql                 8.4          750b67184e7a   4 weeks ago    58
4MB
postgres             16.3         07a4ee949b9e   3 months ago   43
2MB
testcontainers/ryuk   0.7.0        d2ed07d3edac   5 months ago   15
.2MB
root@anushaapplication:~/spring-petclinic# docker tag 4521a716cebe anusha954/springbootapprepo:springbootapp
```

```
root@anushaapplication: ~/spring-petclinic
. Using a limited-scope PAT grants better security and is required
for organizations using SSO. Learn more at https://docs.docker.co
m/go/access-tokens/

Username: anusha954
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
root@anushaapplication:~/spring-petclinic# docker image ls -a
REPOSITORY          TAG          IMAGE ID       CREATED        SI
ZE
springbootapp        latest       4521a716cebe   15 minutes ago  53
1MB
mysql                 8.4          750b67184e7a   4 weeks ago    58
4MB
postgres             16.3         07a4ee949b9e   3 months ago   43
2MB
testcontainers/ryuk   0.7.0        d2ed07d3edac   5 months ago   15
.2MB
root@anushaapplication:~/spring-petclinic# docker tag 4521a716cebe anusha954/springbootapprepo:springbootapp
root@anushaapplication:~/spring-petclinic# docker image ls -a
REPOSITORY          TAG          IMAGE ID       CREATED        SI
ZE
anusha954/springbootapprepo  springbootapp  4521a716cebe   18 minutes ago  531MB
springbootapp        latest       4521a716cebe   18 minutes ago  531MB
mysql                 8.4          750b67184e7a   4 weeks ago    584MB
postgres             16.3         07a4ee949b9e   3 months ago   432MB
testcontainers/ryuk   0.7.0        d2ed07d3edac   5 months ago   15.2MB
root@anushaapplication:~/spring-petclinic# docker push anusha954/springbootapprepo:springbootapp
The push refers to repository [docker.io/anusha954/springbootapprepo]
e56b4abb77f6: Pushed
=> ] 55.12MB/61.19MB
56285d9a7760: Mounted from library/openjdk
077bff59ce57: Mounted from library/openjdk
9cd9df9ffc97: Mounted from library/openjdk
springbootapp: digest: sha256:5c9a9b05c4eab293889b3d0501e1991e9eda73182794030478a326e5c3916190 size: 1372
root@anushaapplication:~/spring-petclinic#
```






```
token: erhhtmx6k8x5psy7ss2qrwu5imuu17a4vgoavoh1co9zxb7wt0u3t9mfzud1adruembo6eg9y7g1ye9whqtxj0i9s268feygtatlpo770pq99gelxw4f1c1rol1ste
anusha [ ~ ]$ kubectl get nodes
NAME                                STATUS    ROLES    AGE   VERSION
aks-agentpool-15692916-vmss000000  Ready    <none>    30m   v1.29.7
aks-agentpool-15692916-vmss000001  Ready    <none>    30m   v1.29.7
anusha [ ~ ]$ nano myaksfirst.yml
anusha [ ~ ]$ ls
myaksfirst.yml
anusha [ ~ ]$ kubectl apply -f myaksfirst.yml
deployment.apps/pet-clinic created
service/pet-clinic created
anusha [ ~ ]$ kubectl get all
NAME                                READY    STATUS    RESTARTS   AGE
pod/pet-clinic-55994db987-7gnnh     1/1      Running   0           24s

NAME                                TYPE          CLUSTER-IP    EXTERNAL-IP  PORT(S)          AGE
service/kubernetes                  ClusterIP      10.0.0.1       <none>        443/TCP          45m
service/pet-clinic                  LoadBalancer  10.0.93.124    4.198.187.76 80:30692/TCP     24s

NAME                                READY    UP-TO-DATE   AVAILABLE   AGE
deployment.apps/pet-clinic          1/1      1            1           24s

NAME                                DESIRED    CURRENT    READY   AGE
replicaset.apps/pet-clinic-55994db987 1          1          1       24s
anusha [ ~ ]$ kubectl get pod
NAME                                READY    STATUS    RESTARTS   AGE
pet-clinic-55994db987-7gnnh         1/1      Running   0           4m40s
anusha [ ~ ]$ kubectl get pod -o wide
```

```
anusha [ ~ ]$ kubectl get pod
NAME                                READY    STATUS    RESTARTS   AGE
pet-clinic-55994db987-7gnnh         1/1      Running   0           4m40s
anusha [ ~ ]$ kubectl get pod -o wide
NAME                                READY    STATUS    RESTARTS   AGE   IP             NODE                                NOMINATED NODE   READINESS GATES
pet-clinic-55994db987-7gnnh         1/1      Running   0           5m10s  10.244.0.240   aks-agentpool-15692916-vmss000000 <none>           <none>
anusha [ ~ ]$ curl 10.244.0.240
^C
anusha [ ~ ]$ kubectl get all
NAME                                READY    STATUS    RESTARTS   AGE
pod/pet-clinic-55994db987-7gnnh     1/1      Running   0           6m54s

NAME                                TYPE          CLUSTER-IP    EXTERNAL-IP  PORT(S)          AGE
service/kubernetes                  ClusterIP      10.0.0.1       <none>        443/TCP          52m
service/pet-clinic                  LoadBalancer  10.0.93.124    4.198.187.76 80:30692/TCP     6m54s

NAME                                READY    UP-TO-DATE   AVAILABLE   AGE
deployment.apps/pet-clinic          1/1      1            1           6m55s

NAME                                DESIRED    CURRENT    READY   AGE
replicaset.apps/pet-clinic-55994db987 1          1          1       6m55s
anusha [ ~ ]$ curl 4.198.187.76
<!DOCTYPE html>

<html>

<head>
```

```

<html>
<head>

  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
  <meta charset="utf-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1">

  <link rel="shortcut icon" type="image/x-icon" href="/resources/images/favicon.png">

  <title>PetClinic :: a Spring Framework demonstration</title>

  <!--[if lt IE 9]>
    <script src="https://oss.maxcdn.com/html5shiv/3.7.2/html5shiv.min.js"></script>
    <script src="https://oss.maxcdn.com/respond/1.4.2/respond.min.js"></script>
  <![endif]-->

  <link href="/webjars/font-awesome/4.7.0/css/font-awesome.min.css" rel="stylesheet">
  <link rel="stylesheet" href="/resources/css/petclinic.css" />
</head>
<body>

  <nav class="navbar navbar-expand-lg navbar-dark" role="navigation">
    <div class="container-fluid">
      <a class="navbar-brand" href="/"><span></span></a>

```

```

      <a class="navbar-brand" href="/"><span></span></a>
      <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#main-navbar">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="main-navbar" style>

        <ul class="nav navbar-nav me-auto">

          <li class="nav-item">
            <a class="nav-link active" href="/" title="home page">
              <span class="fa fa-home"></span>
              <span>Home</span>
            </a>
          </li>

          <li class="nav-item">
            <a class="nav-link" href="/owners/find" title="find owners">
              <span class="fa fa-search"></span>
              <span>Find owners</span>
            </a>
          </li>

          <li class="nav-item">
            <a class="nav-link" href="/vets.html" title="veterinarians">
              <span class="fa fa-th-list"></span>
              <span>Veterinarians</span>
            </a>
          </li>

```

```

    </a>
  </li>

  <li class="nav-item">
    <a class="nav-link" href="/oops" title="trigger a RuntimeException to see how it is handled">
      <span class="fa fa-exclamation-triangle"></span>
      <span>Error</span>
    </a>
  </li>
</ul>
</div>
</nav>
<div class="container-fluid">
  <div class="container xd-container">

    <body>

    <h2>Welcome</h2>
    <div class="row">
      <div class="col-md-12">
        
      </div>
    </div>

  </body>
</div>

```

```

    <body>

    <h2>Welcome</h2>
    <div class="row">
      <div class="col-md-12">
        
      </div>
    </div>

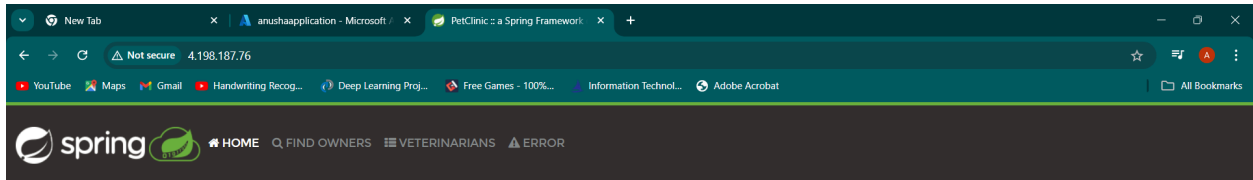
  </body>

  <br />
  <br />
  <div class="container">
    <div class="row">
      <div class="col-12 text-center">
        
      </div>
    </div>
  </div>
</div>

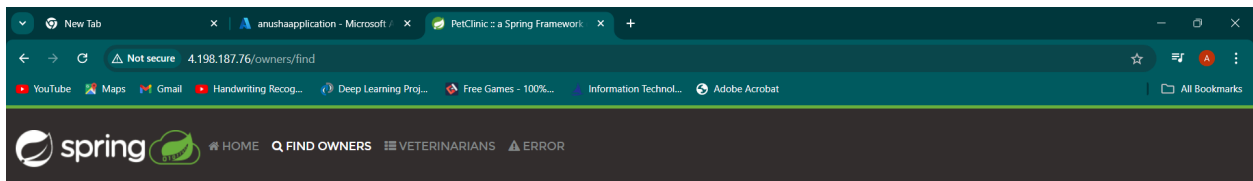
<script src="/webjars/bootstrap/5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>
anusha [ ~ ]$

```

Welcome



Find Owners

Last name

Find Owner

Add Owner



Veterinarians

Name	Specialties
James Carter	none
Helen Leary	radiology
Linda Douglas	dentistry surgery
Rafael Ortega	surgery
Henry Stevens	radiology

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