

Name: Venkata Krishnarjun Vuppala

SRN: PES2UG19CS451

Semester: 6

Section: G

Subject: Cloud Computing

Assignment 2

Week 2 tasks and deliverables:

2. Deploying Kubernetes pods

2.1. 2a.jpg Screenshot of kubectl commands and port forwarding

```
Select Command Prompt - kubectl port-forward pod/nginx-pes2ug19cs451 80:80

C:\Users\arjun>kubectl get node
I0226 12:35:51.882540 13032 request.go:665] Waited for 1.0207426s due to client-side throttling, not priority and fairness, request: GET:https://kubernetes.
docker.internal:6443/apis/authorization.k8s.io/v1?timeout=32s
NAME          STATUS    ROLES    AGE   VERSION
docker-desktop Ready    control-plane,master  70m   v1.22.5

C:\Users\arjun>cd C:\Users\arjun\cloud_computing\Assignment-2\task1

C:\Users\arjun\cloud_computing\Assignment-2\task1>dir
Volume in drive C is Windows
Volume Serial Number is 7CA2-5774

Directory of C:\Users\arjun\cloud_computing\Assignment-2\task1

26-02-2022  13:39    <DIR>          .
26-02-2022  13:39    <DIR>          ..
26-02-2022  11:04             969 deploy.yaml
26-02-2022  11:04            1,722 deploy_service.yaml
26-02-2022  11:04             1,009 pod.yaml
               3 File(s)              3,700 bytes
               2 Dir(s)  594,537,799,680 bytes free

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl create -f pod.yaml
pod/nginx-pes2ug19cs451 created

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl get all
NAME          READY   STATUS    RESTARTS   AGE
pod/nginx-pes2ug19cs451  0/1     ContainerCreating  0           32s

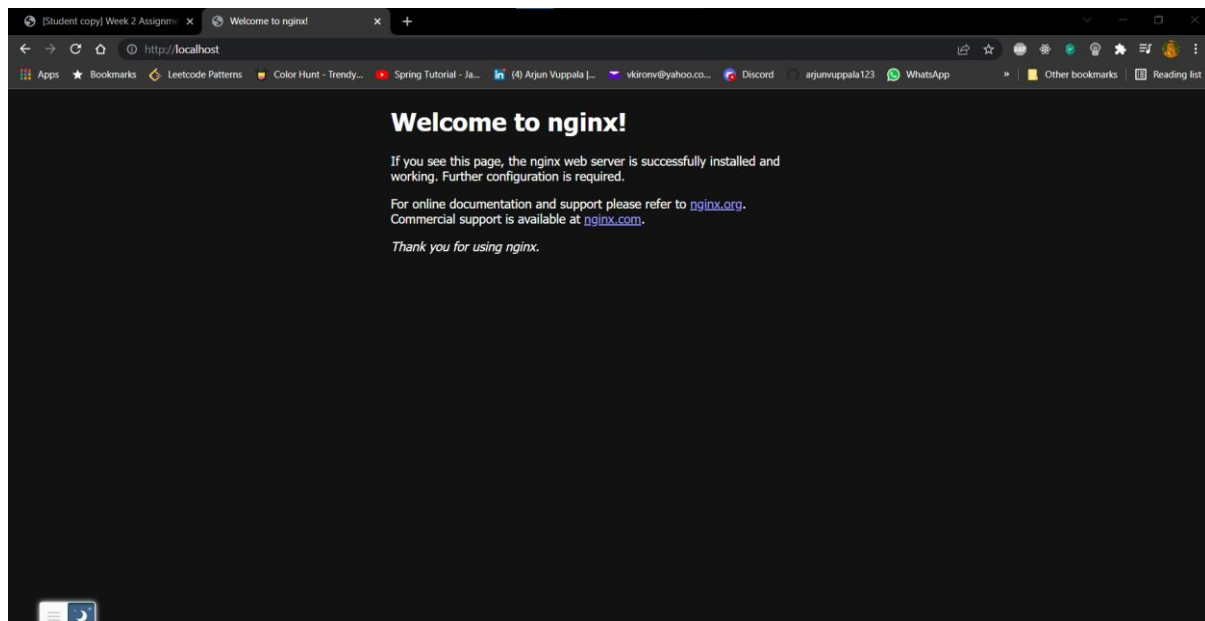
NAME          TYPE          CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
service/kubernetes  ClusterIP   10.96.0.1    <none>        443/TCP    138m

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
nginx-pes2ug19cs451  1/1     Running    0           57s

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl port-forward pod/nginx-pes2ug19cs451 80:80
Error from server (NotFound): pods "ngx-pes2ug19cs451" not found

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl port-forward pod/nginx-pes2ug19cs451 80:80
Forwarding from 127.0.0.1:80 -> 80
Forwarding from [::1]:80 -> 80
Handling connection for 80
Handling connection for 80
Handling connection for 80
Handling connection for 80
Handling connection for 80
```

2.2. 2b.jpg Nginx home page access through localhost



3. Seal healing, updates, and rollback with Kubernetes

deployment

3.1. 3a.jpg Screenshot showing deleted pod and seal healing of pods in a deployment

```

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl create -f deploy.yaml
deployment.apps/mynginx-pes2ug19cs451 created

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl get deployments
NAME                                READY  UP-TO-DATE  AVAILABLE  AGE
mynginx-pes2ug19cs451              0/3    3           0           31s

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl rollout status deployment/mynginx-pes2ug19cs451
Error from server (NotFound): deployments.apps "mynginx-pes2ug19cs451" not found

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl rollout status deployment/mynginx-pes2ug19cs451
deployment "mynginx-pes2ug19cs451" successfully rolled out

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl get all
NAME                                READY  STATUS    RESTARTS  AGE
pod/mynginx-pes2ug19cs451-d4b878799-hpsbh  1/1    Running   0          101s
pod/mynginx-pes2ug19cs451-d4b878799-wcv5m  1/1    Running   0          101s
pod/mynginx-pes2ug19cs451-d4b878799-x5pkv  1/1    Running   0          101s

NAME                                TYPE          CLUSTER-IP    EXTERNAL-IP  PORT(S)    AGE
service/kubernetes                  ClusterIP     10.96.0.1     <none>       443/TCP    175m

NAME                                READY  UP-TO-DATE  AVAILABLE  AGE
deployment.apps/mynginx-pes2ug19cs451  3/3    3           3           102s

NAME                                DESIRED  CURRENT  READY  AGE
replicaset.apps/mynginx-pes2ug19cs451-d4b878799  3        3        3      102s

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl delete pod/mynginx-pes2ug19cs451-d4b878799-hpsbh
pod "mynginx-pes2ug19cs451-d4b878799-hpsbh" deleted

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl get all
NAME                                READY  STATUS             RESTARTS  AGE
pod/mynginx-pes2ug19cs451-d4b878799-jd57b  0/1    ContainerCreating   0          31s
pod/mynginx-pes2ug19cs451-d4b878799-wcv5m  1/1    Running             0          3m25s
pod/mynginx-pes2ug19cs451-d4b878799-x5pkv  1/1    Running             0          3m25s

NAME                                TYPE          CLUSTER-IP    EXTERNAL-IP  PORT(S)    AGE
service/kubernetes                  ClusterIP     10.96.0.1     <none>       443/TCP    177m

NAME                                READY  UP-TO-DATE  AVAILABLE  AGE
deployment.apps/mynginx-pes2ug19cs451  2/3    3           2           3m27s

NAME                                DESIRED  CURRENT  READY  AGE
replicaset.apps/mynginx-pes2ug19cs451-d4b878799  3        3        2      3m27s

C:\Users\arjun\cloud_computing\Assignment-2\task1>

```

3.2. 3b.jpg Screenshot showing updates and revision history of a deployment

```
Select Command Prompt
C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl set image --record=true deployment/mynginx-pes2ug19cs451 mynginx-pes2ug19cs451=nginx:1.16.1 --record
=true
Flag --record has been deprecated, --record will be removed in the future
Flag --record has been deprecated, --record will be removed in the future
deployment.apps/mynginx-pes2ug19cs451 image updated

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl rollout history deployment/mynginx-pes2ug19cs451
deployment.apps/mynginx-pes2ug19cs451
REVISION  CHANGE-CAUSE
1          kubectl set image deployment/mynginx-pes2ug19cs451 nginx-pes2ug19cs451=nginx:1.16.1 --record=true --record=true
2          kubectl set image deployment/mynginx-pes2ug19cs451 mynginx-pes2ug19cs451=nginx:1.16.1 --record=true --record=true
```

S3.3. 3c.jpg Screenshot showing rollback of deployment

```
kubectl set image deployment/mynginx-pes2ug19cs451 mynginx-pes2ug19cs451=nginx:1.16.1 --record=true --record=true

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl rollout undo deployment/mynginx-pes2ug19cs451
deployment.apps/mynginx-pes2ug19cs451 rolled back

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl rollout status deployment/mynginx-pes2ug19cs451
deployment "mynginx-pes2ug19cs451" successfully rolled out

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl rollout history deployment/mynginx-pes2ug19cs451
deployment.apps/mynginx-pes2ug19cs451
REVISION  CHANGE-CAUSE
2          kubectl set image deployment/mynginx-pes2ug19cs451 mynginx-pes2ug19cs451=nginx:1.16.1 --record=true --record=true
3          kubectl set image deployment/mynginx-pes2ug19cs451 nginx-pes2ug19cs451=nginx:1.16.1 --record=true --record=true
```

4. Scaling Kubernetes services

4.1. 4a.jpg Screenshot showing:

```
Command Prompt - kubectl scale deploy mynginx-pes2ug19cs451 --replicas=10

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl create -f deploy_service.yaml
deployment.apps/mynginx-pes2ug19cs451 created
service/nginx-pes2ug19cs451 created

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl port-forward service/nginx-pes2ug19cs451 80:80
Forwarding from 127.0.0.1:80 -> 80

Command Prompt
C:\Users\arjun\cloud_computing\Assignment-2\task1>
C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl scale deploy mynginx-pes2ug19cs451 --replicas=10
deployment.apps/mynginx-pes2ug19cs451 scaled

C:\Users\arjun\cloud_computing\Assignment-2\task1>kubectl get all
NAME                                READY    STATUS    RESTARTS   AGE
pod/mynginx-pes2ug19cs451-8f98c7588-4rqhr    1/1      Running   0          4m5s
pod/mynginx-pes2ug19cs451-8f98c7588-6rb8w    1/1      Running   0          4m2s
pod/mynginx-pes2ug19cs451-8f98c7588-bh6xs    1/1      Running   0          12m
pod/mynginx-pes2ug19cs451-8f98c7588-f7x2j    1/1      Running   0          4m2s
pod/mynginx-pes2ug19cs451-8f98c7588-g78kv    1/1      Running   0          4m2s
pod/mynginx-pes2ug19cs451-8f98c7588-gvt59    1/1      Running   0          4m3s
pod/mynginx-pes2ug19cs451-8f98c7588-jxr9s    1/1      Running   0          4m2s
pod/mynginx-pes2ug19cs451-8f98c7588-khhrs    1/1      Running   0          4m3s
pod/mynginx-pes2ug19cs451-8f98c7588-l1vf1    1/1      Running   0          4m2s
pod/mynginx-pes2ug19cs451-8f98c7588-xbzs9    1/1      Running   0          12m

NAME                                TYPE          CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
service/kubernetes                  ClusterIP     10.96.0.1     <none>          443/TCP          3h27m
service/nginx-pes2ug19cs451        LoadBalancer  10.108.241.30 localhost       80:31206/TCP     12m

NAME                                READY    UP-TO-DATE    AVAILABLE    AGE
deployment.apps/mynginx-pes2ug19cs451  10/10    10            10           12m

NAME                                DESIRED    CURRENT    READY    AGE
replicaset.apps/mynginx-pes2ug19cs451-8f98c7588  10        10        10       12m

C:\Users\arjun\cloud_computing\Assignment-2\task1>
```

4.2. 4b.jpg Nginx home page access through localhost

