Cloud Computing Assignment 2b

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Task 1:

1a.

Task 2:

2a.

2b.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl cre
ate deployment pes2ug20cs389 --image=nginx
deployment.apps/pes2ug20cs389 created
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

2c.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 deployment
NAME            READY    UP-TO-DATE    AVAILABLE    AGE
pes2ug20cs389   1/1      1             1            3m54s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 pod
NAME                             READY    STATUS     RESTARTS    AGE
pes2ug20cs389-64f6b7ccb7-wn2v6   1/1      Running    0           3m56s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

2d.

```
35      spec:
36        containers:
37          - image: nginx:1.16
38          imagePullPolicy: Always
39          name: nginx
```

2e.

```
vishwa@Acer-Vishwa:~$ kubectl edit deployment pes2ug20cs389
deployment.apps/pes2ug20cs389 edited
vishwa@Acer-Vishwa:~$
```

2f.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl rollout undo deployment/pes2ug20cs389
deployment.apps/pes2ug20cs389 rolled back
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

2g.

```
35      spec:
36        containers:
37        - image: nginx
38          imagePullPolicy: Always
39          name: nginx
40          resources: {}
```

Task 3:

3a.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl logs pes2ug20cs389-64f6b7ccb7-wn2v6
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2023/02/21 09:23:34 [notice] 1#1: using the "epoll" event method
2023/02/21 09:23:34 [notice] 1#1: nginx/1.23.3
2023/02/21 09:23:34 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2023/02/21 09:23:34 [notice] 1#1: OS: Linux 5.10.102.1-microsoft-standard-WSL2
2023/02/21 09:23:34 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2023/02/21 09:23:34 [notice] 1#1: start worker processes
2023/02/21 09:23:34 [notice] 1#1: start worker process 29
2023/02/21 09:23:34 [notice] 1#1: start worker process 30
2023/02/21 09:23:34 [notice] 1#1: start worker process 31
2023/02/21 09:23:34 [notice] 1#1: start worker process 32
2023/02/21 09:23:34 [notice] 1#1: start worker process 33
2023/02/21 09:23:34 [notice] 1#1: start worker process 34
2023/02/21 09:23:34 [notice] 1#1: start worker process 35
2023/02/21 09:23:34 [notice] 1#1: start worker process 36
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

3b.

```
                              node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type     Reason      Age        From                Message
  ----     ------      ----       ----                -------
  Normal   Scheduled   29m        default-scheduler   Successfully assigned default/pes2ug20cs389-64f6b7ccb7-wn2v6 to minikube
  Normal   Pulling     29m        kubelet             Pulling image "nginx"
  Normal   Pulled      27m        kubelet             Successfully pulled image "nginx" in 4.08487717s (1m57.837215015s including waiti
ng)
  Normal   Created     27m        kubelet             Created container nginx
  Normal   Started     27m        kubelet             Started container nginx
```

3c.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl create dep
loyment pes2ug20cs389-mongo --image=mongo
deployment.apps/pes2ug20cs389-mongo created
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl exe
c -it pes2ug20cs389-mongo-7cd85555c4-hd2sd -- bin/bash
root@pes2ug20cs389-mongo-7cd85555c4-hd2sd:/# ls
bin    data   docker-entrypoint-initdb.d   home         lib     lib64   media   opt    root   sbin   sys   usr
boot   dev    etc                          js-yaml.js   lib32   libx32  mnt     proc   run    srv    tmp   var
root@pes2ug20cs389-mongo-7cd85555c4-hd2sd:/# exit
exit
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

3d.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl del
ete deployment pes2ug20cs389
deployment.apps "pes2ug20cs389" deleted
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl del
ete deployment pes2ug20cs389-mongo
deployment.apps "pes2ug20cs389-mongo" deleted
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

Task 4:

4a.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl app
ly -f nginx-deployment.yaml
deployment.apps/nginx-deployment-pes2ug20cs389 created
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 deployment
NAME                             READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment-pes2ug20cs389   2/2     2            2           3m18s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 pod
NAME                                          READY   STATUS    RESTARTS   AGE
nginx-deployment-pes2ug20cs389-8cf4bf97-c8cm7   1/1     Running   0          3m25s
nginx-deployment-pes2ug20cs389-8cf4bf97-mxmj9   1/1     Running   0          3m25s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 replicaset
NAME                                      DESIRED   CURRENT   READY   AGE
nginx-deployment-pes2ug20cs389-8cf4bf97   2         2         2       3m42s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ vim nginx-d
eployment.yaml
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl app
ly -f nginx-deployment.yaml
deployment.apps/nginx-deployment-pes2ug20cs389 configured
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 deployment
NAME                              READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment-pes2ug20cs389    3/3     3            3           4m56s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 pod
NAME                                             READY   STATUS    RESTARTS   AGE
nginx-deployment-pes2ug20cs389-8cf4bf97-c8cm7    1/1     Running   0          5m
nginx-deployment-pes2ug20cs389-8cf4bf97-mxmj9    1/1     Running   0          5m
nginx-deployment-pes2ug20cs389-8cf4bf97-zlg2b    1/1     Running   0          9s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 replicaset
NAME                                     DESIRED   CURRENT   READY   AGE
nginx-deployment-pes2ug20cs389-8cf4bf97  3         3         3       5m3s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

4b.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 deployment nginx-deployment-pes2ug20cs389 -o yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
    deployment.kubernetes.io/revision: "1"
    kubectl.kubernetes.io/last-applied-configuration: |
      {"apiVersion":"apps/v1","kind":"Deployment","metadata":{"annotations":{},"labels":{"app":"nginx"},"name"
:"nginx-deployment-pes2ug20cs389","namespace":"default"},"spec":{"replicas":3,"selector":{"matchLabels":{"app"
:"nginx"}},"template":{"metadata":{"labels":{"app":"nginx"}},"spec":{"containers":[{"image":"nginx:1.22","name
":"nginx","ports":[{"containerPort":80}]}]}}}}}
  creationTimestamp: "2023-02-24T15:02:37Z"
  generation: 2
  labels:
    app: nginx
  name: nginx-deployment-pes2ug20cs389
  namespace: default
  resourceVersion: "4666"
  uid: 3868f8e0-16d6-4ce6-a46a-f93b9ed2446e
spec:
  progressDeadlineSeconds: 600
  replicas: 3
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
```

```
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
    type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
      - image: nginx:1.22
        imagePullPolicy: IfNotPresent
        name: nginx
        ports:
        - containerPort: 80
          protocol: TCP
        resources: {}
        terminationMessagePath: /dev/termination-log
        terminationMessagePolicy: File
      dnsPolicy: ClusterFirst
      restartPolicy: Always
      schedulerName: default-scheduler
      securityContext: {}
      terminationGracePeriodSeconds: 30
status:
  availableReplicas: 3
```

```
        terminationMessagePath: /dev/termination-log
        terminationMessagePolicy: File
      dnsPolicy: ClusterFirst
      restartPolicy: Always
      schedulerName: default-scheduler
      securityContext: {}
      terminationGracePeriodSeconds: 30
status:
  availableReplicas: 3
  conditions:
  - lastTransitionTime: "2023-02-24T15:02:37Z"
    lastUpdateTime: "2023-02-24T15:02:50Z"
    message: ReplicaSet "nginx-deployment-pes2ug20cs389-8cf4bf97" has successfully
      progressed.
    reason: NewReplicaSetAvailable
    status: "True"
    type: Progressing
  - lastTransitionTime: "2023-02-24T15:07:30Z"
    lastUpdateTime: "2023-02-24T15:07:30Z"
    message: Deployment has minimum availability.
    reason: MinimumReplicasAvailable
    status: "True"
    type: Available
  observedGeneration: 2
  readyReplicas: 3
  replicas: 3
  updatedReplicas: 3
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

Task 5:

5a.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl del
ete pod nginx-deployment-pes2ug20cs389-8cf4bf97-c8cm7
pod "nginx-deployment-pes2ug20cs389-8cf4bf97-c8cm7" deleted
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 pod
NAME                                            READY   STATUS    RESTARTS   AGE
nginx-deployment-pes2ug20cs389-8cf4bf97-2ssrg   1/1     Running   0          3s
nginx-deployment-pes2ug20cs389-8cf4bf97-mxmj9   1/1     Running   0          11m
nginx-deployment-pes2ug20cs389-8cf4bf97-zlg2b   1/1     Running   0          6m35s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

Task 6:

6a.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ vim nginx-s
ervice.yaml
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl app
ly -f nginx-service.yaml
service/nginx-service-pes2ug20cs389 created
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 service
NAME                          TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
kubernetes                    ClusterIP   10.96.0.1       <none>        443/TCP    3d6h
nginx-service-pes2ug20cs389   ClusterIP   10.104.205.230  <none>        8080/TCP   10s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl des
cribe service nginx-service
Name:              nginx-service-pes2ug20cs389
Namespace:         default
Labels:            <none>
Annotations:       <none>
Selector:          app=nginx
Type:              ClusterIP
IP Family Policy:  SingleStack
IP Families:       IPv4
IP:                10.104.205.230
IPs:               10.104.205.230
Port:              <unset>  8080/TCP
TargetPort:        80/TCP
Endpoints:         10.244.0.13:80,10.244.0.15:80,10.244.0.16:80
Session Affinity:  None
Events:            <none>
```

6b.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 pod -o wide
NAME                                          READY   STATUS    RESTARTS   AGE     IP            NODE
NOMINATED NODE    READINESS GATES
nginx-deployment-pes2ug20cs389-8cf4bf97-2ssrg   1/1     Running   0          4m25s   10.244.0.16   minikube
<none>           <none>
nginx-deployment-pes2ug20cs389-8cf4bf97-mxmj9   1/1     Running   0          15m     10.244.0.13   minikube
<none>           <none>
nginx-deployment-pes2ug20cs389-8cf4bf97-zlg2b   1/1     Running   0          10m     10.244.0.15   minikube
<none>           <none>
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```
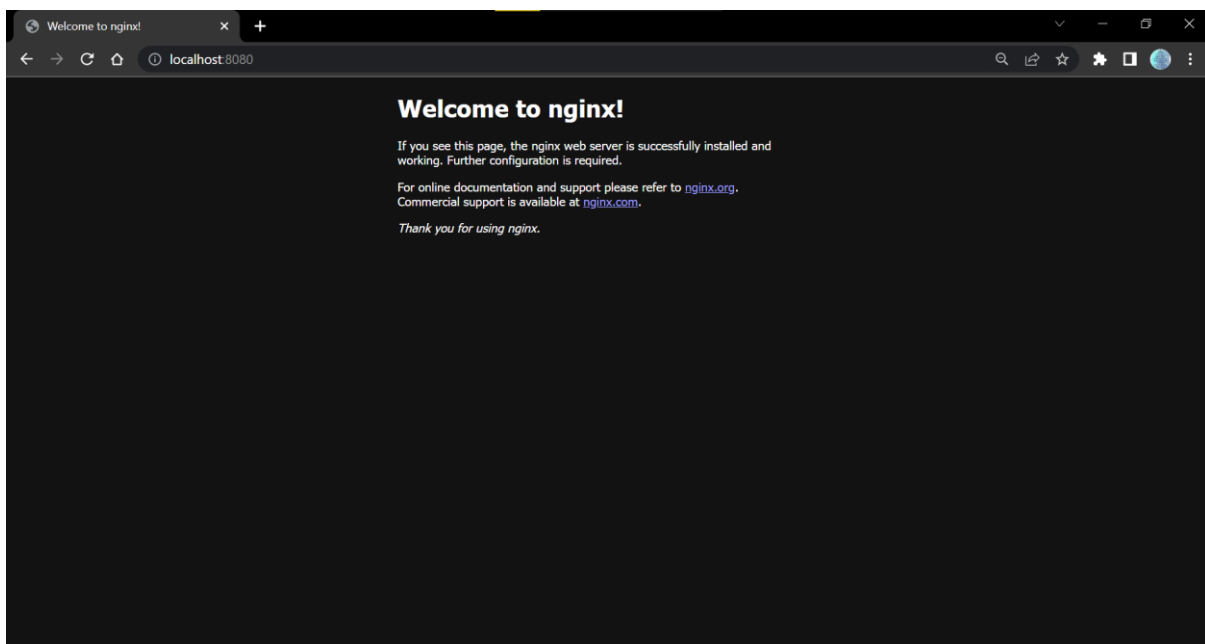
Task 7:

7a.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl por
t-forward service/nginx-service-pes2ug20cs389 8080:8080
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
```

7b.

Task 8:

8a.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl del
ete deployment nginx-deployment-pes2ug20cs389
deployment.apps "nginx-deployment-pes2ug20cs389" deleted
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl del
ete service nginx-service-pes2ug20cs389
service "nginx-service-pes2ug20cs389" deleted
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

8b.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ minikube st
op
    Stopping node "minikube"  ...
    Powering off "minikube" via SSH ...
    1 node stopped.
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

Task 9:

9a.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl cre
ate deployment nginx-pes2ug20cs389 --image=nginx
deployment.apps/nginx-pes2ug20cs389 created
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl exp
ose deployment nginx-pes2ug20cs389 --type=NodePort --port=80
service/nginx-pes2ug20cs389 exposed
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

9b.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ kubectl get
 service nginx-pes2ug20cs389
NAME                  TYPE       CLUSTER-IP     EXTERNAL-IP   PORT(S)        AGE
nginx-pes2ug20cs389   NodePort   10.99.0.198    <none>        80:30638/TCP   108s
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

9c.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ minikube ip
192.168.49.2
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$
```

9d.

```
vishwa@Acer-Vishwa:/mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week5$ minikube se
rvice nginx-pes2ug20cs389
|-----------|---------------------|-------------|-------------------------|
| NAMESPACE |         NAME        | TARGET PORT |           URL           |
|-----------|---------------------|-------------|-------------------------|
| default   | nginx-pes2ug20cs389 |          80 | http://192.168.49.2:30638 |
|-----------|---------------------|-------------|-------------------------|
    Starting tunnel for service nginx-pes2ug20cs389.
|-----------|---------------------|-------------|-------------------------|
| NAMESPACE |         NAME        | TARGET PORT |           URL           |
|-----------|---------------------|-------------|-------------------------|
| default   | nginx-pes2ug20cs389 |             | http://127.0.0.1:44533  |
|-----------|---------------------|-------------|-------------------------|
    Opening service default/nginx-pes2ug20cs389 in default browser...
    Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.