

# Cloud Computing Assignment 2

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## 1 Deploying Kubernetes Pod

```
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl create -f pod.yaml
pod/nginx-peslug19cs592 created
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl get all
NAME                READY   STATUS    RESTARTS   AGE
pod/nginx-peslug19cs592  0/1     ContainerCreating  0           23s

NAME                TYPE          CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
service/kubernetes  ClusterIP     10.96.0.1    <none>        443/TCP    3m47s
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl get all
NAME                READY   STATUS    RESTARTS   AGE
pod/nginx-peslug19cs592  1/1     Running    0           42s

NAME                TYPE          CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
service/kubernetes  ClusterIP     10.96.0.1    <none>        443/TCP    4m6s
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl port-forward pod/nginx-peslug19cs592 ^C
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ ^C
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl port-forward pod/nginx-peslug19cs592 8080:80
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
Handling connection for 8080
Handling connection for 8080
```

Figure 1: nginx pod is running and port-forwarding



Figure 2: nginx homepage on localhost via browser

## 2 Seal healing, updates and rollback with Kubernetes deployment

```
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl delete pod/mynginx-peslug19cs592-5448645bbf-brmct
pod "mynginx-peslug19cs592-5448645bbf-brmct" deleted
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl get all
NAME                                     READY   STATUS    RESTARTS   AGE
pod/mynginx-peslug19cs592-5448645bbf-mmpjn 1/1     Running   0          3m2s
pod/mynginx-peslug19cs592-5448645bbf-q6rtp 1/1     Running   0          5s
pod/mynginx-peslug19cs592-5448645bbf-xwzws 1/1     Running   0          73s
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
service/kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	23m

```
NAME                                     READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/mynginx-peslug19cs592  3/3      3             3           3m2s
```

NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/mynginx-peslug19cs592-5448645bbf	3	3	3	3m2s

```
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$
```

Figure 3: Deleted pod and seal healing of pods

```
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl set image --record=true deployment/mynginx-peslug19cs592 mynginx-peslug19cs592=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-peslug19cs592 image updated
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl rollout history deployment/mynginx-peslug19cs592
deployment.apps/mynginx-peslug19cs592
REVISION   CHANGE-CAUSE
1          <none>
2          kubectl set image deployment/mynginx-peslug19cs592 mynginx-peslug19cs592=nginx:1.16.1 --record=true --record=true
```

Figure 4: Updates and revision history of deployment

```
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl rollout undo deployment/mynginx-peslug19cs592
deployment.apps/mynginx-peslug19cs592 rolled back
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl rollout status deployment/mynginx-peslug19cs592
Waiting for deployment "mynginx-peslug19cs592" rollout to finish: 2 out of 3 new replicas have been updated...
Waiting for deployment "mynginx-peslug19cs592" rollout to finish: 2 out of 3 new replicas have been updated...
Waiting for deployment "mynginx-peslug19cs592" rollout to finish: 2 out of 3 new replicas have been updated...
Waiting for deployment "mynginx-peslug19cs592" rollout to finish: 1 old replicas are pending termination...
Waiting for deployment "mynginx-peslug19cs592" rollout to finish: 1 old replicas are pending termination...
deployment "mynginx-peslug19cs592" successfully rolled out
```

Figure 5: Rollback of deployment

### 3 Scaling Kubernetes services

```
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl create -f deploy_service.yaml
deployment.apps/mynginx-peslug19cs592 created
service/mynginx-peslug19cs592 created
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl port-forward service/mynginx-peslug19cs592 80:80
Unable to listen on port 80: Listeners failed to create with the following errors: [unable to create listener:
Error listen tcp4 127.0.0.1:80: bind: permission denied unable to create listener: Error listen tcp6 [::]:80
: bind: permission denied]
error: unable to listen on any of the requested ports: [{80 80}]
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl port-forward service/mynginx-peslug19cs592 8080:80
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::]:8080 -> 80
Handling connection for 8080
Handling connection for 8080
```

Figure 6: Deploying and service creation, port forwarding

```
^Cpeslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl scale deploy mynginx-peslug19cs592 --replicas=10
deployment.apps/mynginx-peslug19cs592 scaled
peslug19cs592@LAPTOP-3NK0JKVJ:~/CC$ kubectl get all
```

NAME	READY	STATUS	RESTARTS	AGE
pod/mynginx-peslug19cs592-6479f5c8f4-6q79t	0/1	ContainerCreating	0	6s
pod/mynginx-peslug19cs592-6479f5c8f4-969qh	1/1	Running	0	2m20s
pod/mynginx-peslug19cs592-6479f5c8f4-96mbw	0/1	ContainerCreating	0	6s
pod/mynginx-peslug19cs592-6479f5c8f4-99gj9	0/1	ContainerCreating	0	6s
pod/mynginx-peslug19cs592-6479f5c8f4-dswkb	0/1	ContainerCreating	0	6s
pod/mynginx-peslug19cs592-6479f5c8f4-g7pn6	0/1	ContainerCreating	0	6s
pod/mynginx-peslug19cs592-6479f5c8f4-s6rxn	0/1	ContainerCreating	0	6s
pod/mynginx-peslug19cs592-6479f5c8f4-tdsq5	1/1	Running	0	2m20s
pod/mynginx-peslug19cs592-6479f5c8f4-vlw4t	0/1	ContainerCreating	0	6s
pod/mynginx-peslug19cs592-6479f5c8f4-vpnk7	0/1	ContainerCreating	0	6s

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
service/kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	43m
service/mynginx-peslug19cs592	LoadBalancer	10.101.66.164	localhost	80:32516/TCP	2m20s

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
deployment.apps/mynginx-peslug19cs592	2/10	10	2	2m20s

NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/mynginx-peslug19cs592-6479f5c8f4	10	10	2	2m20s

Figure 7: Scaling deployment

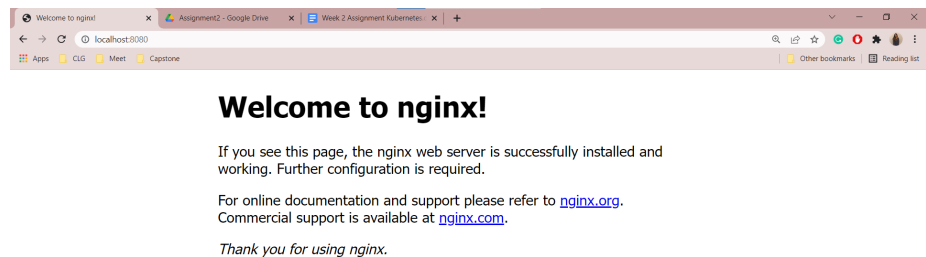


Figure 8: nginx homepage access through localhost