Lab05 – Creating a Pod and inspecting it

In this exercise, you will practice the creation of a new Pod in a namespace. Once created, you will inspect it, shell into it and run some operations inside of the container.

1. Create the namespace `ckad-prep` with imperative command.

```
brahim@Training:~/lab05-pod$ kubectl create namespace cka-prep
namespace/cka-prep created
brahim@Training:~/lab05-pod$ kubectl get namespace cka-prep
NAME       STATUS   AGE
cka-prep   Active   13s
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$
```

2. In the namespace `ckad-prep`, create a new Pod named `mypod` with the image `nginx:2.3.5`. Expose the port 80.

```
brahim@Training:~/lab05-pod$ kubectl run mypod --image=nginx:2.3.5 --restart=Never --port=80 --namespace=cka-prep
pod/mypod created
brahim@Training:~/lab05-pod$ kubectl get pod -n cka-prep
NAME    READY   STATUS         RESTARTS   AGE
mypod   0/1     ErrImagePull   0          10s
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$
```

3. Identify the issue with creating the container. Write down the root cause of issue in a file named `pod-error.txt`.

   The list of events of the Pod can give you a deeper insight.

```
brahim@Training:~/lab05-pod$ kubectl events pod mypod -n cka-prep
LAST SEEN               TYPE      REASON      OBJECT      MESSAGE
3m21s                   Normal    Scheduled   Pod/mypod   Successfully assigned cka-prep/mypod to kube-node1
3m1s (x2 over 3m20s)    Normal    Pulling     Pod/mypod   Pulling image "nginx:2.3.5"
2m40s (x2 over 3m15s)   Warning   Failed      Pod/mypod   Failed to pull image "nginx:2.3.5": rpc error: code = NotFound desc = failed to pull
 and unpack image "docker.io/library/nginx:2.3.5": failed to resolve reference "docker.io/library/nginx:2.3.5": docker.io/library/nginx:2.3.5:
 not found
2m40s (x2 over 3m15s)   Warning   Failed      Pod/mypod   Error: ErrImagePull
2m26s (x2 over 3m15s)   Normal    BackOff     Pod/mypod   Back-off pulling image "nginx:2.3.5"
2m26s (x2 over 3m15s)   Warning   Failed      Pod/mypod   Error: ImagePullBackOff
brahim@Training:~/lab05-pod$
```

4. Change the image of the Pod to `nginx:1.15.12`, and then list the Pod and ensure that the container is running.
   Go ahead and edit the existing Pod. Alternatively, you could also just use the `kubectl set image pod mypod mypod=nginx --namespace=ckad-prep` command.

```
brahim@Training:~/lab05-pod$ kubectl set image pod mypod mypod=nginx:1.15.12 -n cka-prep
brahim@Training:~/lab05-pod$ kubectl get pod -n cka-prep
NAME    READY   STATUS    RESTARTS   AGE
mypod   1/1     Running   0          4m3s
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$
```

5. Log into the container and run the `ls` command. Write down the output. Log out of the container.

```
brahim@Training:~/lab05-pod$ kubectl exec -it mypod -n cka-prep -- /bin/sh
#
# ls
bin  boot  dev  etc  home  lib  lib64  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  usr  var
#
# exit
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$
```

6. Retrieve the IP address of the Pod `mypod`.

```
brahim@Training:~/lab05-pod$ kubectl get pod -n cka-prep -owide
NAME    READY   STATUS    RESTARTS   AGE    IP          NODE         NOMINATED NODE   READINESS GATES
mypod   1/1     Running   0          6m2s   10.40.0.1   kube-node1   <none>           <none>
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$
```

7. Delete the Pod and the namespace.

```
brahim@Training:~/lab05-pod$ kubectl delete pod mypod -n cka-prep
pod "mypod" deleted
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$ kubectl delete ns cka-prep
namespace "cka-prep" deleted
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$ kubectl get ns cka-prep
Error from server (NotFound): namespaces "cka-prep" not found
brahim@Training:~/lab05-pod$
```

8. Re-Create the namespace `ckad-prep` and the pod `mypod` with declarative command.

```
brahim@Training:~/lab05-pod$ vim namespace.yaml
brahim@Training:~/lab05-pod$ cat namespace.yaml
apiVersion: v1
kind: Namespace
metadata:
  name: cka-prep
brahim@Training:~/lab05-pod$ kubectl apply -f namespace.yaml
namespace/cka-prep created
brahim@Training:~/lab05-pod$ kubectl get ns cka-prep
NAME       STATUS   AGE
cka-prep   Active   7s
brahim@Training:~/lab05-pod$
```

```
brahim@Training:~/lab05-pod$ vim pod.yaml
brahim@Training:~/lab05-pod$ cat pod.yaml
apiVersion: v1
kind: Pod
metadata:
  name: mypod
  namespace: cka-prep
spec:
  containers:
  - image: nginx:1.15.12
    name: mypod
    ports:
    - containerPort: 80
brahim@Training:~/lab05-pod$ kubectl apply -f pod.yaml
pod/mypod created
brahim@Training:~/lab05-pod$ kubectl get pod -n cka-prep
NAME    READY   STATUS    RESTARTS   AGE
mypod   1/1     Running   0          13s
brahim@Training:~/lab05-pod$
```

9. Delete pod and namespace using declarative commands

```
brahim@Training:~/lab05-pod$ kubectl delete -f pod.yaml
pod "mypod" deleted
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$ kubectl get pod -n cka-prep
No resources found in cka-prep namespace.
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$ kubectl delete -f namespace.yaml
namespace "cka-prep" deleted
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$ kubectl get ns cka-prep
Error from server (NotFound): namespaces "cka-prep" not found
brahim@Training:~/lab05-pod$
brahim@Training:~/lab05-pod$
```