

1- Create a pod with the name “imperative-nginx” and with the image nginx and latest tag. using Imperative command (not yaml).

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$ kubectl create deployment imperative-nginx --image=nginx
deployment.apps/imperative-nginx created
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$
```

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:/media/ahmed/k/Ahmed/Sprints Tasks/K8s tasks$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
imperative-nginx-58b597c5b-fmhw4    1/1     Running   0           35m
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:/media/ahmed/k/Ahmed/Sprints Tasks/K8s tasks$
```

2- Create a pod with the name webserver and with the image “nginx123” Use a pod-definition YAML file.

```
pod-definition1.yml > {} spec > [ ] containers > {} 0 > [ ] ports > {} 0 > # containerPort
1  apiVersion: v1
2  kind: Pod
3  metadata:
4    name: webserver
5
6  spec:
7    containers:
8      - name: nginx
9        image: nginx123
10       ports:
11         - containerPort: 80
```

3- What is the nginx pod status?

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:/media/ahmed/k/Ahmed/Sprints Tasks/K8s task
s$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
imperative-nginx-58b597c5b-fmhw4    1/1     Running   0           147m
webserver                            1/1     Running   1 (119s ago) 120m
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:/media/ahmed/k/Ahmed/Sprints Tasks/K8s task
```

4- Change the nginx pod image to “nginx” check the status again

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:/media/ahmed/k/Ahmed/Sprints Tasks/K8s task$ kubectl patch pod webserver -p '{"spec":{"containers":[{"name": "nginx","image": "nginx"}]}}'
pod/webserver patched (no change)
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:/media/ahmed/k/Ahmed/Sprints Tasks/K8s task$
```

5- How many pods are running in the system? Type the command to show this

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:/media/ahmed/k/Ahmed/Sprints Tasks/K8s tasks$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
imperative-nginx-58b597c5b-fmhw4    1/1     Running   0           35m
webserver                            1/1     Running   0           8m32s
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:/media/ahmed/k/Ahmed/Sprints Tasks/K8s tasks$
```

6- What does READY column in the output of get pods command indicate?

The READY column indicates the readiness of containers in each pod.

7- Delete first pod named imperative-nginx you just created. Type the command to do this

Kubectl delete imperative nginx

8- Which node is pod named webserver running on (list two commands to do this)

kubectl describe nodes

kubectl get pod -o wide

9- Get a shell to the running container i.e ssh into it (figure out the command)

10- Run cat /etc/os-release inside the container

11- Exit from the shell (/bin/bash) session

```
root@webserver:/# exit
exit
There are stopped jobs.
root@webserver:/# exit
exit

0 packets captured
1558 packets received by filter
1119 packets dropped by kernel
command terminated with exit code 1
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$
```

```
root@webserver:/# cat /etc/os-release
PRETTY_NAME="Debian GNU/Linux 11 (bullseye)"
NAME="Debian GNU/Linux"
VERSION_ID="11"
VERSION="11 (bullseye)"
VERSION_CODENAME=bullseye
ID=debian
HOME_URL="https://www.debian.org/"
SUPPORT_URL="https://www.debian.org/support"
BUG_REPORT_URL="https://bugs.debian.org/"
root@webserver:/#
```

12- Get logs of pod, what are logs and what they are used for?

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$ kubectl logs webserver
/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
2023/02/11 19:49:09 [notice] 1#1: using the "epoll" event method
2023/02/11 19:49:09 [notice] 1#1: nginx/1.23.3
2023/02/11 19:49:09 [notice] 1#1: built by gcc 10.2.1 20211010 (Debian 10.2.1-6)
2023/02/11 19:49:09 [notice] 1#1: OS: Linux 5.15.0-58-generic
2023/02/11 19:49:09 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2023/02/11 19:49:09 [notice] 1#1: start worker processes
2023/02/11 19:49:09 [notice] 1#1: start worker process 29
2023/02/11 19:49:09 [notice] 1#1: start worker process 30
2023/02/11 19:49:09 [notice] 1#1: start worker process 31
2023/02/11 19:49:09 [notice] 1#1: start worker process 32
2023/02/11 19:49:09 [notice] 1#1: start worker process 33
2023/02/11 19:49:09 [notice] 1#1: start worker process 34
2023/02/11 19:49:09 [notice] 1#1: start worker process 35
2023/02/11 19:49:09 [notice] 1#1: start worker process 36
2023/02/11 19:49:09 [notice] 1#1: start worker process 37
2023/02/11 19:49:09 [notice] 1#1: start worker process 38
2023/02/11 19:49:09 [notice] 1#1: start worker process 39
2023/02/11 19:49:09 [notice] 1#1: start worker process 40
2023/02/11 19:56:52 [notice] 1#1: signal 17 (SIGCHLD) received from 452
2023/02/11 19:56:52 [notice] 1#1: unknown process 452 exited with code 0
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$
```

13- How many ReplicaSets exist on the system?

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05: $ kubectl get rs
NAME                                DESIRED  CURRENT  READY  AGE
imperative-nginx-58b597c5b         1         1         1     28h
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05: $
```

14- create a ReplicaSet with name= replica-set-1
image= busybox replicas= 3

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05: $ vim my-replica.yaml
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05: $ kubectl create -f my-replica.yaml
replicaset.apps/replica-set-1 created
```

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05: $ kubectl get replicaset
NAME                                DESIRED  CURRENT  READY  AGE
imperative-nginx-58b597c5b         1         1         1     29h
replica-set-1                       3         3         0     103s
```

15- Scale the ReplicaSet replica-set-1 to 5 PODs.



```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05: ~
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: replica-set-1
spec:
  replicas: 5
  selector:
    matchLabels:
      app: my-app
  template:
    metadata:
      labels:
        app: my-app
    spec:
      containers:
        - name: my-container
          image: busybox
~
~
~
-- INSERT --                               6,14      All
```

```
replica-set-1                       3         3         0     103s
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$ vim my-replica.yaml
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$ kubectl replace -f my-replica.yaml
replicaset.apps/replica-set-1 replaced
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$
```

16-How many PODs are READY in the replica-set-1?

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$ kubectl get pod
```

| NAME | READY | STATUS | RESTARTS | AGE |
|----------------------------------|-------|------------------|---------------|-------|
| imperative-nginx-58b597c5b-fmhw4 | 1/1 | Running | 1 (6h17m ago) | 29h |
| replica-set-1-88b7s | 0/1 | CrashLoopBackOff | 6 (71s ago) | 7m30s |
| replica-set-1-b4fjz | 0/1 | CrashLoopBackOff | 6 (58s ago) | 7m30s |
| replica-set-1-kqx79 | 0/1 | CrashLoopBackOff | 4 (41s ago) | 2m38s |
| replica-set-1-vxftz | 0/1 | CrashLoopBackOff | 6 (69s ago) | 7m30s |
| replica-set-1-zkmnk | 0/1 | CrashLoopBackOff | 4 (50s ago) | 2m38s |
| webserver | 1/1 | Running | 0 | 38m |

17- Delete any one of the 5 PODs then check How many PODs exist now? Why are there still 5 PODs, even after you deleted one?

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$ kubectl delete pod replica-set-1-zkmnk
pod "replica-set-1-zkmnk" deleted
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$ kubectl get pod
```

| NAME | READY | STATUS | RESTARTS | AGE |
|----------------------------------|-------|------------------|-------------|-------|
| imperative-nginx-58b597c5b-2mtq2 | 1/1 | Running | 0 | 43s |
| replica-set-1-88b7s | 0/1 | CrashLoopBackOff | 7 (45s ago) | 12m |
| replica-set-1-b4fjz | 0/1 | CrashLoopBackOff | 7 (29s ago) | 12m |
| replica-set-1-kqx79 | 0/1 | CrashLoopBackOff | 6 (70s ago) | 7m25s |
| replica-set-1-mpgbs | 0/1 | CrashLoopBackOff | 1 (14s ago) | 21s |
| replica-set-1-vxftz | 0/1 | CrashLoopBackOff | 7 (42s ago) | 12m |

```
ahmed@ahmed-IdeaPad-Gaming-3-15ARH05:~$
```