1- How many pods exist on the system?

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~$ kubectl get pods --all-namespaces
NAMESPACE     NAME                                   READY   STATUS    RESTARTS   AGE
kube-system   coredns-5d78c9869d-m5fdc               1/1     Running   0          54s
kube-system   etcd-minikube                          1/1     Running   0          66s
kube-system   kube-apiserver-minikube                1/1     Running   0          66s
kube-system   kube-controller-manager-minikube       1/1     Running   0          66s
kube-system   kube-proxy-vvmz7                       1/1     Running   0          54s
kube-system   kube-scheduler-minikube                1/1     Running   0          66s
kube-system   storage-provisioner                    1/1     Running   0          65s
abdo@abdo-Lenovo-ideapad-520-15IKB:~$
```

2- How many Nodes exist on the system?

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~$ kubectl get nodes
NAME       STATUS   ROLES           AGE     VERSION
minikube   Ready    control-plane   2m21s   v1.27.4
abdo@abdo-Lenovo-ideapad-520-15IKB:~$
```

3- Create a new pod with the nginx image.

Image name: nginx

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~$ kubectl run nginx --image=nginx
pod/nginx created
```

4- Which nodes are these pods placed on?

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~$ kubectl get pods -o wide
NAME    READY   STATUS              RESTARTS   AGE   IP       NODE       NOMINATED NODE   READINESS GATES
nginx   0/1     ContainerCreating   0          28s   <none>   minikube   <none>           <none>
abdo@abdo-Lenovo-ideapad-520-15IKB:~$
```

5- Create pod from the below yaml using kubectl apply command

```
apiVersion: v1
kind: Pod
metadata:
name: webapp
namespace: default
spec:
containers:
- image: nginx
imagePullPolicy: Always
name: nginx
- image: agentx
imagePullPolicy: Always
name: agentx
```

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$ kubectl apply -f webapp.yaml
pod/webapp created
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$
```

6- How many containers are part of the pod webapp

There are **2 containers**: `nginx` and `agentx`.

7- What images are used in the new webapp pod?

The images are:

- `nginx`
- `agentx`

8- What is the state of the container agentx in the pod webapp

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$ kubectl describe pod webapp
Name:             webapp
Namespace:        default
Priority:         0
Service Account:  default
Node:             minikube/192.168.49.2
Start Time:       Sat, 26 Apr 2025 02:14:41 +0300
Labels:           <none>
Annotations:      <none>
Status:           Pending
IP:               10.244.0.4
IPs:
  IP:  10.244.0.4
Containers:
  nginx:
    Container ID:   docker://3b4938415148583319ce5f7f6308f6f0b435f77085301ee815956dd56
    Image:          nginx
    Image ID:       docker-pullable://nginx@sha256:5ed8fcc66f4ed123c1b2560ed708dc14875
    Port:           <none>
    Host Port:      <none>
    State:          Running
      Started:      Sat, 26 Apr 2025 02:14:45 +0300
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-5qc8w (ro)
  agentx:
    Container ID:
```

9- Why do you think the container agentx in pod webapp is in error?

Because the image `agentx` **does not exist** on Docker Hub (or your private registry).
Kubernetes can't find it, so it fails to pull it.

10- Delete the webapp Pod.

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$ kubectl delete pod webapp
pod "webapp" deleted
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$
```

11- Create a new pod with the name redis and with the image redis123.

- Name: redis
- Image Name: redis123

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$ kubectl run redis --image=redis123
pod/redis created
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$
```

12- Now change the image on this pod to redis.

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$ kubectl set image pod/redis redis=redis
pod/redis image updated
```

Once done, the pod should be in a running state.

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$ kubectl get pods
NAME    READY   STATUS    RESTARTS   AGE
nginx   1/1     Running   0          12m
redis   1/1     Running   0          78s
```

13- Create a pod called my-pod of image nginx:alpine

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$ kubectl run my-pod --image=nginx:alpine
pod/my-pod created
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$
```

14- Delete the pod called my-pod

```
abdo@abdo-Lenovo-ideapad-520-15IKB:~/NTI/docker-k8s/k8s$ kubectl delete pod my-pod
pod "my-pod" deleted
```