Kubernetes Lab 1

1- How many pods exist on the system?

In the current(default) namespace.

```
Editor   Tab 1   +
controlplane $ kubectl get pods
No resources found in default namespace.
controlplane $
```

2- How many Nodes exist on the system?

```
Editor   Tab 1   +
controlplane $ kubectl get nodes
NAME           STATUS   ROLES           AGE   VERSION
controlplane   Ready    control-plane   9d    v1.26.0
node01         Ready    <none>          9d    v1.26.0
controlplane $
```

3- Create a new pod with the nginx image.

Image name: nginx

```
Editor   Tab 1   +
controlplane $ kubectl run newpod --image nginx
pod/newpod created
controlplane $ kubectl get pods
NAME     READY   STATUS              RESTARTS   AGE
newpod   0/1     ContainerCreating   0          8s
controlplane $ kubectl get pods
NAME     READY   STATUS    RESTARTS   AGE
newpod   1/1     Running   0          31s
controlplane $
```

4- Which nodes are these pods placed on?

```
Editor   Tab 1   +
controlplane $ kubectl get pods -o wide
NAME     READY   STATUS    RESTARTS   AGE     IP           NODE     NOMINATED NODE   READINESS GATES
newpod   1/1     Running   0          3m38s   192.168.1.3   node01   <none>           <none>
controlplane $
```

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

Editor Tab 1 +

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

Editor Tab 1 +

```
controlplane $ vim pod.yaml
controlplane $ kubectl apply -f pod.yaml
pod/webapp created
controlplane $ kubectl get pods
NAME     READY   STATUS             RESTARTS   AGE
newpod   1/1     Running            0          9m38s
webapp   1/2     ImagePullBackOff   0          30s
controlplane $ kubectl get pods
NAME     READY   STATUS             RESTARTS   AGE
newpod   1/1     Running            0          10m
webapp   1/2     ImagePullBackOff   0          58s
controlplane $
```

6- How many containers are part of the pod webapp

```
Editor   Tab 1   +
controlplane $ kubectl get pods webapp
NAME     READY   STATUS             RESTARTS   AGE
webapp   1/2     ImagePullBackOff   0          8m49s
controlplane $
```

```
Editor   Tab 1   +
controlplane $ kubectl describe pod/webapp
Name:             webapp
Namespace:        default
Priority:         0
Service Account:  default
Node:             node01/172.30.2.2
Start Time:       Sun, 01 Jan 2023 11:16:07 +0000
Labels:           <none>
Annotations:      cni.projectcalico.org/containerID: ff48d9eaa86412311f233f83f427b7d13132f3cfb7002760ad2b9838dfe02b28
                  cni.projectcalico.org/podIP: 192.168.1.4/32
                  cni.projectcalico.org/podIPs: 192.168.1.4/32
Status:           Pending
IP:               192.168.1.4
IPs:
  IP:  192.168.1.4
Containers:
  nginx:
    Container ID:   containerd://ff708808d71aed2c170c2f84f743e9c4ef1a5a8864343b99774746ebbe88dd7b
    Image:          nginx
    Image ID:       docker.io/library/nginx@sha256:0047b729188a15da49380d9506d65959cce6d40291ccfb4e039f5dc7efd33286
    Port:           <none>
    Host Port:      <none>
    State:          Running
      Started:      Sun, 01 Jan 2023 11:16:12 +0000
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-l7pn5 (ro)
  agentx:
    Container ID:
    Image:          agentx
    Image ID:
    Port:           <none>
    Host Port:      <none>
    State:          Waiting
      Reason:       ImagePullBackOff
    Ready:          False
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-l7pn5 (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             False
  ContainersReady   False
  PodScheduled      True
```

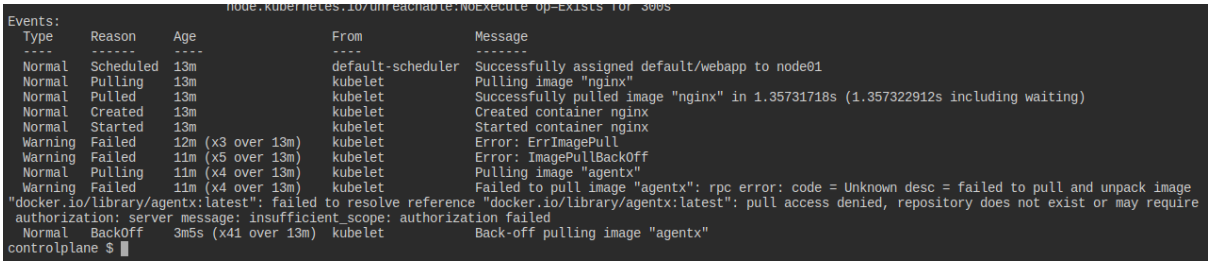
7- What images are used in the new webapp pod?

```
Editor   Tab 1   +
controlplane $ kubectl describe pod/webapp
Name:             webapp
Namespace:        default
Priority:         0
Service Account:  default
Node:             node01/172.30.2.2
Start Time:       Sun, 01 Jan 2023 11:16:07 +0000
Labels:           <none>
Annotations:      cni.projectcalico.org/containerID: ff48d9eaa86412311f233f83f427b7d13132f3cfb7002760ad2b9838dfe02b28
                  cni.projectcalico.org/podIP: 192.168.1.4/32
                  cni.projectcalico.org/podIPs: 192.168.1.4/32
Status:           Pending
IP:               192.168.1.4
IPs:
  IP:  192.168.1.4
Containers:
  nginx:
    Container ID:   containerd://ff708808d71aed2c170c2f84f743e9c4ef1a5a8864343b99774746ebbe88dd7b
    Image:          nginx
    Image ID:       docker.io/library/nginx@sha256:0047b729188a15da49380d9506d65959cce6d40291ccfb4e039f5dc7efd33286
    Port:           <none>
    Host Port:      <none>
    State:          Running
      Started:      Sun, 01 Jan 2023 11:16:12 +0000
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-l7pn5 (ro)
  agentx:
    Container ID:
    Image:          agentx
    Image ID:
    Port:           <none>
    Host Port:      <none>
    State:          Waiting
      Reason:       ImagePullBackOff
    Ready:          False
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-l7pn5 (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             False
  ContainersReady   False
  PodScheduled      True
```

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

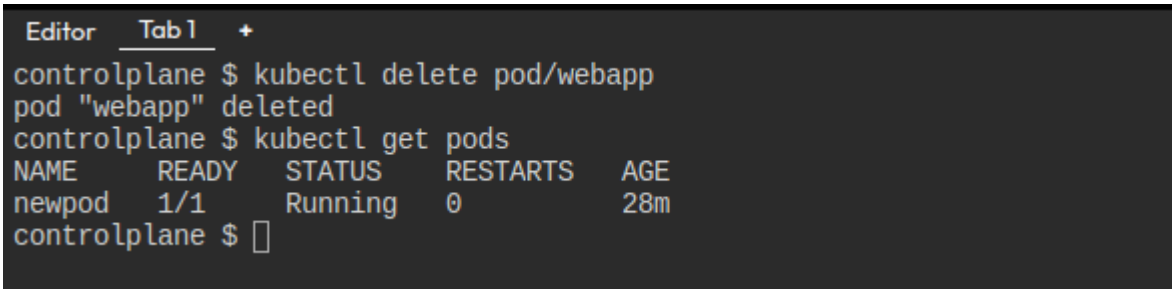
```
  agentx:
    Container ID:
    Image:          agentx
    Image ID:
    Port:           <none>
    Host Port:      <none>
    State:          Waiting
      Reason:       ImagePullBackOff
    Ready:          False
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-l7pn5 (ro)
```

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

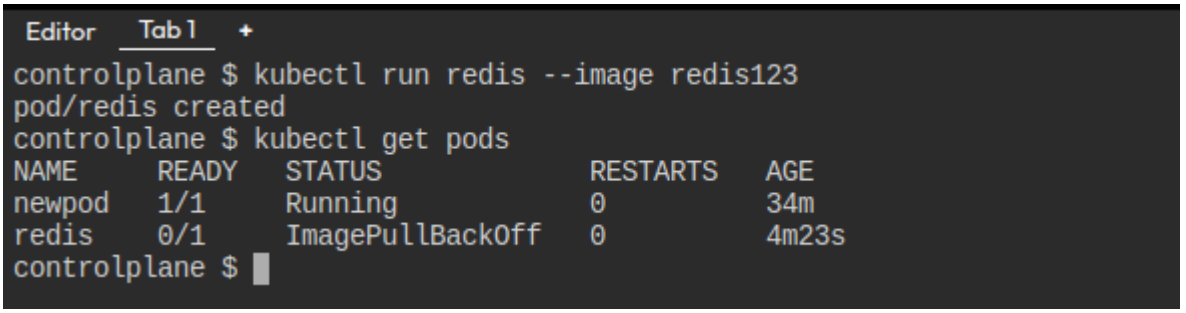


failed to pull the image, there is no images with this name agentx

10- Delete the webapp Pod.



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



12- Now change the image on this pod to redis. Once done, the pod should be in a running state.

```
Editor   Tab 1   +
controlplane $ kubectl edit pod redis
pod/redis edited
controlplane $ kubectl get pods
NAME     READY   STATUS             RESTARTS   AGE
newpod   1/1     Running            0          38m
redis    0/1     ImagePullBackOff   0          7m53s
controlplane $ kubectl get pods
NAME     READY   STATUS    RESTARTS   AGE
newpod   1/1     Running   0          38m
redis    1/1     Running   0          8m28s
controlplane $
```

```
spec:
  containers:
  - image: redis
    imagePullPolicy: Always
    name: redis
    resources: {}
    terminationMessagePath: /dev/termination-log
    terminationMessagePolicy: File
    volumeMounts:
    - mountPath: /var/run/secrets/kubernetes.io/serviceaccount
      name: kube-api-access-jrwc2
      readOnly: true
```

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

```
Editor   Tab 1   +
controlplane $ kubectl run my-pod --image nginx:alpine
pod/my-pod created
controlplane $ kubectl get pods
NAME     READY   STATUS    RESTARTS   AGE
my-pod   1/1     Running   0          21s
newpod   1/1     Running   0          41m
redis    1/1     Running   0          10m
controlplane $
```

14- Delete the pod called my-pod

```
Editor   Tab 1   +
controlplane $ kubectl delete pod my-pod
pod "my-pod" deleted
controlplane $ kubectl get pods
NAME     READY   STATUS    RESTARTS   AGE
newpod   1/1     Running   0          42m
redis    1/1     Running   0          12m
controlplane $
```