



Linux-Foundation

Exam Questions CKA

Certified Kubernetes Administrator (CKA) Program

NEW QUESTION 1

CORRECT TEXT

List all the pods sorted by name

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

kubect1 get pods --sort-by=.metadata.name

NEW QUESTION 2

CORRECT TEXT

Create a pod with image nginx called nginx and allow traffic on port 80

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

kubectl run nginx --image=nginx --restart=Never --port=80

NEW QUESTION 3

CORRECT TEXT

List pod logs named "frontend" and search for the pattern "started" and write it to a file "/opt/error-logs"

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Kubectl logs frontend | grep -i "started" > /opt/error-logs

NEW QUESTION 4

CORRECT TEXT

Score:7%



Task

Create a new PersistentVolumeClaim

- Name: pv-volume
- Class: csi-hostpath-sc
- Capacity: 10Mi

Create a new Pod which mounts the PersistentVolumeClaim as a volume:

- Name: web-server
- Image: nginx
- Mount path: /usr/share/nginx/html

Configure the new Pod to have ReadWriteOnce access on the volume.

Finally, using kubectl edit or kubectl patch expand the PersistentVolumeClaim to a capacity of 70Mi and record that change.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

vi pvc.yaml

```
storageclass pvc
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
name: pv-volume
spec:
accessModes:
- ReadWriteOnce
volumeMode: Filesystem
resources:
requests:
storage: 10Mi
storageClassName: csi-hostpath-sc
# vi pod-pvc.yaml
apiVersion: v1
kind: Pod
metadata:
name: web-server
spec:
containers:
- name: web-server
image: nginx
volumeMounts:
- mountPath: "/usr/share/nginx/html"
name: my-volume
volumes:
- name: my-volume
persistentVolumeClaim:
claimName: pv-volume
# craete
kubectl create -f pod-pvc.yaml
#edit
kubectl edit pvc pv-volume --record
```

NEW QUESTION 5

CORRECT TEXT

Score: 4%



Task

Check to see how many nodes are ready (not including nodes tainted NoSchedule) and write the number to /opt/KUSC00402/kusc00402.txt.

- A. Mastered
- B. Not Mastered

Answer: A**Explanation:**

Solution:

```
kubectl describe nodes | grep ready|wc -l
kubectl describe nodes | grep -i taint | grep -i noschedule |wc -l
echo 3 > /opt/KUSC00402/kusc00402.txt
#
kubectl get node | grep -i ready |wc -l
# taintsnoSchedule
kubectl describe nodes | grep -i taints | grep -i noschedule |wc -l
#
echo 2 > /opt/KUSC00402/kusc00402.txt
```

NEW QUESTION 6

CORRECT TEXT

Get IP address of the pod – “nginx-dev”

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

```
Kubect1 get po -o wide
Using JsonPath
kubect1 get pods -o=jsonpath='{range
items[*]}{.metadata.name}{"\t"}{.status.podIP}{"\n"}{end}'
```

NEW QUESTION 7

CORRECT TEXT

Print pod name and start time to “/opt/pod-status” file

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

```
kubect1 get pods -o=jsonpath='{range
items[*]}{.metadata.name}{"\t"}{.status.podIP}{"\n"}{end}'
```

NEW QUESTION 8

CORRECT TEXT

Score: 4%



Task

Schedule a pod as follows:

- Name: nginx-kusc00401
- Image: nginx
- Node selector: disk=ssd

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
#yaml
apiVersion: v1
kind: Pod
metadata:
  name: nginx-kusc00401
spec:
  containers:
  - name: nginx
    image: nginx
    imagePullPolicy: IfNotPresent
  nodeSelector:
    disk: spinning
#
kubectl create -f node-select.yaml
```

NEW QUESTION 9

CORRECT TEXT

Score: 4%



Context

You have been asked to create a new ClusterRole for a deployment pipeline and bind it to a specific ServiceAccount scoped to a specific namespace.

Task

Create a new ClusterRole named deployment-clusterrole, which only allows to create the following resource types:

- Deployment
- StatefulSet
- DaemonSet

Create a new ServiceAccount named cicd-token in the existing namespace app-team1. Bind the new ClusterRole deployment-clusterrole to the new ServiceAccount cicd-token , limited to the namespace app-team1.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

Task should be complete on node k8s -1 master, 2 worker for this connect use command [student@node-1] > ssh k8s

kubectl create clusterrole deployment-clusterrole --verb=create -- resource=deployments,statefulsets,daemonsets

kubectl create serviceaccount cicd-token --namespace=app-team1

kubectl create rolebinding deployment-clusterrole --clusterrole=deployment-clusterrole -- serviceaccount=default:cicd-token --namespace=app-team1

NEW QUESTION 10

CORRECT TEXT

Create a deployment as follows:

? Name: nginx-random

? Exposed via a service nginx-random

? Ensure that the service & pod are accessible via their respective DNS records

? The container(s) within any pod(s) running as a part of this deployment should use the nginx Image

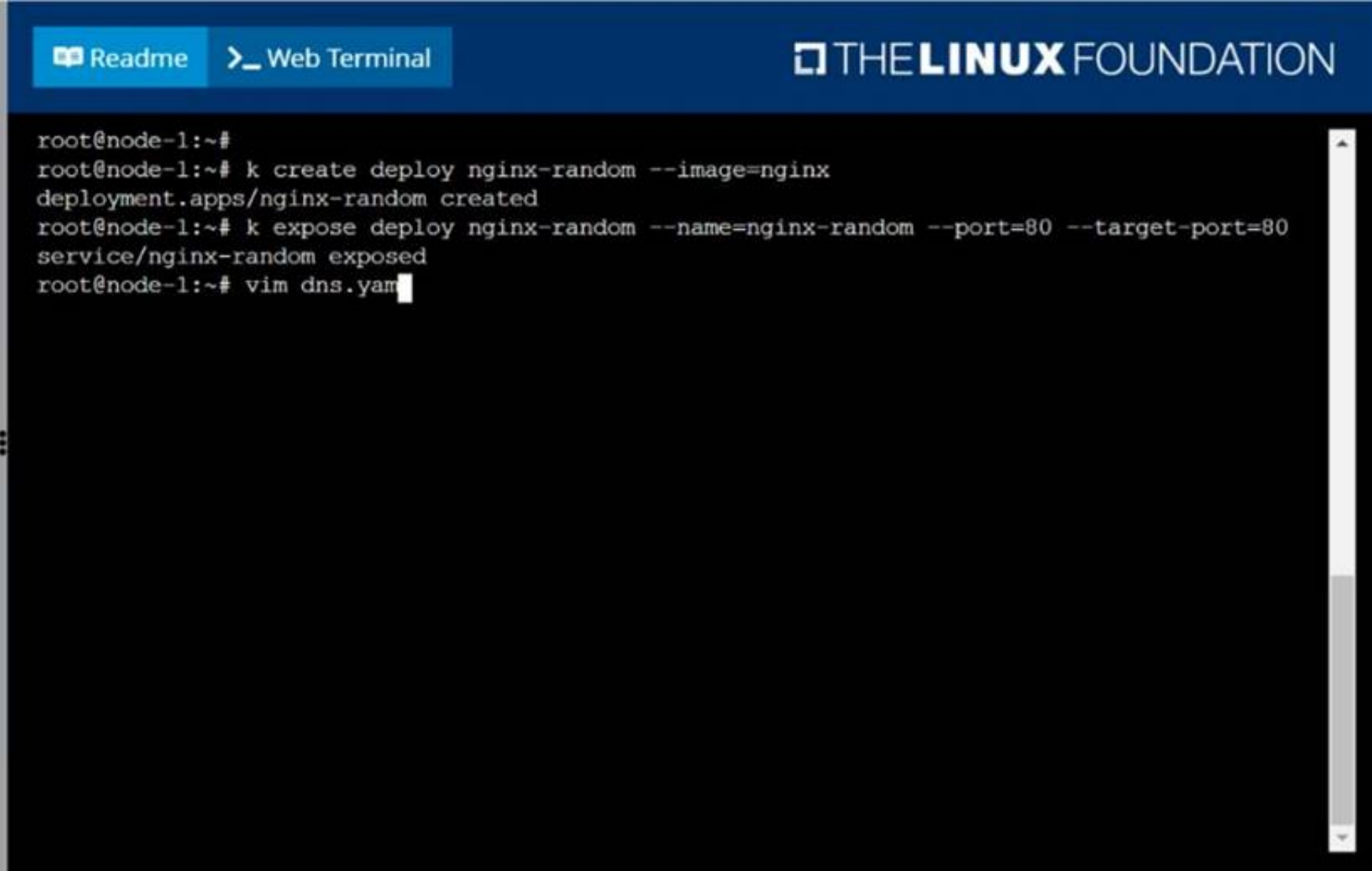
Next, use the utility nslookup to look up the DNS records of the service & pod and write the output to /opt/KUNW00601/service.dns and /opt/KUNW00601/pod.dns respectively.

- A. Mastered
- B. Not Mastered

Answer: A

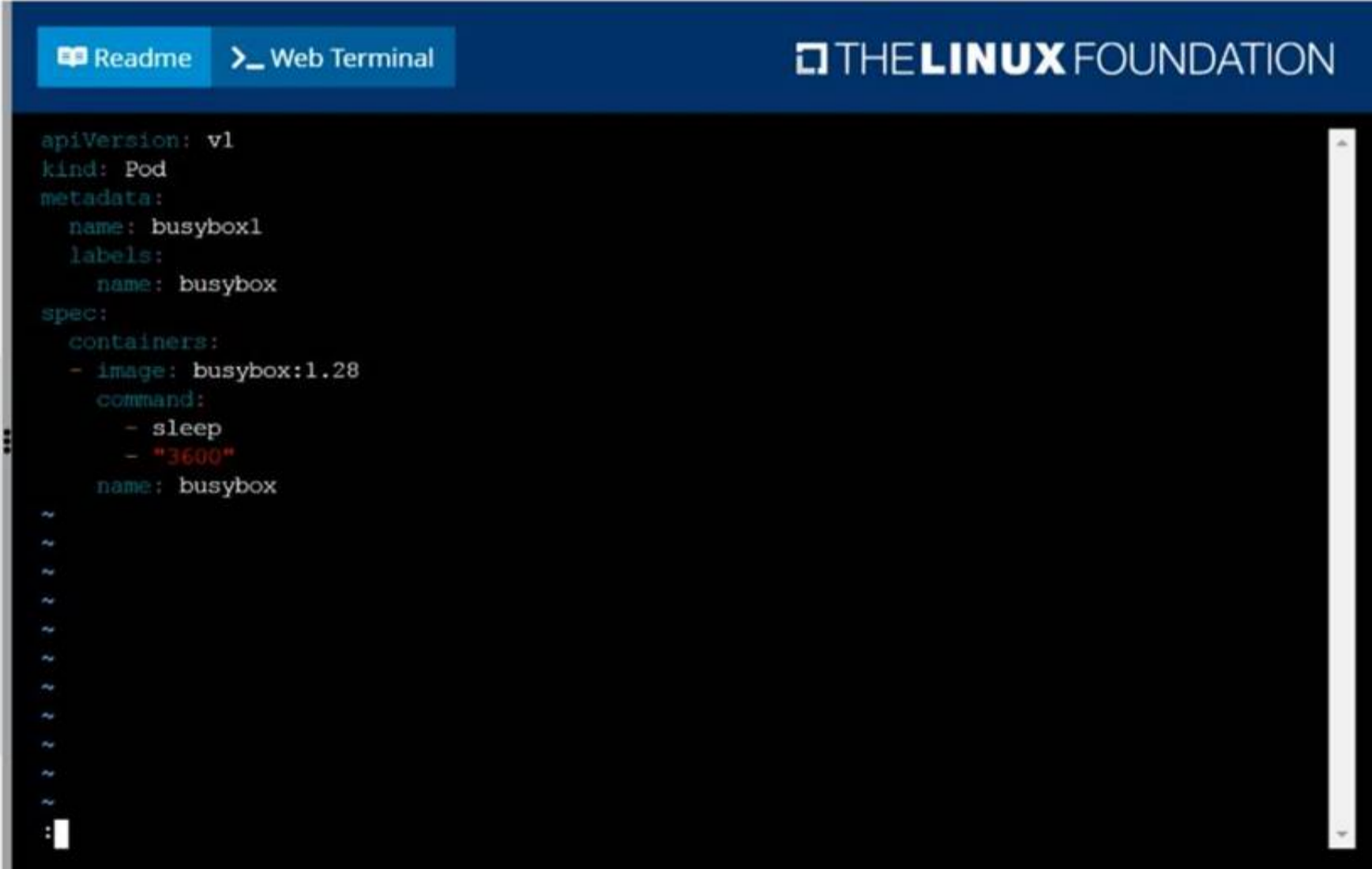
Explanation:

Solution:



```
root@node-1:~#  
root@node-1:~# k create deploy nginx-random --image=nginx  
deployment.apps/nginx-random created  
root@node-1:~# k expose deploy nginx-random --name=nginx-random --port=80 --target-port=80  
service/nginx-random exposed  
root@node-1:~# vim dns.yaml
```

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```
apiVersion: v1  
kind: Pod  
metadata:  
  name: busybox1  
  labels:  
    name: busybox  
spec:  
  containers:  
  - image: busybox:1.28  
    command:  
      - sleep  
      - "3600"  
    name: busybox
```

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Readme Web Terminal THE LINUX FOUNDATION

```
root@node-1:~# k create deploy nginx-random --image=nginx
deployment.apps/nginx-random created
root@node-1:~# k expose deploy nginx-random --name=nginx-random --port=80 --target-port=80
service/nginx-random exposed
root@node-1:~# vim dns.yaml
root@node-1:~# k create -f dns.yaml
pod/busybox1 created
root@node-1:~# k get po -o wide | grep nginx-random
nginx-random-6d5766bbdc-ptzv2    1/1      Running    0           103s      10.244.2.16   k8s-node-1
  <none>                <none>
root@node-1:~# k exec -it busybox1 -- nslookup nginx-random
Server:      10.96.0.10
Address 1: 10.96.0.10 kube-dns.kube-system.svc.cluster.local

Name:      nginx-random
Address 1: 10.111.37.132 nginx-random.default.svc.cluster.local
root@node-1:~# k exec -it busybox1 -- nslookup nginx-random > /opt/KUNW00601/service.dns
root@node-1:~# k exec -it busybox1 -- nslookup 10-244-2-16.default.pod
Server:      10.96.0.10
Address 1: 10.96.0.10 kube-dns.kube-system.svc.cluster.local

Name:      10-244-2-16.default.pod
Address 1: 10.244.2.16 10-244-2-16.nginx-random.default.svc.cluster.local
root@node-1:~# k exec -it busybox1 -- nslookup 10-244-2-16.default.pod > /opt/KUNW00601/pod.dns
```

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NEW QUESTION 10**CORRECT TEXT**

Create a deployment spec file that will:

? Launch 7 replicas of the nginx Image with the labelapp_runtime_stage=dev

? deployment name: kual00201

Save a copy of this spec file to /opt/KUAL00201/spec_deployment.yaml

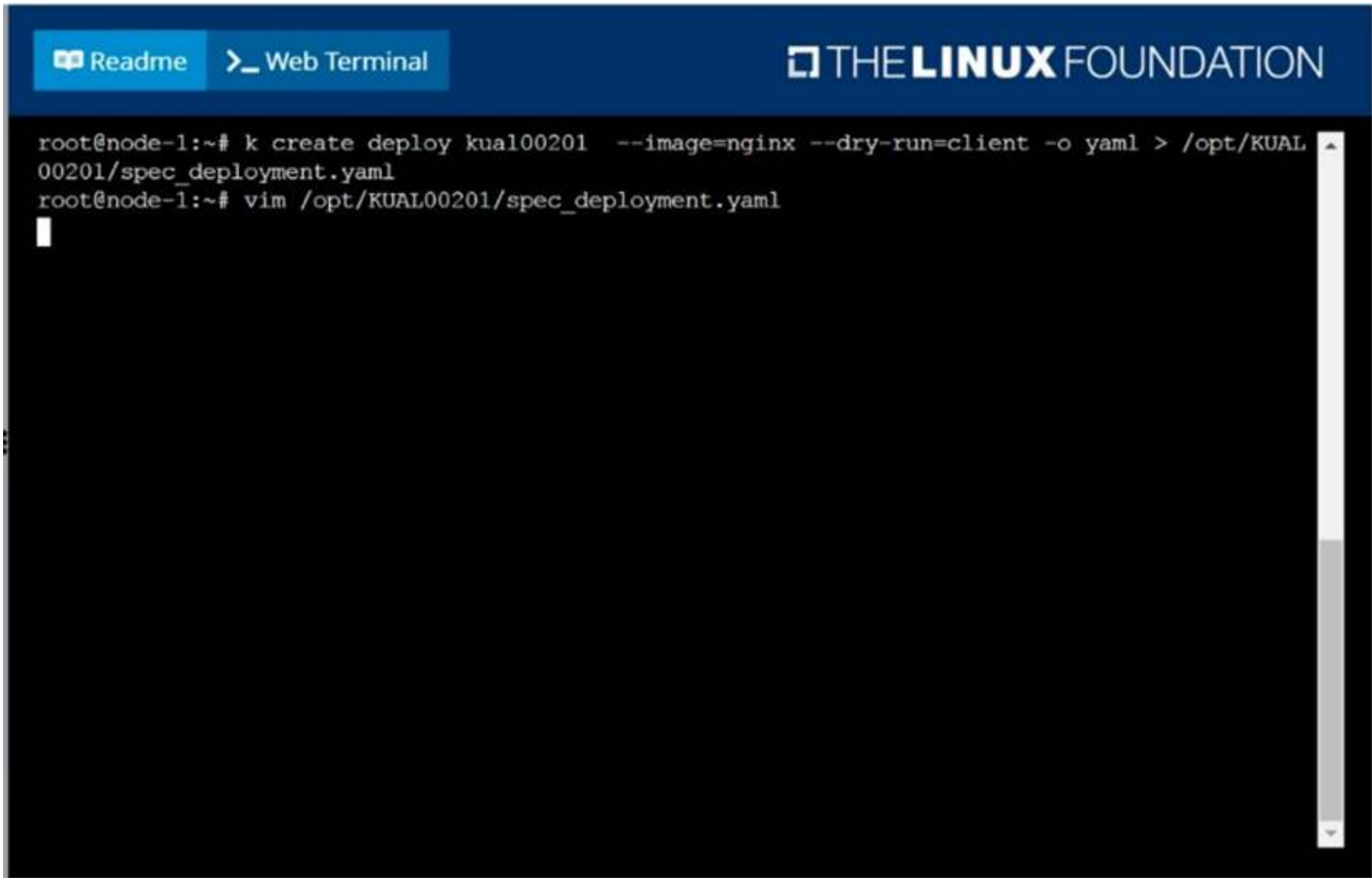
(or /opt/KUAL00201/spec_deployment.json).

When you are done, clean up (delete) any new Kubernetes API object that you produced during this task.

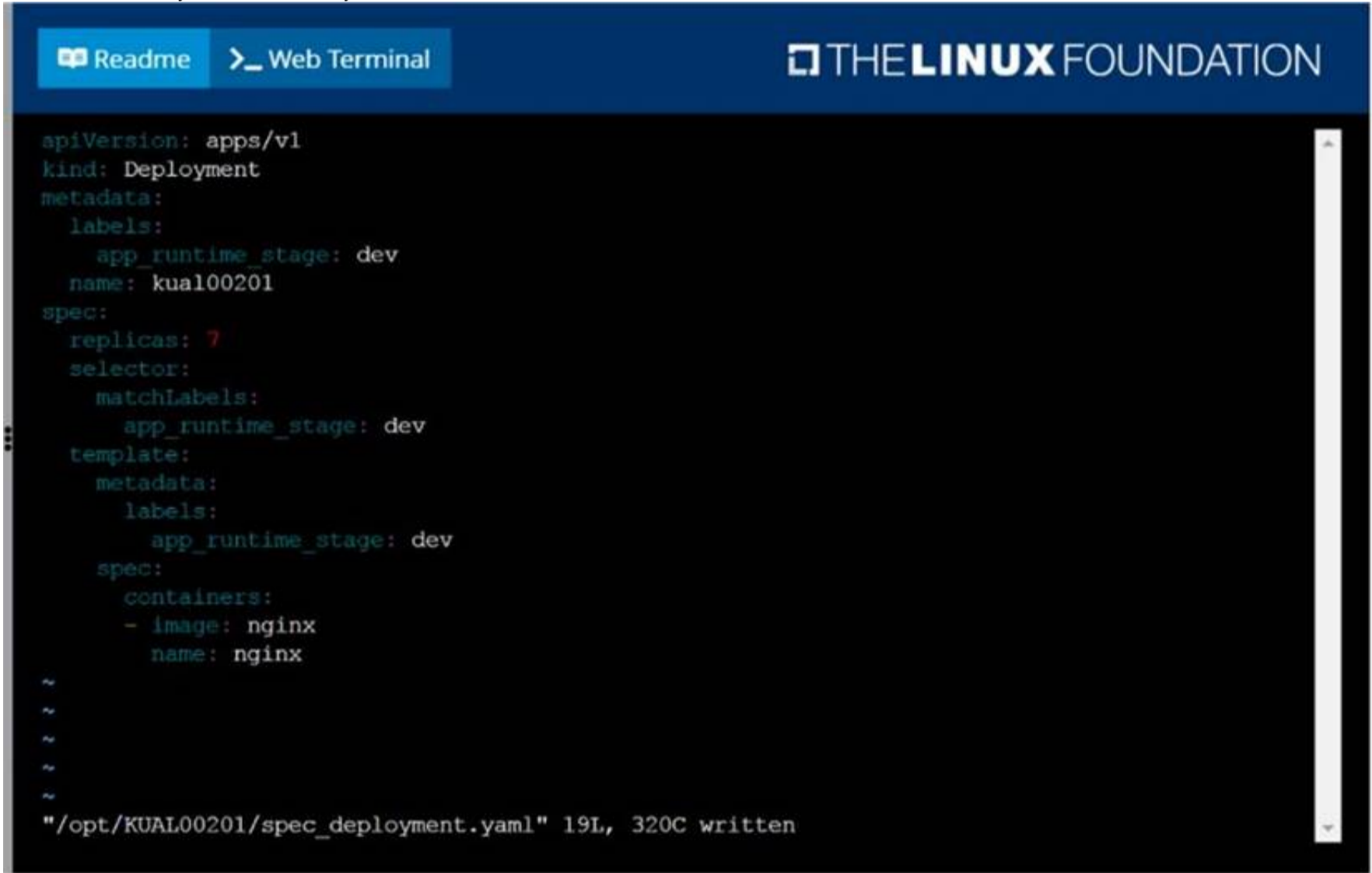
- A. Mastered
B. Not Mastered

Answer: A**Explanation:**

solution



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NEW QUESTION 11

CORRECT TEXT

Score: 7%

Set configuration context:



```
[student@node-1] $ | kube  
ctl config use-context k  
8s
```

Task

Create a new nginx Ingress resource as follows:

- Name: ping
- Namespace: ing-internal
- Exposing service hi on path /hi using service port 5678

The availability of service hi can be checked using the following command, which should return hi :



```
[student@node-1] $ | curl  
-kL <INTERNAL_IP>/hi
```

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
vi ingress.yaml  
#  
apiVersion: networking.k8s.io/v1  
kind: Ingress  
metadata:  
  name: ping  
  namespace: ing-internal  
spec:  
  rules:  
  - http:  
    paths:  
    - path: /hi  
      pathType: Prefix  
    backend:  
      service:  
        name: hi  
        port:  
          number: 5678  
#  
kubectl create -f ingress.yaml
```

NEW QUESTION 16

CORRECT TEXT

Score: 7%



Task

Reconfigure the existing deployment front-end and add a port specification named http exposing port 80/tcp of the existing container nginx.

Create a new service named front-end-svc exposing the container port http.

Configure the new service to also expose the individual Pods via a NodePort on the nodes on which they are scheduled.

- A. Mastered
- B. Not Mastered

Answer: A**Explanation:**

Solution:

`kubectl get deploy front-end``kubectl edit deploy front-end -o yaml`

#port specification named http

#service.yaml

apiVersion: v1

kind: Service

metadata:

name: front-end-svc

labels:

app: nginx

spec:

ports:

- port: 80

protocol: tcp

name: http

selector:

app: nginx

type: NodePort

kubectl create -f service.yaml

kubectl get svc

port specification named http

`kubectl expose deployment front-end --name=front-end-svc --port=80 --target-port=80 -- type=NodePort`**NEW QUESTION 18**

CORRECT TEXT

For this item, you will have to ssh to the nodes ik8s-master-0 and ik8s-node-0 and complete all tasks on these nodes. Ensure that you return to the base node (hostname: node-1) when you have completed this item.

Context

As an administrator of a small development team, you have been asked to set up a Kubernetes cluster to test the viability of a new application.

Task

You must use kubeadm to perform this task. Any kubeadm invocations will require the use of the `--ignore-preflight-errors=all` option.

? Configure the node ik8s-master-0 as a master node. .

? Join the node ik8s-node-0 to the cluster.

- A. Mastered
- B. Not Mastered

Answer: A**Explanation:**

solution

You must use the kubeadm configuration file located at `/etc/kubeadm.conf` when initializing your cluster.

You may use any CNI plugin to complete this task, but if you don't have your favourite CNI plugin's manifest URL at hand, Calico is one popular option:

<https://docs.projectcalico.org/v3.14/manifests/calico.yaml>

Docker is already installed on both nodes and apt has been configured so that you can install the required tools.

NEW QUESTION 19

CORRECT TEXT

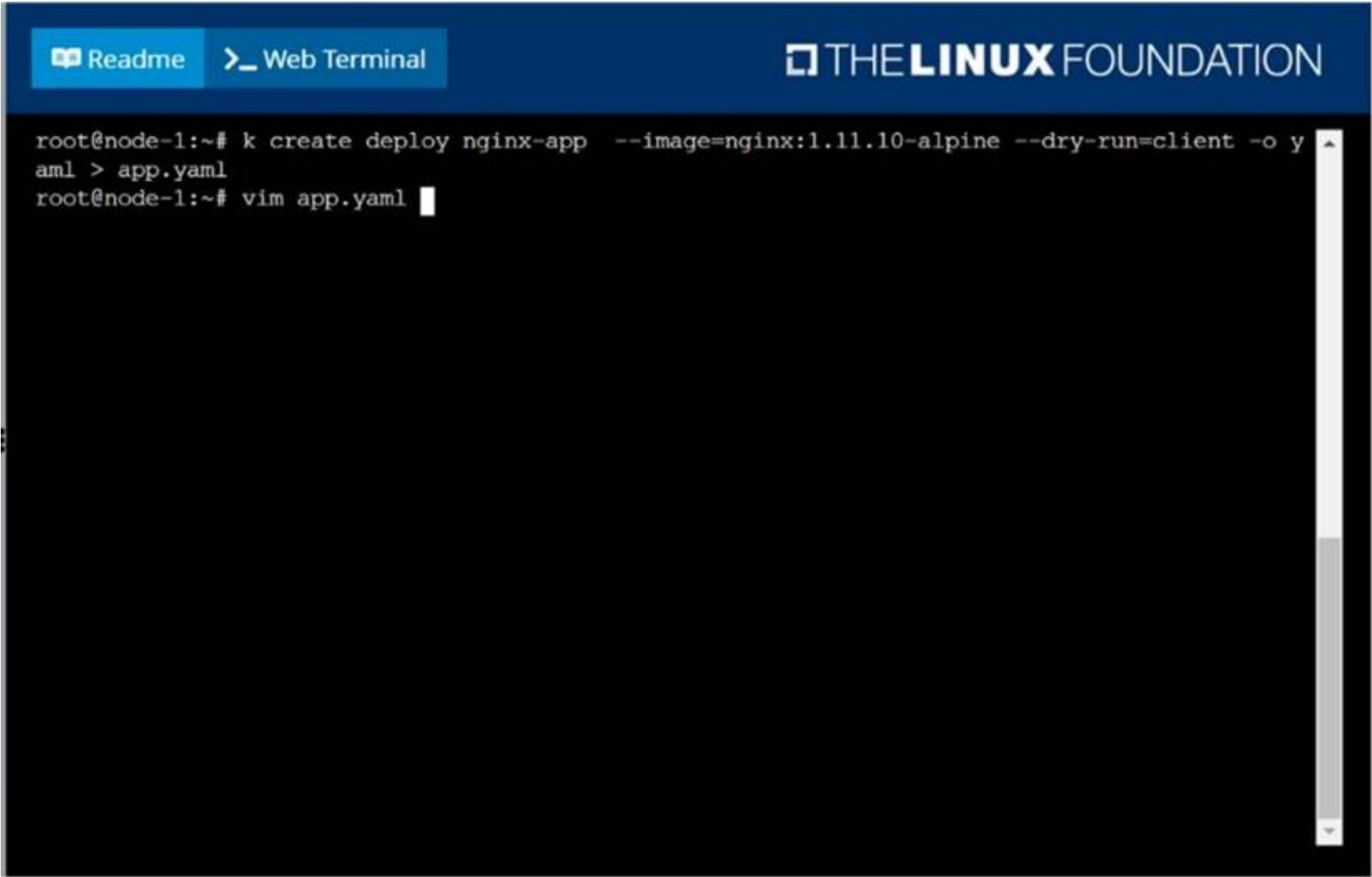
Create a deployment as follows:

? Name: nginx-app
? Using container nginx with version 1.11.10-alpine
? The deployment should contain 3 replicas
Next, deploy the application with new version 1.11.13-alpine, by performing a rolling update.
Finally, rollback that update to the previous version 1.11.10-alpine.

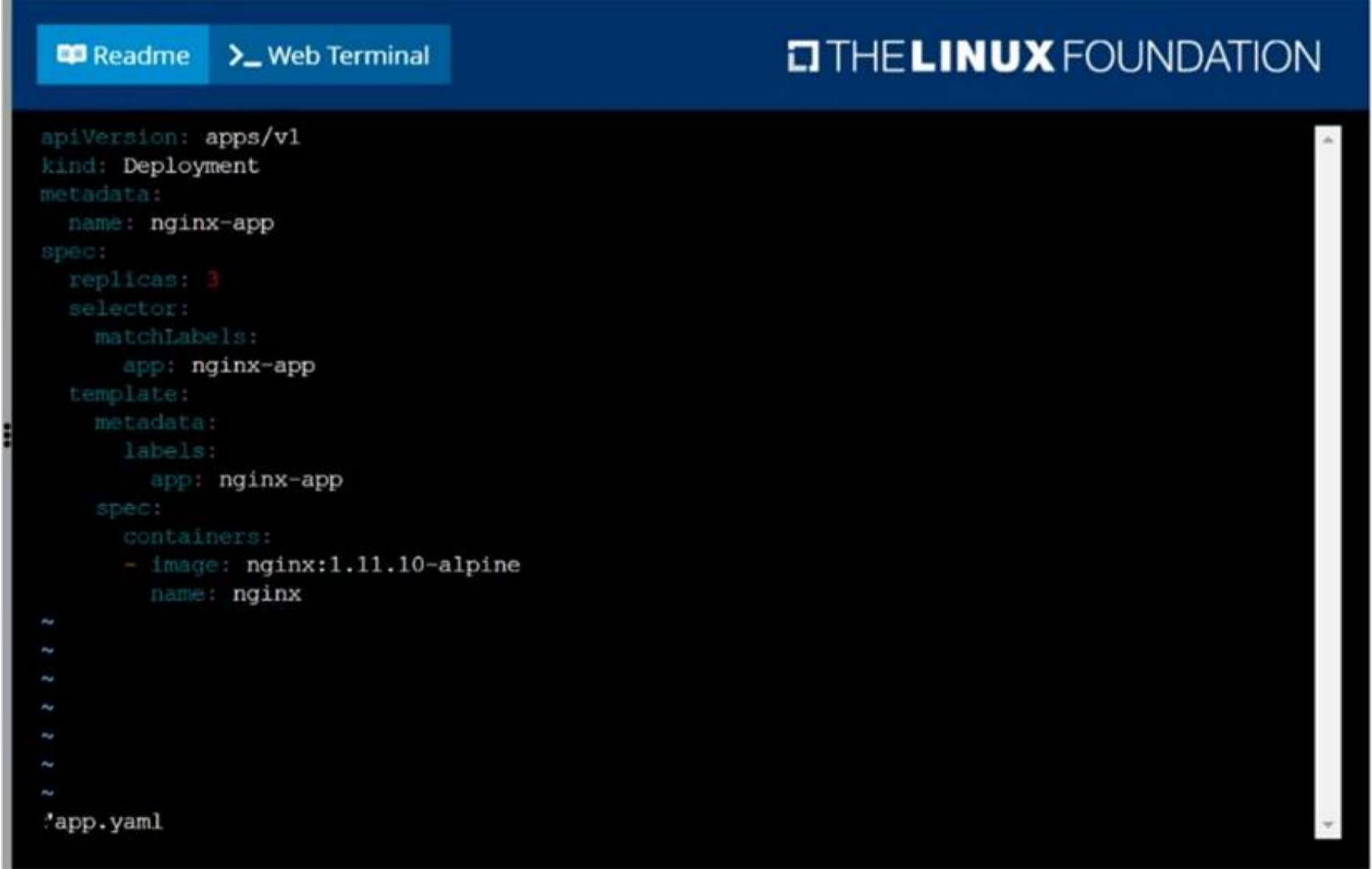
- A. Mastered
- B. Not Mastered

Answer: A

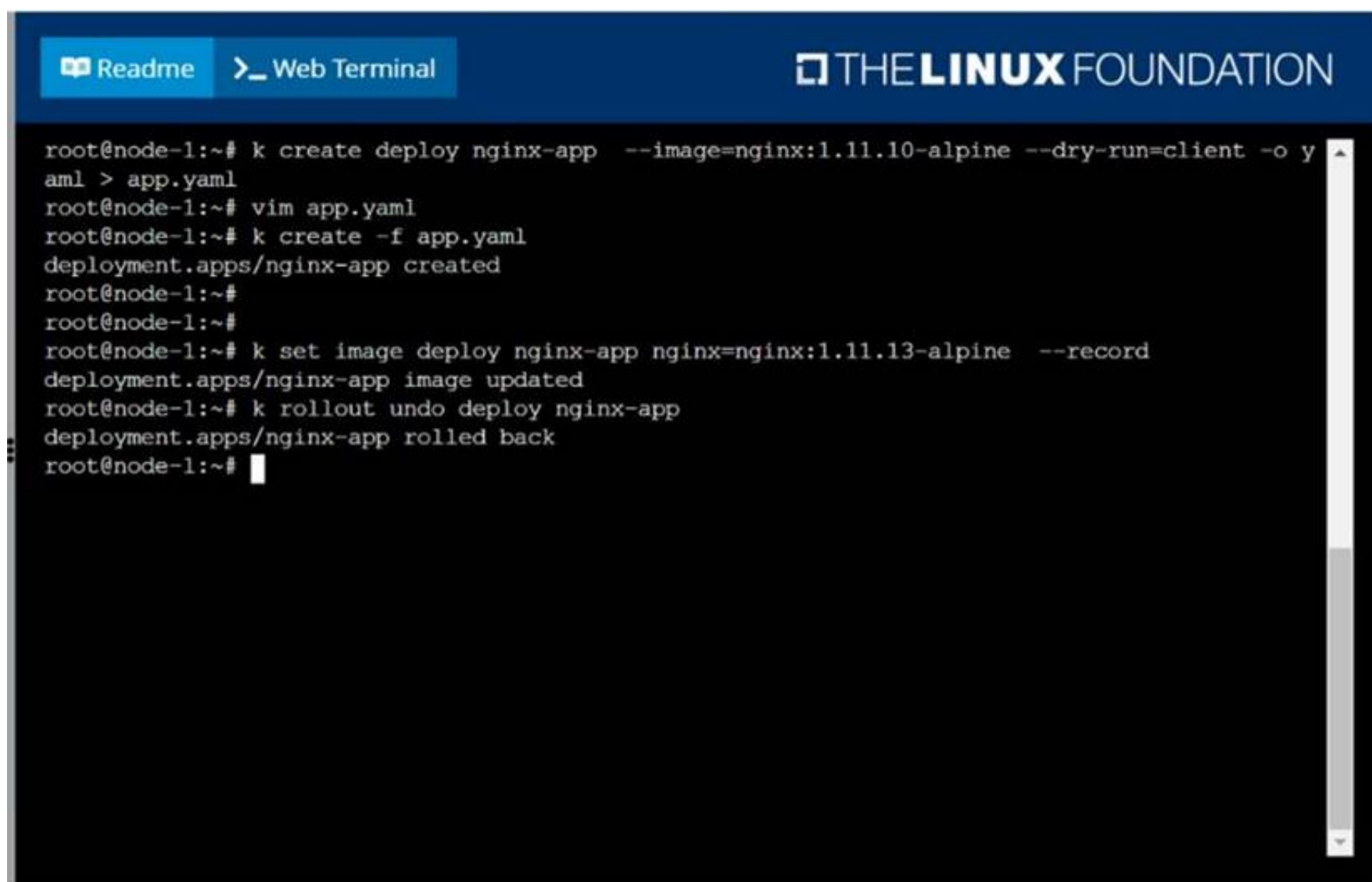
Explanation:
solution



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```
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root@node-1:~# k create deploy nginx-app --image=nginx:1.11.10-alpine --dry-run=client -o y
aml > app.yaml
root@node-1:~# vim app.yaml
root@node-1:~# k create -f app.yaml
deployment.apps/nginx-app created
root@node-1:~#
root@node-1:~#
root@node-1:~# k set image deploy nginx-app nginx=nginx:1.11.13-alpine --record
deployment.apps/nginx-app image updated
root@node-1:~# k rollout undo deploy nginx-app
deployment.apps/nginx-app rolled back
root@node-1:~#
```

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NEW QUESTION 23

CORRECT TEXT

Create a pod as follows:

? Name: non-persistent-redis

? container Image: redis

? Volume with name: cache-control

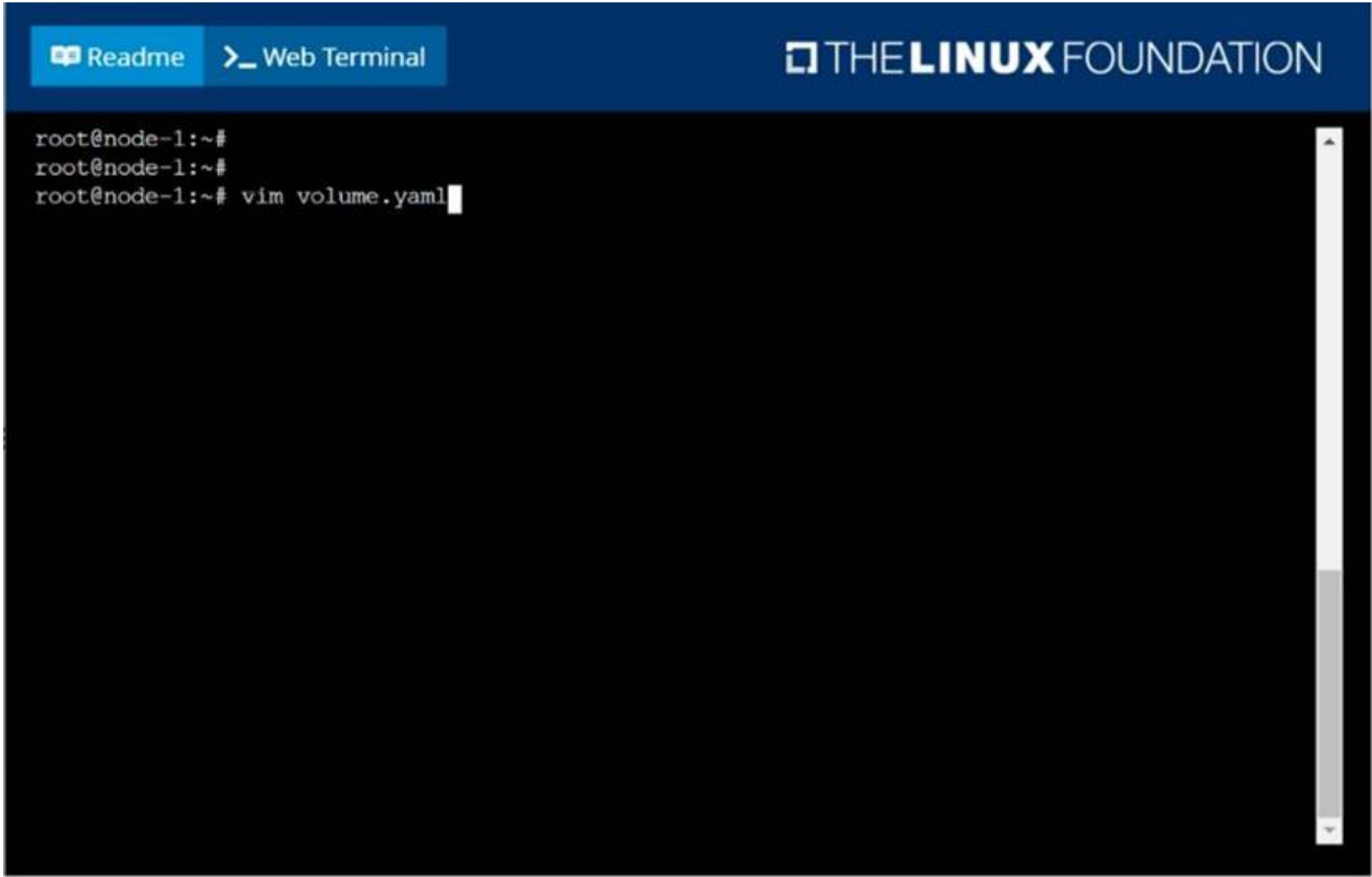
? Mount path: /data/redis

The pod should launch in the staging namespace and the volume must not be persistent.

- A. Mastered
B. Not Mastered

Answer: A**Explanation:**

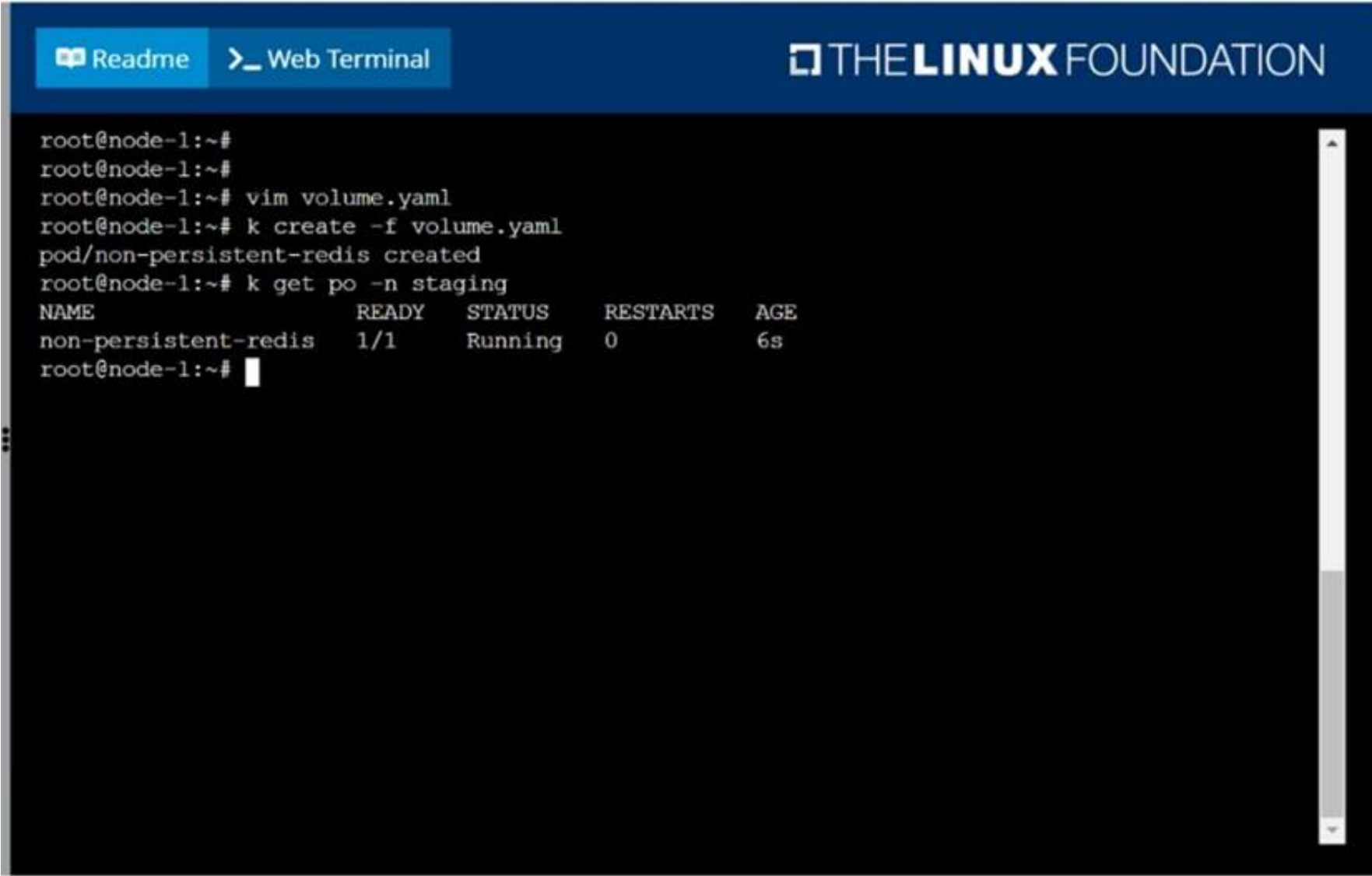
solution



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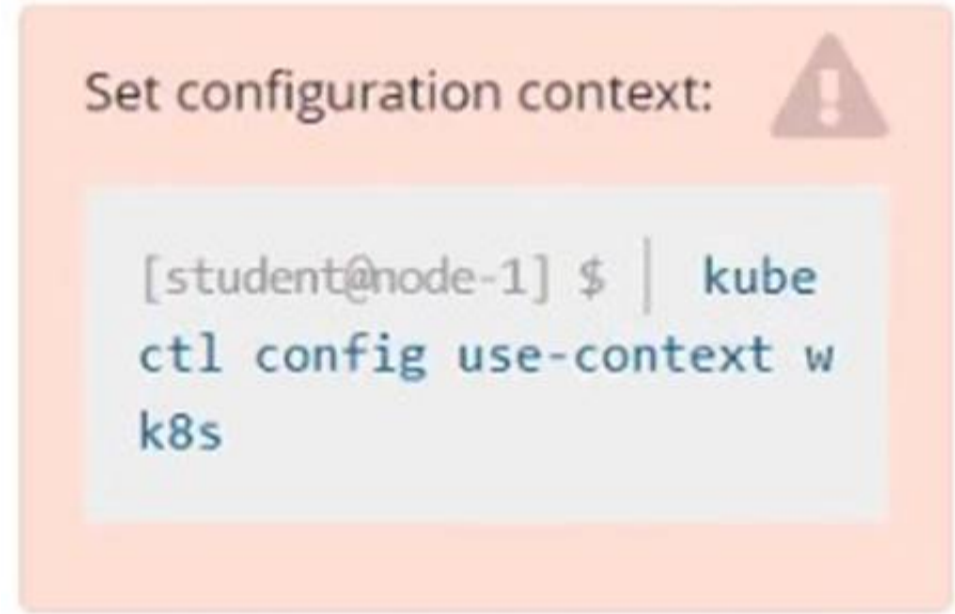


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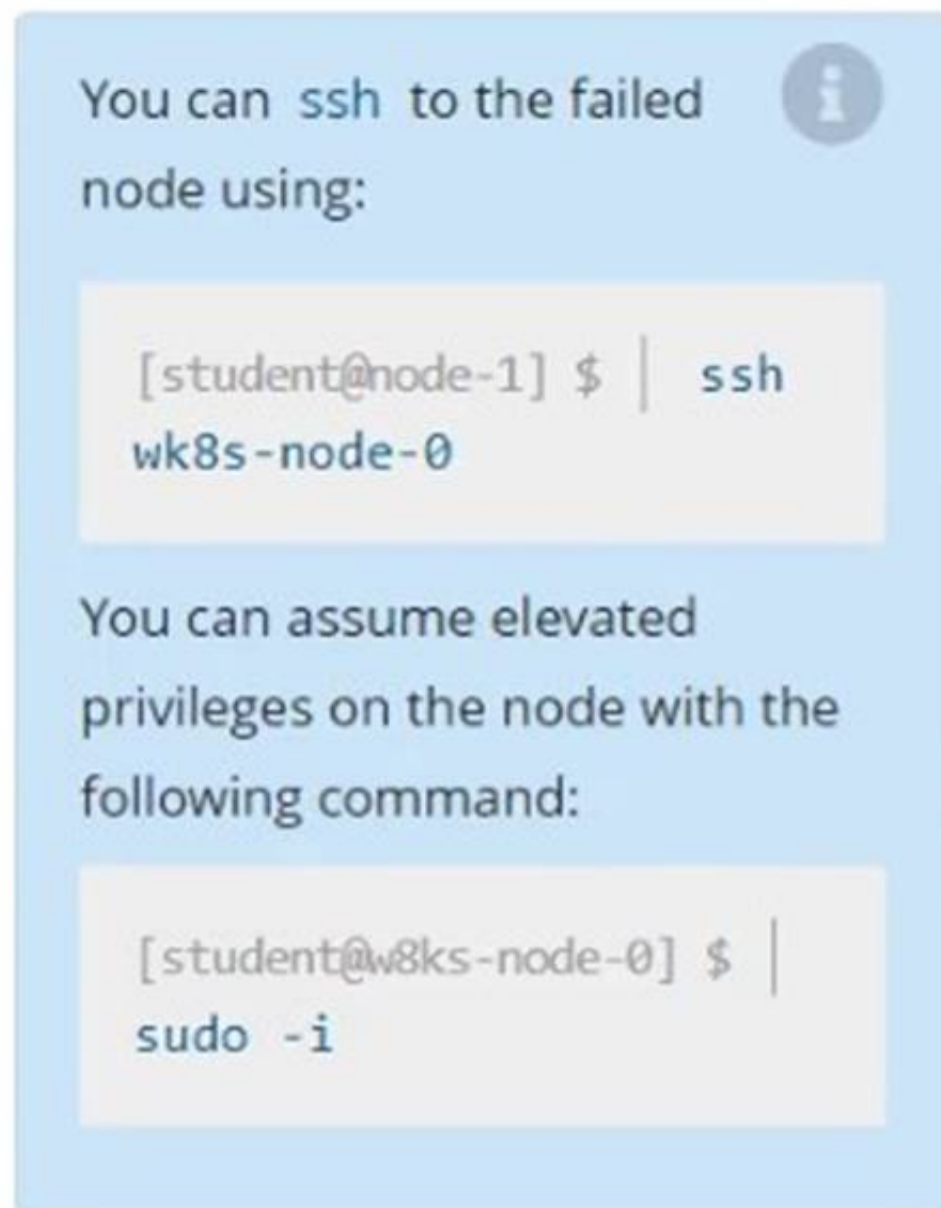


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NEW QUESTION 25
CORRECT TEXT
Score: 13%



Task
A Kubernetes worker node, named wk8s-node-0 is in state NotReady. Investigate why this is the case, and perform any appropriate steps to bring the node to a Ready state, ensuring that any changes are made permanent.



- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

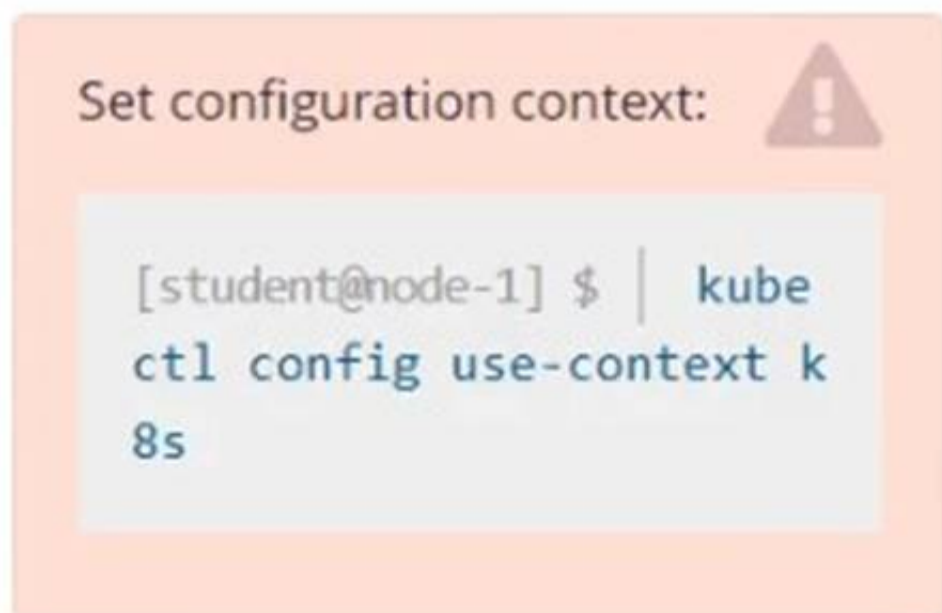
Solution:

```
sudo -i
systemctl status kubelet
systemctl start kubelet
systemctl enable kubelet
```

NEW QUESTION 26

CORRECT TEXT

Score: 4%



Task

Create a pod named kucc8 with a single app container for each of the following images running inside (there may be between 1 and 4 images specified): nginx + redis + memcached .

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

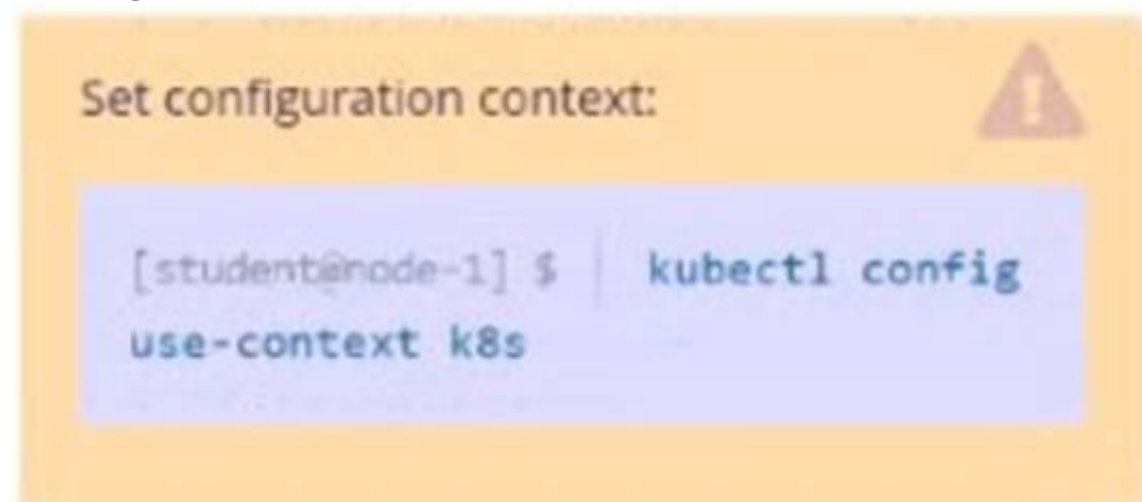
Solution:

```
kubectl run kucc8 --image=nginx --dry-run -o yaml > kucc8.yaml
# vi kucc8.yaml
apiVersion: v1
kind: Pod
metadata:
creationTimestamp: null
name: kucc8
spec:
containers:
- image: nginx
name: nginx
- image: redis
name: redis
- image: memcached
name: memcached
- image: consul
name: consul
#
kubectl create -f kucc8.yaml
#12.07
```

NEW QUESTION 29

CORRECT TEXT

Task Weight: 4%



Task

Scale the deployment webserver to 3 pods.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
student@node-1:~$ kubectl scale deploy webserver --replicas=3
deployment.apps/webserver scaled
student@node-1:~$ kubectl scale deploy webserver --replicas=3
```

NEW QUESTION 32

CORRECT TEXT

Get list of all pods in all namespaces and write it to file "/opt/pods-list.yaml"

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

kubectl get po --all-namespaces > /opt/pods-list.yaml

NEW QUESTION 36

CORRECT TEXT

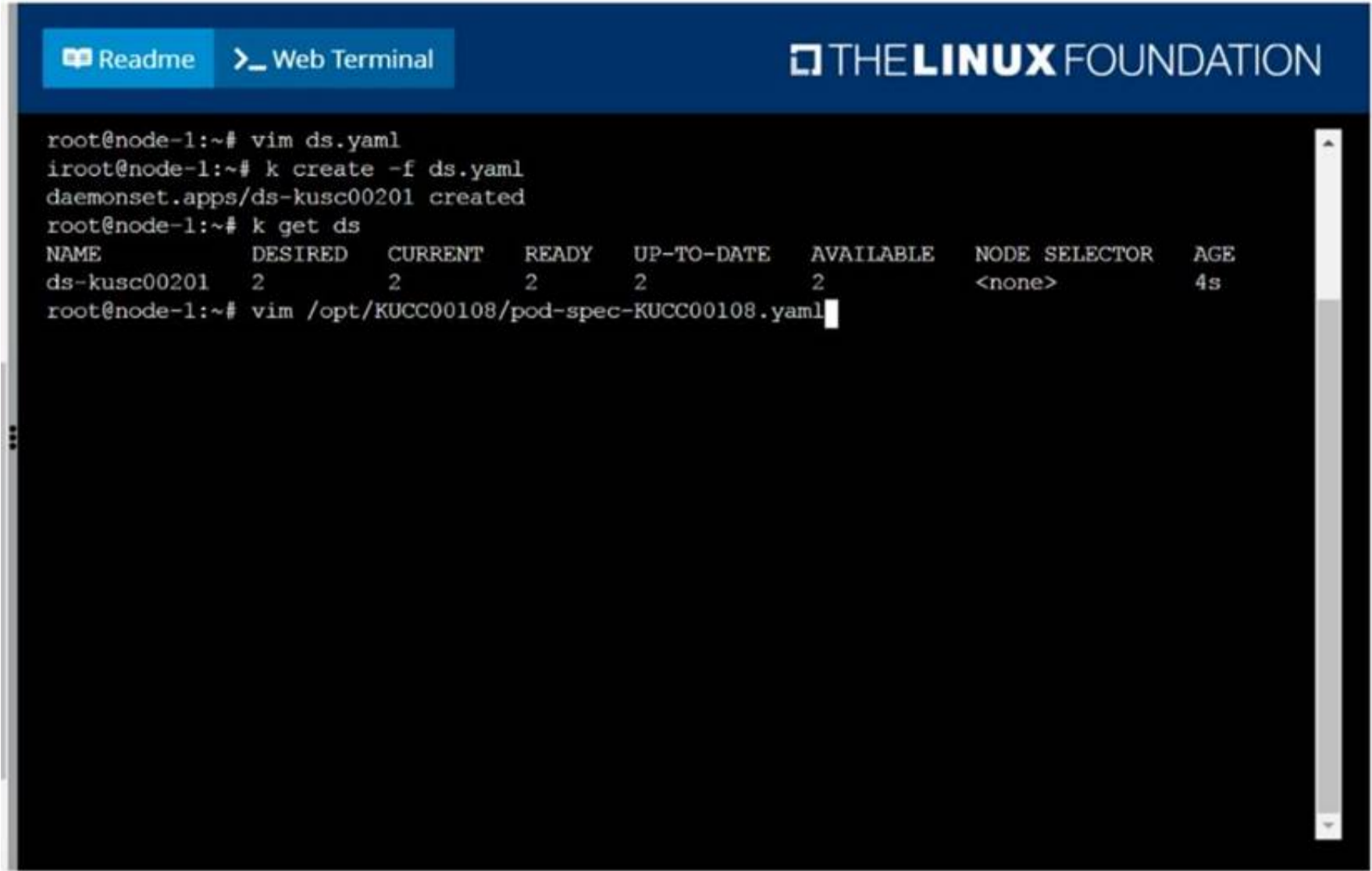
Perform the following tasks:

- ? Add an init container to hungry-bear (which has been defined in spec file /opt/KUCC00108/pod-spec-KUCC00108.yaml)
- ? The init container should create an empty file named/workdir/calm.txt
- ? If /workdir/calm.txt is not detected, the pod should exit
- ? Once the spec file has been updated with the init container definition, the pod should be created

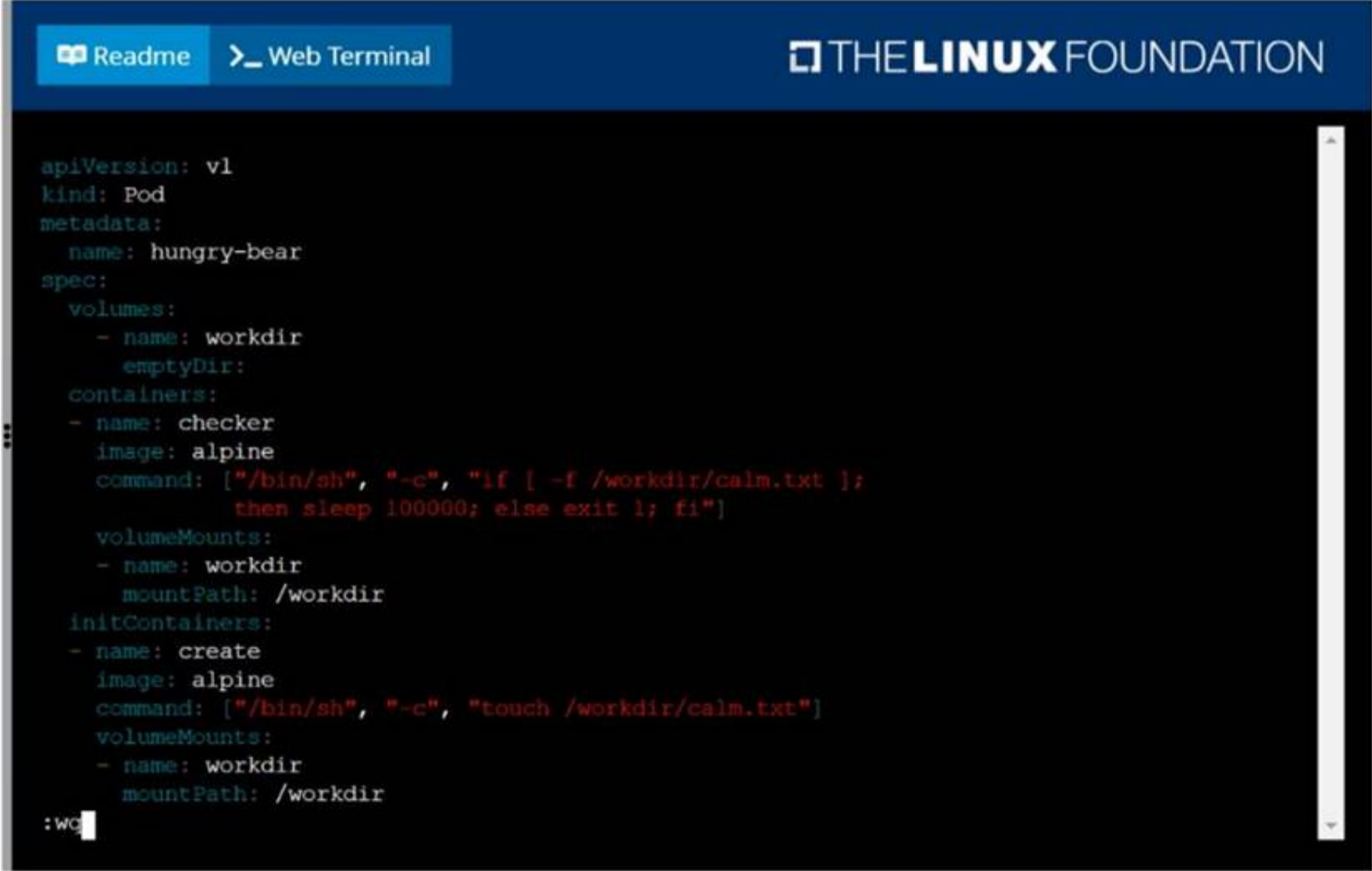
A.

Answer: Seethesolutionbelow.

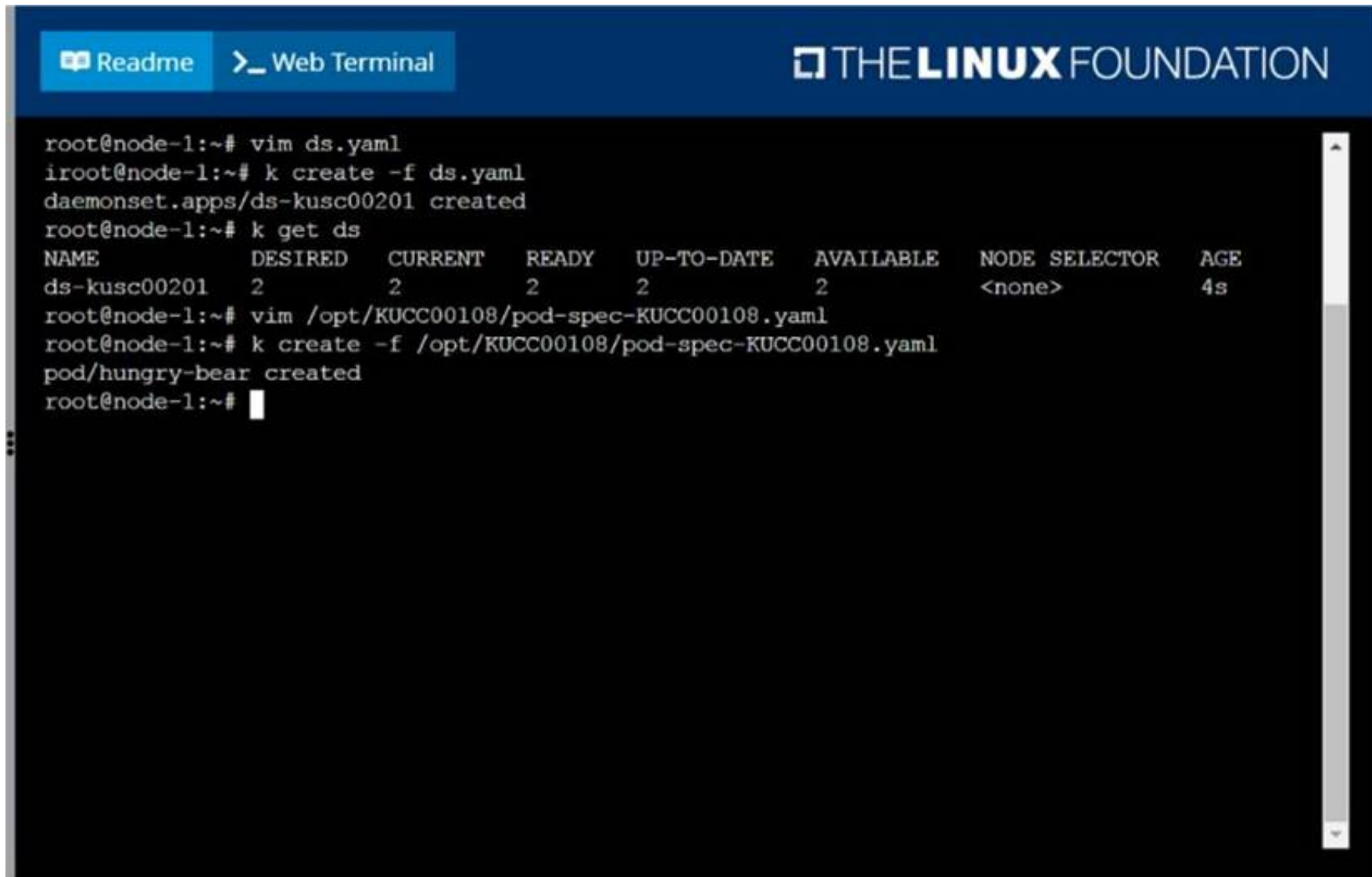
Explanation:
solution



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The screenshot shows a web terminal interface with a dark background. At the top, there is a blue header bar with a "Readme" button and a "Web Terminal" button. To the right of the buttons is the "THE LINUX FOUNDATION" logo. The terminal content shows a series of commands and their outputs:

```
root@node-1:~# vim ds.yaml
iroot@node-1:~# k create -f ds.yaml
daemonset.apps/ds-kusc00201 created
root@node-1:~# k get ds
NAME          DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE SELECTOR   AGE
ds-kusc00201   2         2         2       2             2           <none>          4s
root@node-1:~# vim /opt/KUCC00108/pod-spec-KUCC00108.yaml
root@node-1:~# k create -f /opt/KUCC00108/pod-spec-KUCC00108.yaml
pod/hungry-bear created
root@node-1:~#
```

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NEW QUESTION 39

CORRECT TEXT

A Kubernetes worker node, named wk8s-node-0 is in state NotReady. Investigate why this is the case, and perform any appropriate steps to bring the node to a Ready state, ensuring that any changes are made permanent.

You can ssh to the failed node using:

```
[student@node-1] $ | ssh Wk8s-node-0
```

You can assume elevated privileges on the node with the following command:

```
[student@w8ks-node-0] $ | sudo -i
```

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

solution

Readme

Web Terminal

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```
root@node-1:~# kubectl config use-context wk8s
Switched to context "wk8s".
root@node-1:~# k get nodes
NAME             STATUS    ROLES    AGE   VERSION
wk8s-master-0    Ready     master   77d   v1.18.2
wk8s-node-0      NotReady  <none>    77d   v1.18.2
wk8s-node-1      Ready     <none>    77d   v1.18.2
root@node-1:~# ssh wk8s-node-0
```

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Readme

Web Terminal

THE **LINUX** FOUNDATION

```
wk8s-node-0    NotReady  <none>    77d   v1.18.2
wk8s-node-1    Ready     <none>    77d   v1.18.2
root@node-1:~# ssh wk8s-node-0
Welcome to Ubuntu 16.04.6 LTS (GNU/Linux 4.4.0-1109-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

 * Are you ready for Kubernetes 1.19? It's nearly here! Try RC3 with
   sudo snap install microk8s --channel=1.19/candidate --classic
   https://microk8s.io/ has docs and details.

4 packages can be updated.
1 update is a security update.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

student@wk8s-node-0:~$ sudo -i
root@wk8s-node-0:~# systemctl restart kubelet
root@wk8s-node-0:~# systemctl enable kubelet
```

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Readme

Web Terminal

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```
https://microk8s.io/ has docs and details.

4 packages can be updated.
1 update is a security update.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

student@wk8s-node-0:~$ sudo -i
root@wk8s-node-0:~# systemctl restart kubelet
root@wk8s-node-0:~# systemctl enable kubelet
Created symlink from /etc/systemd/system/multi-user.target.wants/kubelet.service to /lib/sy
temd/system/kubelet.service.
root@wk8s-node-0:~# exit
logout
student@wk8s-node-0:~$ exit
logout
Connection to 10.250.5.34 closed.
root@node-1:~# k get nodes
NAME             STATUS    ROLES    AGE   VERSION
wk8s-master-0    Ready    master   77d   v1.18.2
wk8s-node-0      Ready    <none>   77d   v1.18.2
wk8s-node-1      Ready    <none>   77d   v1.18.2
root@node-1:~#
```

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NEW QUESTION 40

CORRECT TEXT

List all the pods sorted by name

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

kubectl get pods --sort-by=.metadata.name

NEW QUESTION 41

CORRECT TEXT

Create a pod that having 3 containers in it? (Multi-Container)

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

image=nginx, image=redis, image=consul

Name nginx container as "nginx-container"

Name redis container as "redis-container"

Name consul container as "consul-container"

Create a pod manifest file for a container and append container section for rest of the images

kubectl run multi-container --generator=run-pod/v1 --image=nginx --

dry-run -o yaml > multi-container.yaml

then

vim multi-container.yaml

apiVersion: v1

kind: Pod

metadata:

labels:

run: multi-container

name: multi-container

spec:

containers:

- image: nginx

name: nginx-container

- image: redis

name: redis-container

- image: consul

name: consul-container

restartPolicy: Always

NEW QUESTION 42

CORRECT TEXT

Score: 4%



Task

Create a persistent volume with name app-data , of capacity 1Gi and access mode ReadOnlyMany. The type of volume is hostPath and its location is /srv/app-data .

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
#vi pv.yaml
apiVersion: v1
kind: PersistentVolume
metadata:
  name: app-config
spec:
  capacity:
    storage: 1Gi
  accessModes:
    - ReadOnlyMany
  hostPath:
    path: /srv/app-config
#
kubectl create -f pv.yaml
```

NEW QUESTION 45

CORRECT TEXT

Score: 4%



Task

Set the node named ek8s-node-1 as unavailable and reschedule all the pods running on it.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

SOLUTION:

```
[student@node-1] > ssh ek8s
kubectl cordon ek8s-node-1
kubectl drain ek8s-node-1 --delete-local-data --ignore-daemonsets --force
```

NEW QUESTION 49

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