

# Linux-Foundation

## Exam Questions CKA

Certified Kubernetes Administrator (CKA) Program



## NEW QUESTION 1

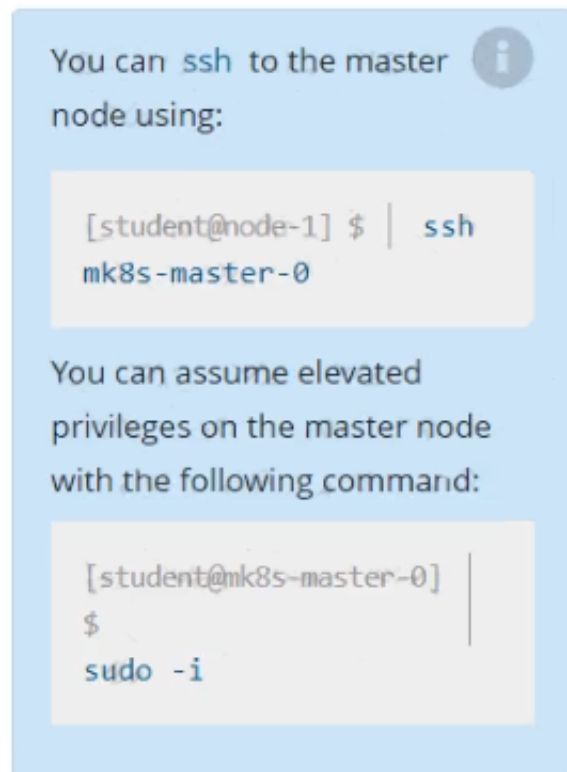
Score: 7%



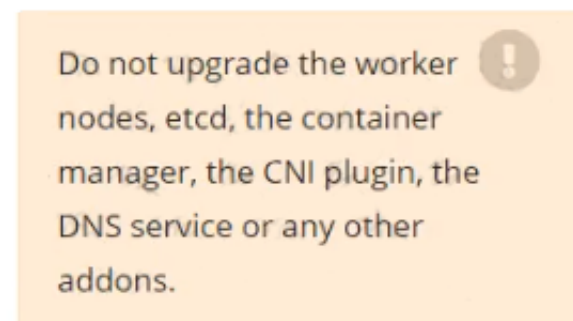
Task

Given an existing Kubernetes cluster running version 1.20.0, upgrade all of the Kubernetes control plane and node components on the master node only to version 1.20.1.

Be sure to drain the master node before upgrading it and uncordon it after the upgrade.



You are also expected to upgrade kubelet and kubectl on the master node.



- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

SOLUTION:

```
[student@node-1] > ssh ek8s
```

```
kubectl cordon k8s-master
```

```
kubectl drain k8s-master --delete-local-data --ignore-daemonsets --force
```

```
apt-get install kubeadm=1.20.1-00 kubelet=1.20.1-00 kubectl=1.20.1-00 --disableexcludes=kubernetes kubeadm upgrade apply 1.20.1 --etcd-upgrade=false
```

```
systemctl daemon-reload systemctl restart kubelet kubectl uncordon k8s-master
```

## NEW QUESTION 2

Schedule a pod as follows:

- > Name: nginx-kusc00101
- > Image: nginx
- > Node selector: disk=ssd

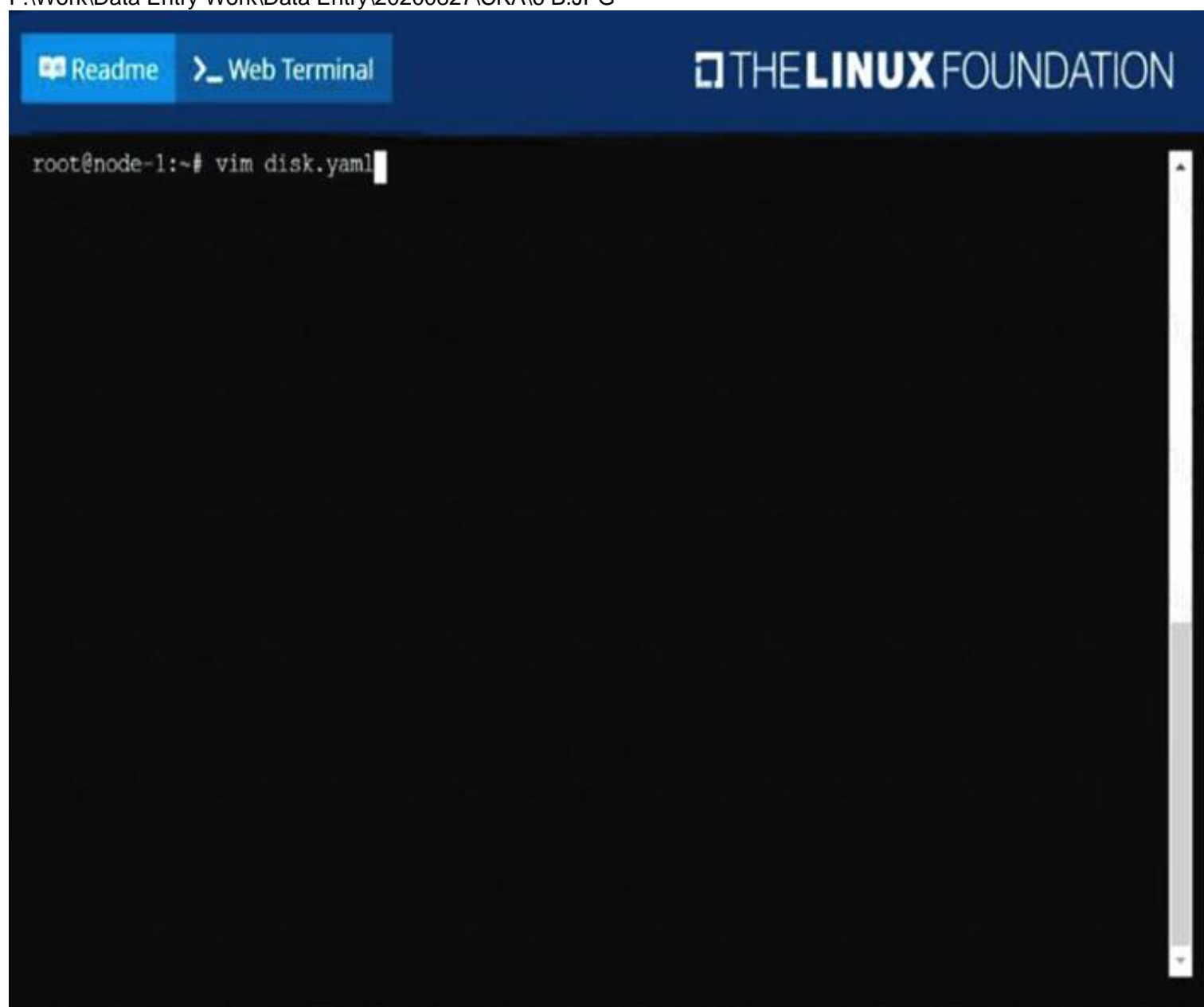
- A. Mastered
- B. Not Mastered

Answer: A

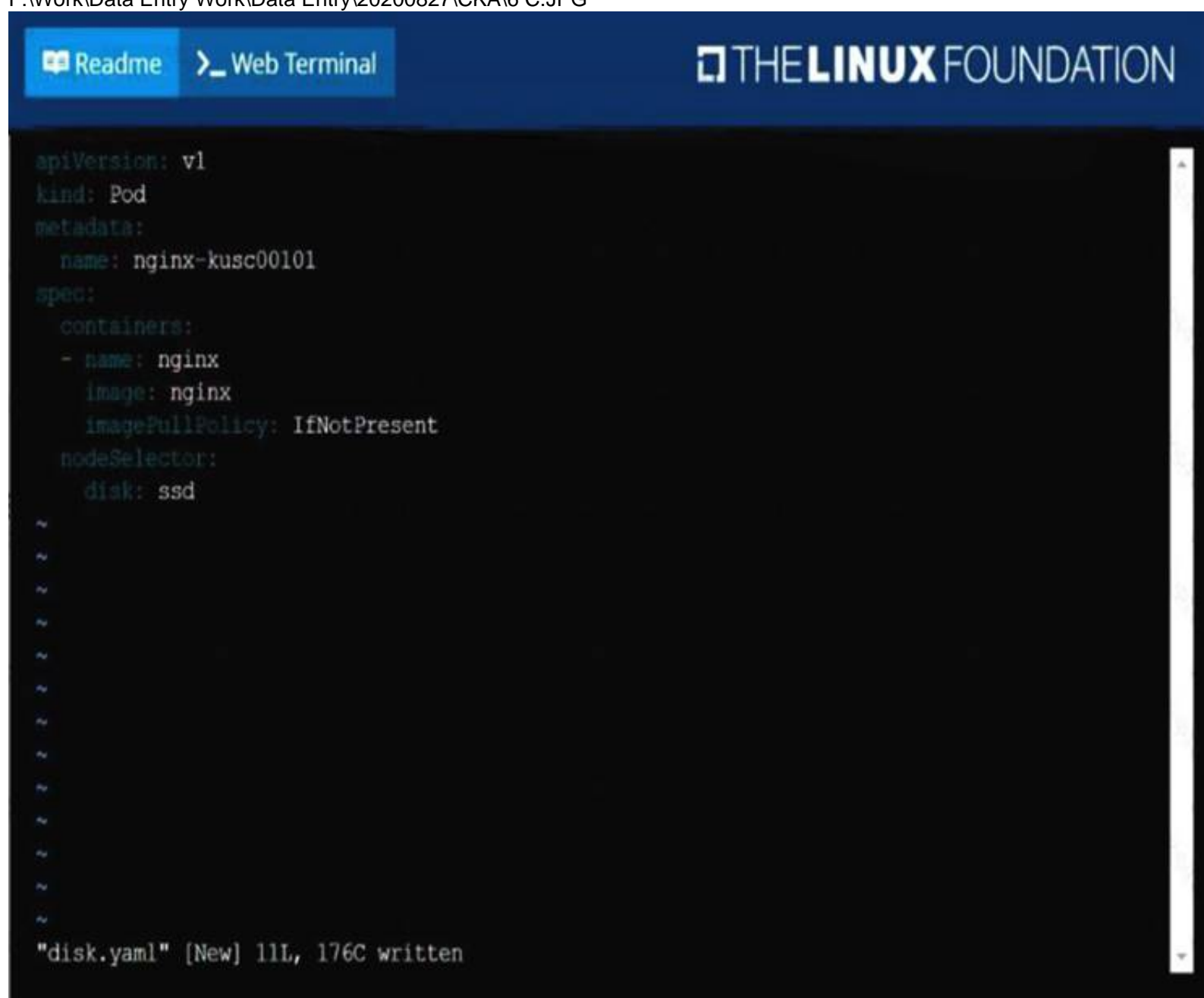
Explanation:

solution

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ReadmeWeb Terminal

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```
root@node-1:~# vim disk.yaml
root@node-1:~# k create -f disk.yaml
pod/nginx-kusc00101 created
root@node-1:~# k get po
NAME                                READY   STATUS    RESTARTS   AGE
cpu-utilizer-98b9se                1/1     Running   0           5h59m
cpu-utilizer-ab2d3s                1/1     Running   0           5h59m
cpu-utilizer-kipb9a                1/1     Running   0           5h59m
ds-kusc00201-2r2k9                 1/1     Running   0           13m
ds-kusc00201-hzm9q                 1/1     Running   0           13m
foo                                1/1     Running   0           6h1m
front-end                          1/1     Running   0           6h1m
hungry-bear                        1/1     Running   0           9m37s
kucc8                               3/3     Running   0           7m37s
nginx-kusc00101                    1/1     Running   0           9s
webserver-84c55967f4-qzjcv         1/1     Running   0           6h16m
webserver-84c55967f4-t479l         1/1     Running   0           6h16m
root@node-1:~#
```

NEW QUESTION 3

List the nginx pod with custom columns POD\_NAME and POD\_STATUS

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

kubectl get po -o=custom-columns="POD\_NAME:.metadata.name, POD\_STATUS:.status.containerStatuses[].state"

NEW QUESTION 4

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 5**

Monitor the logs of pod foo and:

- > Extract log lines corresponding to error unable-to-access-website
- > Write them to/opt/KULM00201/foo

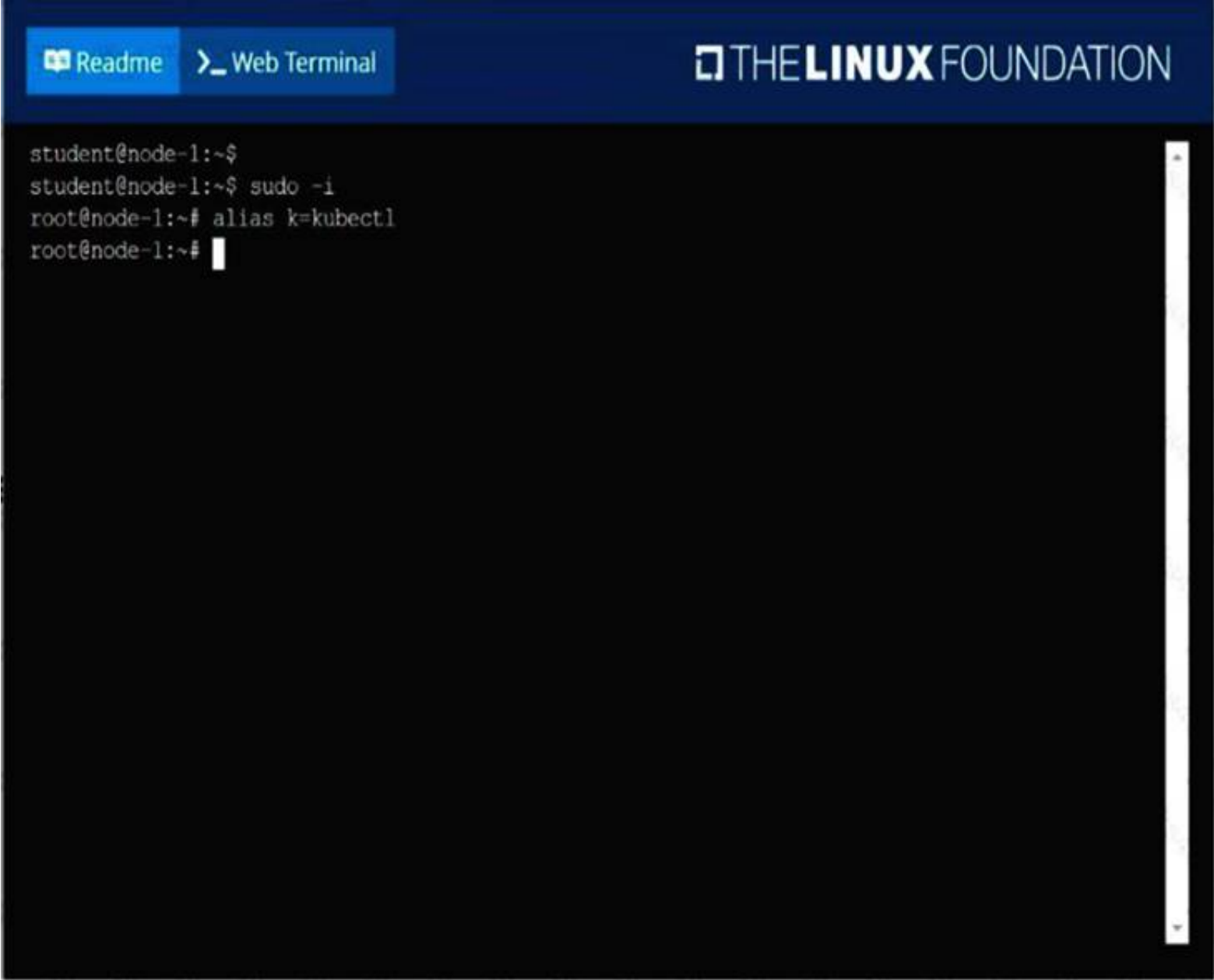


- A. Mastered
- B. Not Mastered

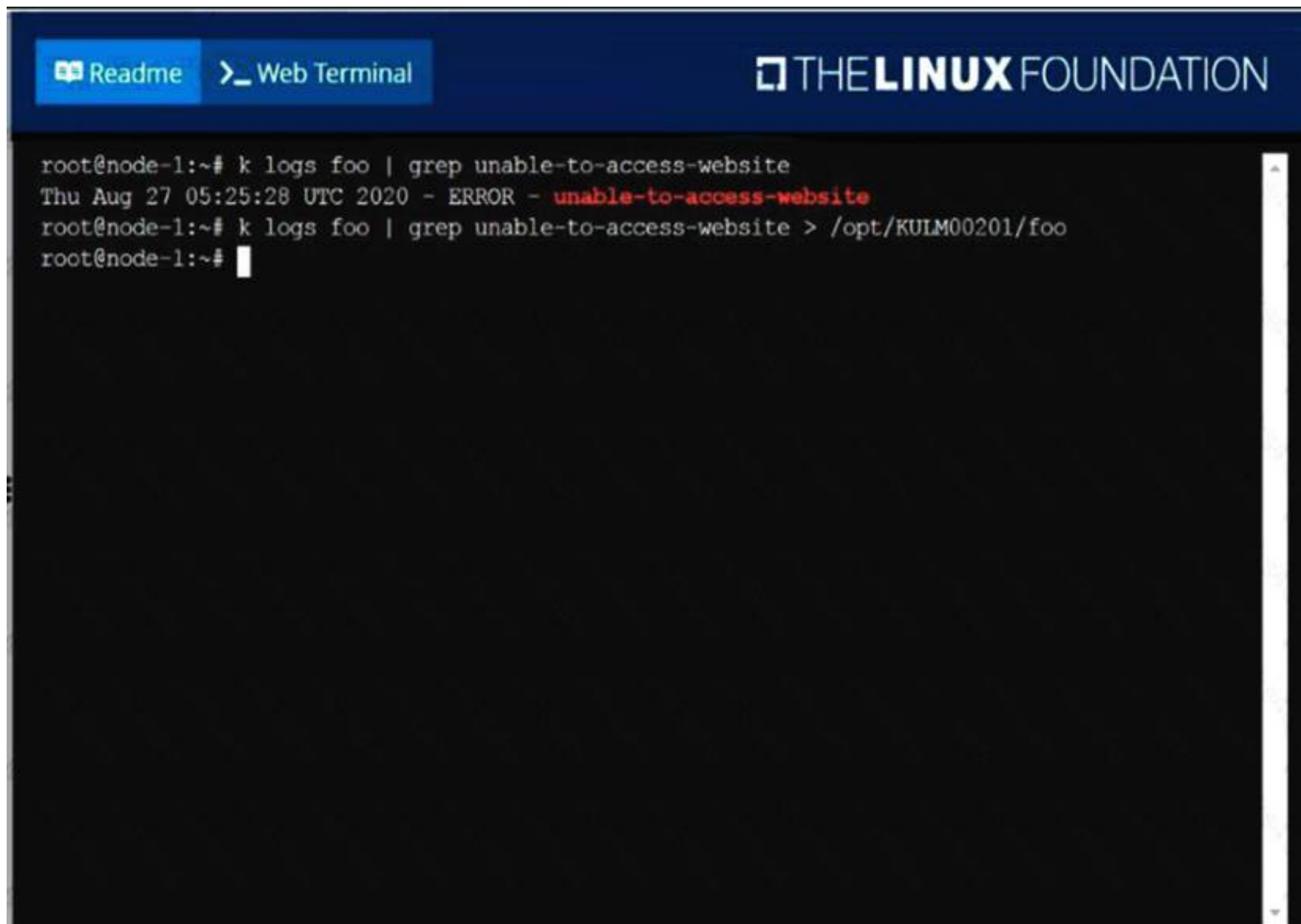
**Answer:** A

**Explanation:**

solution  
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```
root@node-1:~# k logs foo | grep unable-to-access-website
Thu Aug 27 05:25:28 UTC 2020 - ERROR - unable-to-access-website
root@node-1:~# k logs foo | grep unable-to-access-website > /opt/KULM00201/foo
root@node-1:~#
```

#### NEW QUESTION 6

Check to see how many worker nodes are ready (not including nodes tainted NoSchedule) and write the number to /opt/KUCC00104/kucc00104.txt.

- A. Mastered
- B. Not Mastered

**Answer:** A

#### Explanation:

solution

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Readme

Web Terminal

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```
root@node-1:~# k scale deploy webserver --replicas=6
deployment.apps/webserver scaled
root@node-1:~# k get deploy
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
nginx-app     3/3     3            3           29m
webserver     6/6     6            6           6h50m
root@node-1:~#
root@node-1:~# k get nodes
NAME           STATUS   ROLES    AGE   VERSION
k8s-master-0   Ready   master   77d   v1.18.2
k8s-node-0     Ready   <none>   77d   v1.18.2
k8s-node-1     Ready   <none>   77d   v1.18.2
root@node-1:~# vim /opt/KUCC00104/kucc00104.txt
```

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The screenshot shows the top navigation bar of the Linux Foundation website. On the left, there are two blue buttons: "Readme" with a book icon and "Web Terminal" with a terminal icon. To the right of these buttons is the "THE LINUX FOUNDATION" logo. Below the navigation bar is a large black rectangular area representing a terminal window. On the far left edge of this terminal area, there is a vertical column of white tilde (~) characters. At the bottom left corner of the terminal area, the prompt ":wq!" is visible next to a small white cursor bar. On the far right edge of the terminal area, there is a vertical scrollbar.

#### NEW QUESTION 7

Check the image version in pod without the describe command

- A. Mastered
- B. Not Mastered

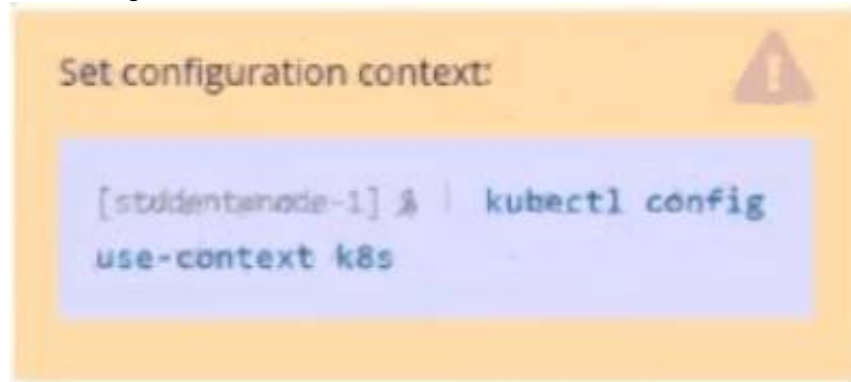
**Answer:** A

#### Explanation:

```
kubectl get po nginx -o jsonpath='{.spec.containers[].image}'{"\n"}
```

#### NEW QUESTION 8

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 9

List all the pods sorted by name

- A. Mastered
- B. Not Mastered

**Answer:** A

#### Explanation:

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

#### NEW QUESTION 10

Ensure a single instance of pod nginx is running on each node of the Kubernetes cluster where nginx also represents the Image name which has to be used. Do not override any taints currently in place.

Use DaemonSet to complete this task and use ds-kusc00201 as DaemonSet name.

- A. Mastered
- B. Not Mastered

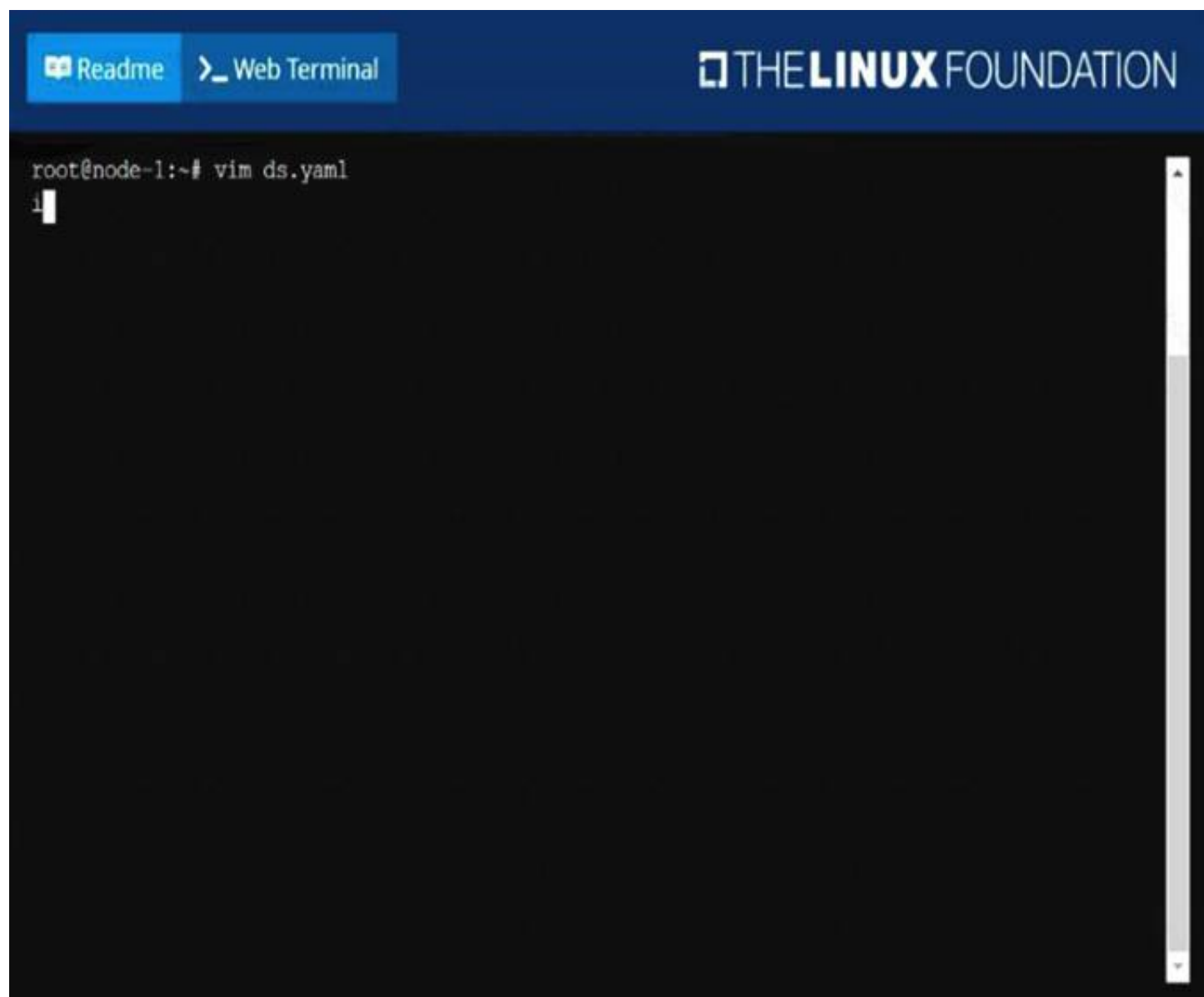
**Answer:** A

#### Explanation:

solution

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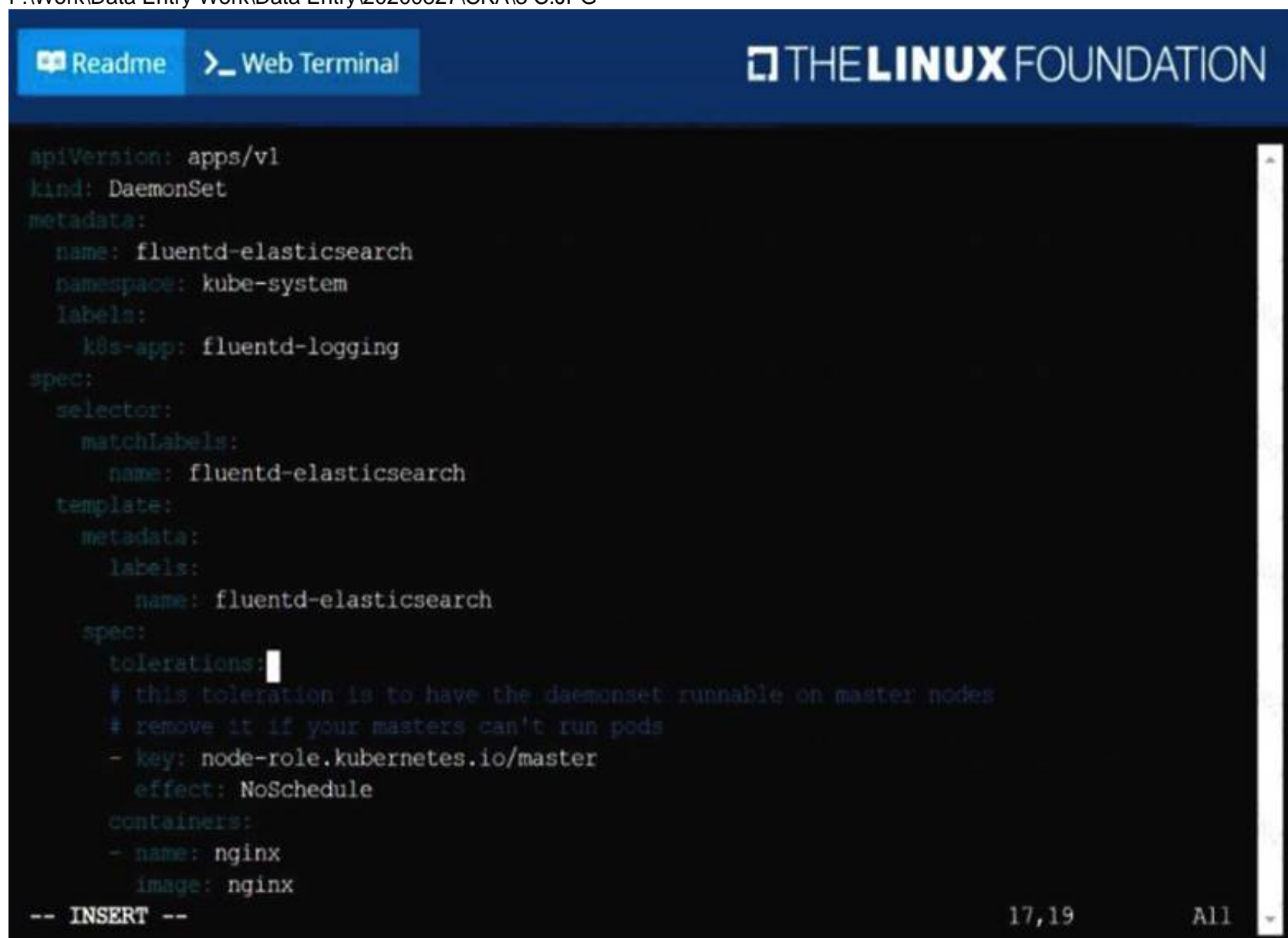




The screenshot shows a web terminal window with a dark blue header. On the left, there are two buttons: 'Readme' and 'Web Terminal'. On the right, the text 'THE LINUX FOUNDATION' is displayed. The terminal content shows a user at the root of a node-1 machine opening a file named 'ds.yaml' in vim. The cursor is at the first line of the file.

```
root@node-1:~# vim ds.yaml
1
```

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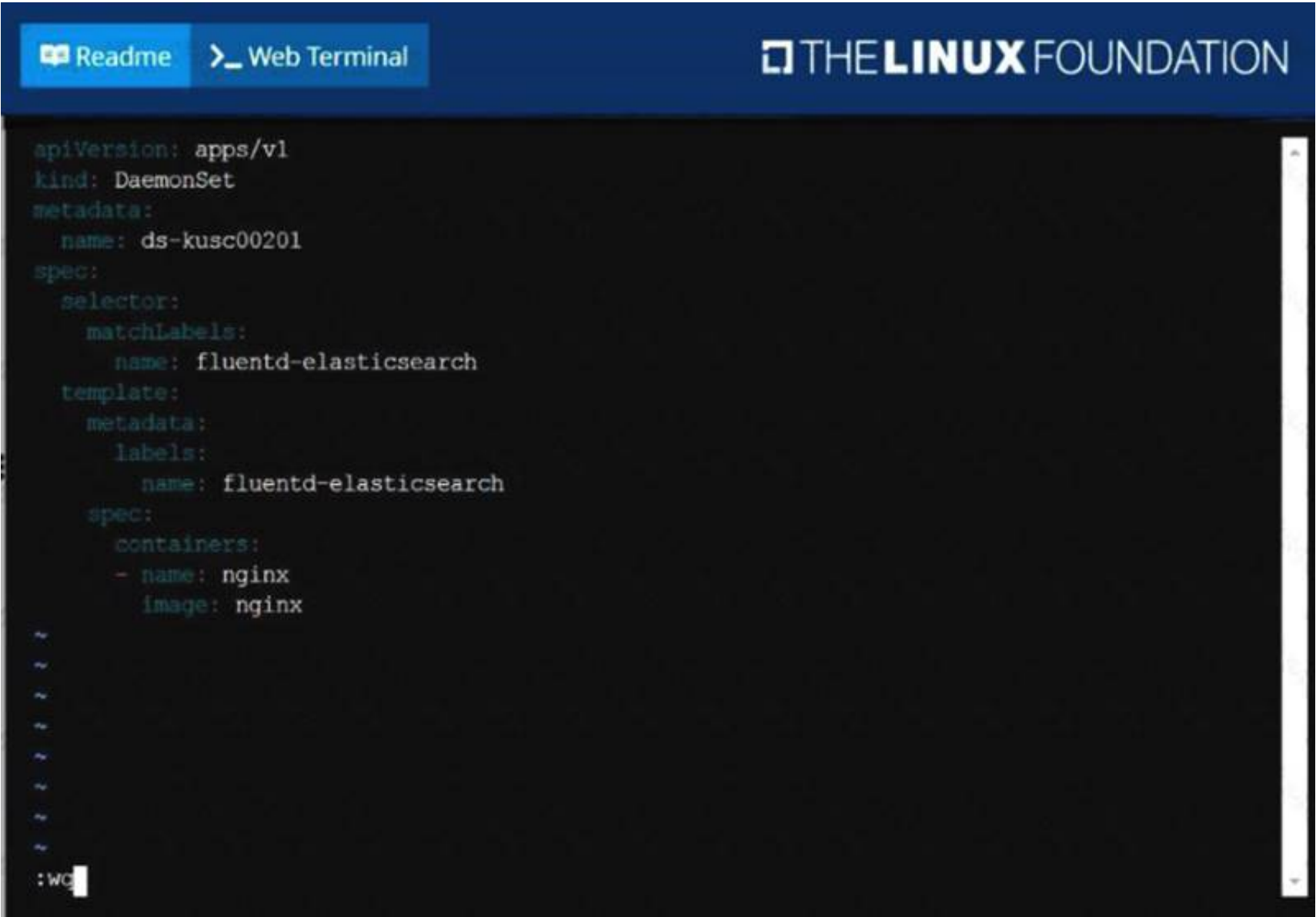


The screenshot shows a web terminal window with a dark blue header. On the left, there are two buttons: 'Readme' and 'Web Terminal'. On the right, the text 'THE LINUX FOUNDATION' is displayed. The terminal content shows a user editing a Kubernetes DaemonSet YAML file. The file content is as follows:

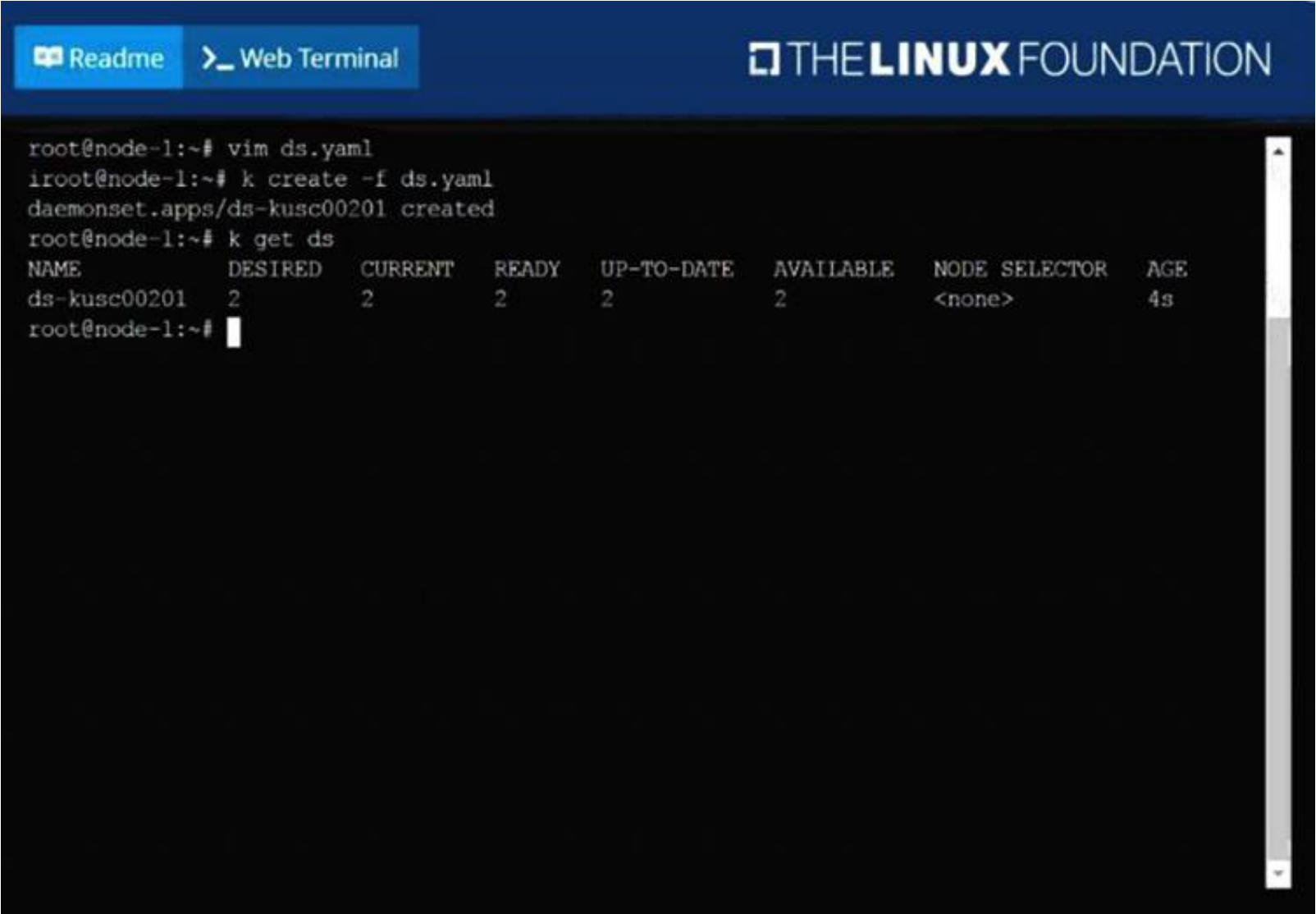
```
apiVersion: apps/v1
kind: DaemonSet
metadata:
  name: fluentd-elasticsearch
  namespace: kube-system
  labels:
    k8s-app: fluentd-logging
spec:
  selector:
    matchLabels:
      name: fluentd-elasticsearch
  template:
    metadata:
      labels:
        name: fluentd-elasticsearch
    spec:
      tolerations:
        # this toleration is to have the daemonset runnable on master nodes
        # remove it if your masters can't run pods
        - key: node-role.kubernetes.io/master
          effect: NoSchedule
      containers:
        - name: nginx
          image: nginx
-- INSERT --
```

At the bottom right of the terminal, the text '17,19 All' is visible.

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NEW QUESTION 10

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

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

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

NEW QUESTION 13

Given a partially-functioning Kubernetes cluster, identify symptoms of failure on the cluster.

Determine the node, the failing service, and take actions to bring up the failed service and restore the health of the cluster. Ensure that any changes are made permanently.

You can ssh to the relevant nodes (bk8s-master-0 or bk8s-node-0) using:

```
[student@node-1] $ ssh <nodename>
```

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

```
[student@nodename] $ | sudo -i
```

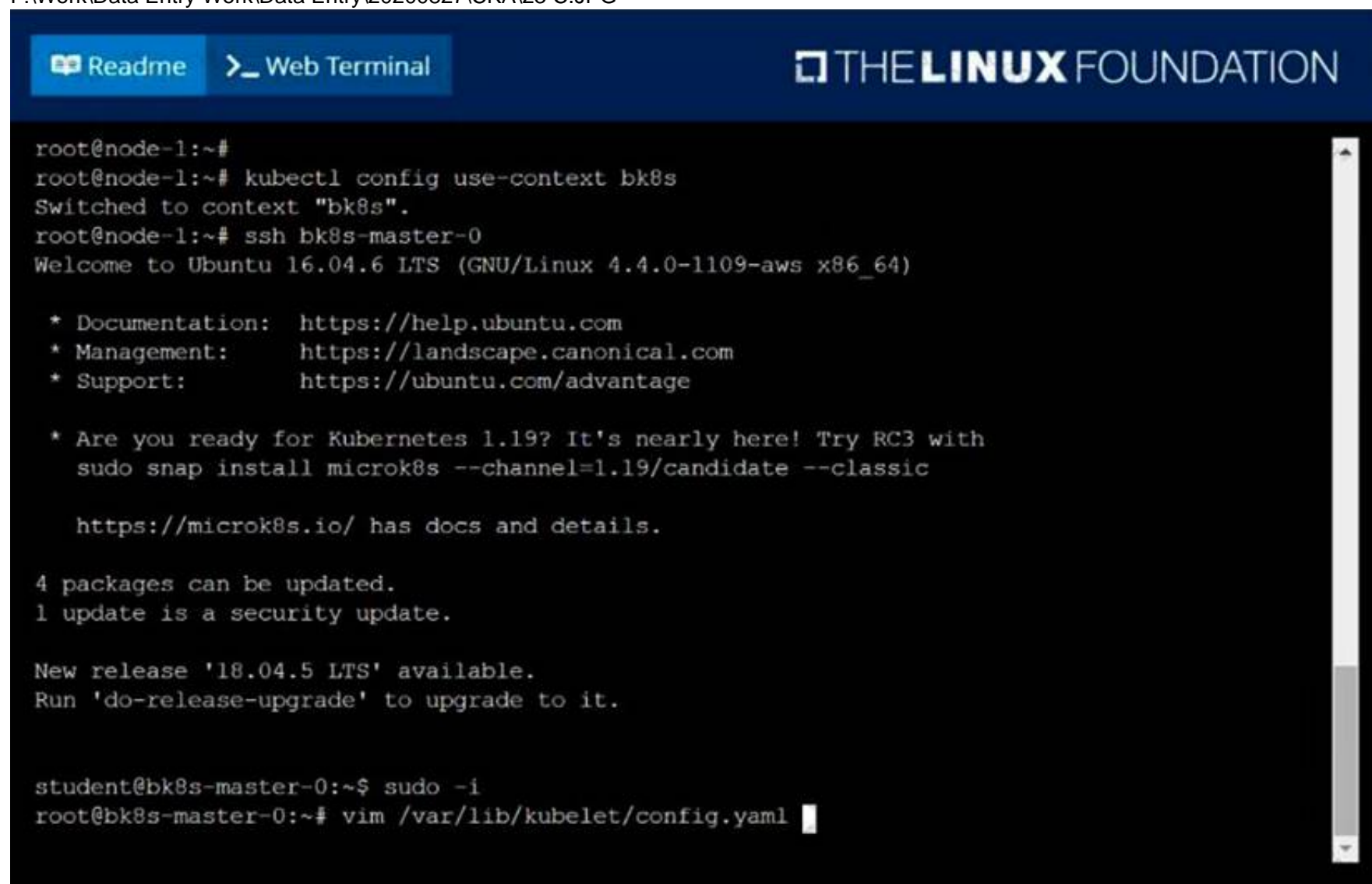
- A. Mastered
- B. Not Mastered

**Answer: A**

**Explanation:**

solution

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The screenshot shows a web terminal interface with a dark blue header. On the left, there are two tabs: 'Readme' and 'Web Terminal'. On the right, the 'THE LINUX FOUNDATION' logo is displayed. The terminal window shows the following commands and output:

```
root@node-1:~#  
root@node-1:~# kubectl config use-context bk8s  
Switched to context "bk8s".  
root@node-1:~# ssh bk8s-master-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@bk8s-master-0:~$ sudo -i  
root@bk8s-master-0:~# vim /var/lib/kubelet/config.yaml
```

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Readme
Web Terminal




```

authorization:
  mode: Webhook
  webhook:
    cacheAuthorizedTTL: 0s
    cacheUnauthorizedTTL: 0s
clusterDNS:
- 10.96.0.10
clusterDomain: cluster.local
cpuManagerReconcilePeriod: 0s
evictionPressureTransitionPeriod: 0s
fileCheckFrequency: 0s
healthzBindAddress: 127.0.0.1
healthzPort: 10248
httpCheckFrequency: 0s
imageMinimumGCAge: 0s
kind: KubeletConfiguration
nodeStatusReportFrequency: 0s
nodeStatusUpdateFrequency: 0s
rotateCertificates: true
runtimeRequestTimeout: 0s
staticPodPath: /etc/kubernetes/manifests
streamingConnectionIdleTimeout: 0s
syncFrequency: 0s
volumeStatsAggPeriod: 0s
:wg

```

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Readme
Web Terminal



```

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@bk8s-master-0:~$ sudo -i
root@bk8s-master-0:~# vim /var/lib/kubelet/config.yaml
root@bk8s-master-0:~# systemctl restart kubelet
root@bk8s-master-0:~# systemctl enable kubelet
root@bk8s-master-0:~# kubectl get nodes

NAME             STATUS    ROLES    AGE   VERSION
bk8s-master-0    Ready    master   77d   v1.18.2
bk8s-node-0      Ready    <none>   77d   v1.18.2
root@bk8s-master-0:~#
root@bk8s-master-0:~# exit
logout
student@bk8s-master-0:~$ exit
logout
Connection to 10.250.4.77 closed.
root@node-1:~#

```

#### NEW QUESTION 17

List “nginx-dev” and “nginx-prod” pod and delete those pods

- A. Mastered
- B. Not Mastered

Answer: A

#### Explanation:

kubect1 get pods -o wide



kubectl delete po "nginx-dev" kubectl delete po "nginx-prod"

#### NEW QUESTION 21

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 23

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