

Linux Foundation

CKAD Exam

Certified Kubernetes Application Developer

Questions & Answers

Demo

Version: 6.0

Question: 1

Context



A web application requires a specific version of redis to be used as a cache.

Task

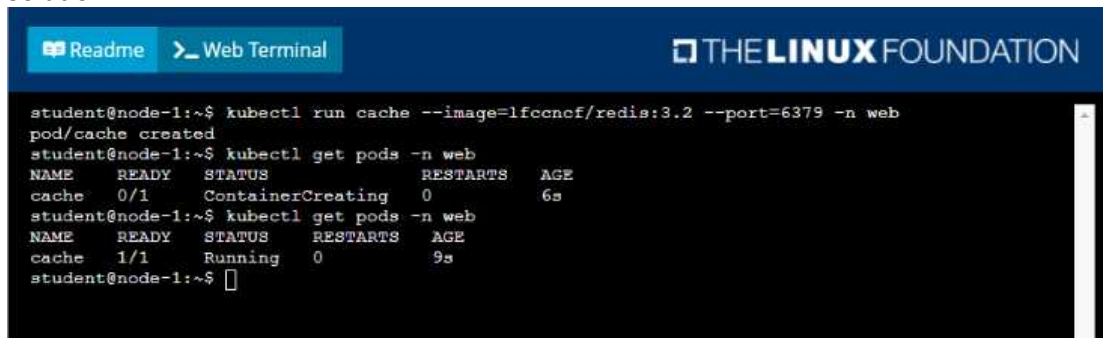
Create a pod with the following characteristics, and leave it running when complete:

- The pod must run in the web namespace.
- The namespace has already been created
- The name of the pod should be cache
 - Use the lfcncf/redis image with the 3.2 tag
 - Expose port 6379

Answer: See the solution below.

Explanation:

Solution:

A terminal window with a dark blue background and white text. The terminal shows the following commands and output:

```
student@node-1:~$ kubectl run cache --image=lfcncf/redis:3.2 --port=6379 -n web
pod/cache created
student@node-1:~$ kubectl get pods -n web
NAME    READY   STATUS             RESTARTS   AGE
cache   0/1     ContainerCreating  0           6s
student@node-1:~$ kubectl get pods -n web
NAME    READY   STATUS    RESTARTS   AGE
cache   1/1     Running   0           9s
student@node-1:~$
```

Question: 2

Context



You are tasked to create a secret and consume the secret in a pod using environment variables as follow:

Task

- Create a secret named another-secret with a key/value pair; key1/value4
- Start an nginx pod named nginx-secret using container image nginx, and add an environment variable exposing the value of the secret key key 1, using COOL_VARIABLE as the name for the environment variable inside the pod

**Answer: See the
solution below.**

Explanation:

Solution:

```
student@node-1:~$ kubectl create secret generic some-secret --from-literal=key1=value4  
secret/some-secret created  
student@node-1:~$ kubectl get secret  
NAME                TYPE          DATA   AGE  
default-token-4kvr5  kubernetes.io/service-account-token  3      2d11h  
some-secret         Opaque        1       5s  
student@node-1:~$ kubectl run nginx-secret --image=nginx --dry-run=client -o yaml > nginx_secret  
.yaml  
student@node-1:~$ vim nginx_secret.yaml  
|
```

Readme Web Terminal THE LINUX FOUNDATION

```
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-secret
    name: nginx-secret
spec:
  containers:
  - image: nginx
    name: nginx-secret
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}
```

"nginx_secret.yml" 15L, 253C 1,1 All

Readme Web Terminal THE LINUX FOUNDATION

```
apiVersion: v1
kind: Pod
metadata:
  labels:
    run: nginx-secret
    name: nginx-secret
spec:
  containers:
  - image: nginx
    name: nginx-secret
    env:
    - name: COOL_VARIABLE
      valueFrom:
        secretKeyRef:
          name: some-secret
          key: key1
```

-- INSERT -- 16,20 All

```
Readme > Web Terminal THE LINUX FOUNDATION

student@node-1:~$ kubectl get pods -n web
NAME      READY   STATUS    RESTARTS   AGE
cache     1/1     Running   0           9s
student@node-1:~$ kubectl create secret generic some-secret --from-literal=key1=value4
secret/some-secret created
student@node-1:~$ kubectl get secret
NAME      TYPE      DATA   AGE
default-token-4kvr5   kubernetes.io/service-account-token   3     2d11h
some-secret           Opaque                                 1     5s
student@node-1:~$ kubectl run nginx-secret --image=nginx --dry-run=client -o yaml > nginx_secret.yaml
student@node-1:~$ vim nginx_secret.yaml
student@node-1:~$ kubectl create -f nginx_secret.yaml
pod/nginx-secret created
student@node-1:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
liveness-http 1/1     Running   0           6h38m
nginx-101     1/1     Running   0           6h39m
nginx-secret  0/1     ContainerCreating   0           4s
poller        1/1     Running   0           6h39m
student@node-1:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
liveness-http 1/1     Running   0           6h38m
nginx-101     1/1     Running   0           6h39m
nginx-secret  1/1     Running   0           8s
poller        1/1     Running   0           6h39m
student@node-1:~$
```

Question: 3

Context



Task

You are required to create a pod that requests a certain amount of CPU and memory, so it gets scheduled to-a node that has those resources available.

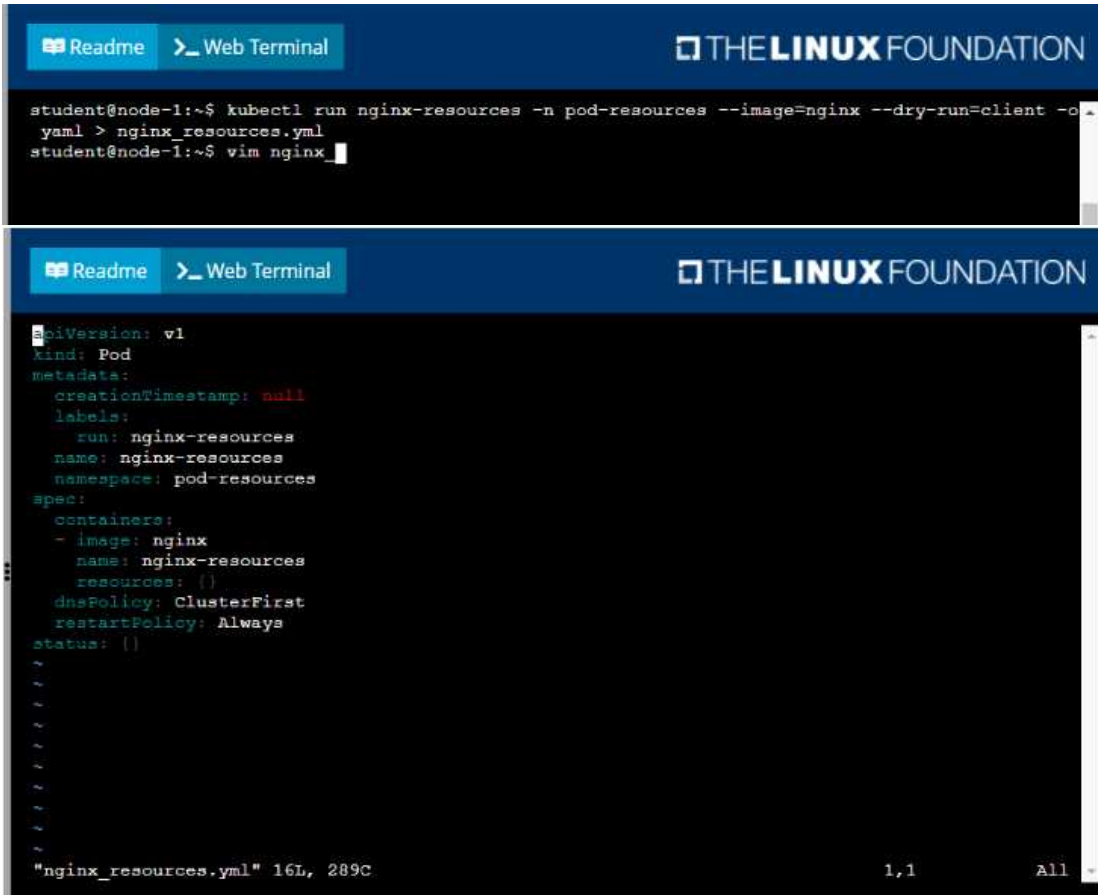
- Create a pod named `nginx-resources` in the `pod-resources` namespace that requests a minimum of 200m CPU and 1Gi memory for its container
- The pod should use the `nginx` image
- The `pod-resources` namespace has already been created

Answer: See the

solution below.

Explanation:

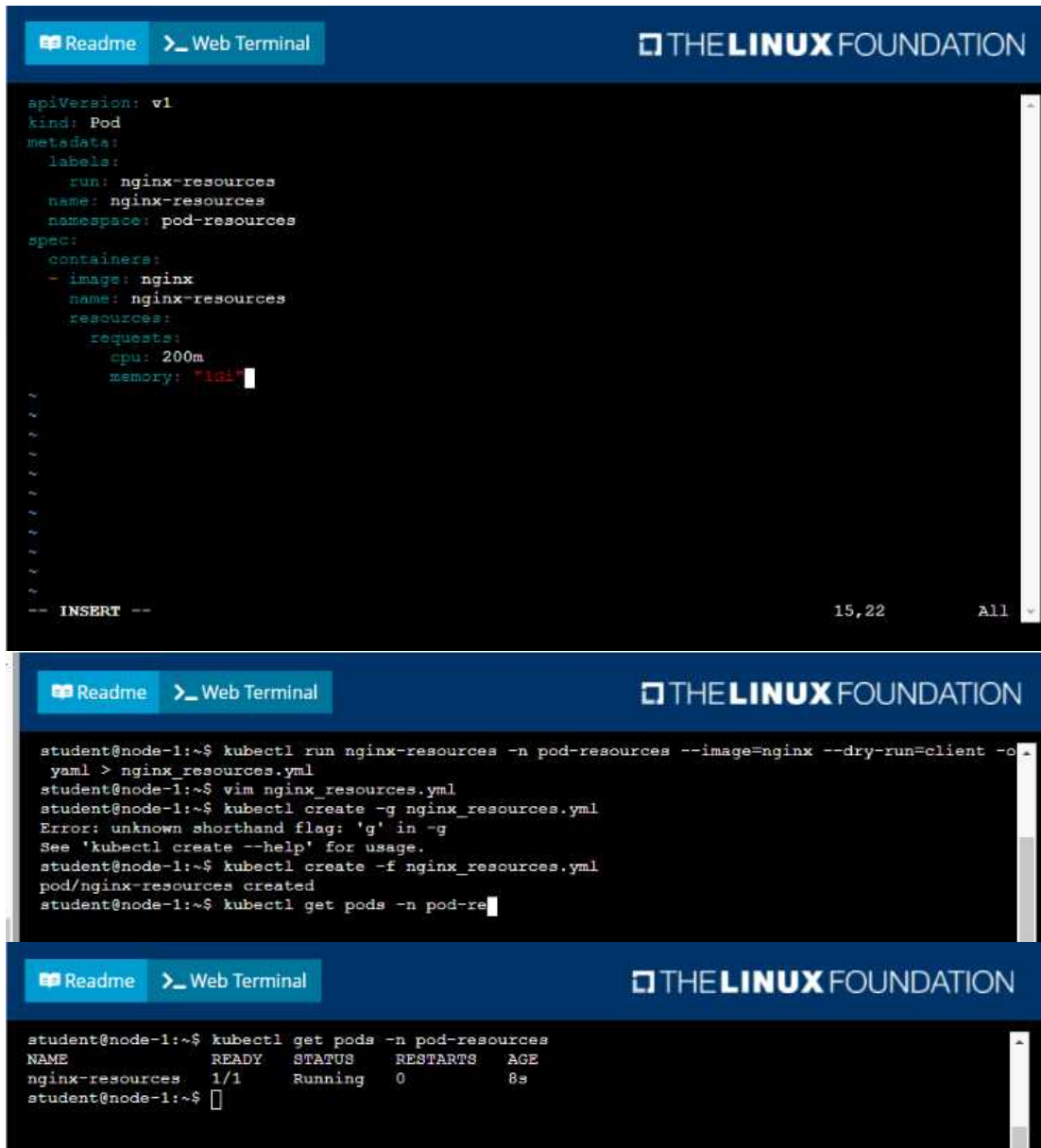
Solution:



```
student@node-1:~$ kubectl run nginx-resources -n pod-resources --image=nginx --dry-run=client -o
yaml > nginx_resources.yml
student@node-1:~$ vim nginx_

apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-resources
  name: nginx-resources
  namespace: pod-resources
spec:
  containers:
  - image: nginx
    name: nginx-resources
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}

"nginx_resources.yml" 16L, 289C          1,1          All
```



The image consists of three vertically stacked screenshots of a web terminal interface. Each screenshot has a blue header with 'Readme' and 'Web Terminal' buttons on the left, and 'THE LINUX FOUNDATION' logo on the right.

The first screenshot shows a YAML configuration for a Pod:

```
apiVersion: v1
kind: Pod
metadata:
  labels:
    run: nginx-resources
  name: nginx-resources
  namespace: pod-resources
spec:
  containers:
  - image: nginx
    name: nginx-resources
    resources:
      requests:
        cpu: 200m
        memory: "1Gi"
```

The second screenshot shows a series of terminal commands and their outputs:

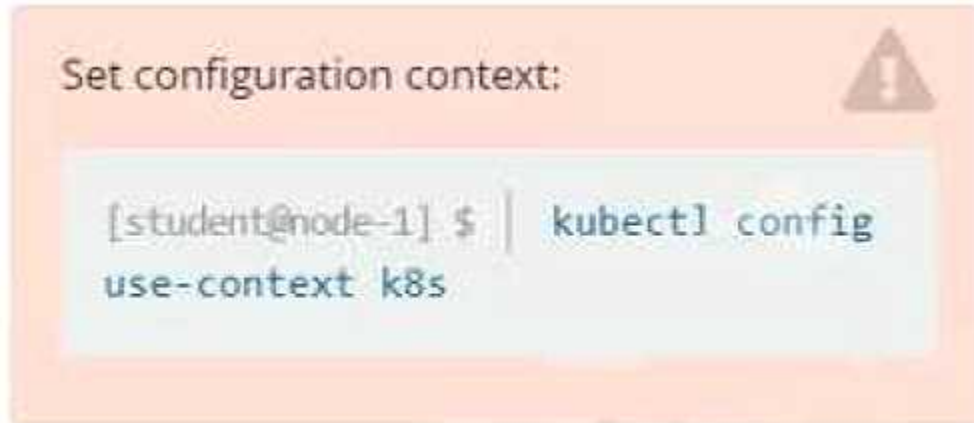
```
student@node-1:~$ kubectl run nginx-resources -n pod-resources --image=nginx --dry-run=client -o
yaml > nginx_resources.yml
student@node-1:~$ vim nginx_resources.yml
student@node-1:~$ kubectl create -g nginx_resources.yml
Error: unknown shorthand flag: 'g' in -g
See 'kubectl create --help' for usage.
student@node-1:~$ kubectl create -f nginx_resources.yml
pod/nginx-resources created
student@node-1:~$ kubectl get pods -n pod-re
```

The third screenshot shows the output of the command to get pods:

```
student@node-1:~$ kubectl get pods -n pod-resources
NAME                READY   STATUS    RESTARTS   AGE
nginx-resources     1/1     Running   0          8s
student@node-1:~$
```

Question: 4

Context



Context

You are tasked to create a ConfigMap and consume the ConfigMap in a pod using a volume mount.

Task

Please complete the following:

- Create a ConfigMap named another-config containing the key/value pair: key4/value3
- start a pod named nginx-configmap containing a single container using the nginx image, and mount the key you just created into the pod under directory /also/a/path

**Answer: See the
solution below.**

Explanation:

Solution:

```
student@node-1:~$ kubectl create configmap another-config --from-literal=key4=value3  
configmap/another-config created  
student@node-1:~$ kubectl get configmap  
NAME          DATA      AGE  
another-config 1          5s  
student@node-1:~$ kubectl run nginx-configmap --image=nginx --dry-run=client -o yaml > nginx_conf  
igmap.yml  
student@node-1:~$ vim nginx_configmap.yml ^C  
student@node-1:~$ mv nginx_configmap.yml nginx_configmap.yml  
student@node-1:~$ vim nginx_co
```



```

Readme Web Terminal THE LINUX FOUNDATION
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-configmap
    name: nginx-configmap
spec:
  containers:
  - image: nginx
    name: nginx-configmap
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}

"nginx_configmap.yml" 15L, 262C 1,1 All

```

```

Readme Web Terminal THE LINUX FOUNDATION
apiVersion: v1
kind: Pod
metadata:
  labels:
    run: nginx-configmap
    name: nginx-configmap
spec:
  containers:
  - image: nginx
    name: nginx-configmap
    volumeMounts:
    - name: myvol
      mountPath: /also/a/path
  volumes:
  - name: myvol
    configMap:
      name: another-config

13,6 All

```

```

student@node-1:~$ kubectl create configmap another-config --from-literal=key4=value3
configmap/another-config created
student@node-1:~$ kubectl get configmap
NAME          DATA  AGE
another-config 1      5s
student@node-1:~$ kubectl run nginx-configmap --image=nginx --dry-run=client -o yaml > nginx_configmap.yml
student@node-1:~$ vim nginx_configmap.yml ^C
student@node-1:~$ mv nginx_configmap.yml nginx_configmap.yml
student@node-1:~$ vim nginx_configmap.yml
student@node-1:~$

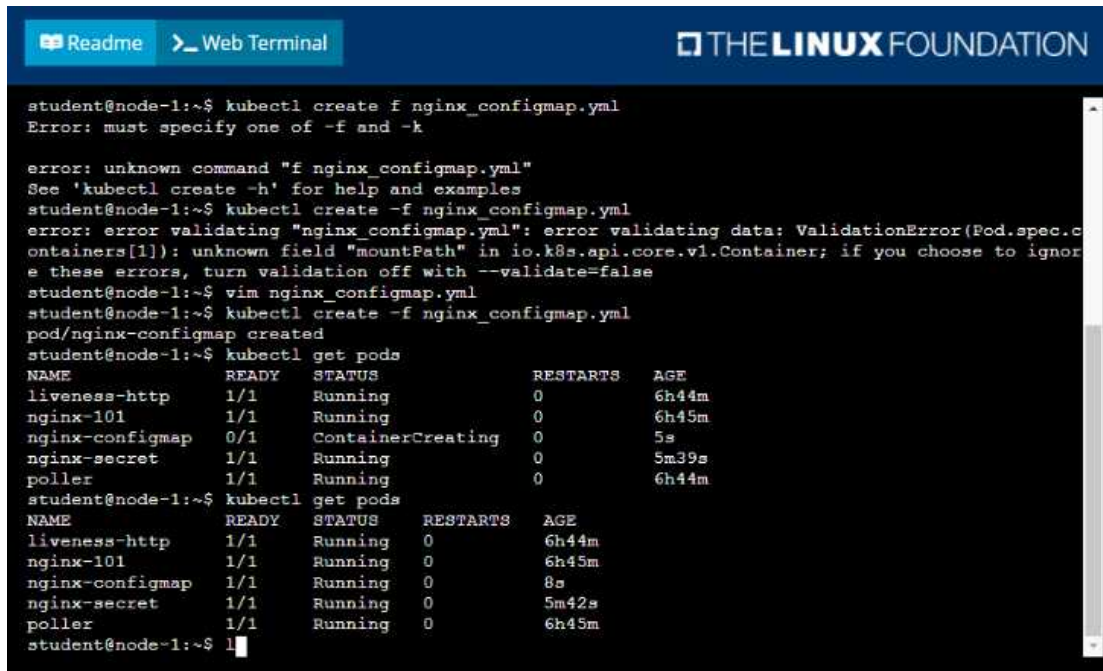
```

```

student@node-1:~$ kubectl run nginx-configmap --image=nginx --dry-run=client -o yaml > nginx_conf
igmap.yml
student@node-1:~$ vim nginx_configmap.yml ^C
student@node-1:~$ mv nginx_configmap.yml nginx_configmap.yml
student@node-1:~$ vim nginx_configmap.yml
student@node-1:~$ kubectl create f nginx_configmap.yml
Error: must specify one of -f and -k

error: unknown command "f nginx_configmap.yml"
See 'kubectl create -h' for help and examples
student@node-1:~$ kubectl create -f nginx_configmap.yml
error: error validating "nginx_configmap.yml": error validating data: ValidationError(Pod.spec.c
ontainers[1]): unknown field "mountPath" in io.k8s.api.core.v1.Container; if you choose to ignor
e these errors, turn validation off with --validate=false
student@node-1:~$ vim nginx_configmap.yml

```



Readme Web Terminal THE LINUX FOUNDATION

```

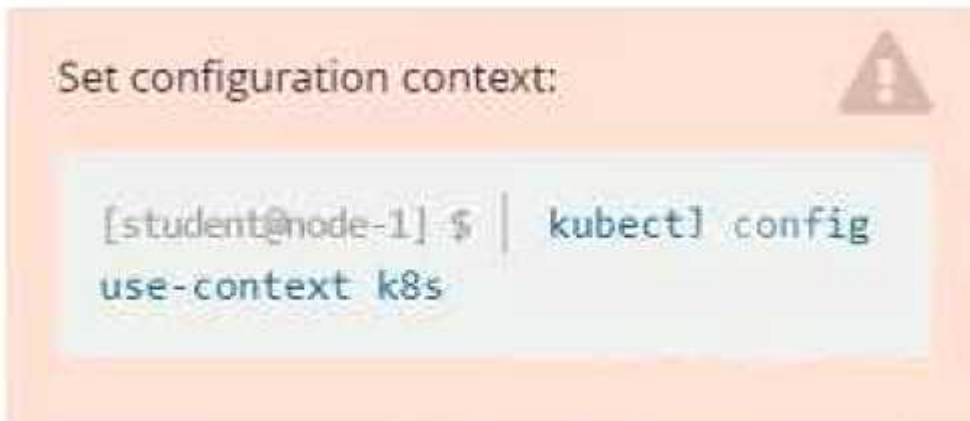
student@node-1:~$ kubectl create f nginx_configmap.yml
Error: must specify one of -f and -k

error: unknown command "f nginx_configmap.yml"
See 'kubectl create -h' for help and examples
student@node-1:~$ kubectl create -f nginx_configmap.yml
error: error validating "nginx_configmap.yml": error validating data: ValidationError(Pod.spec.c
ontainers[1]): unknown field "mountPath" in io.k8s.api.core.v1.Container; if you choose to ignor
e these errors, turn validation off with --validate=false
student@node-1:~$ vim nginx_configmap.yml
student@node-1:~$ kubectl create -f nginx_configmap.yml
pod/nginx-configmap created
student@node-1:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
liveness-http 1/1     Running   0           6h44m
nginx-101     1/1     Running   0           6h45m
nginx-configmap 0/1     ContainerCreating 0           5s
nginx-secret  1/1     Running   0           5m39s
poller        1/1     Running   0           6h44m
student@node-1:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
liveness-http 1/1     Running   0           6h44m
nginx-101     1/1     Running   0           6h45m
nginx-configmap 1/1     Running   0           8s
nginx-secret  1/1     Running   0           5m42s
poller        1/1     Running   0           6h45m
student@node-1:~$ l

```

Question: 5

Context



Context

Your application's namespace requires a specific service account to be used.

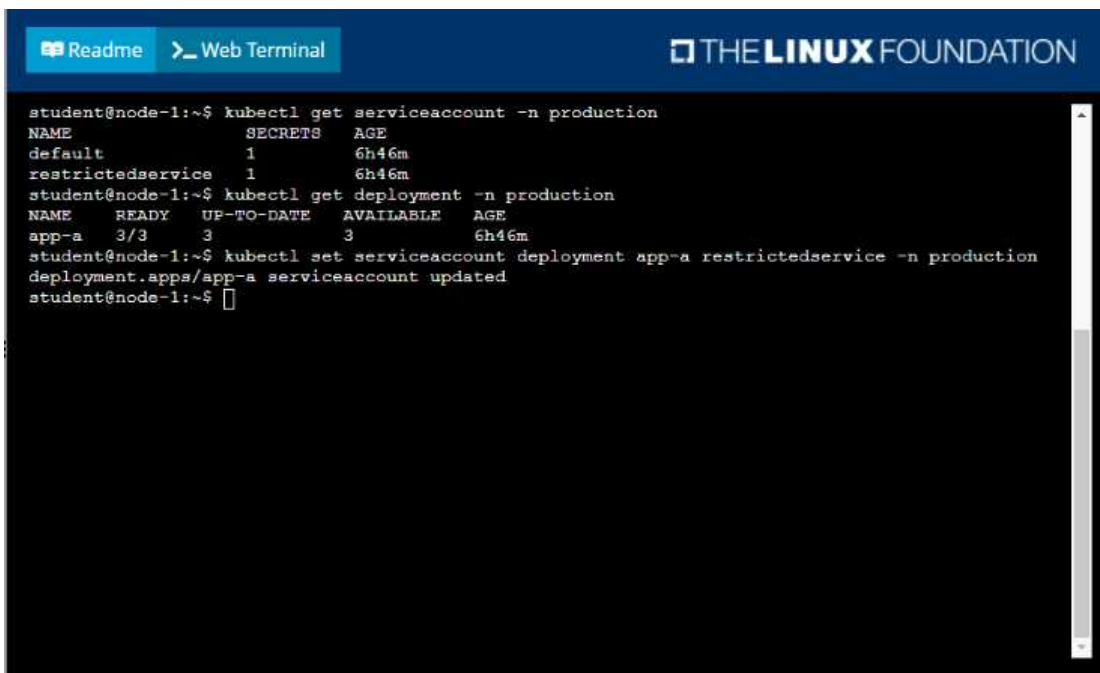
Task

Update the app-a deployment in the production namespace to run as the restrictedservice service account. The service account has already been created.

Answer: See the solution below.

Explanation:

Solution:



The screenshot shows a web terminal interface with a dark background and light text. At the top, there are two tabs: 'Readme' and 'Web Terminal'. The 'Web Terminal' tab is active. In the top right corner, the logo for 'THE LINUX FOUNDATION' is visible. The terminal content shows the following commands and output:

```
student@node-1:~$ kubectl get serviceaccount -n production
NAME                SECRETS  AGE
default              1        6h46m
restrictedservice    1        6h46m
student@node-1:~$ kubectl get deployment -n production
NAME    READY  UP-TO-DATE  AVAILABLE  AGE
app-a   3/3    3           3          6h46m
student@node-1:~$ kubectl set serviceaccount deployment app-a restrictedservice -n production
deployment.apps/app-a serviceaccount updated
student@node-1:~$
```

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