CKAD Q&As

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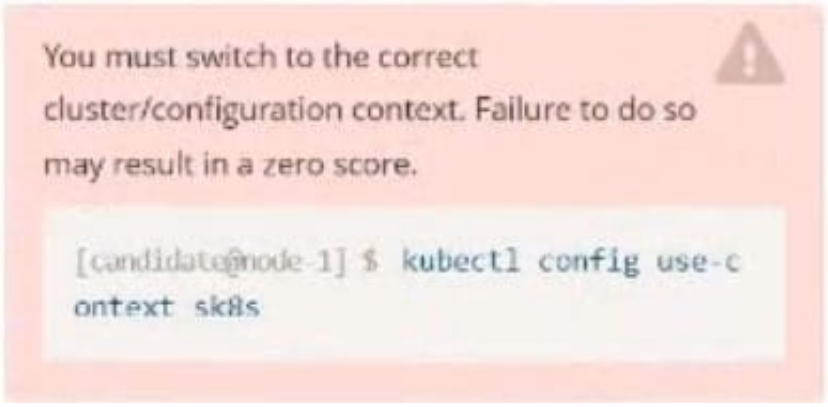
QUESTION 1

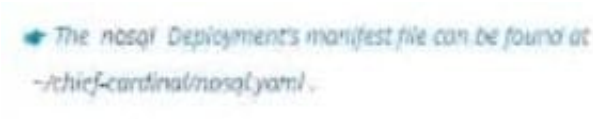
CORRECT TEXT



Task:

The pod for the Deployment named nosql in the crayfish namespace fails to start because its container runs out of resources.

Update the nosql Deployment so that the Pod:



A. Please check explanations

B. Place Holder

Correct Answer: A

```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ vim ~/chief-cardinal/nosql.yaml
```

```
File  Edit  View  Terminal  Tabs  Help
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nosql
  namespace: crayfish
  labels:
    app.kubernetes.io/name: nosql
    app.kubernetes.io/component: backend
spec:
  selector:
    matchLabels:
      app.kubernetes.io/name: nosql
      app.kubernetes.io/component: backend
  replicas: 1
  template:
    metadata:
      labels:
        app.kubernetes.io/name: nosql
        app.kubernetes.io/component: backend
    spec:
      containers:
        - name: mongo
          image: mongo:4.2
          args:
            - --bind_ip
            - 0.0.0.0
          ports:
            - containerPort: 27017
~
~
-- INSERT --                                                    12,1          All
```

```
File  Edit  View  Terminal  Tabs  Help
        - name: mongo
          image: mongo:4.2
          args:
            - --bind_ip
            - 0.0.0.0
          ports:
            - containerPort: 27017
          resources:
             requests:
                 memory: "160Mi"
             limits:
                 memory: "320Mi"
~
~
~
:wq
```

```
File  Edit  View  Terminal  Tabs  Help
    To: <any> (traffic not restricted by destination)
  Policy Types: Ingress, Egress


Name:         default-deny
Namespace:    ckad00018
Created on:   2022-09-24 04:27:37 +0000 UTC
Labels:       <none>
Annotations:  <none>
Spec:
  PodSelector:     <none> (Allowing the specific traffic to all pods in this namespace)
  Allowing ingress traffic:
    <none> (Selected pods are isolated for ingress connectivity)
  Not affecting egress traffic
  Policy Types: Ingress
candidate@node-1:~$ kubectl  label  pod ckad00018-newpod -n ckad00018   web-access=true
pod/ckad00018-newpod labeled
candidate@node-1:~$ kubectl  label  pod ckad00018-newpod -n ckad00018   db-access=true
pod/ckad00018-newpod labeled
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ vim ~/chief-cardinal/nosql.yaml
candidate@node-1:~$ vim ~/chief-cardinal/nosql.yaml
candidate@node-1:~$ kubectl  apply  -f ~/chief-cardinal/nosql.yaml
deployment.apps/nosql configured
candidate@node-1:~$ kubectl  get pods -n crayfish
NAME                     READY   STATUS    RESTARTS   AGE
nosql-74cccf7d64-lkqlg   1/1     Running   0          3m2s
candidate@node-1:~$ kubectl get deploy -n crayfish
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
nosql   1/1     1            1           7h16m
candidate@node-1:~$
```

QUESTION 2

CORRECT TEXT

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:

1.

The pod must run in the web namespace.

2.

The namespace has already been created

3.

The name of the pod should be cache

4.

Use the lfccncf/redis image with the 3.2 tag

5.

Expose port 6379

A. Please check explanations

B. Place Holder

Correct Answer: A

QUESTION 3

CORRECT TEXT

Context

A pod is running on the cluster but it is not responding.

Task

The desired behavior is to have Kubemetes restart the pod when an endpoint returns an HTTP 500 on the /healthz endpoint. The service, probe-pod, should never send traffic to the pod while it is failing. Please complete the following:

1.

The application has an endpoint, /started, that will indicate if it can accept traffic by returning an HTTP 200. If the endpoint returns an HTTP 500, the application has not yet finished initialization.

2.

The application has another endpoint /healthz that will indicate if the application is still working as expected by returning an HTTP 200. If the endpoint returns an HTTP 500 the application is no longer responsive.

3.

Configure the probe-pod pod provided to use these endpoints

4.

The probes should use port 8080

A. Please check explanations

B. Place Holder

Correct Answer: A

apiVersion: v1

kind: Pod

metadata:

labels:

test: liveness

name: liveness-exec

spec:

containers:

-name: liveness

image: k8s.gcr.io/busybox

args:

-/bin/sh

- -c

-touch /tmp/healthy; sleep 30; rm -rf /tmp/healthy; sleep 600 livenessProbe:

exec:

command:

-cat

-/tmp/healthy

initialDelaySeconds: 5

periodSeconds: 5

In the configuration file, you can see that the Pod has a single Container. The periodSeconds field specifies that the kubelet should perform a liveness probe every 5 seconds. The initialDelaySeconds field tells the kubelet that it should wait 5

seconds before performing the first probe. To perform a probe, the kubelet executes the command cat /tmp/healthy in the target container. If the command succeeds, it returns 0, and the kubelet considers the container to be alive and healthy.

If the command returns a non-zero value, the kubelet kills the container and restarts it.

When the container starts, it executes this command:

/bin/sh -c "touch /tmp/healthy; sleep 30; rm -rf /tmp/healthy; sleep 600" For the first 30 seconds of the container\\'s life, there is a /tmp/healthy file. So during the first 30 seconds, the command cat /tmp/healthy returns a success code. After 30

seconds, cat /tmp/healthy returns a failure code.

Create the Pod:

kubectl apply -f https://k8s.io/examples/pods/probe/exec-liveness.yaml Within 30 seconds, view the Pod events:

kubectl describe pod liveness-exec

The output indicates that no liveness probes have failed yet:

FirstSeen LastSeen Count From SubobjectPath Type Reason Message --------- -------- ----- ---- ------------- -------- ------ ------- 24s 24s 1 {default-scheduler } Normal Scheduled Successfully assigned liveness-exec to worker0

23s 23s 1 {kubelet worker0} spec.containers{liveness} Normal Pulling pulling image "k8s.gcr.io/busybox"

23s 23s 1 {kubelet worker0} spec.containers{liveness} Normal Pulled Successfully pulled image "k8s.gcr.io/busybox"

23s 23s 1 {kubelet worker0} spec.containers{liveness} Normal Created Created container with docker id 86849c15382e; Security:[seccomp=unconfined] 23s 23s 1 {kubelet worker0} spec.containers{liveness} Normal Started Started container

with docker id 86849c15382e

After 35 seconds, view the Pod events again:

kubectl describe pod liveness-exec

At the bottom of the output, there are messages indicating that the liveness probes have failed, and the containers have been killed and recreated. FirstSeen LastSeen Count From SubobjectPath Type Reason Message --------- -------- ----- ---------- -------- ------ ------- 37s 37s 1 {default-scheduler } Normal Scheduled Successfully assigned liveness-exec to worker0

36s 36s 1 {kubelet worker0} spec.containers{liveness} Normal Pulling pulling image "k8s.gcr.io/busybox"

36s 36s 1 {kubelet worker0} spec.containers{liveness} Normal Pulled Successfully pulled image "k8s.gcr.io/busybox"

36s 36s 1 {kubelet worker0} spec.containers{liveness} Normal Created Created container with docker id 86849c15382e; Security:[seccomp=unconfined] 36s 36s 1 {kubelet worker0} spec.containers{liveness} Normal Started Started container

with docker id 86849c15382e

2s 2s 1 {kubelet worker0} spec.containers{liveness} Warning Unhealthy Liveness probe failed: cat: can\\'t open \\'/tmp/healthy\\': No such file or directory Wait another 30 seconds, and verify that the container has been restarted:

kubectl get pod liveness-exec

The output shows that RESTARTS has been incremented:

NAME READY STATUS RESTARTS AGE

liveness-exec 1/1 Running 1 1m

QUESTION 4

CORRECT TEXT Context Anytime a team needs to run a container on Kubernetes they will need to define a pod within which to run the container. Task Please complete the following:

1.

Create a YAML formatted pod manifest

2.

/opt/KDPD00101/podl.yml to create a pod named app1 that runs a container named app1cont using image lfccncf/arg-output with these command line arguments: -lines 56 -F

3.

Create the pod with the kubect1 command using the YAML file created in the previous step

4.

When the pod is running display summary data about the pod in JSON format using the kubect1 command and redirect the output to a file named /opt/KDPD00101/out1.json

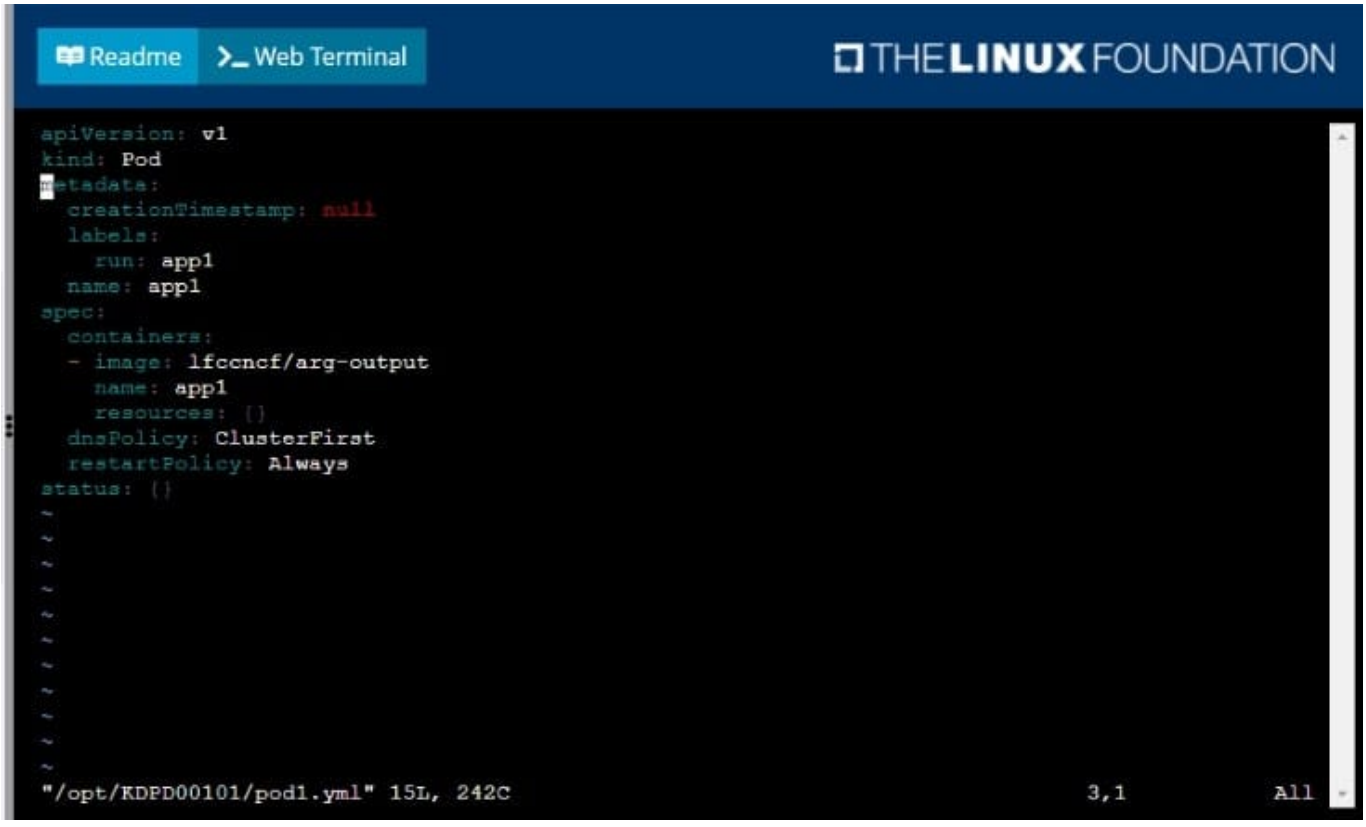
5.

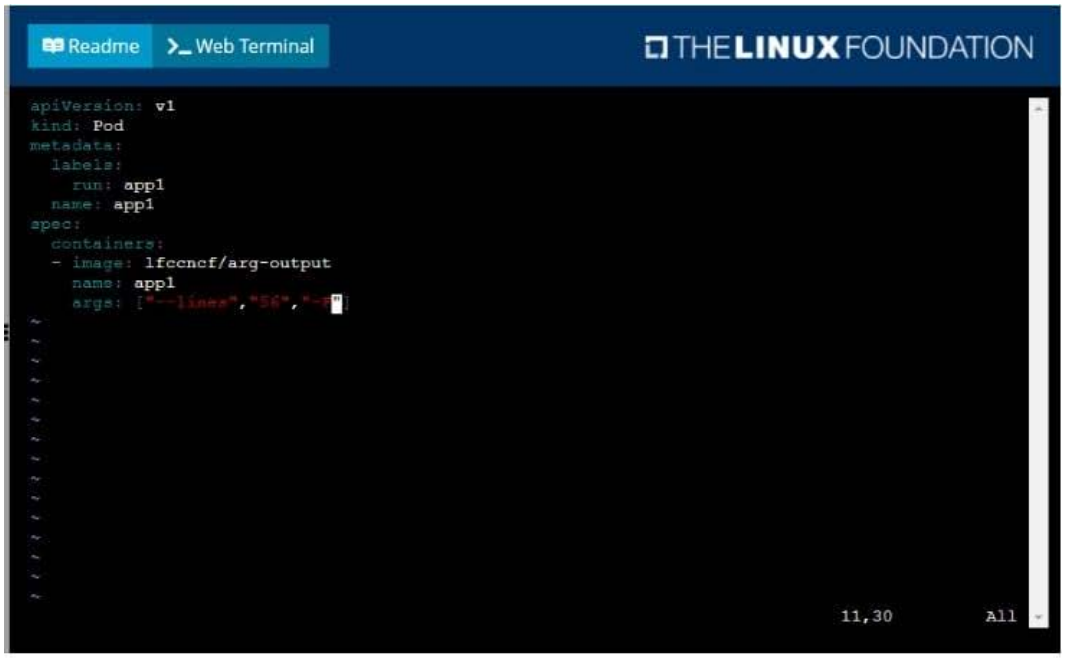
All of the files you need to work with have been created, empty, for your convenience

A. Please check explanations

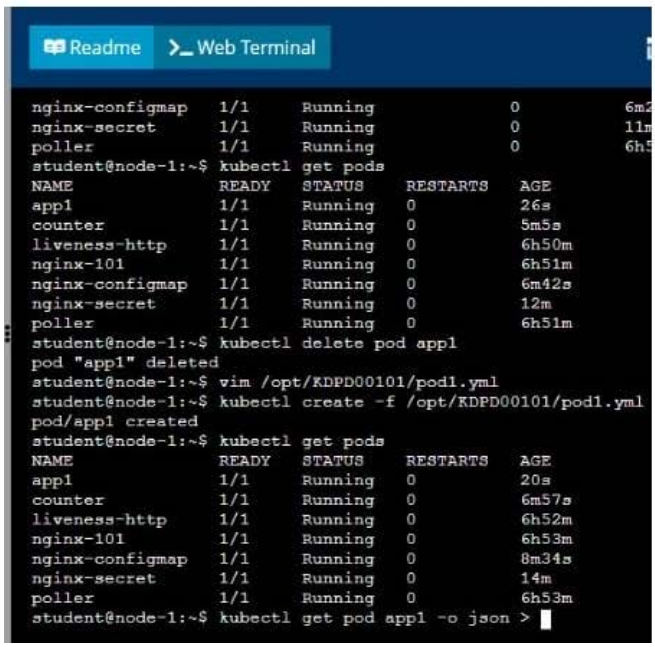
B. Place Holder

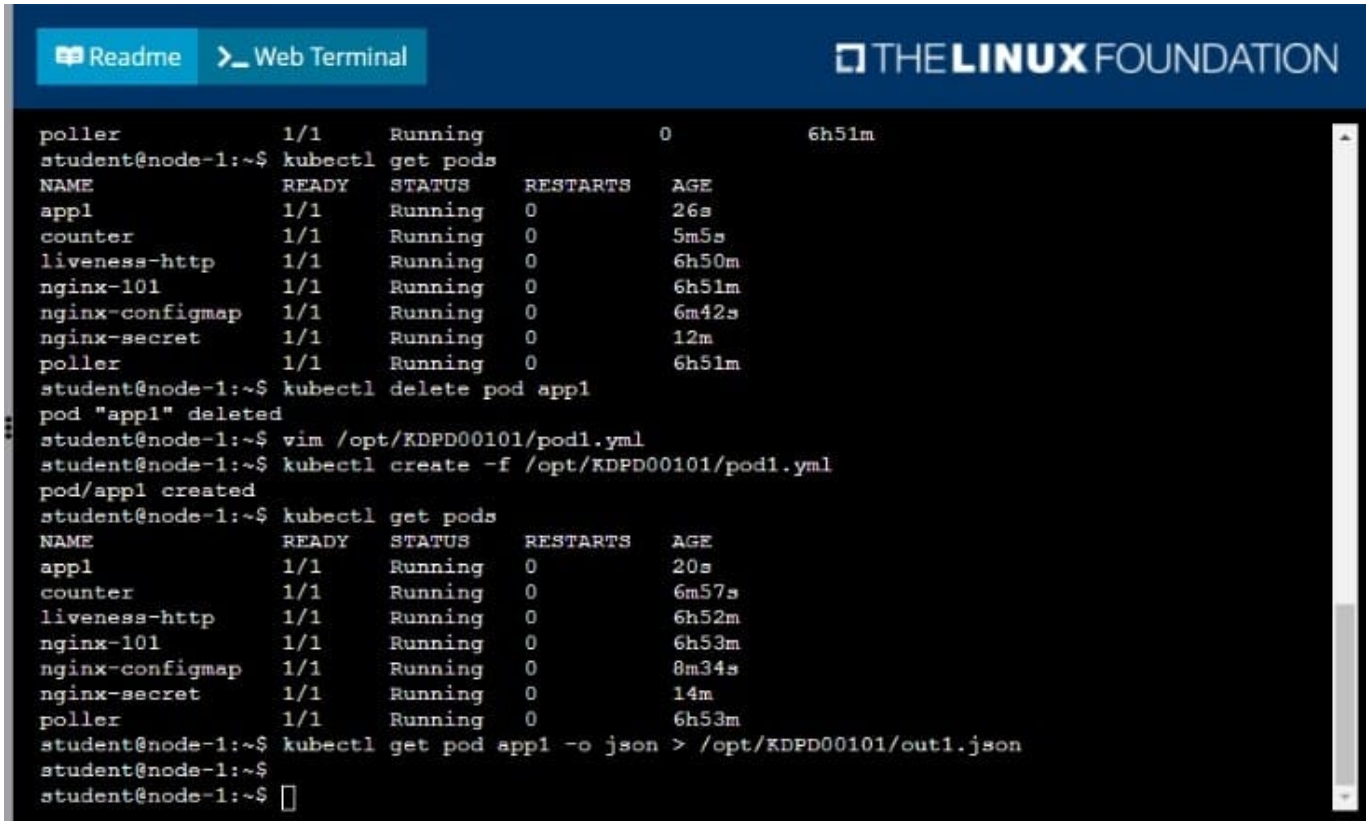
Correct Answer: A






```
pod/app1 created
student@node-1:~$ kubectl get pods
NAME              READY   STATUS              RESTARTS   AGE
app1              0/1     ContainerCreating   0          5s
counter           1/1     Running             0          4m44
liveness-http     1/1     Running             0          6h50
nginx-101         1/1     Running             0          6h51
nginx-configmap   1/1     Running             0          6m21
nginx-secret      1/1     Running             0          11m
poller            1/1     Running             0          6h51
student@node-1:~$ kubectl get pods
NAME              READY   STATUS    RESTARTS   AGE
app1              1/1     Running   0          26s
counter           1/1     Running   0          5m5s
liveness-http     1/1     Running   0          6h50m
nginx-101         1/1     Running   0          6h51m
nginx-configmap   1/1     Running   0          6m42s
nginx-secret      1/1     Running   0          12m
poller            1/1     Running   0          6h51m
student@node-1:~$ kubectl delete pod app1
pod "app1" deleted
student@node-1:~$ vim /opt/KDPD00101/pod1.yml
```





QUESTION 5

CORRECT TEXT

Context

A project that you are working on has a requirement for persistent data to be available.

Task

To facilitate this, perform the following tasks:

1.

Create a file on node sk8s-node-0 at /opt/KDSP00101/data/index.html with the content Acct=Finance

2.

Create a PersistentVolume named task-pv-volume using hostPath and allocate 1Gi to it, specifying that the volume is at /opt/KDSP00101/data on the cluster\\'s node.

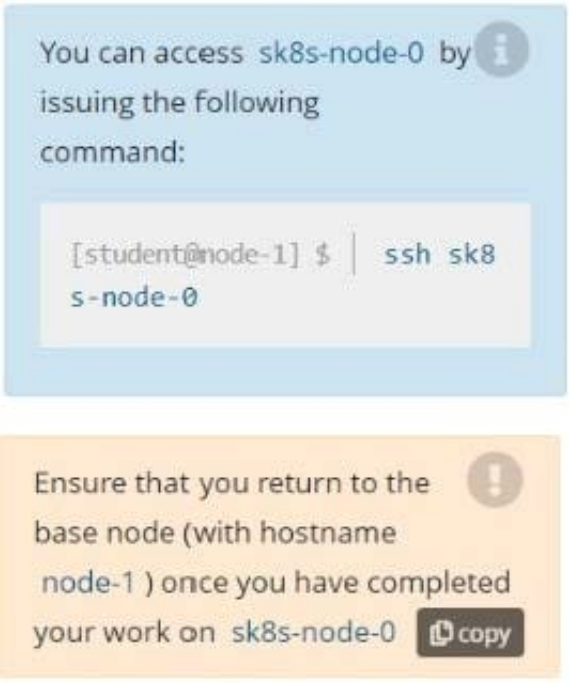
The configuration should specify the access mode of ReadWriteOnce. It should define the StorageClass name exam for the PersistentVolume, which will be used to bind PersistentVolumeClaim requests to this PersistenetVolume.

1.

Create a PefsissentVolumeClaim named task-pv-claim that requests a volume of at least 100Mi and specifies an access mode of ReadWriteOnce

2.

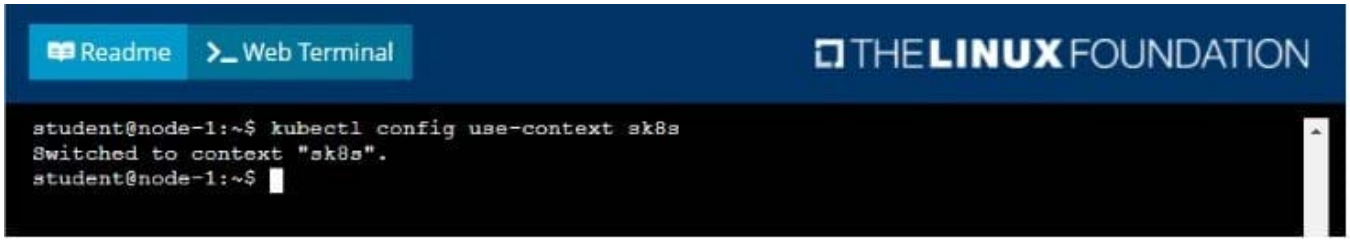
Create a pod that uses the PersistentVolmeClaim as a volume with a label app: my- storage-app mounting the resulting volume to a mountPath /usr/share/nginx/html inside the pod

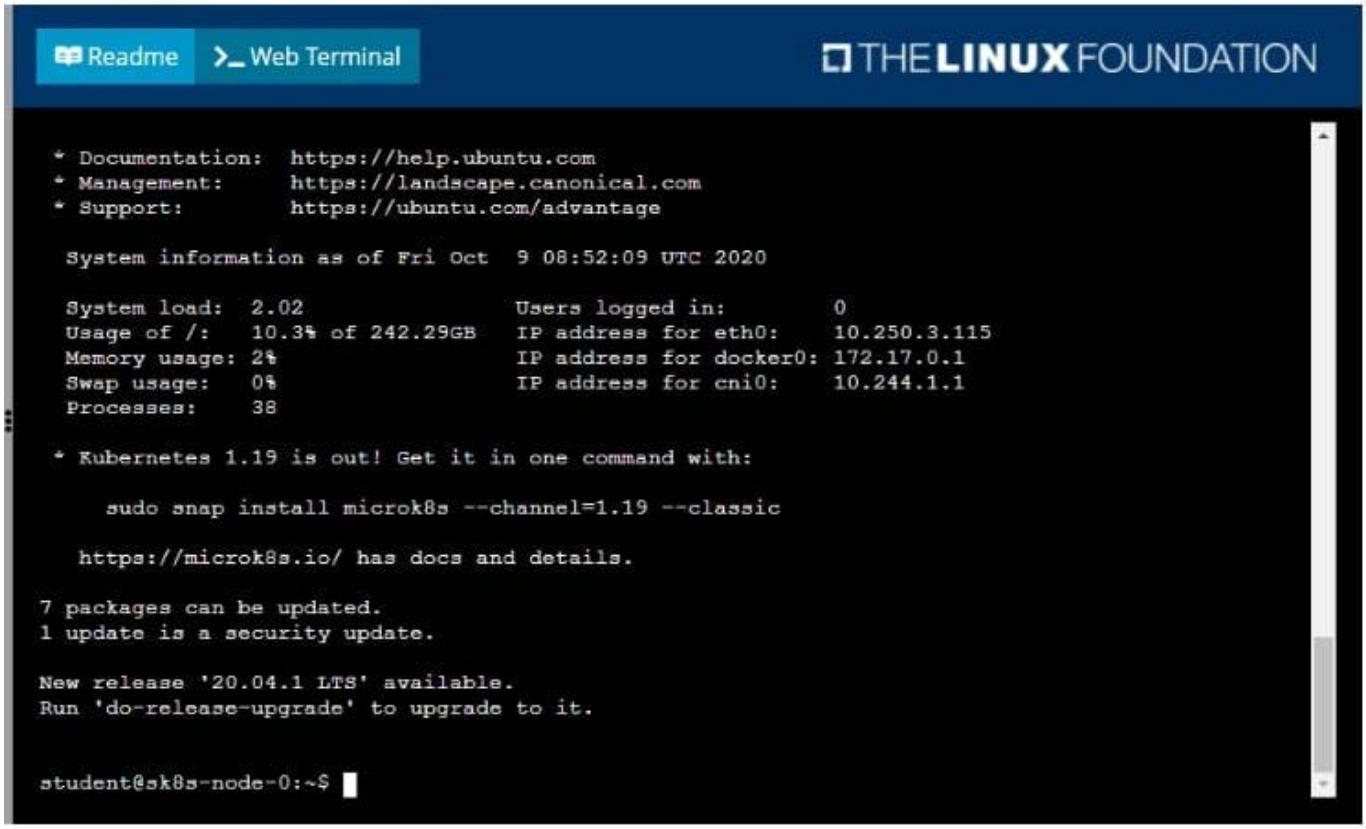


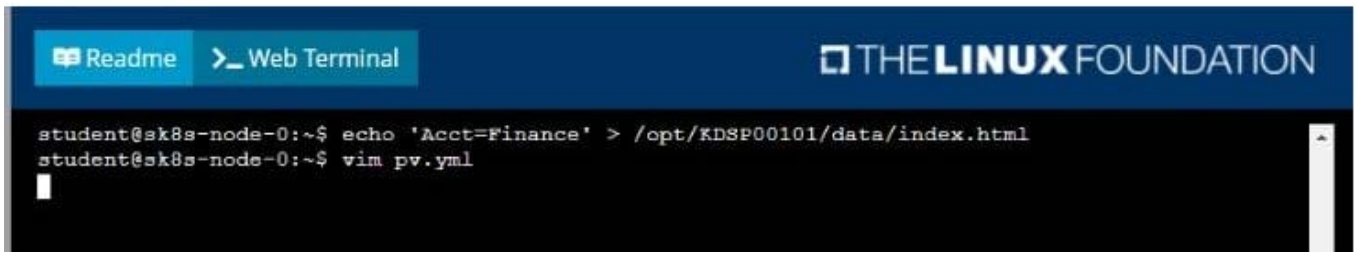
A. Please check explanations

B. Place Holder

Correct Answer: A


Readme
Web Terminal
THE LINUX FOUNDATION
student@node-1:~$ kubectl config use-context sk8s
Switched to context "sk8s".
student@node-1:~$


Readme
Web Terminal
THE LINUX FOUNDATION
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
System information as of Fri Oct 9 08:52:09 UTC 2020
System load: 2.02
Usage of /: 10.3% of 242.29GB
Memory usage: 2%
Swap usage: 0%
Processes: 38
Users logged in: 0
IP address for eth0: 10.250.3.115
IP address for docker0: 172.17.0.1
IP address for cni0: 10.244.1.1
* Kubernetes 1.19 is out! Get it in one command with:
sudo snap install microk8s --channel=1.19 --classic
https://microk8s.io/ has docs and details.
7 packages can be updated.
1 update is a security update.
New release '20.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.
student@sk8s-node-0:~$


Readme
Web Terminal
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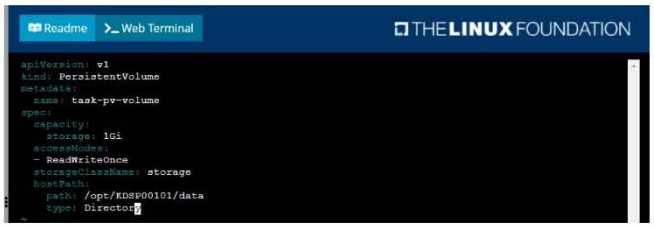
student@sk8s-node-0:~$ echo 'Acct=Finance' > /opt/KDSP00101/data/index.html
student@sk8s-node-0:~$ vim pv.yml


Readme
Web Terminal
THE LINUX FOUNDATION
-- INSERT --
0,1
All


Readme
Web Terminal
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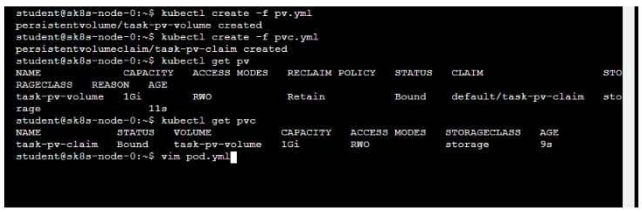
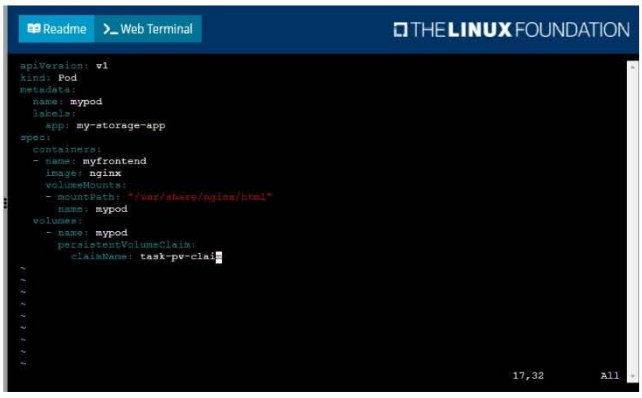
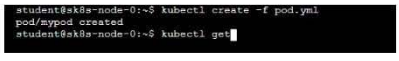
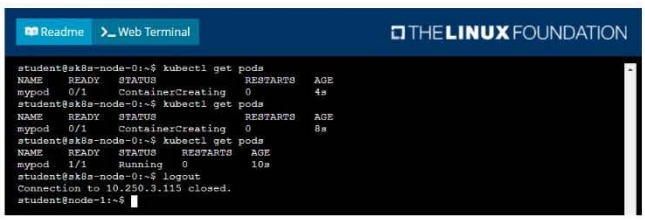
apiVersion: v1
kind: PersistentVolume
metadata:
name: task-pv-volume
spec:
capacity:
storage: 1Gi
accessModes:
- ReadWriteOnce
storageClassName: storage
hostPath:
path: /opt/KDSP00101/data
type: Director


Readme
Web Terminal
THE LINUX FOUNDATION
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
name: task-pv-claim
spec:
accessModes:
- ReadWriteOnce
resources:
requests:
storage: 100Mi
storageClassName: storage


student@sk8s-node-0:~$ kubectl create -f pv.yml
persistentvolume/task-pv-volume created
student@sk8s-node-0:~$ kubectl create -f pvc.yml
persistentvolumeclaim/task-pv-claim created
student@sk8s-node-0:~$ kubectl get pv
NAME CAPACITY ACCESS MODES RECLAIM POLICY STATUS CLAIM STO
RAGECLASS REASON AGE
task-pv-volume 1Gi RWO Retain Bound default/task-pv-claim sto
rage 11s
student@sk8s-node-0:~$ kubectl get pvc
NAME STATUS VOLUME CAPACITY ACCESS MODES STORAGECLASS AGE
task-pv-claim Bound task-pv-volume 1Gi RWO storage 9s
student@sk8s-node-0:~$ vim pod.yml


Readme
Web Terminal
THE LINUX FOUNDATION
apiVersion: v1
kind: Pod
metadata:
name: mypod
labels:
app: my-storage-app
spec:
containers:
- name: myfrontend
image: nginx
volumeMounts:
- mountPath: "/usr/share/nginx/html"
name: mypod
volumes:
- name: mypod
persistentVolumeClaim:
claimName: task-pv-clai
17,32
All


student@sk8s-node-0:~$ kubectl create -f pod.yml
pod/mypod created
student@sk8s-node-0:~$ kubectl get


Readme
Web Terminal
THE LINUX FOUNDATION
student@sk8s-node-0:~$ kubectl get pods
NAME READY STATUS RESTARTS AGE
mypod 0/1 ContainerCreating 0 4s
student@sk8s-node-0:~$ kubectl get pods
NAME READY STATUS RESTARTS AGE
mypod 0/1 ContainerCreating 0 8s
student@sk8s-node-0:~$ kubectl get pods
NAME READY STATUS RESTARTS AGE
mypod 1/1 Running 0 10s
student@sk8s-node-0:~$ logout
Connection to 10.250.3.115 closed.
student@node-1:~$

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