CKAD$^{Q\&As}$

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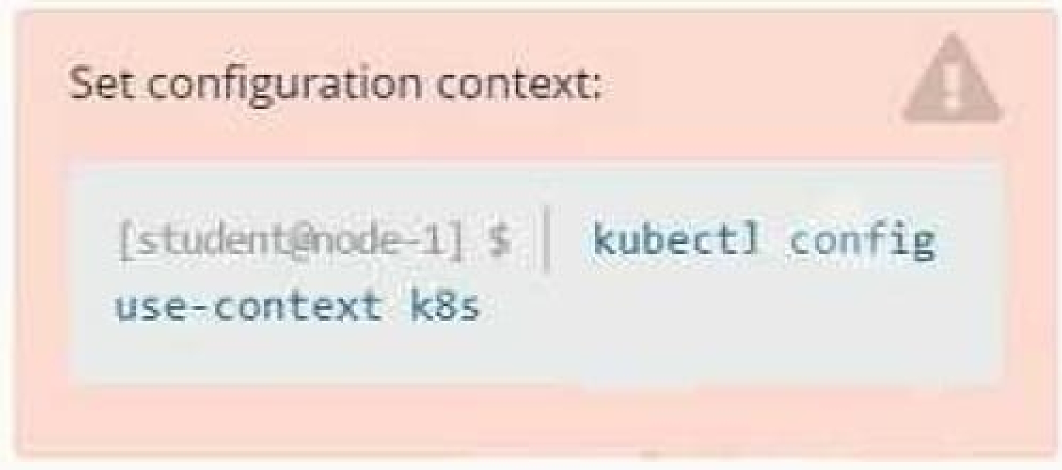
QUESTION 1

CORRECT TEXT



Set configuration context:

```
[student@node-1] $ | kubectl config
use-context k8s
```

Context

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

Task

Please complete the following:

1.

Create a ConfigMap named another-config containing the key/value pair: key4/value3

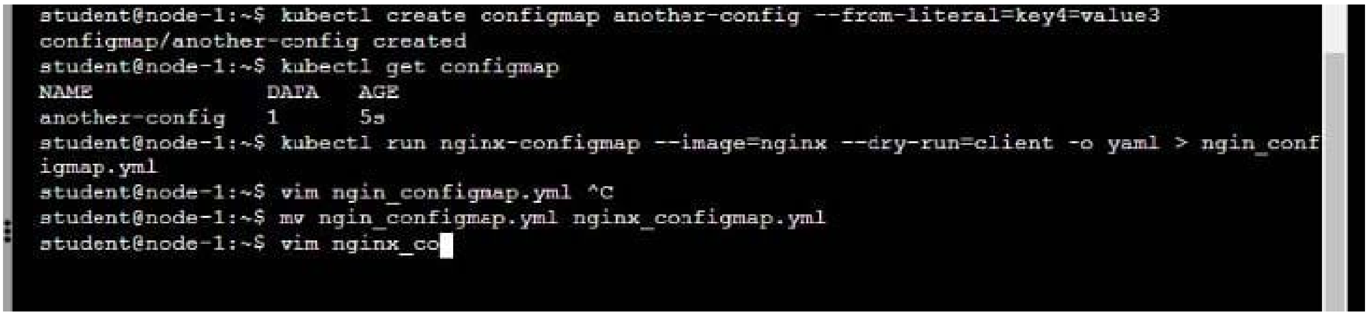
2.

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

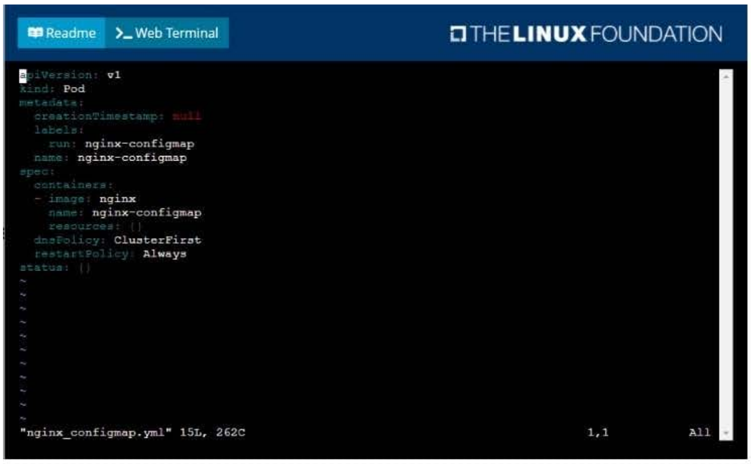
A. Please check explanations

B. Place Holder

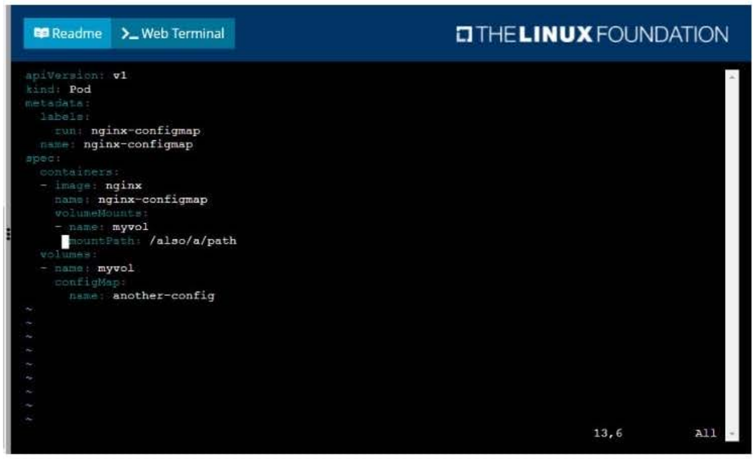
Correct Answer: A



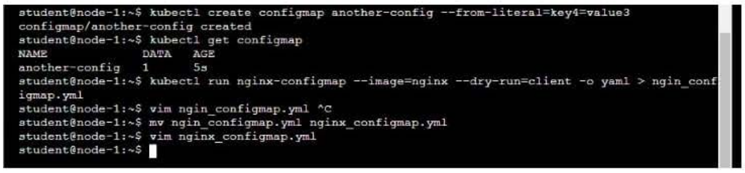
```
student@node-1:~$ kubectl create configmap another-config --from-literal=key4=value3
configmap/another-config created
student@node-1:~$ kubectl get configmap
NAME             DATA   AGE
another-config   1      5s
student@node-1:~$ kubectl run nginx-configmap --image=nginx --dry-run=client -o yaml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



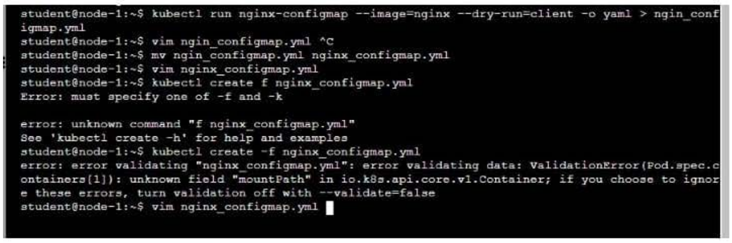
```
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-configmap
  name: nginx-configmap
spec:
  containers:
  - image: nginx
    name: nginx-configmap
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}
~
~
~
~
~
~
~
~
~
~
~
"nginx_configmap.yml" 15L, 262C                                    1,1           All
```



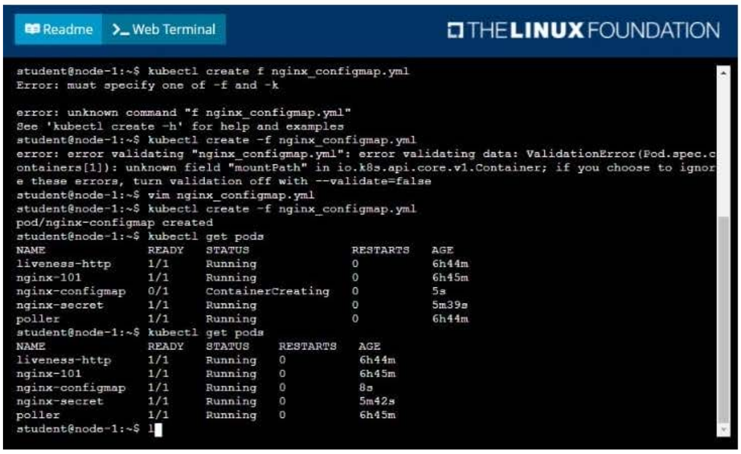
```
apiVersion: v1
kind: Pod
metadata:
  labels:
    run: nginx-configmap
  name: nginx-configmap
spec:
  containers:
  - image: nginx
    name: nginx-configmap
    volumeMounts:
    - name: myvol
     mountPath: /also/a/path
  volumes:
  - name: myvol
    configMap:
      name: another-config
~
~
~
~
~
~
~
~
~
                                                                   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 > ngin_conf
igmap.yml
student@node-1:~$ vim ngin_configmap.yml ^C
student@node-1:~$ mv ngin_configmap.yml nginx_configmap.yml
student@node-1:~$ vim nginx_configmap.yml
student@node-1:~$
```



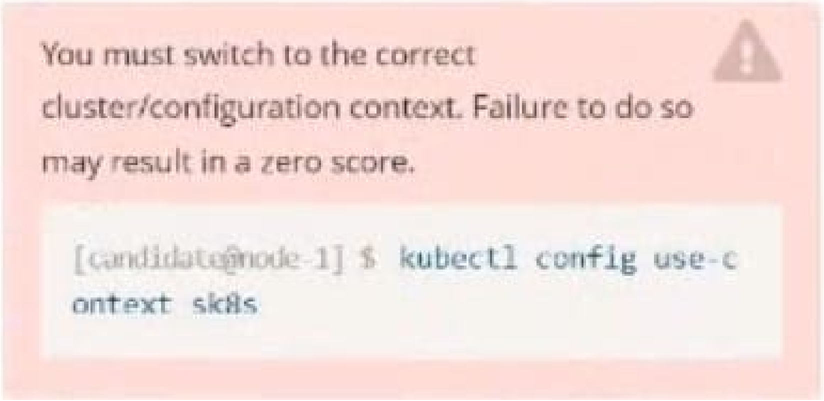
```
student@node-1:~$ kubectl run nginx-configmap --image=nginx --dry-run=client -o yaml > ngin_conf
igmap.yml
student@node-1:~$ vim ngin_configmap.yml ^C
student@node-1:~$ mv ngin_configmap.yml nginx_configmap.yml
student@node-1:~$ vim nginx_configmap.yml
student@node-1:~$ kubectl create f nginx_configmap.yml
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
```



```
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 2

CORRECT TEXT



You must switch to the correct cluster/configuration context. Failure to do so may result in a zero score.

```
[candidate@node-1] $ kubectl config use-context sk8s
```

Task:

A pod within the Deployment named buffalo-deployment and in namespace gorilla is logging errors.

Look at the logs identify errors messages.

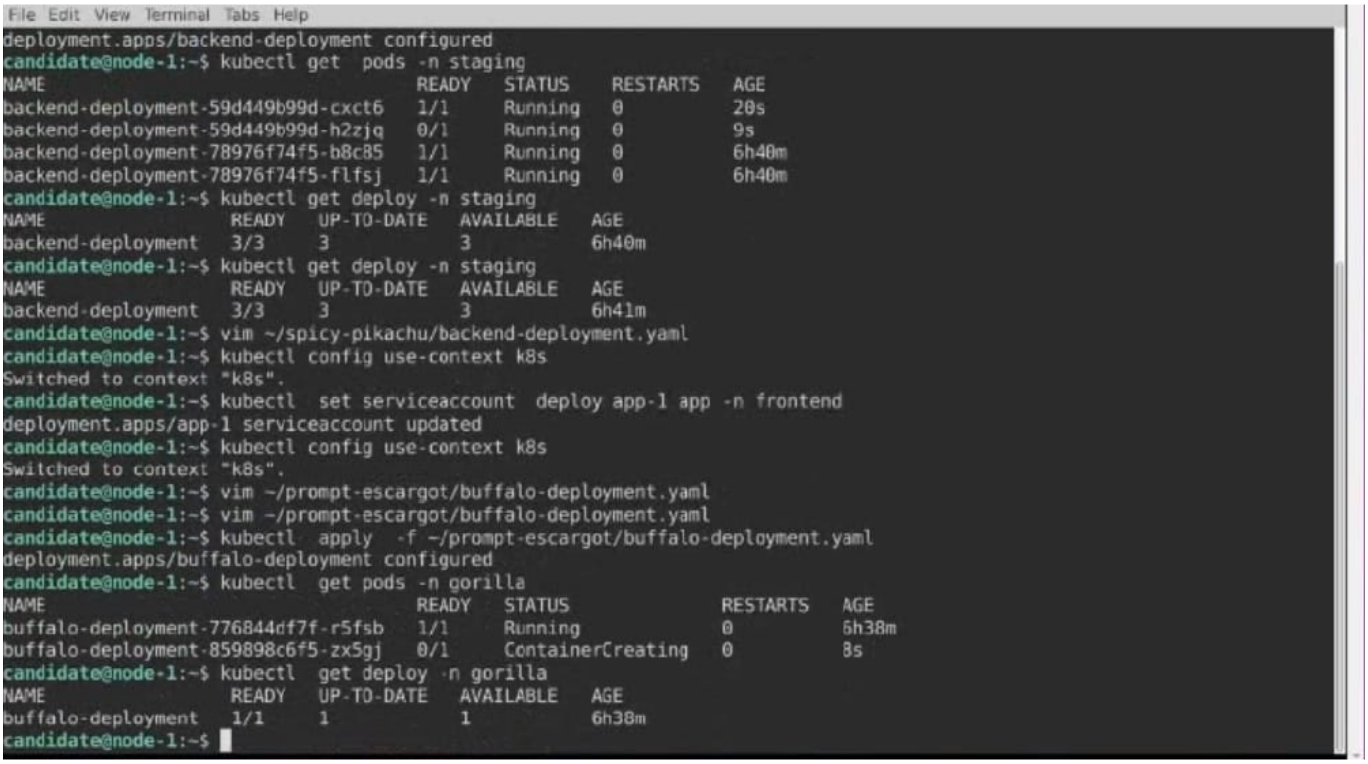
Find errors, including User "system:serviceaccount:gorilla:default" cannot list resource "deployment" [...] in the namespace "gorilla"

The buffalo-deployment `S manifest can be found at -/prompt/escargot/buffalo- deployment.yaml

A. Please check explanations

B. Place Holder

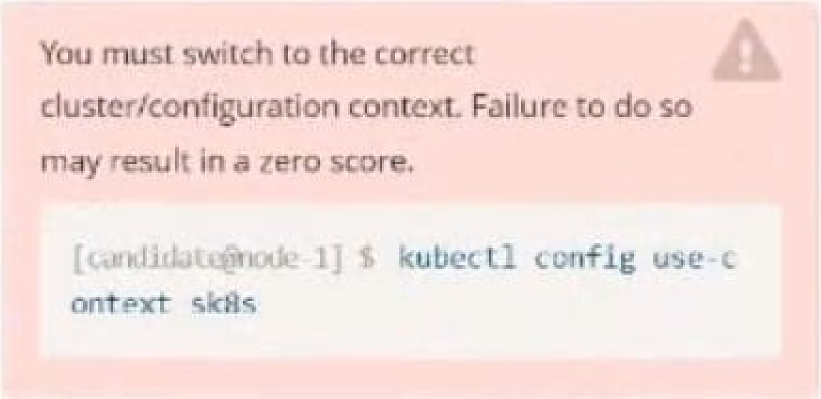
Correct Answer: A



```
deployment.apps/backend-deployment configured
candidate@node-1:~$ kubectl get  pods -n staging
NAME                                 READY   STATUS    RESTARTS   AGE
backend-deployment-59d449b99d-cxct6  1/1     Running   0          20s
backend-deployment-59d449b99d-h2zjq  0/1     Running   0          9s
backend-deployment-78976f74f5-b8c85  1/1     Running   0          6h40m
backend-deployment-78976f74f5-flfsj  1/1     Running   0          6h40m
candidate@node-1:~$ kubectl get deploy -n staging
NAME                 READY   UP-TO-DATE   AVAILABLE   AGE
backend-deployment   3/3     3            3           6h40m
candidate@node-1:~$ kubectl get deploy -n staging
NAME                 READY   UP-TO-DATE   AVAILABLE   AGE
backend-deployment   3/3     3            3           6h41m
candidate@node-1:~$ vim ~/spicy-pikachu/backend-deployment.yaml
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl  set serviceaccount  deploy app-1 app -n frontend
deployment.apps/app-1 serviceaccount updated
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ vim ~/prompt-escargot/buffalo-deployment.yaml
candidate@node-1:~$ vim ~/prompt-escargot/buffalo-deployment.yaml
candidate@node-1:~$ kubectl  apply  -f ~/prompt-escargot/buffalo-deployment.yaml
deployment.apps/buffalo-deployment configured
candidate@node-1:~$ kubectl  get pods -n gorilla
NAME                                 READY   STATUS              RESTARTS   AGE
buffalo-deployment-776844df7f-r5fsb  1/1     Running             0          6h38m
buffalo-deployment-859898c6f5-zx5gj  0/1     ContainerCreating   0          8s
candidate@node-1:~$ kubectl  get deploy -n gorilla
NAME                 READY   UP-TO-DATE   AVAILABLE   AGE
buffalo-deployment   1/1     1            1           6h38m
candidate@node-1:~$
```

QUESTION 3

CORRECT TEXT



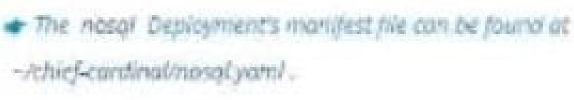
You must switch to the correct cluster/configuration context. Failure to do so may result in a zero score.

```
[candidate@node-1] $ kubectl config use-context sk8s
```

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:

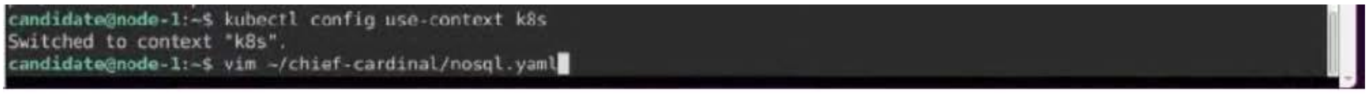


- The nosql Deployment's manifest file can be found at ~/chief-cardinal/nosql.yaml .

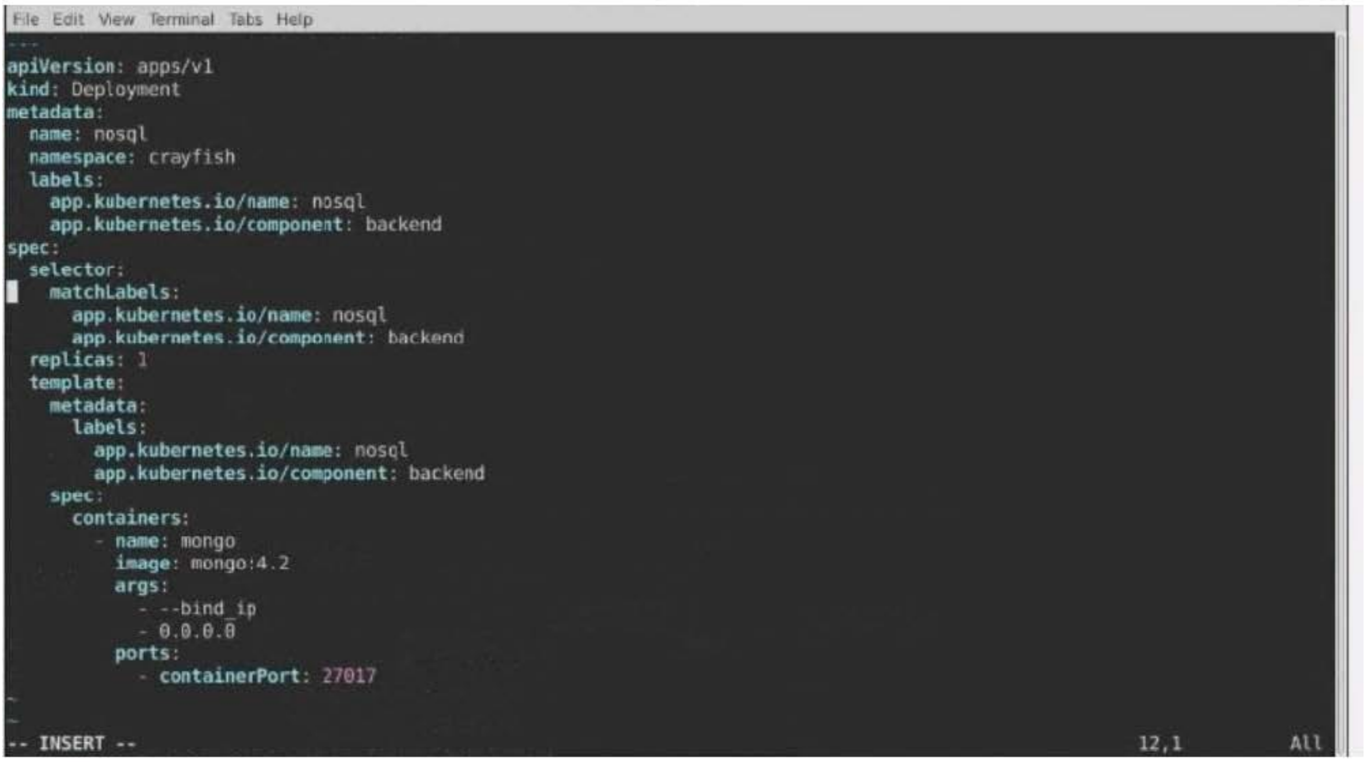
A. Please check explanations

B. Place Holder

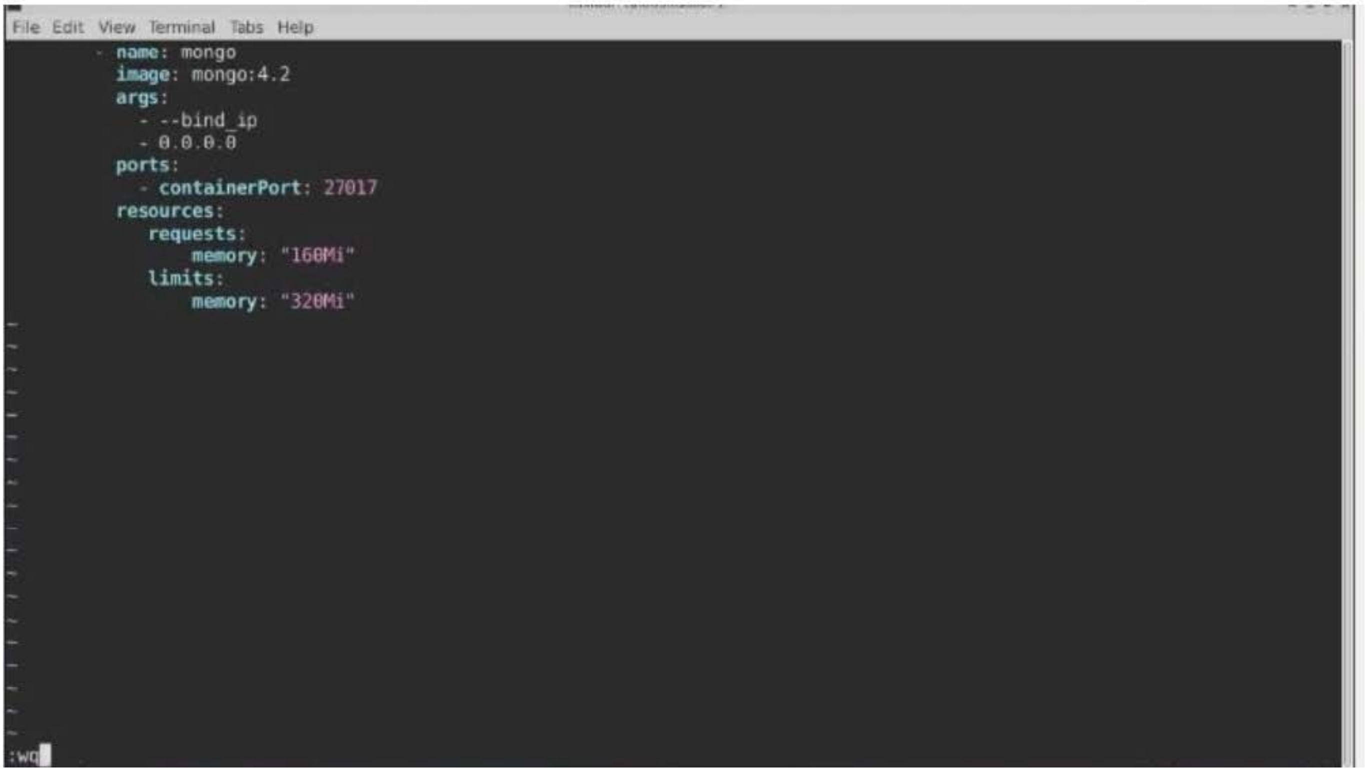
Correct Answer: A



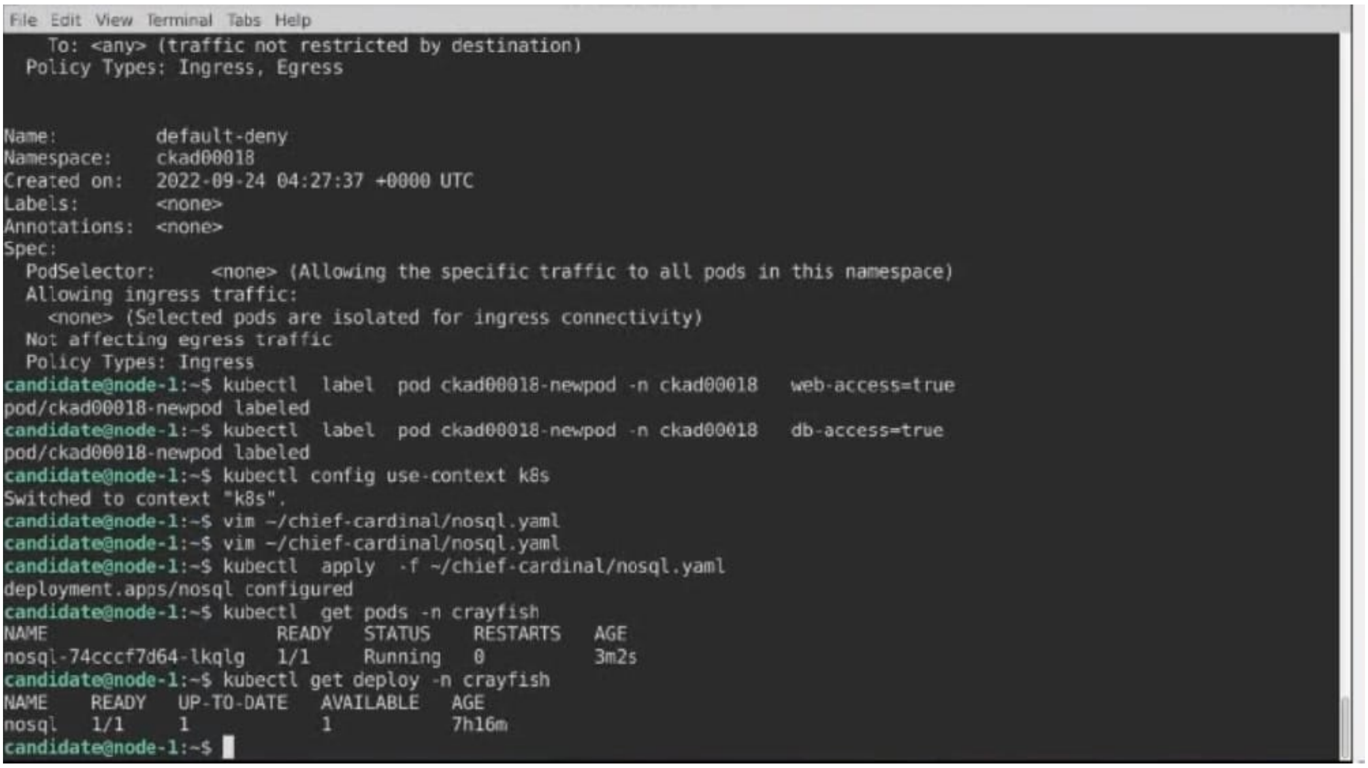
```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ vim ~/chief-cardinal/nosql.yaml
```



```
---
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
```



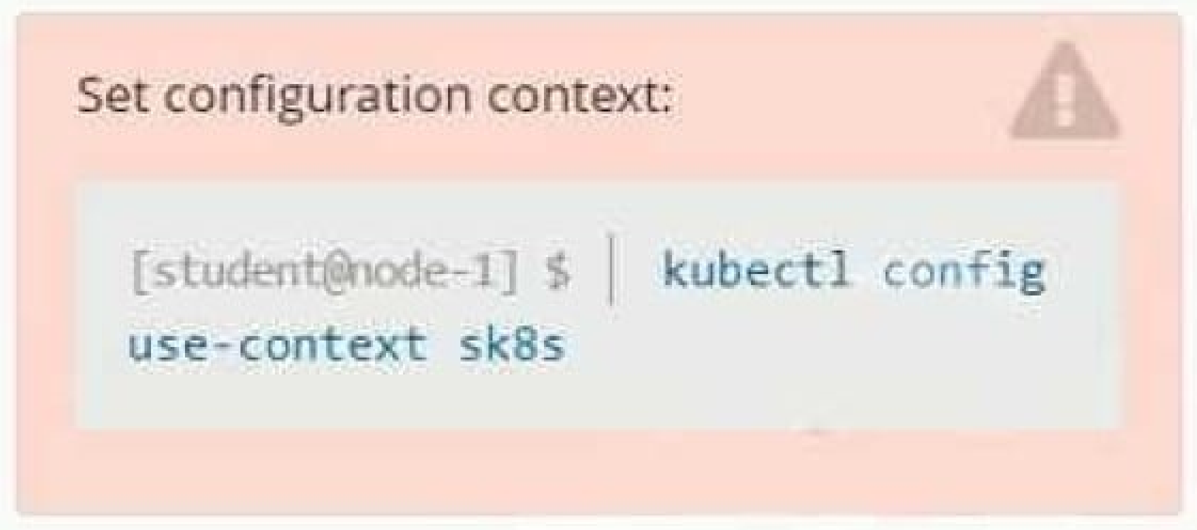
```
        - name: mongo
          image: mongo:4.2
          args:
            - --bind_ip
            - 0.0.0.0
          ports:
            - containerPort: 27017
          resources:
             requests:
                 memory: "160Mi"
             limits:
                 memory: "320Mi"
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
:wq
```



```
    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 4

CORRECT TEXT



Set configuration context:

```
[student@node-1] $ | kubectl config
use-context sk8s
```

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.

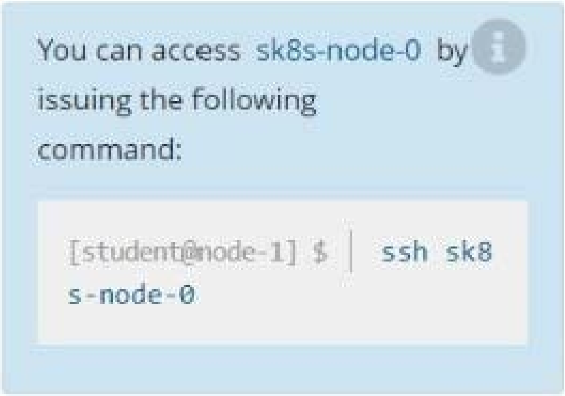
The configuration should specify the access mode of ReadWriteOnce. It should define the StorageClass name exam for the PersistentVolume, which will be used to bind PersistentVolumeClaim requests to this PersistenetVolume.

1.

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

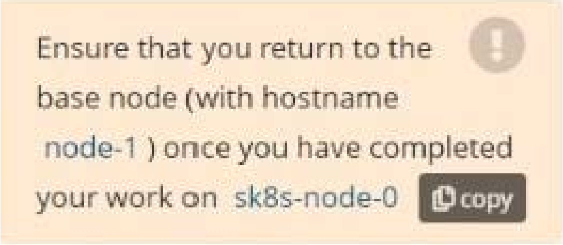
2.

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



You can access sk8s-node-0 by issuing the following command:

```
[student@node-1] $ | ssh sk8s-node-0
```

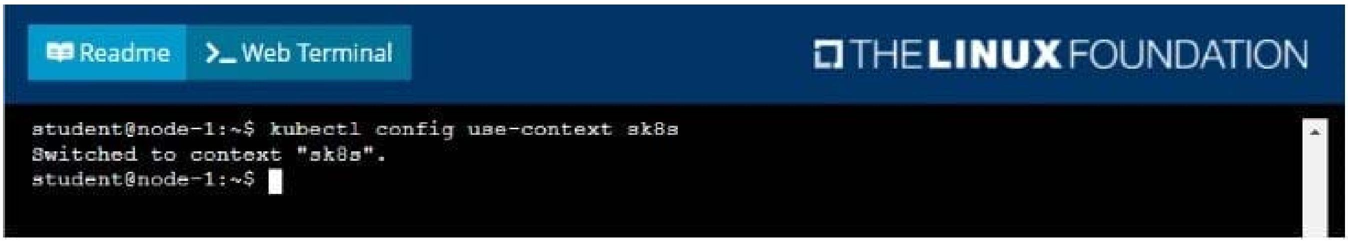


Ensure that you return to the base node (with hostname node-1) once you have completed your work on sk8s-node-0

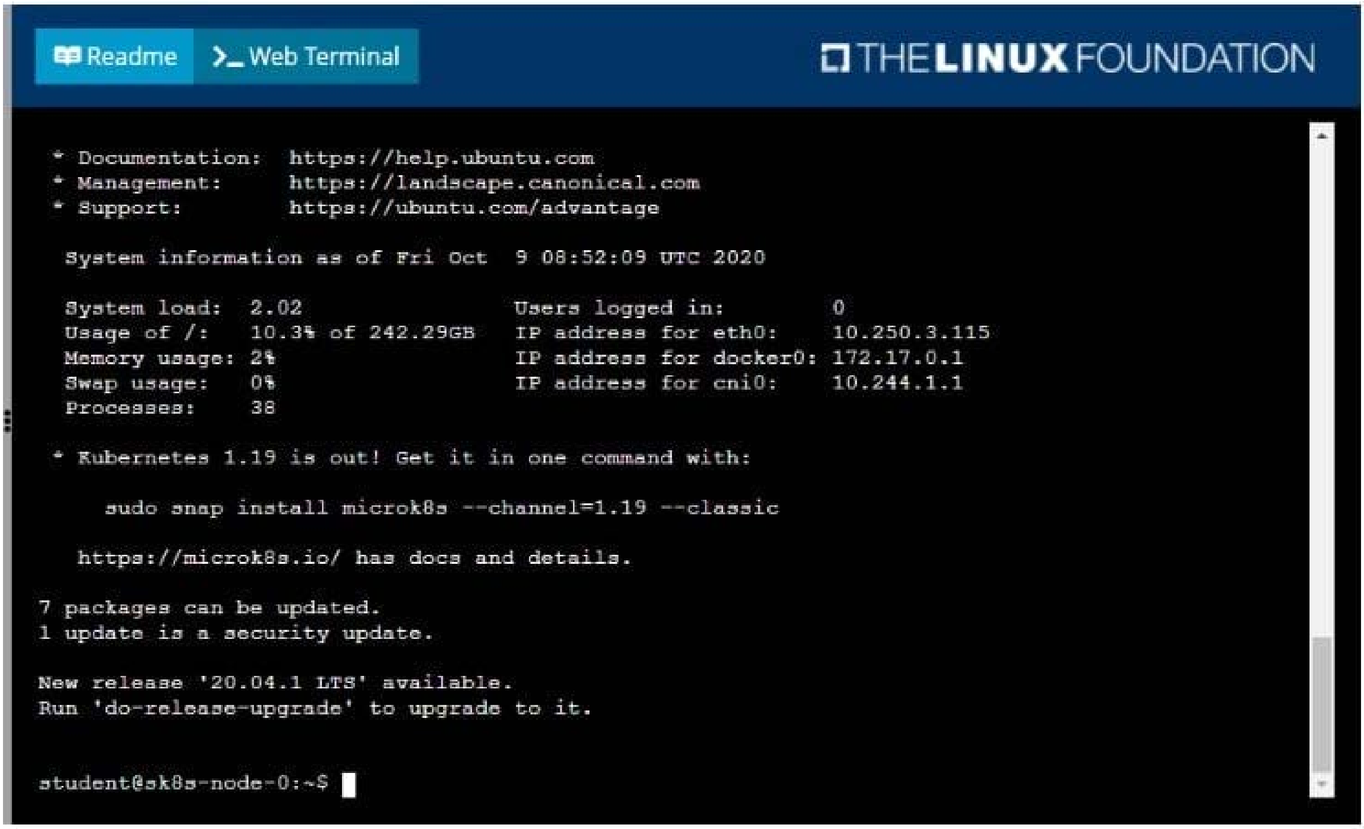
A. Please check explanations

B. Place Holder

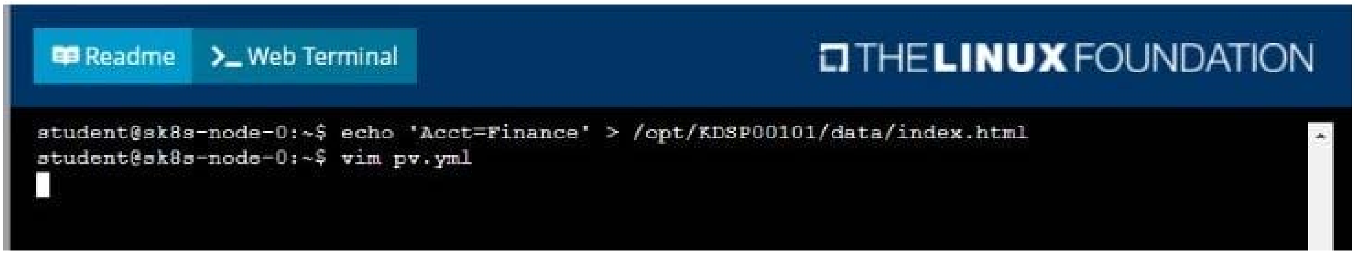
Correct Answer: A



```
student@node-1:~$ kubectl config use-context sk8s
Switched to context "sk8s".
student@node-1:~$
```

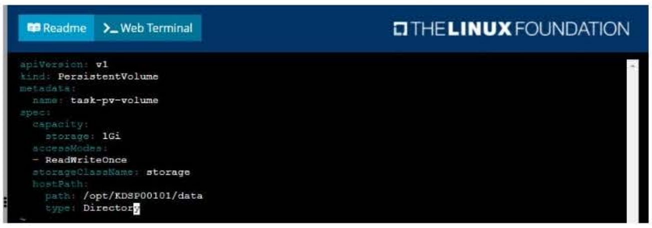


```
 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Fri Oct  9 08:52:09 UTC 2020

  System load:  2.02               Users logged in:        0
  Usage of /:   10.3% of 242.29GB  IP address for eth0:    10.250.3.115
  Memory usage: 2%                 IP address for docker0: 172.17.0.1
  Swap usage:   0%                 IP address for cni0:    10.244.1.1
  Processes:    38

 * 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:~$
```

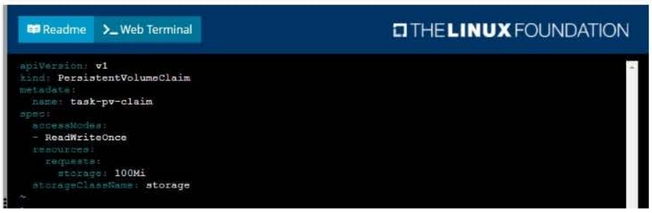


```
student@sk8s-node-0:~$ echo 'Acct=Finance' > /opt/KDSP00101/data/index.html
student@sk8s-node-0:~$ vim pv.yml
```

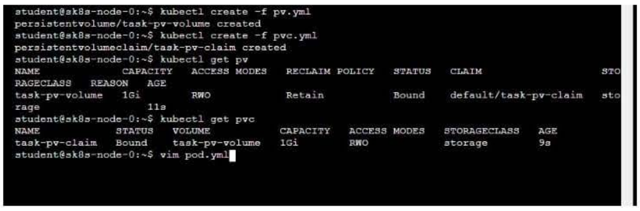
```
-- INSERT --                                           0,1           All
```



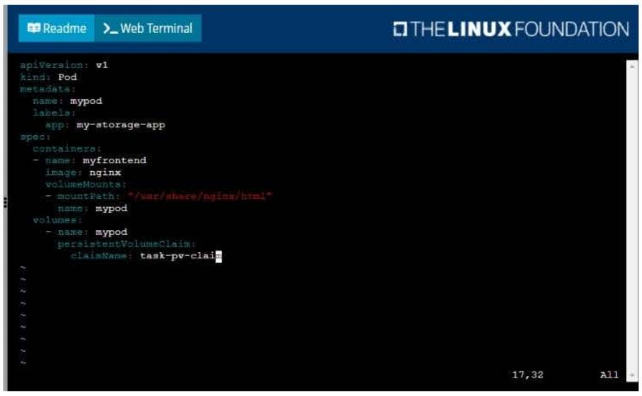
```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: task-pv-volume
spec:
  capacity:
    storage: 1Gi
  accessModes:
  - ReadWriteOnce
  storageClassName: storage
  hostPath:
    path: /opt/KDSP00101/data
    type: Directory
```



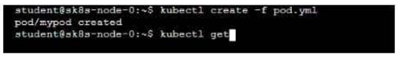
```
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: task-pv-claim
spec:
  accessModes:
  - ReadWriteOnce
  resources:
    requests:
      storage: 100Mi
  storageClassName: storage
```



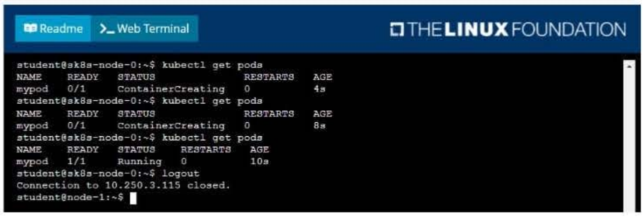
```
student@sk8s-node-0:~$ kubectl create -f pv.yml
persistentvolume/task-pv-volume created
student@sk8s-node-0:~$ kubectl create -f pvc.yml
persistentvolumeclaim/task-pv-claim created
student@sk8s-node-0:~$ kubectl get pv
NAME             CAPACITY   ACCESS MODES   RECLAIM POLICY   STATUS   CLAIM                   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
```



```
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-claim
~
~
~
~
~
~
~
~
~
                                                    17,32         All
```



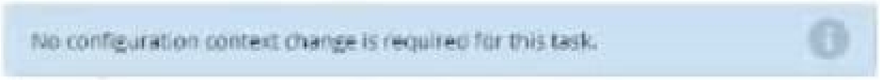
```
student@sk8s-node-0:~$ kubectl create -f pod.yml
pod/mypod created
student@sk8s-node-0:~$ kubectl get
```



```
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:~$
```

QUESTION 5

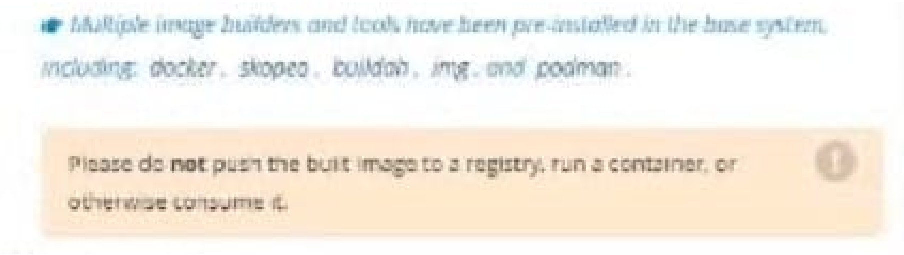
CORRECT TEXT



No configuration context change is required for this task.

Task:

A Dockerfile has been prepared at -/human-stork/build/Dockerfile



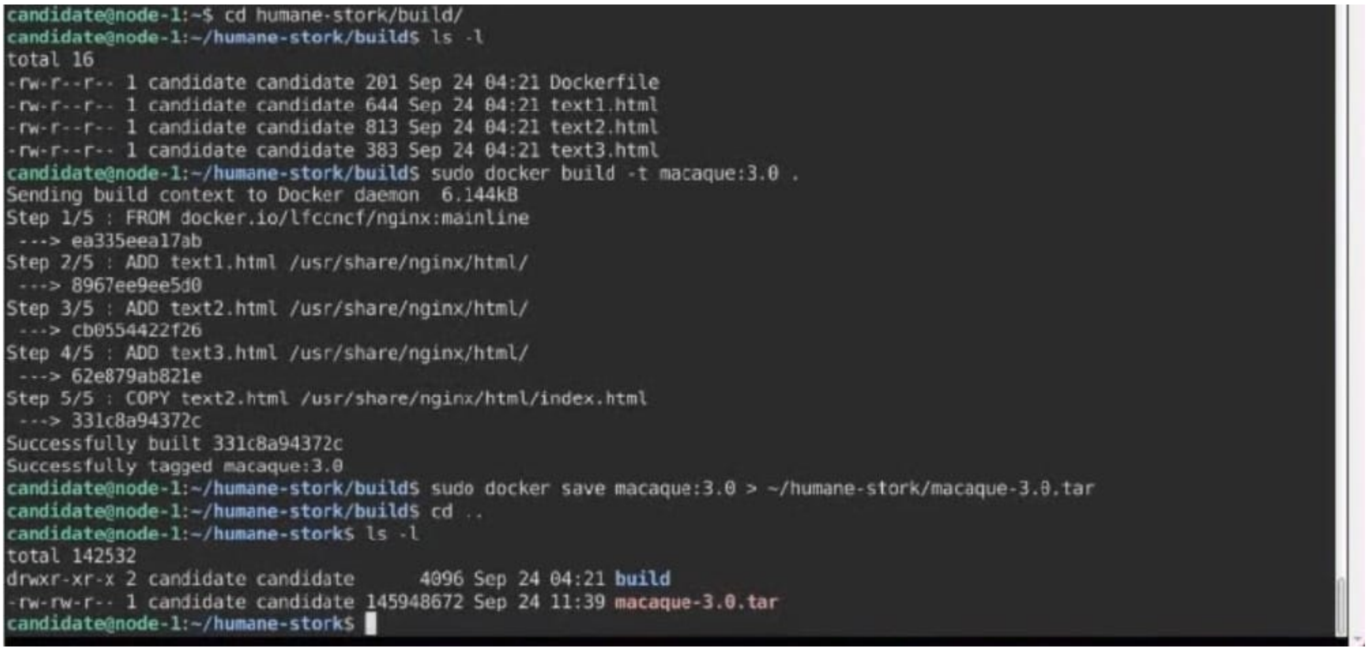
Multiple image builders and tools have been pre-installed in the base system, including: docker, skopeo, buildah, img, and podman.

Please do **not** push the built image to a registry, run a container, or otherwise consume it.

A. Please check explanations

B. Place Holder

Correct Answer: A



```
candidate@node-1:~$ cd humane-stork/build/
candidate@node-1:~/humane-stork/build$ ls -l
total 16
-rw-r--r-- 1 candidate candidate 201 Sep 24 04:21 Dockerfile
-rw-r--r-- 1 candidate candidate 644 Sep 24 04:21 text1.html
-rw-r--r-- 1 candidate candidate 813 Sep 24 04:21 text2.html
-rw-r--r-- 1 candidate candidate 383 Sep 24 04:21 text3.html
candidate@node-1:~/humane-stork/build$ sudo docker build -t macaque:3.0 .
Sending build context to Docker daemon  6.144kB
Step 1/5 : FROM docker.io/lfccncf/nginx:mainline
 ---> ea335eea17ab
Step 2/5 : ADD text1.html /usr/share/nginx/html/
 ---> 8967ee9ee5d0
Step 3/5 : ADD text2.html /usr/share/nginx/html/
 ---> cb0554422f26
Step 4/5 : ADD text3.html /usr/share/nginx/html/
 ---> 62e879ab821e
Step 5/5 : COPY text2.html /usr/share/nginx/html/index.html
 ---> 331c8a94372c
Successfully built 331c8a94372c
Successfully tagged macaque:3.0
candidate@node-1:~/humane-stork/build$ sudo docker save macaque:3.0 > ~/humane-stork/macaque-3.0.tar
candidate@node-1:~/humane-stork/build$ cd ..
candidate@node-1:~/humane-stork$ ls -l
total 142532
drwxr-xr-x 2 candidate candidate      4096 Sep 24 04:21 build
-rw-rw-r-- 1 candidate candidate 145948672 Sep 24 11:39 macaque-3.0.tar
candidate@node-1:~/humane-stork$ 
```

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