

# Linux-Foundation

## Exam Questions CKAD

Certified Kubernetes Application Developer (CKAD) Program



## NEW QUESTION 1

Exhibit:



Context

It is always useful to look at the resources your applications are consuming in a cluster. Task

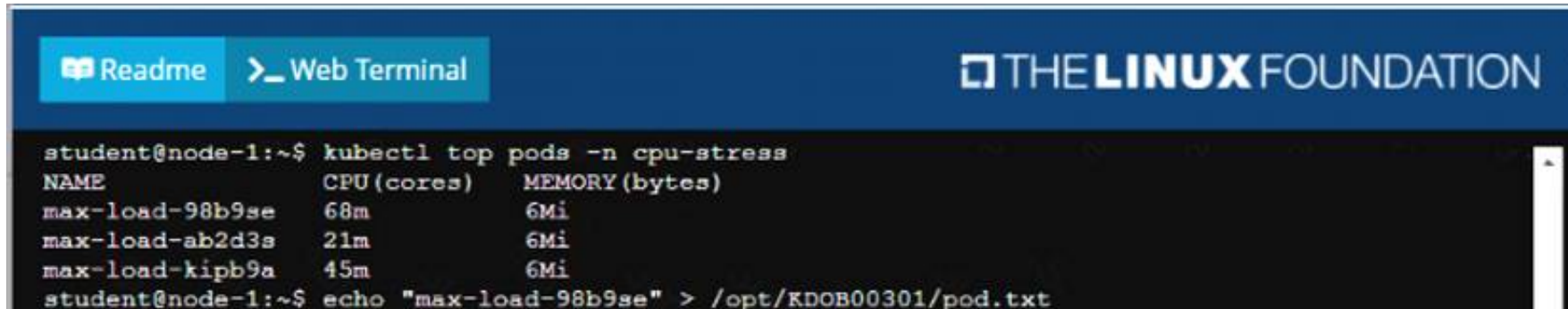
- From the pods running in namespacecpu-stress , write the name only of the pod that is consuming the most CPU to file /opt/KDOBG030I/pod.txt, which has already been created.

- A. Mastered
- B. Not Mastered

Answer: A

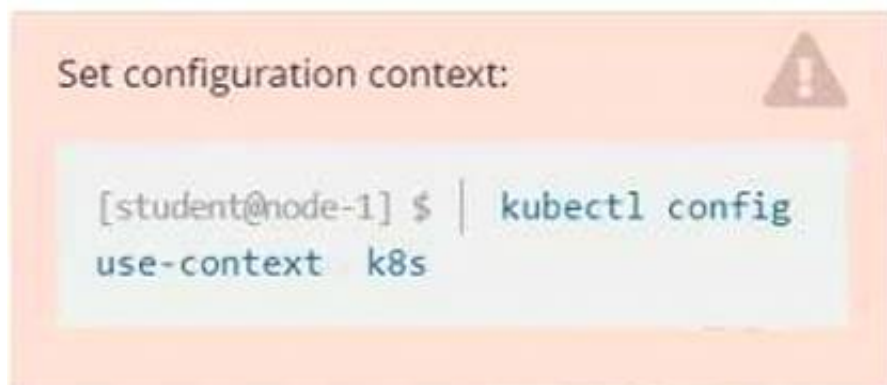
Explanation:

Solution:



## NEW QUESTION 2

Exhibit:



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, usingCOOL\_VARIABLE as the name for the environment variable inside the pod

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:



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```

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

```

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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

```

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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.yml
student@node-1:~$ vim nginx_secret.yml
student@node-1:~$ kubectl create -f nginx_secret.yml
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:~$

```

### NEW QUESTION 3

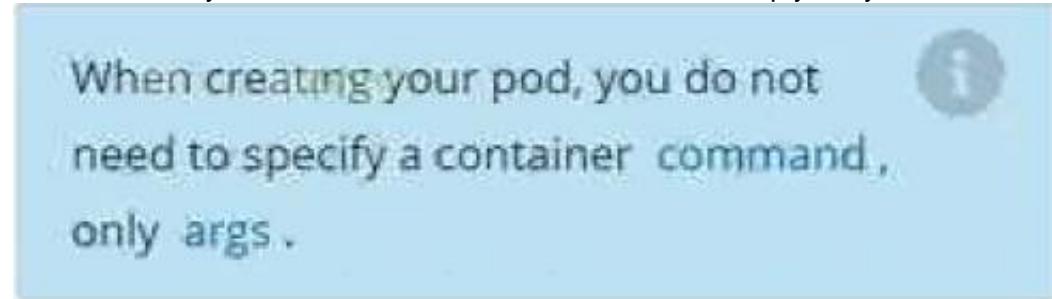
Context

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:

- Create a YAML formatted pod manifest /opt/KDPD00101/pod1.yml to create a pod named app1 that runs a container named app1cont using image lfcncf/arg-output with these command line arguments: -lines 56 -F
- Create the pod with the kubectl command using the YAML file created in the previous step
- When the pod is running display summary data about the pod in JSON format using the kubectl command and redirect the output to a file named /opt/KDPD00101/out1.json
- All of the files you need to work with have been created, empty, for your convenience



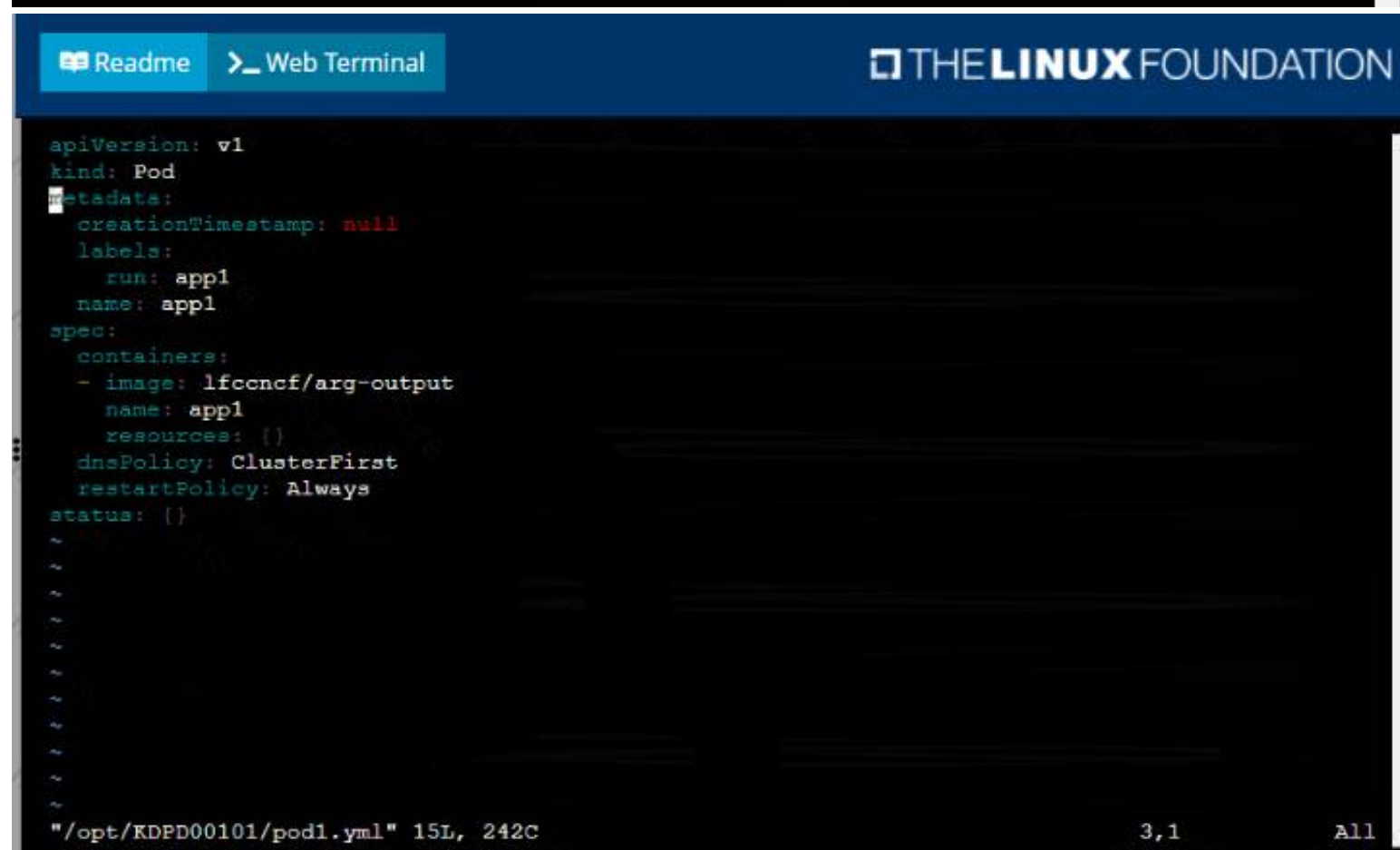
- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

Solution:


```
student@node-1:~$ kubectl run app1 --image=lfcncf/arg-output --dry-run=client -o yaml > /opt/KD
PD00101/pod1.yml
student@node-1:~$ vim /opt/KDPD00101/pod1.yml
```





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```

poller          1/1      Running      0          6h51m
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
student@node-1:~$ kubectl create -f /opt/KDPD00101/pod1.yml
pod/app1 created
student@node-1:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
app1          1/1     Running   0          20s
counter       1/1     Running   0          6m57s
liveness-http 1/1     Running   0          6h52m
nginx-101     1/1     Running   0          6h53m
nginx-configmap 1/1     Running   0          8m34s
nginx-secret   1/1     Running   0          14m
poller        1/1     Running   0          6h53m
student@node-1:~$ kubectl get pod app1 -o json > /opt/KDPD00101/out1.json
student@node-1:~$
student@node-1:~$

```

#### NEW QUESTION 4

Exhibit:



Context

You have been tasked with scaling an existing deployment for availability, and creating a service to expose the deployment within your infrastructure. Task Start with the deployment named kdsn00101-deployment which has already been deployed to the namespace kdsn00101 . Edit it to:

- Add the func=webFrontEndkey/value label to the pod template metadata to identify the pod for the service definition
- Have 4 replicas

Next, create ana deploy in namespace kdsn00101 a service that accomplishes the following:

- Exposes the service on TCP port 8080
- is mapped to me pods defined by the specification of kdsn00101-deployment
- Is of type NodePort
- Has a name of cherry

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

Solution:

```

student@node-1:~$ kubectl edit deployment kdsn00101-deployment -n kdsn00101

```



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```

Please edit the object below. Lines beginning with a '#' will be ignored,
# and an empty file will abort the edit. If an error occurs while saving this file will be
# reopened with the relevant failures.
#
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
    deployment.kubernetes.io/revision: "1"
    creationTimestamp: "2020-10-09T08:50:39Z"
    generation: 1
  labels:
    app: nginx
  name: kdsn00101-deployment
  namespace: kdsn00101
  resourceVersion: "4786"
  selfLink: /apis/apps/v1/namespaces/kdsn00101/deployments/kdsn00101-deployment
  uid: 8d3ace00-7761-4189-ba10-fbc676c311bf
spec:
  progressDeadlineSeconds: 600
  replicas: 1
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
        func: webFrontEnd
    spec:
      containers:
      - image: nginx:latest
        imagePullPolicy: Always
        name: nginx
        ports:
        - containerPort: 80
  
```

```

student@node-1:~$ kubectl edit deployment kdsn00101-deployment -n kdsn00101
deployment.apps/kdsn00101-deployment edited
student@node-1:~$ kubectl get deployment kdsn00101-deployment -n kdsn00101
NAME                READY   UP-TO-DATE   AVAILABLE   AGE
kdsn00101-deployment 4/4      4            4           7h17m
student@node-1:~$ kubectl expose deployment kdsn00101-deployment -n kdsn00101 --type NodePort --
port 8080 --name cherry
service/cherry exposed
  
```

## NEW QUESTION 5

Exhibit:



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:

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

- Create a PersistentVolumeClaim named task-pv-claim that requests a volume of at least 100Mi and specifies an access mode of ReadWriteOnce
- Create a pod that uses the PersistentVolumeClaim 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. Mastered  
 B. Not Mastered

**Answer: A**

**Explanation:**

Solution:

```
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.

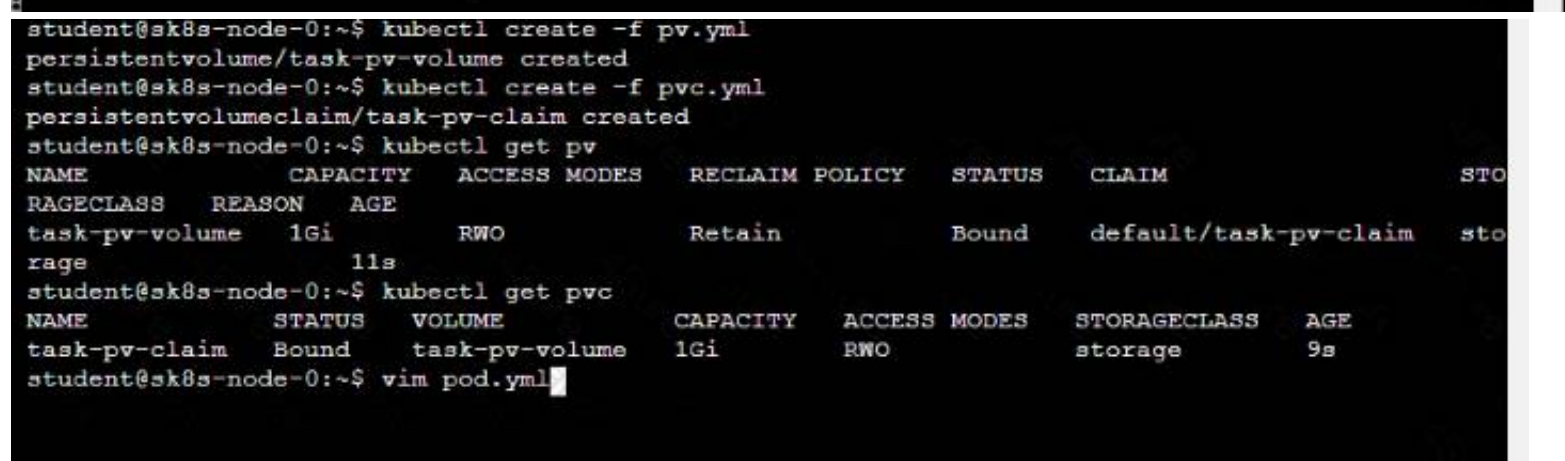
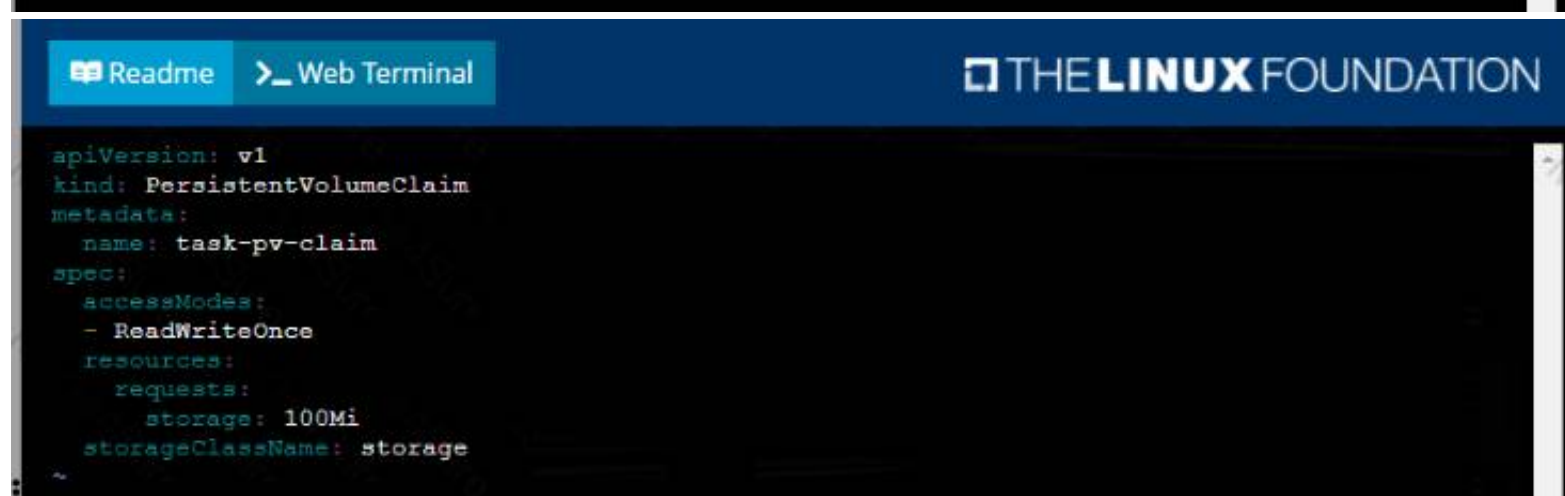
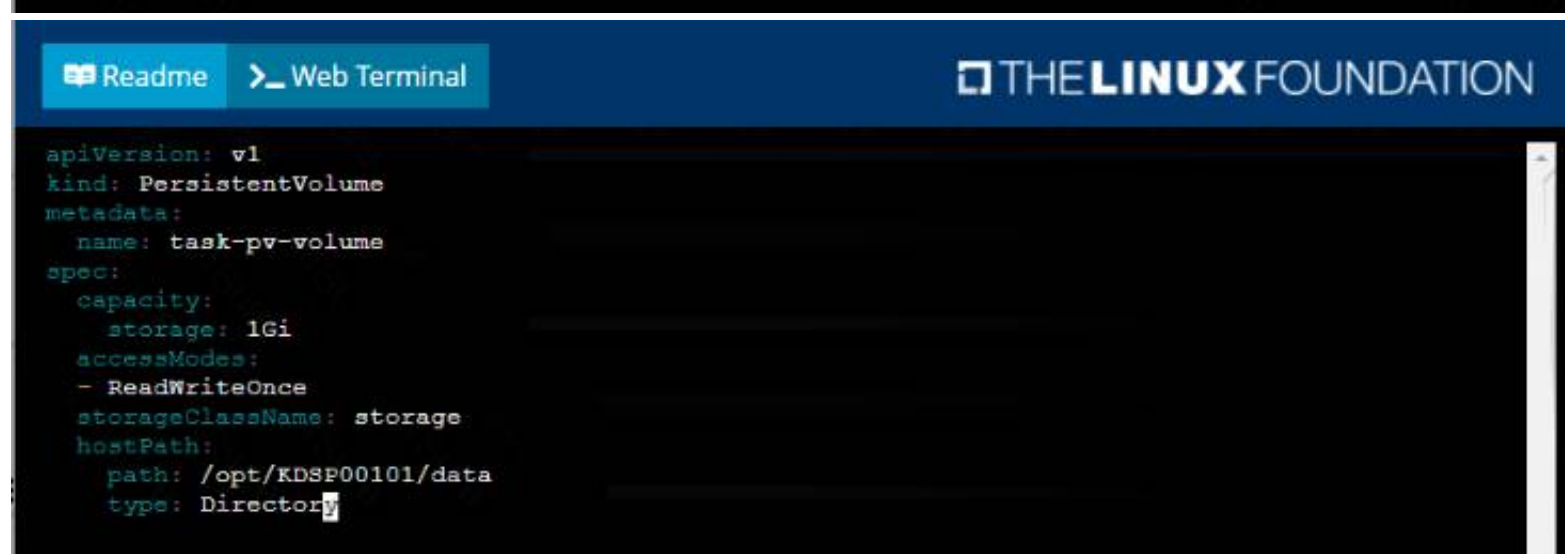
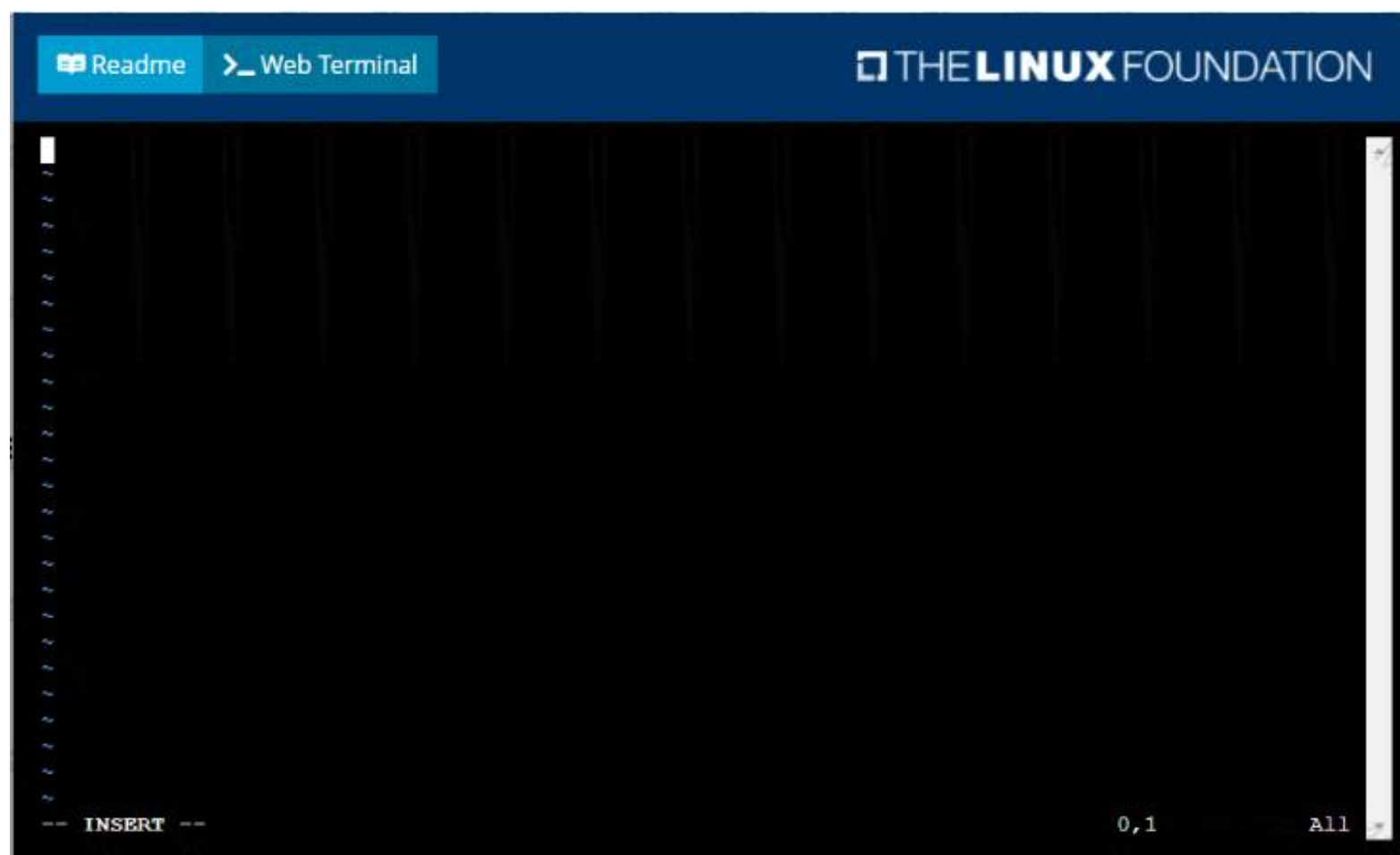
7 packages can be updated.
1 update is a security update.

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
```





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```
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
```

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

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```
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:~$
```

NEW QUESTION 6

Exhibit:



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

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
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: {}
```

```
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
```

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```
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.con
tainers[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
```

## NEW QUESTION 10

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