Linux-Foundation

Exam Questions CKAD

Certified Kubernetes Application Developer (CKAD) Program

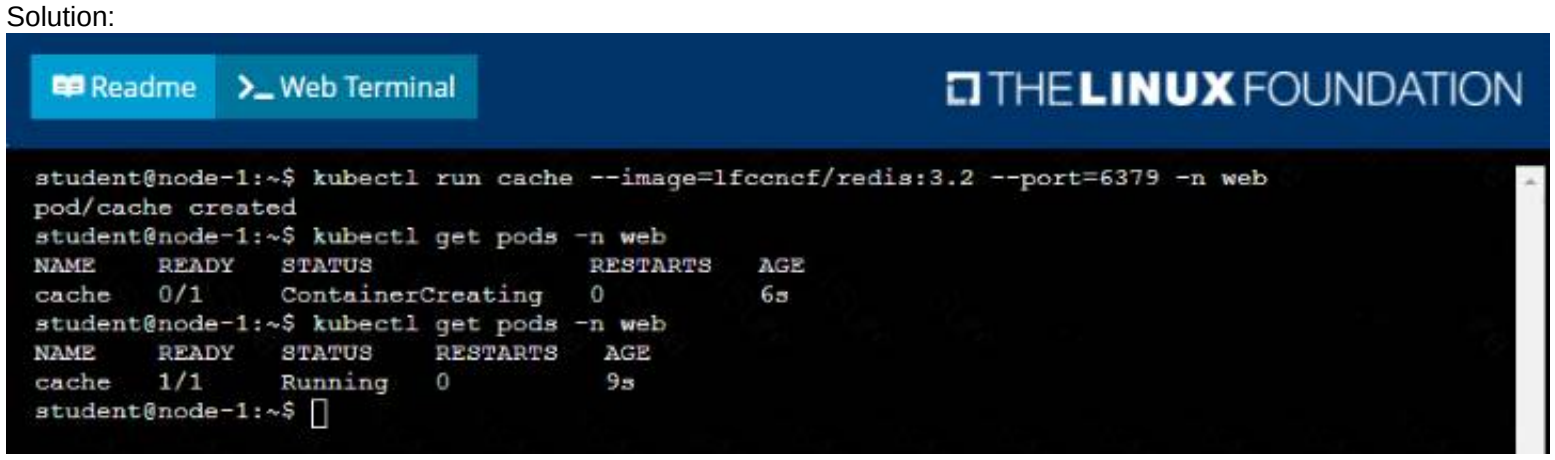
NEW QUESTION 1
Exhibit:

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 Ifccncf/redis image with the 3.2 tag
• Expose port 6379

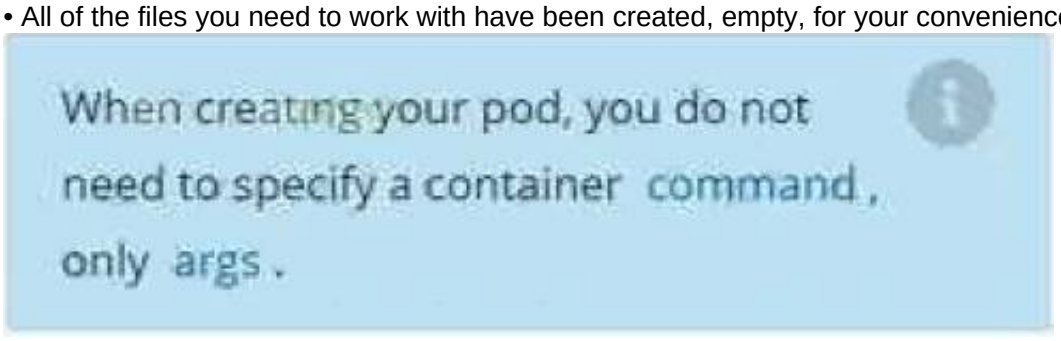
A. Mastered
B. Not Mastered

Answer: A

Explanation:
Solution:



NEW QUESTION 2
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/podl.yml to create a pod named app1 that runs a container named app1cont using image Ifccncf/arg-output
with these command line arguments: -lines 56 -F
• Create the pod with the kubect1 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 kubect1 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:

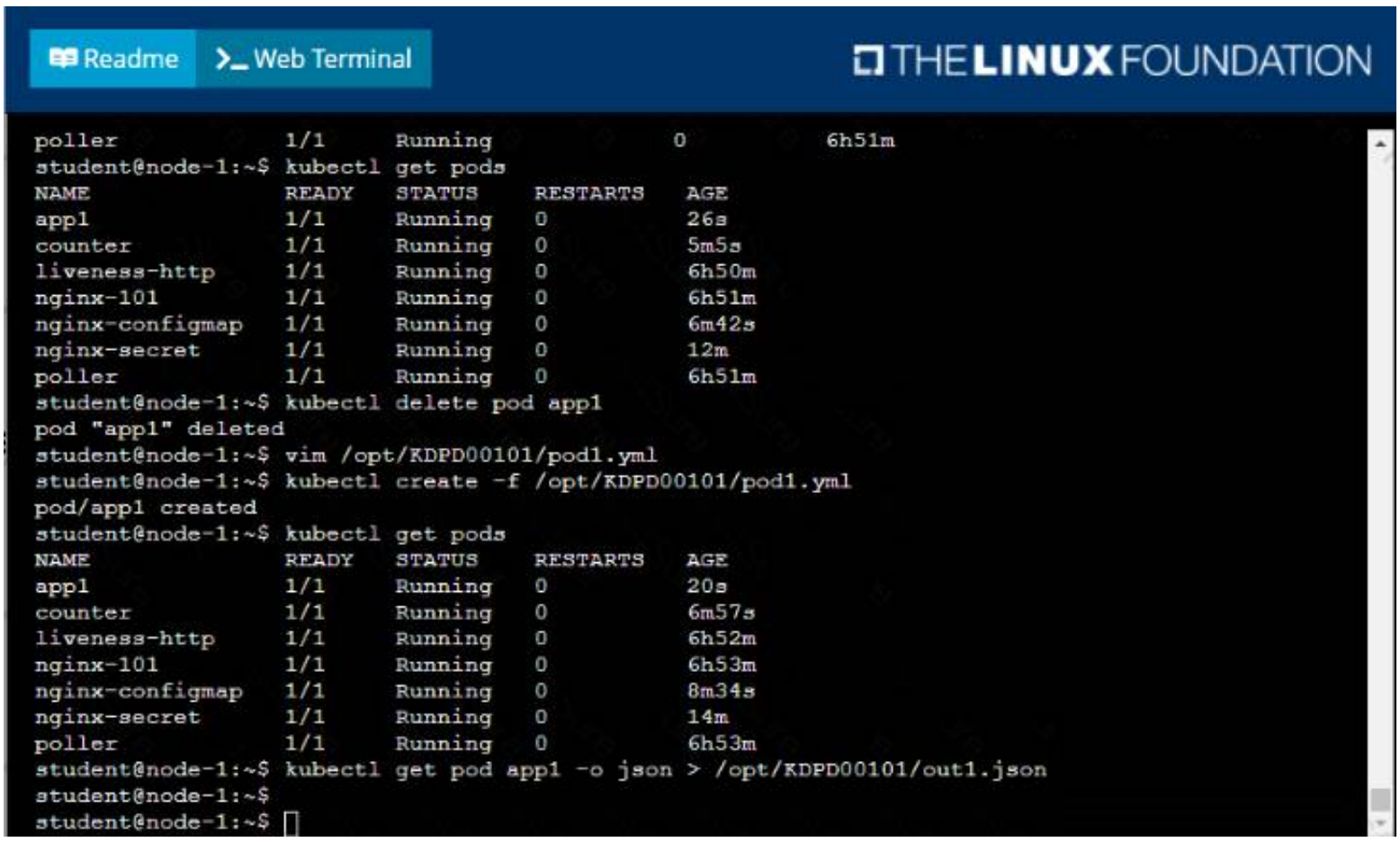
Readme | Web Terminal — THE LINUX FOUNDATION

```
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: app1
  name: app1
spec:
  containers:
  - image: lfccncf/arg-output
    name: app1
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}
~
~
~
~
~
~
~
~
~
~
~
~
"/opt/KDPD00101/pod1.yml" 15L, 242C                          3,1           All
```

Readme | Web Terminal — THE LINUX FOUNDATION

```
apiVersion: v1
kind: Pod
metadata:
  labels:
    run: app1
  name: app1
spec:
  containers:
  - image: lfccncf/arg-output
    name: app1
    args: ["--lines","56","-f"]
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
                                                             11,30         All
```

```
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          4m44s
liveness-http     1/1     Running             0          6h50m
nginx-101         1/1     Running             0          6h51m
nginx-configmap   1/1     Running             0          6m21s
nginx-secret      1/1     Running             0          11m
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
```



NEW QUESTION 3
Exhibit:

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

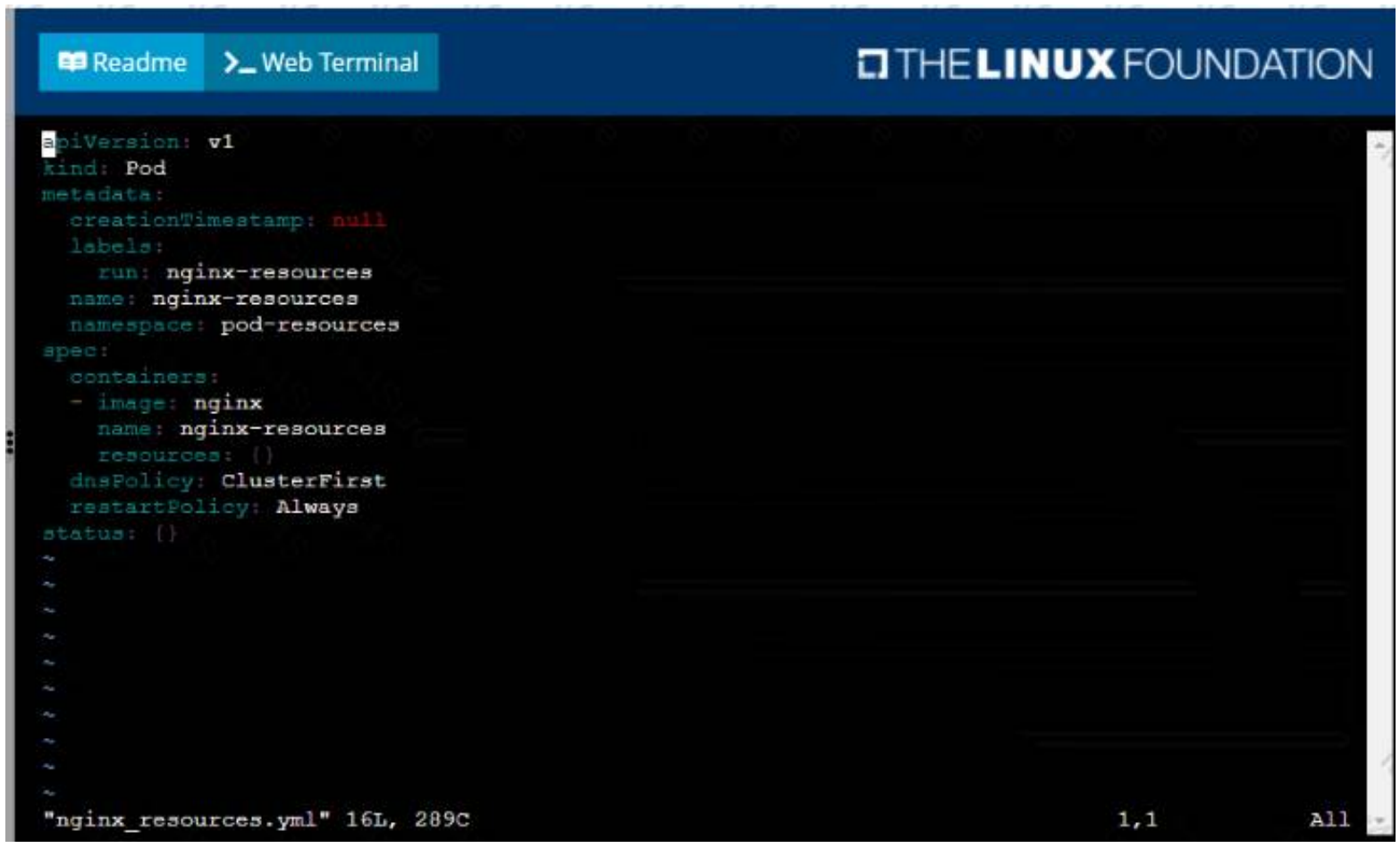
A. Mastered
B. Not Mastered

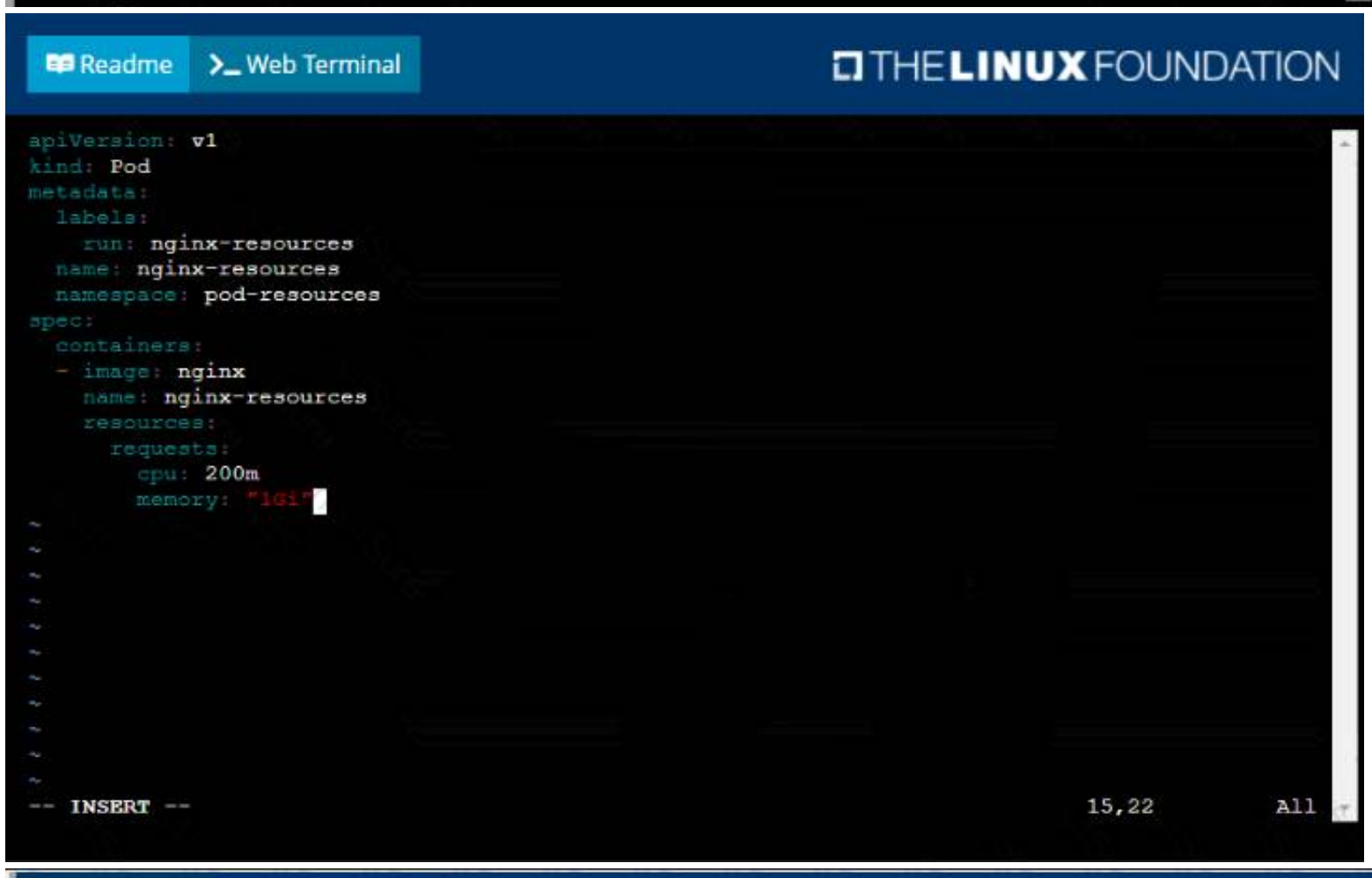
Answer: A

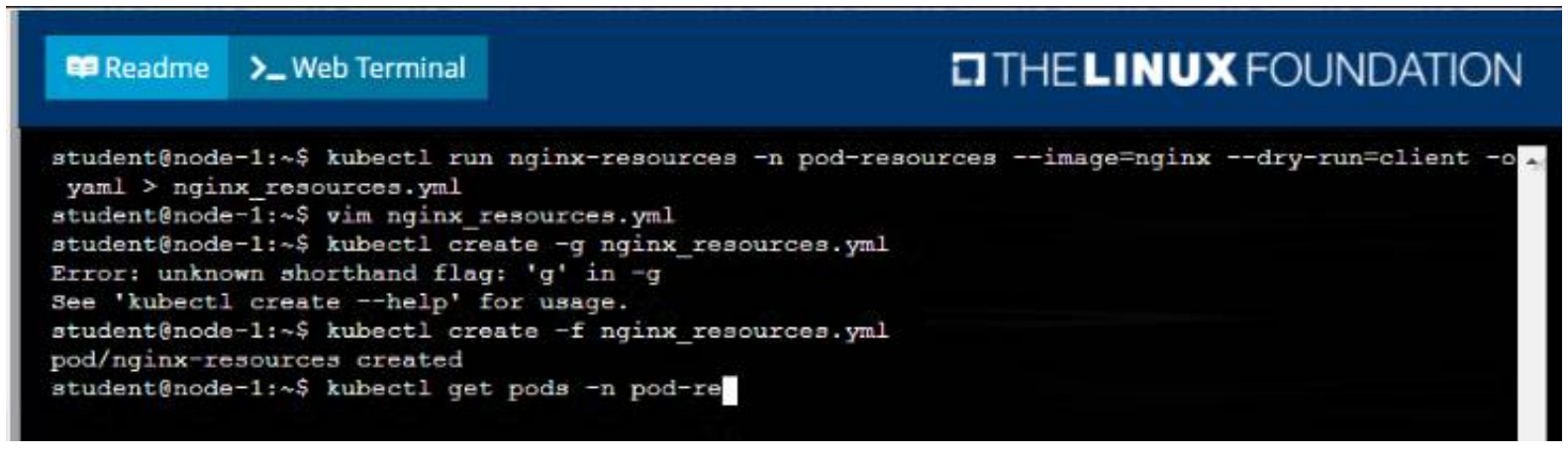
Explanation:

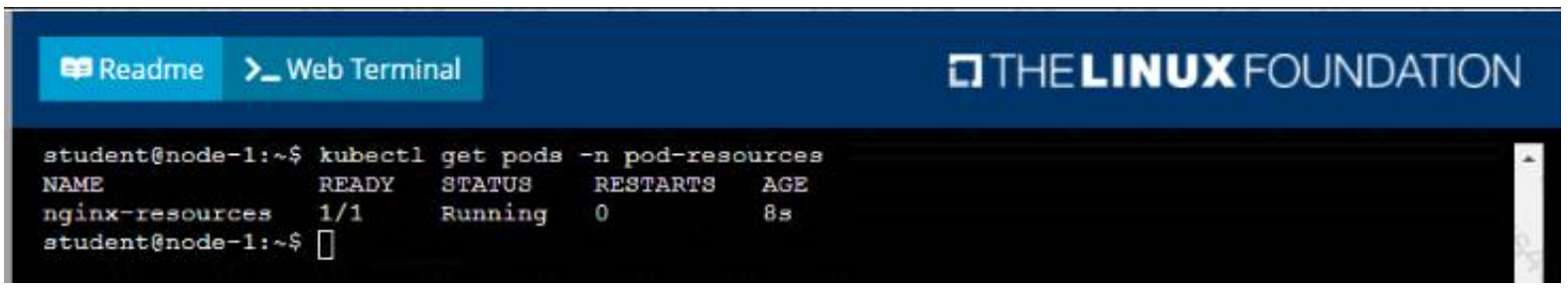
Solution:


Readme
Web Terminal
THE LINUX FOUNDATION
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_


Readme
Web Terminal
THE LINUX FOUNDATION
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

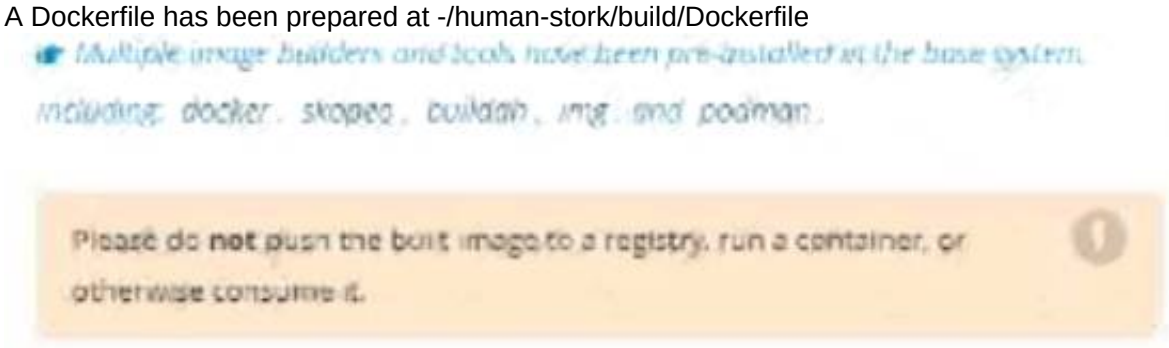

Readme
Web Terminal
THE LINUX FOUNDATION
apiVersion: v1
kind: Pod
metadata:
labels:
run: nginx-resources
name: nginx-resources
namespace: pod-resources
spec:
containers:
- image: nginx
name: nginx-resources
resources:
requests:
cpu: 200m
memory: "1Gi"
-- INSERT --
15,22
All


Readme
Web Terminal
THE LINUX FOUNDATION
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



NEW QUESTION 4
Exhibit:

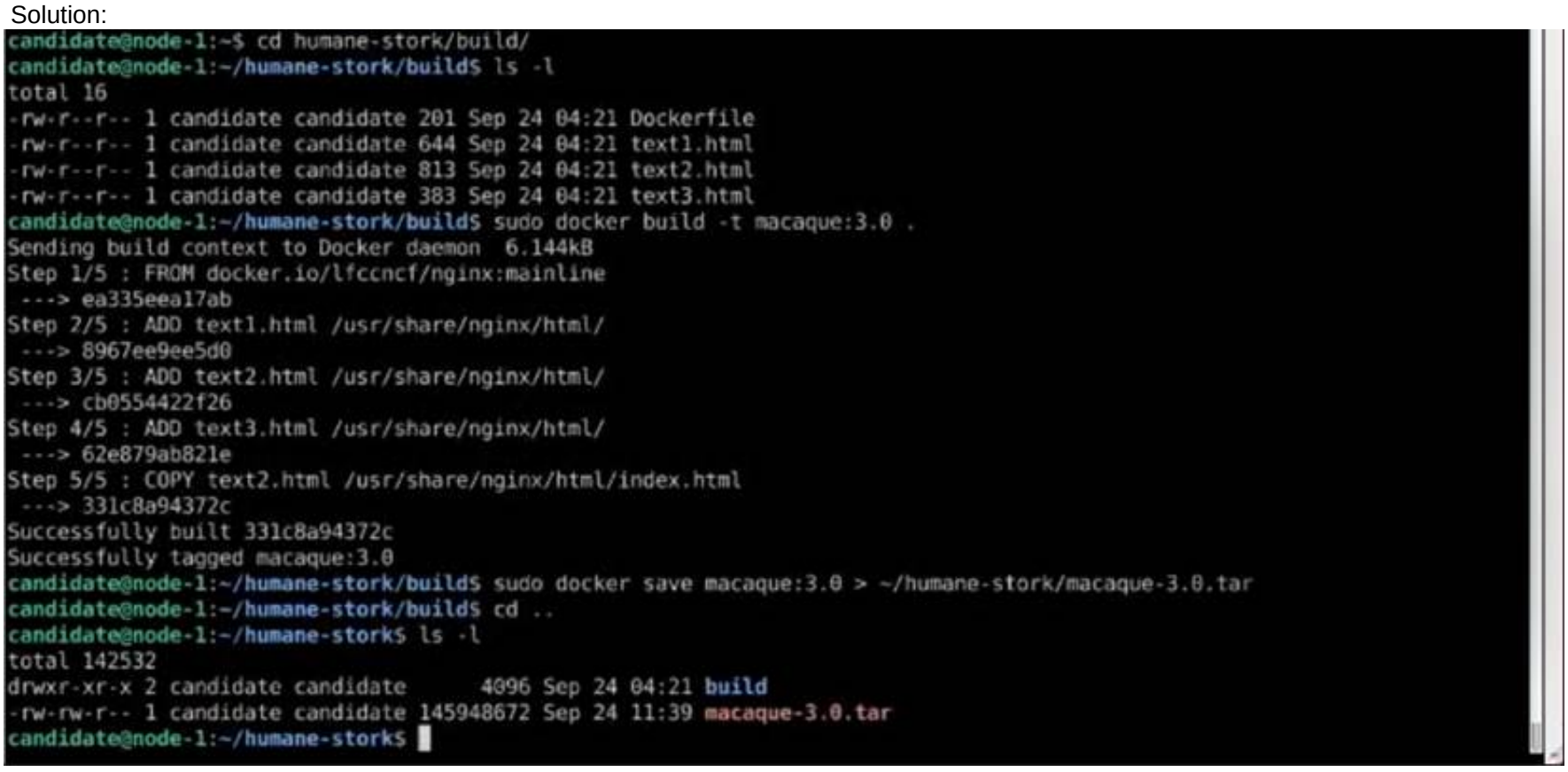
Task:
A Dockerfile has been prepared at -/human-stork/build/Dockerfile



A. Mastered
B. Not Mastered

Answer: A

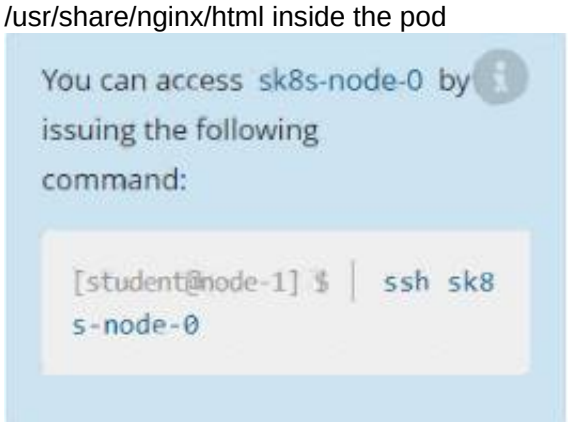
Explanation:
Solution:



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 PersistenetVolume.
• Create a PefsissentVolumeClaim 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 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

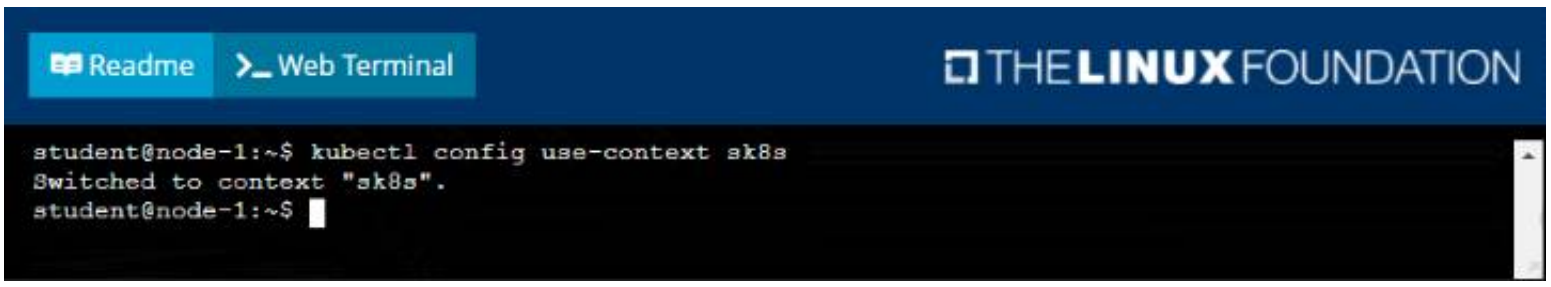


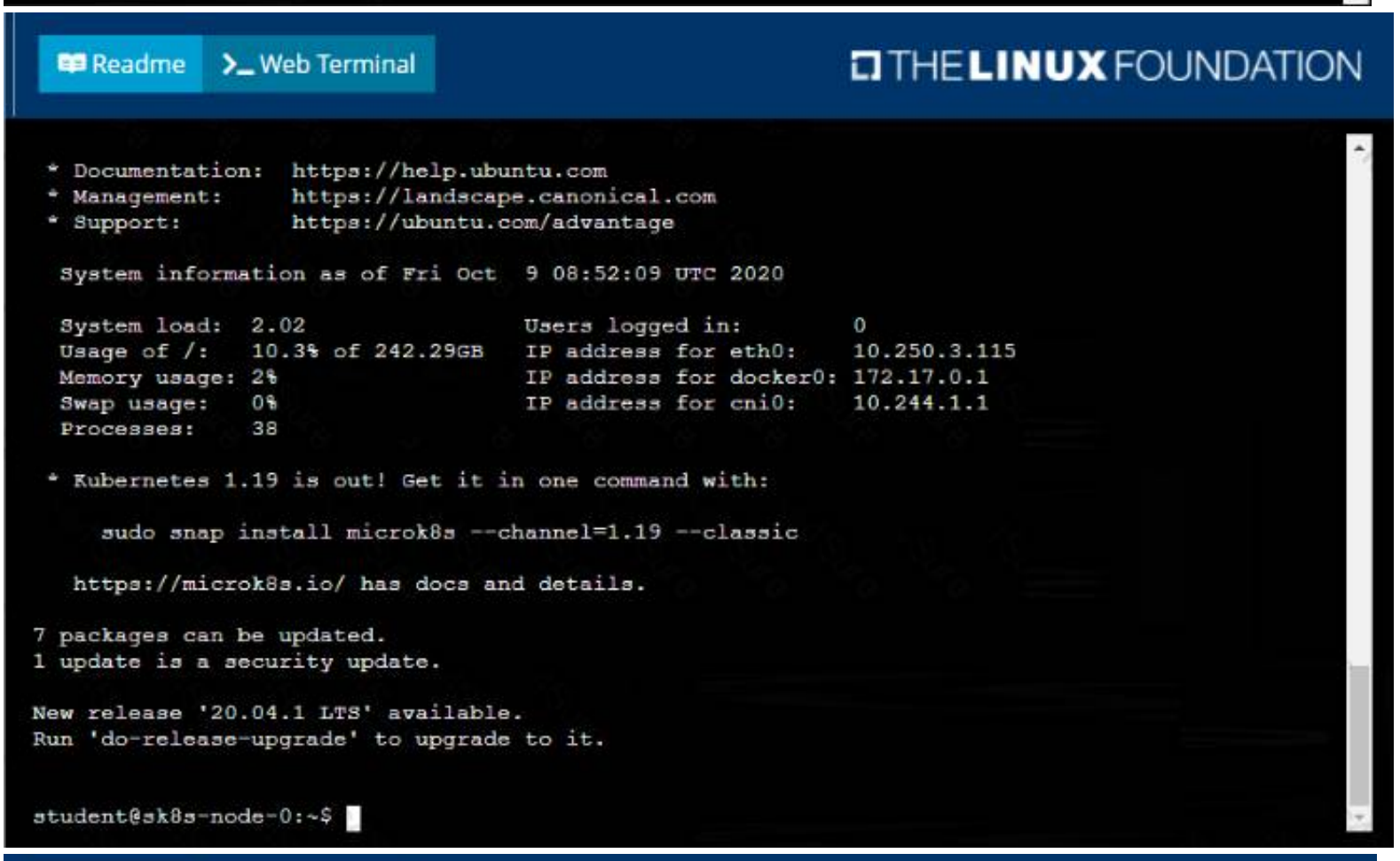
A. Mastered
B. Not Mastered

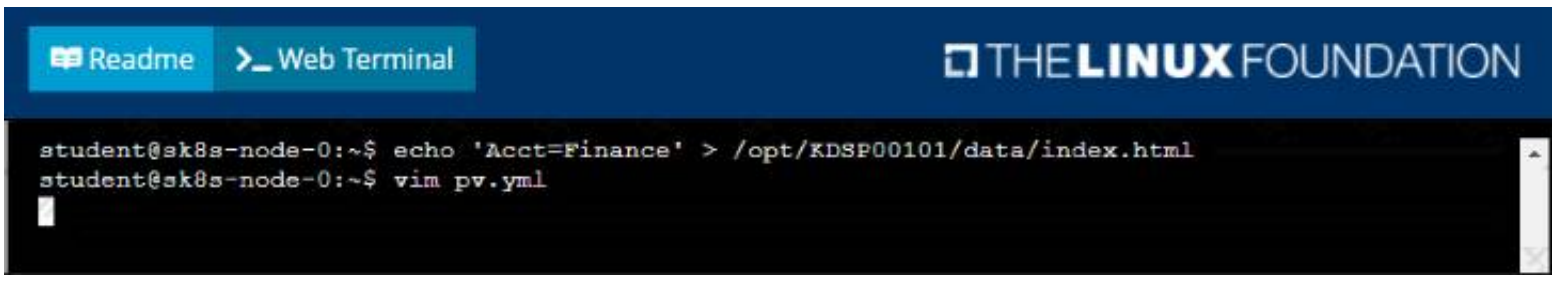
Answer: A

Explanation:

Solution:

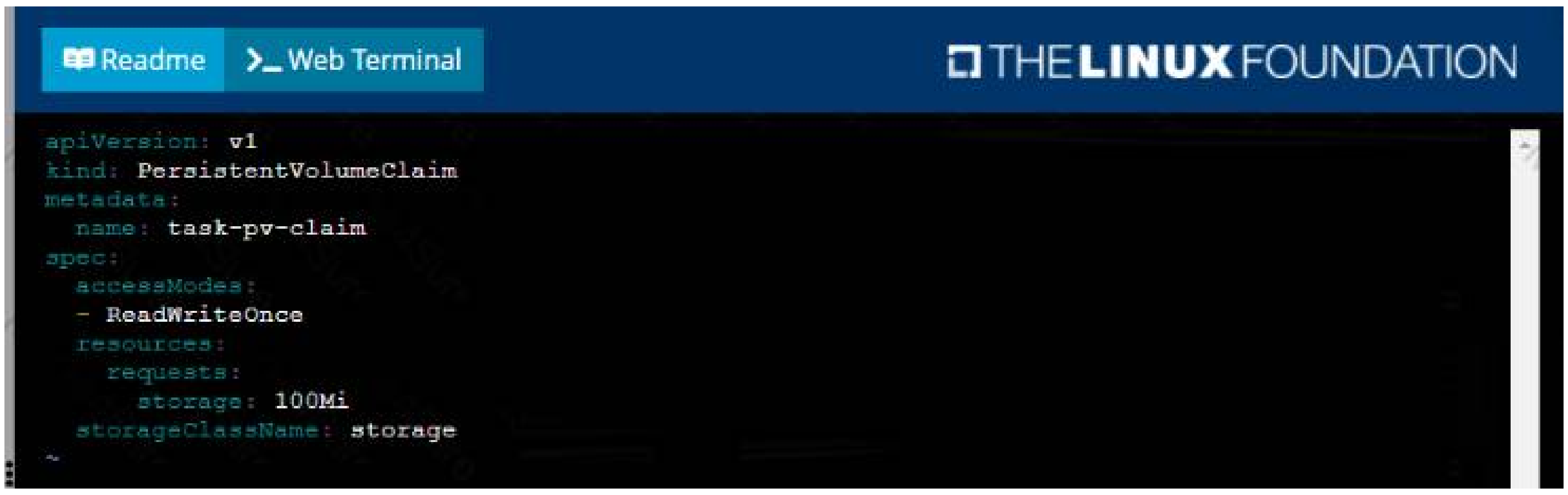




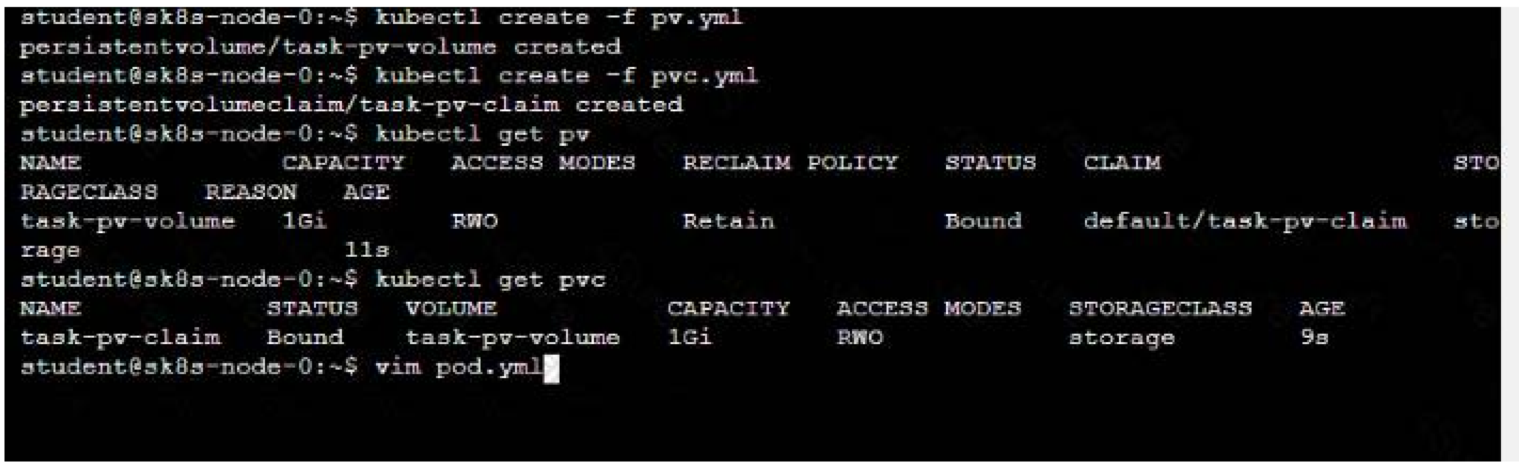



```
-- INSERT --                                            0,1          All
```

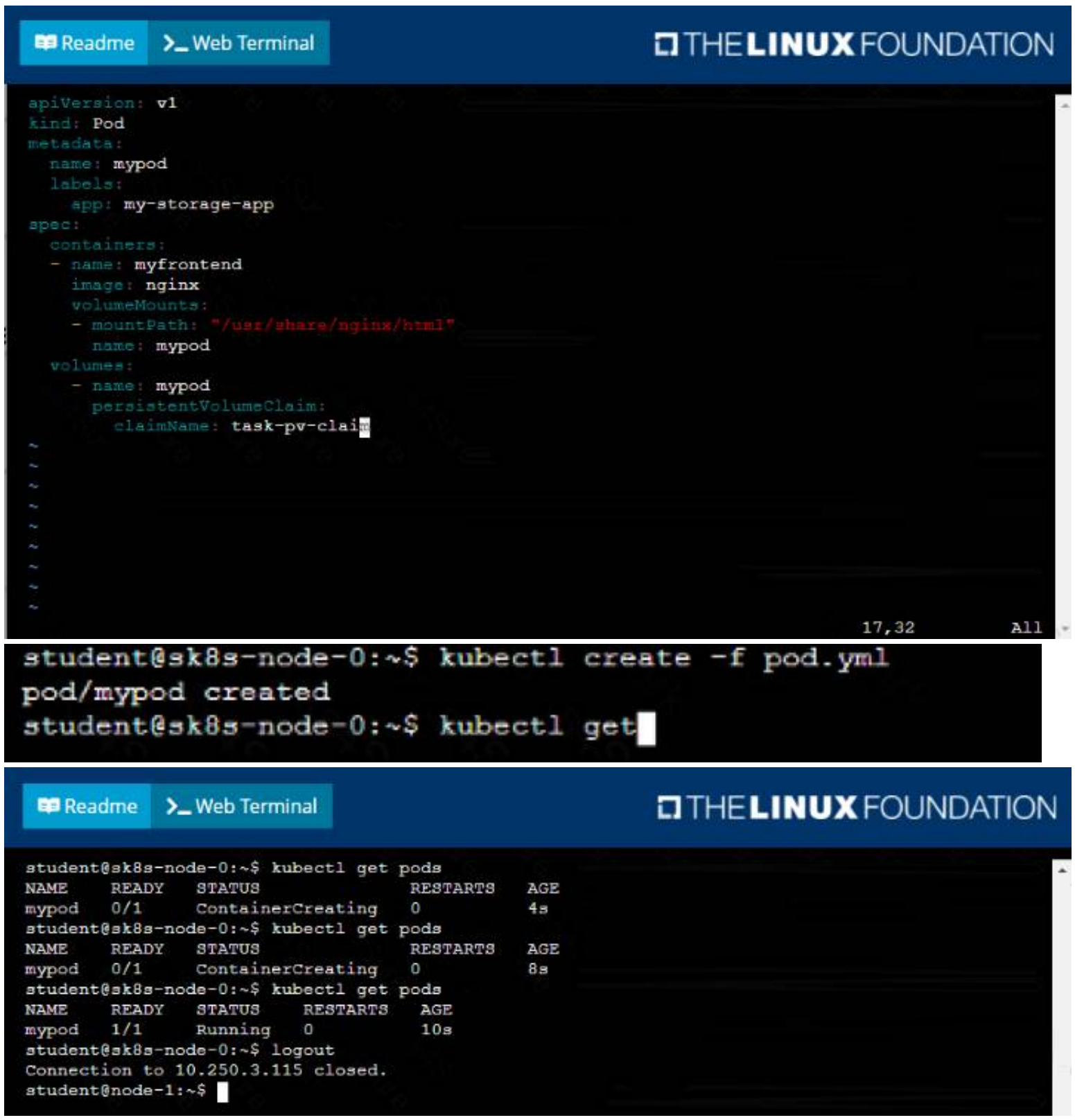

```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: task-pv-volume
spec:
  capacity:
    storage: 1Gi
  accessModes:
  - ReadWriteOnce
  storageClassName: storage
  hostPath:
    path: /opt/KDSP00101/data
    type: Directory
```




```
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
```



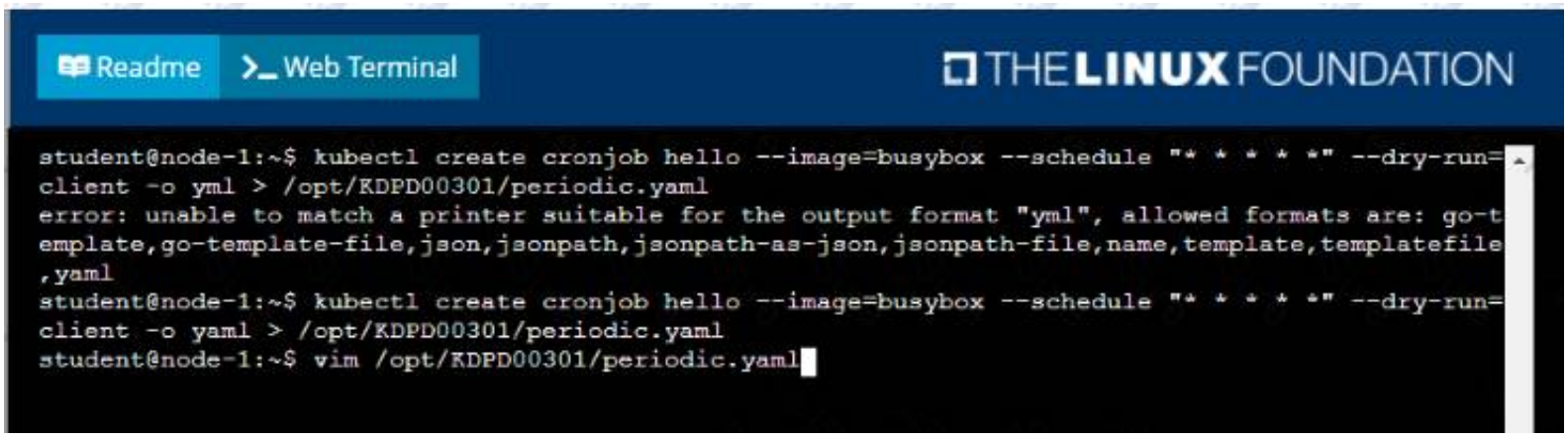
NEW QUESTION 6
Exhibit:

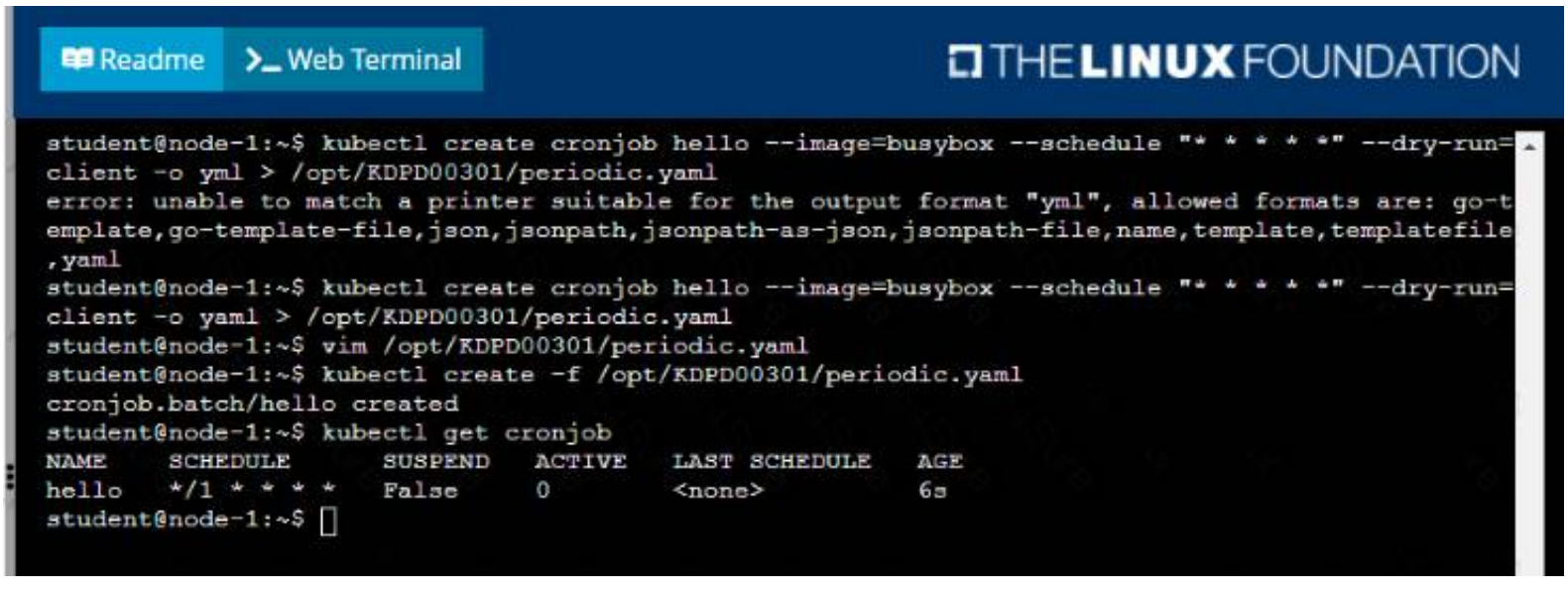
Context
Developers occasionally need to submit pods that run periodically. Task
Follow the steps below to create a pod that will start at a predetermined time and]which runs to completion only once each time it is started:
• Create a YAML formatted Kubernetes manifest /opt/KDPD00301/periodic.yaml that runs the following shell command: date in a single busybox container. The command should run every minute and must complete within 22 seconds or be terminated oy Kubernetes. The Cronjob namp and container name should both be hello
• Create the resource in the above manifest and verify that the job executes successfully at least once

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Solution:





NEW QUESTION 7
Exhibit:

Context
A user has reported an aopticauon is unteachable due to a failing livenessProbe . Task
Perform the following tasks:
• Find the broken pod and store its name and namespace to /opt/KDOB00401/broken.txt in the format:

The output file has already been created
• Store the associated error events to a file /opt/KDOB00401/error.txt, The output file has already been created. You will need to use the -o wide output specifier with your command
• Fix the issue.

A. Mastered
B. Not Mastered

Answer: A

Explanation:

Solution:
Create the Pod: kubectl create
-f http://k8s.io/docs/tasks/configure-pod-container/
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 "gcr.io/google_containers/busybox"
23s 23s 1 {kubelet worker0} spec.containers{liveness} Normal Pulled Successfully pulled image "gcr.io/google_containers/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 "gcr.io/google_containers/busybox"
36s 36s 1 {kubelet worker0} spec.containers{liveness} Normal Pulled Successfully pulled image "gcr.io/google_containers/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 m

NEW QUESTION 8
Exhibit:

Context

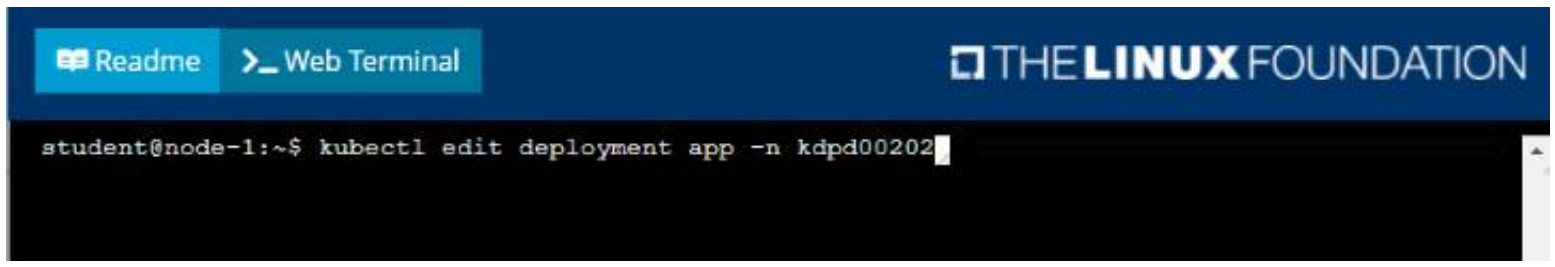
As a Kubernetes application developer you will often find yourself needing to update a running application. Task
Please complete the following:
• Update the app deployment in the kdpd00202 namespace with a maxSurge of 5% and a maxUnavailable of 2%
• Perform a rolling update of the web1 deployment, changing the lfccncf/ngmx image version to 1.13
• Roll back the app deployment to the previous version

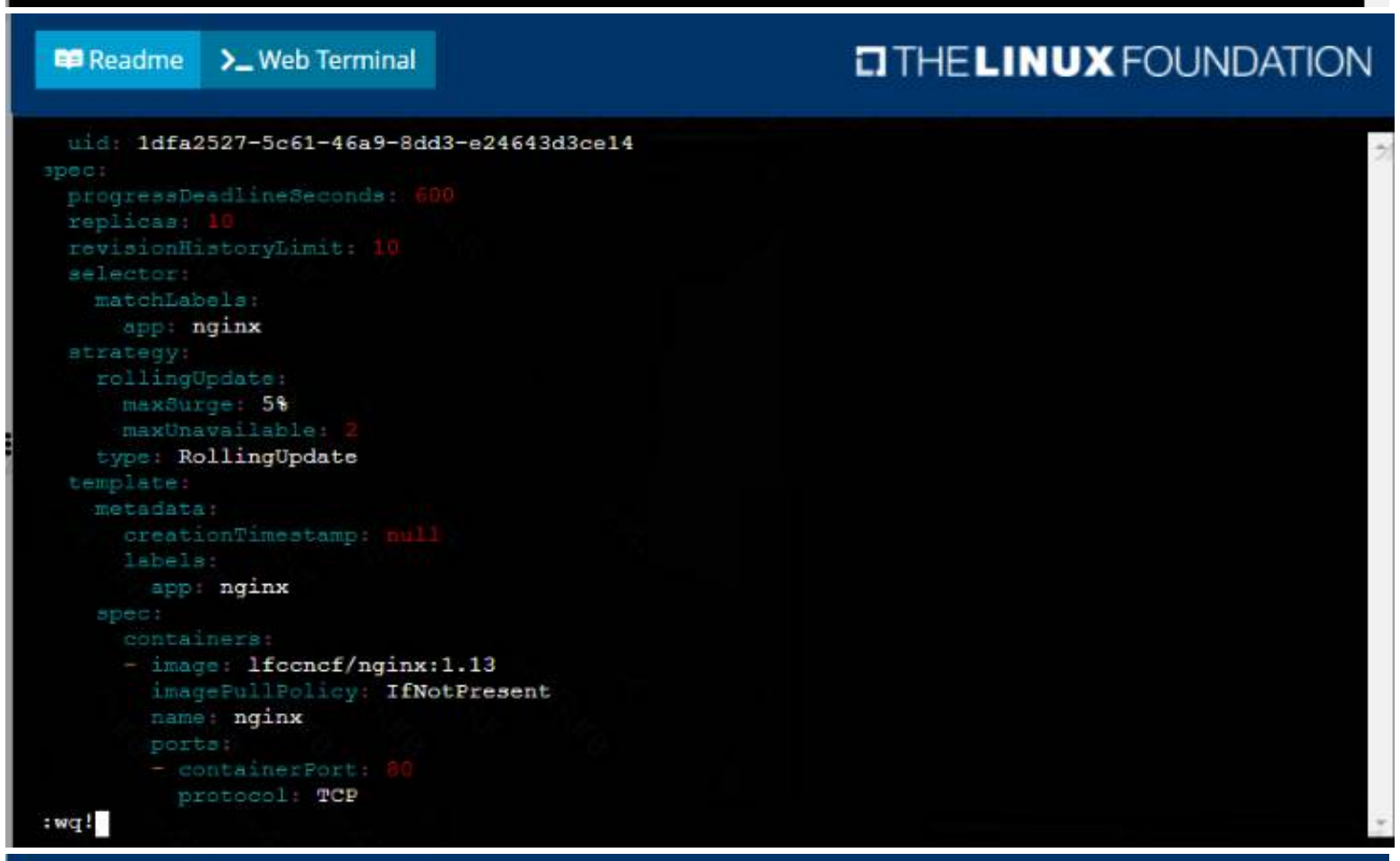
A. Mastered
B. Not Mastered

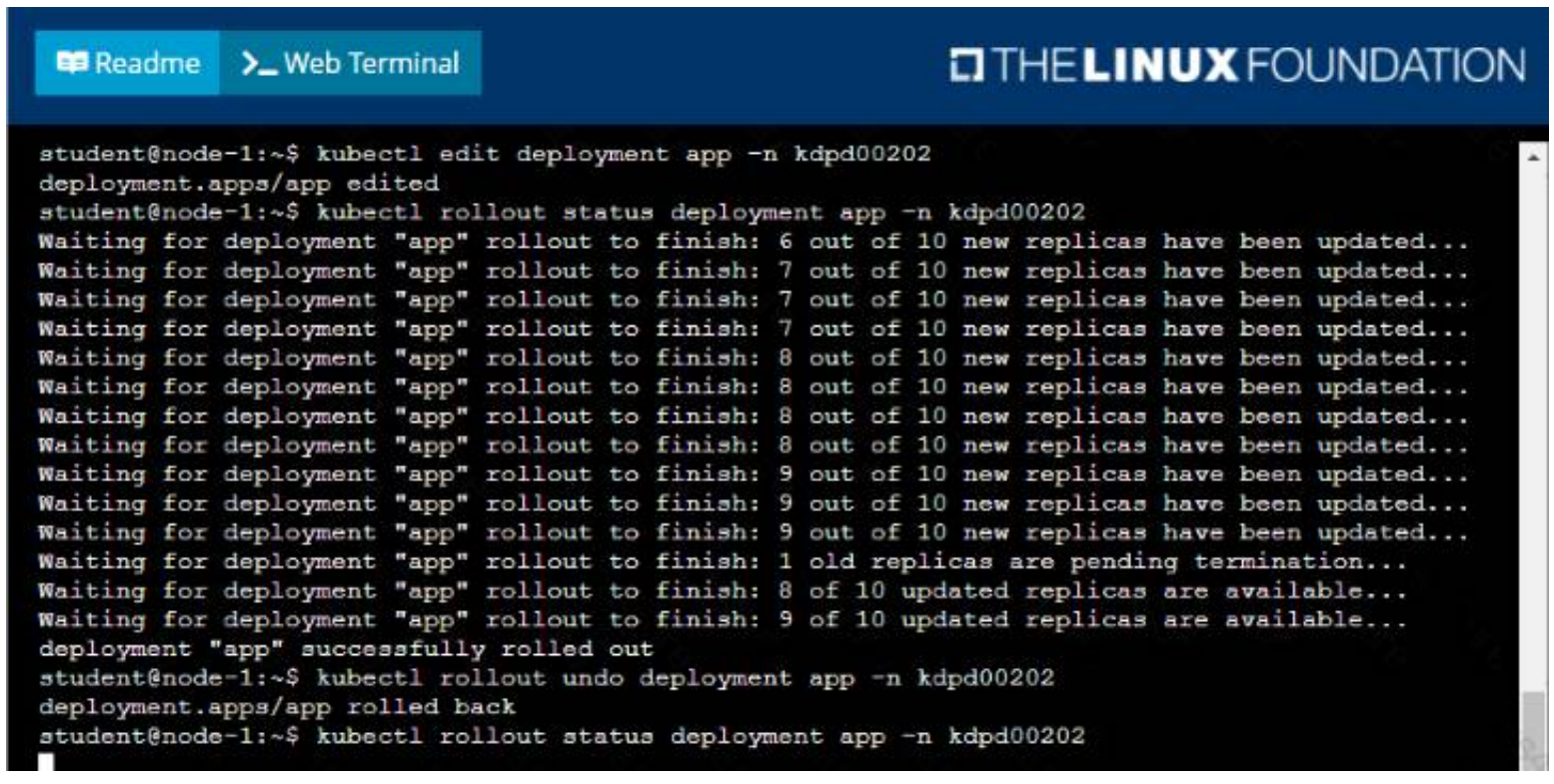
Answer: A

Explanation:

Solution:







```
student@node-1:~$ kubectl rollout status deployment app -n kdpd00202
Waiting for deployment "app" rollout to finish: 6 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 6 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 6 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 6 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 7 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 7 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 9 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 9 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 9 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 1 old replicas are pending termination...
Waiting for deployment "app" rollout to finish: 1 old replicas are pending termination...
Waiting for deployment "app" rollout to finish: 1 old replicas are pending termination...
Waiting for deployment "app" rollout to finish: 8 of 10 updated replicas are available...
Waiting for deployment "app" rollout to finish: 9 of 10 updated replicas are available...
deployment "app" successfully rolled out
student@node-1:~$
```

NEW QUESTION 9
Exhibit:

Task
You have rolled out a new pod to your infrastructure and now you need to allow it to communicate with the web and storage pods but nothing else. Given the running pod kdsn00201 -newpod edit it to use a network policy that will allow it to send and receive traffic only to and from the web and storage pods.

A. Mastered
B. Not Mastered

Answer: A

Explanation:
apiVersion: networking.k8s.io/v1 kind: NetworkPolicy
metadata:
name: internal-policy namespace: default spec:
podSelector: matchLabels: name: internal policyTypes:
- Egress
- Ingress ingress:
- {}
egress:
- to:
- podSelector: matchLabels: name: mysql ports:
- protocol: TCP port: 3306
- to:
- podSelector: matchLabels:
name: payroll ports:
- protocol: TCP port: 8080
- ports:
- port: 53 protocol: UDP
- port: 53 protocol: TCP

NEW QUESTION 10

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