Linux-Foundation

Exam Questions CKAD

Certified Kubernetes Application Developer (CKAD) Program

NEW QUESTION 1
Exhibit:

Set configuration context:

```
[student@node-1] $    kubectl config
use-context dk8s
```

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:

```
<namespace>/<pod>
```

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.

The associated deployment could be running in any of the following namespaces:

• qa
• test
• production
• alan
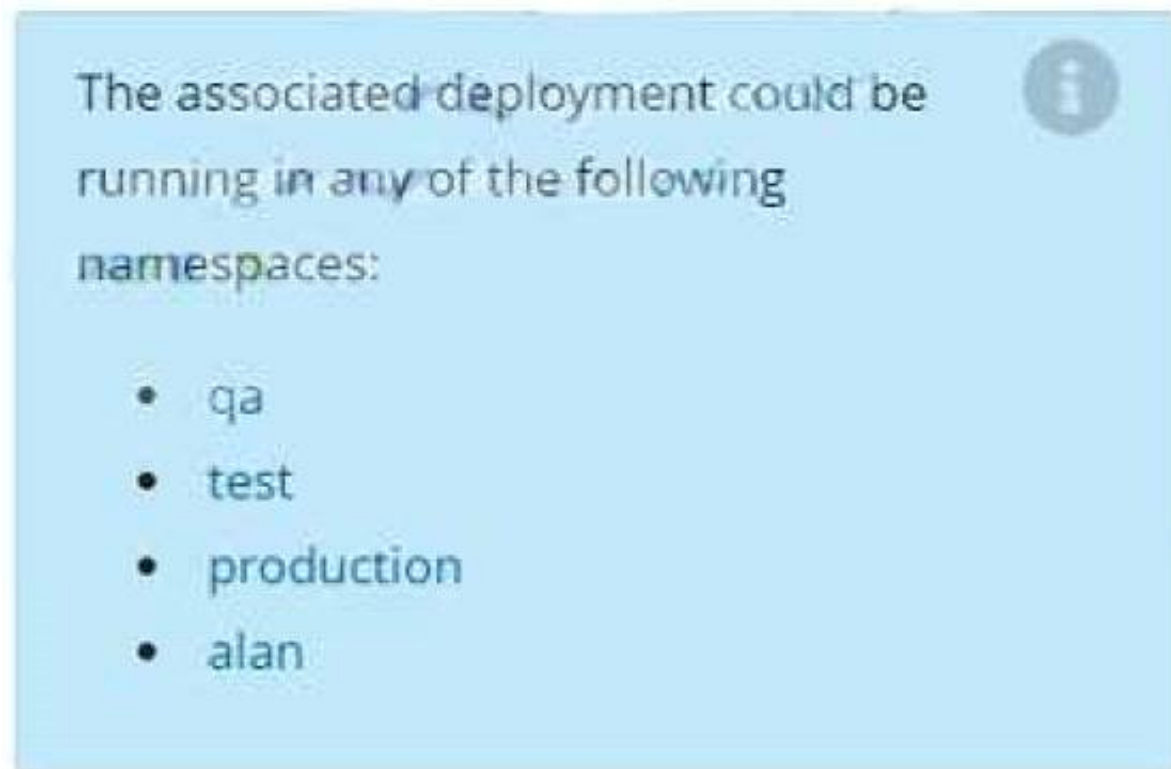
A. Mastered
B. Not Mastered

Answer: A

Explanation:

Solution:
Create the Pod: kubectlcreate-f
http://k8s.io/docs/tasks/configure-pod-container/
exec-liveness.yaml
Within 30 seconds, view the Pod events: kubectldescribepod liveness-exec
The output indicates that no liveness probes have failed yet:
FirstSeen LastSeen CountFrom SubobjectPath Type Reason Message
--------- -------- ----- ---- ------------- -------- ------ ------
24s 24s 1{default-scheduler } NormalScheduled Successfully assigned liveness-exec to worker0
23s 23s 1{kubelet worker0} spec.containers{liveness} NormalPulling pulling image"gcr.io/google_containers/busybox"
23s 23s 1{kubelet worker0} spec.containers{liveness} NormalPulled Successfully pulled image"gcr.io/google_containers/busybox"
23s 23s 1{kubelet worker0} spec.containers{liveness} NormalCreated Created container with docker id86849c15382e; Security:[seccomp=unconfined]
23s 23s 1{kubelet worker0} spec.containers{liveness} NormalStarted Started container with docker id86849c15382e
After 35 seconds, view the Pod events again: kubectldescribepod 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-exectoworker0
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 containerwithdocker id86849c15382e; Security:[seccomp=unconfined]
36s 36s 1{kubelet worker0} spec.containers{liveness} Normal Started Started containerwithdocker id86849c15382e
2s 2s 1{kubelet worker0} spec.containers{liveness} Warning Unhealthy Liveness probe failed: cat: can't open
'/tmp/healthy': No suchfileordirectory
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:
NAMEREADY STATUSRESTARTS AGE
liveness-exec 1/1Running 1m

NEW QUESTION 2
Exhibit:

Task
A deployment is falling on the cluster due to an incorrect image being specified. Locate the deployment, and fix the problem.
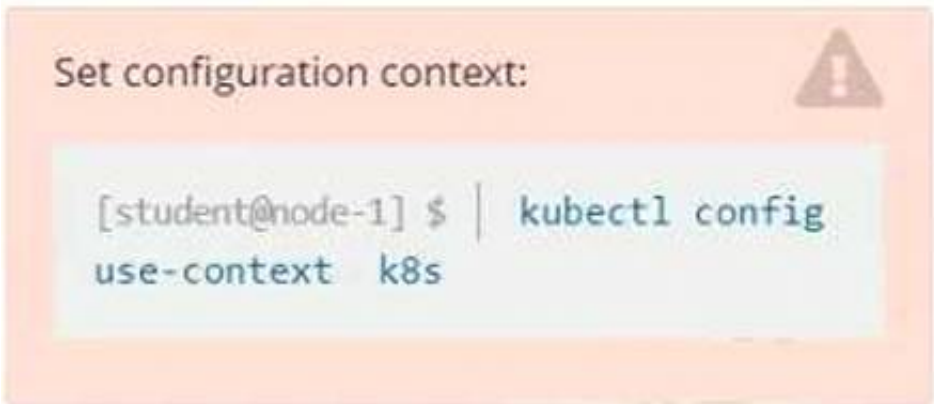Pending

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Suggest the Solution.

NEW QUESTION 3
Exhibit:

Context
Your application's namespace requires a specific service account to be used.
Task
Update the app-adeployment in theproductionnamespace to run as therestrictedserviceservice account. The service account has already been created.

A. Mastered
B. Not Mastered

Answer: A

Explanation:
 Solution:

```
[Readme]  [Web Terminal]                    THE LINUX FOUNDATION

student@node-1:~$ kubectl run cache --image=lfccncf/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:~$ []
```

NEW QUESTION 4
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 lfccncf/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

> When creating your pod, you do not
> need to specify a container command,
> only args.
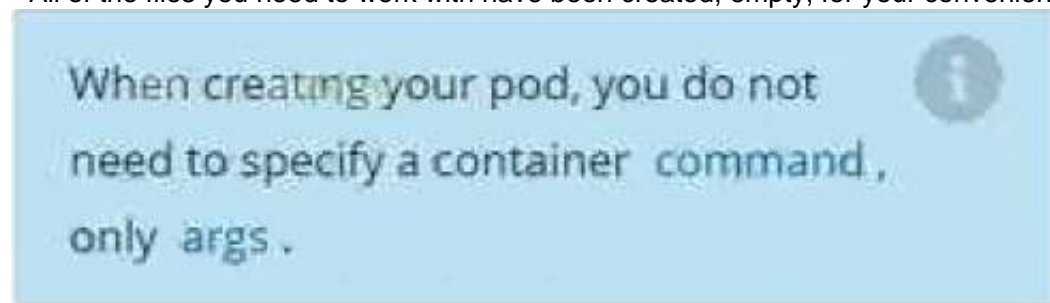
A. Mastered
B. Not Mastered

Answer: A

Explanation:
 Solution:

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

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```
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
```

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```
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           4m44:
liveness-http       1/1      Running            0           6h50r
nginx-101           1/1      Running            0           6h51r
nginx-configmap     1/1      Running            0           6h21:
nginx-secret        1/1      Running            0           11m
poller              1/1      Running            0           6h51r
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           6h42s
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
```

```
📖 Readme    >_ Web Terminal                              i
nginx-configmap    1/1    Running          0          6m2
nginx-secret       1/1    Running          0          11m
poller             1/1    Running          0          6h5
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 > █
```

```
📖 Readme    >_ Web Terminal              □ THE LINUX FOUNDATION
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 5
Exhibit:

Set configuration context:

```
[student@node-1] $ | kubectl config
use-context nk8s
```

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.

All work on this item should be conducted in the kdsn00201 namespace.

All required NetworkPolicy resources are already created and ready for use as appropriate. You should not create, modify or delete any network policies whilst completing this item.

A. Mastered
B. Not Mastered

Answer: A

Explanation:

Suggest the Solution.

NEW QUESTION 6
Exhibit:

Set configuration context:

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

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 kdsn00l01 a service that accomplishes the following:
• Exposes the service on TCP port 8080
• is mapped to me pods defined by the specification of kdsn00l01-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
```
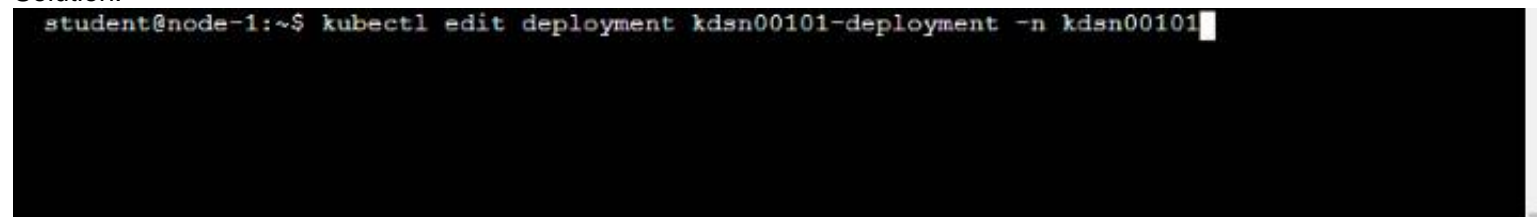
```
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┇ Please edit the object below. Lines beginning with a '#' will be ignored,
# and an empty file will abort the edit. If an error occurs while saving this file will be
# reopened with the relevant failures.
#
apiVersion: apps/v1
kind: Deployment
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:
"/tmp/kubectl-edit-d4y5r.yaml" 70L, 1957C                    1,1          Top
```

```
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  uid: 8d3ace00-7761-4189-ba10-fbc676c311bf
spec:
  progressDeadlineSeconds: 600
  replicas: 4
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
    type: RollingUpdate
  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 7
Exhibit:

```
Set configuration context:                    ⚠

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

Context
As a Kubernetes application developer you will often find yourself needing to update a running application. Task
Please complete the following:
• Update theappdeployment in the kdpd00202 namespace with a maxSurge of5% and a maxUnavailable of2%
• Perform a rolling update of the web1 deployment, changing the lfccncf/ngmx image version to 1.13
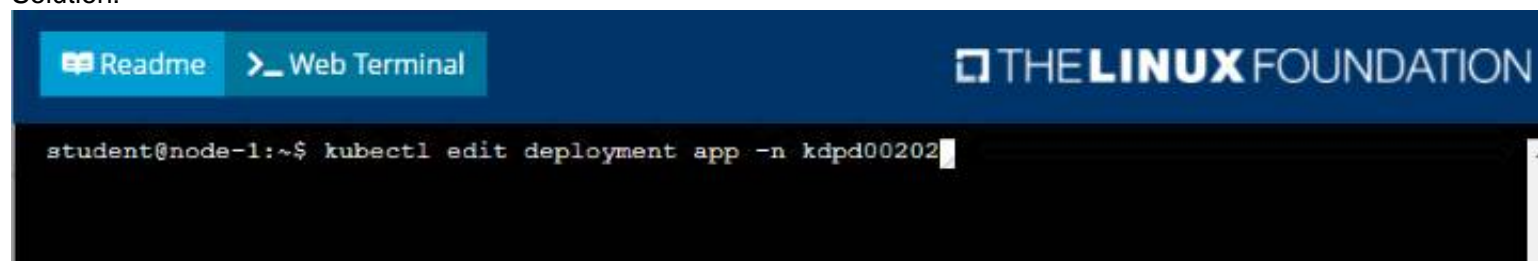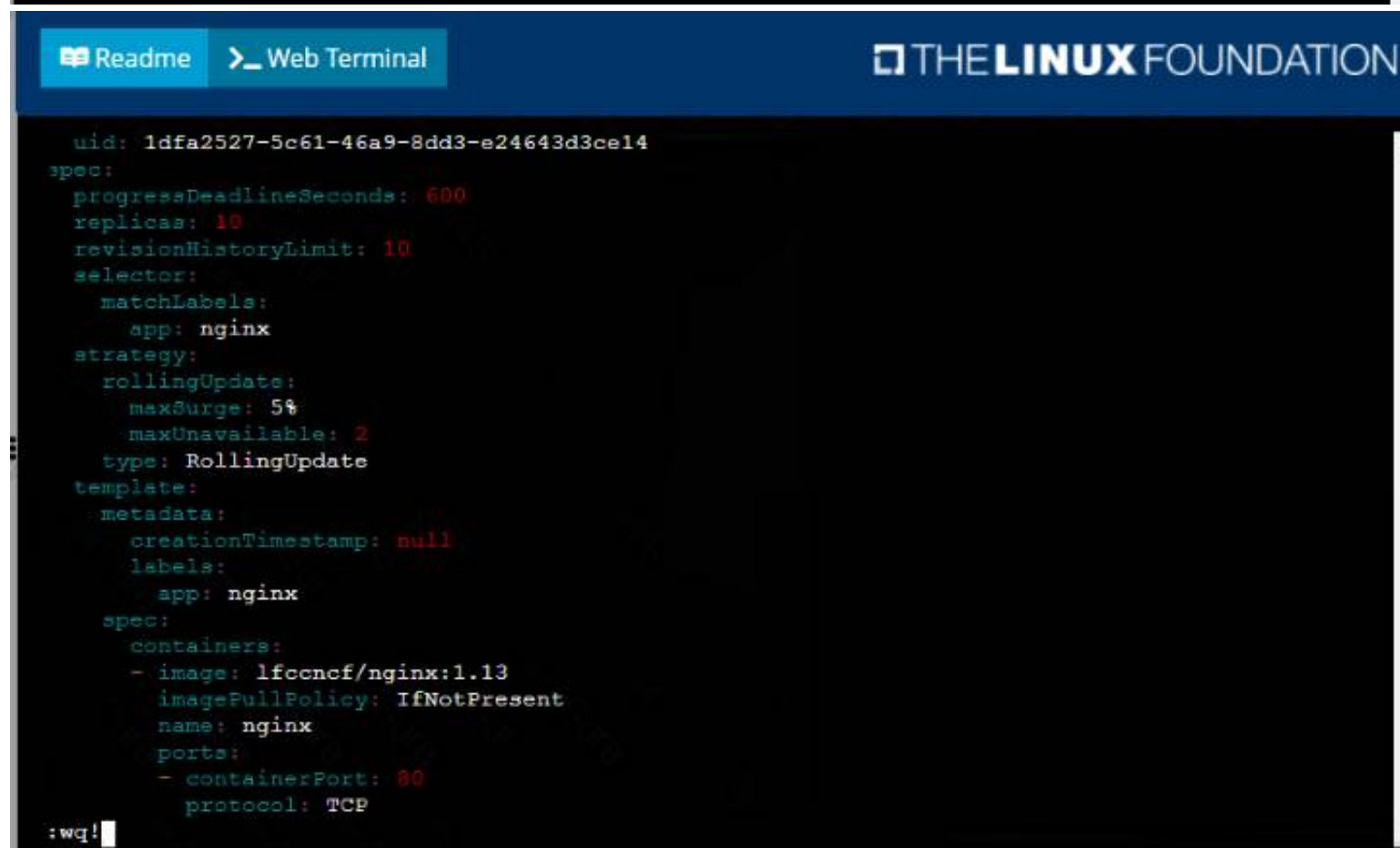• Roll back theappdeployment to the previous version

A. Mastered
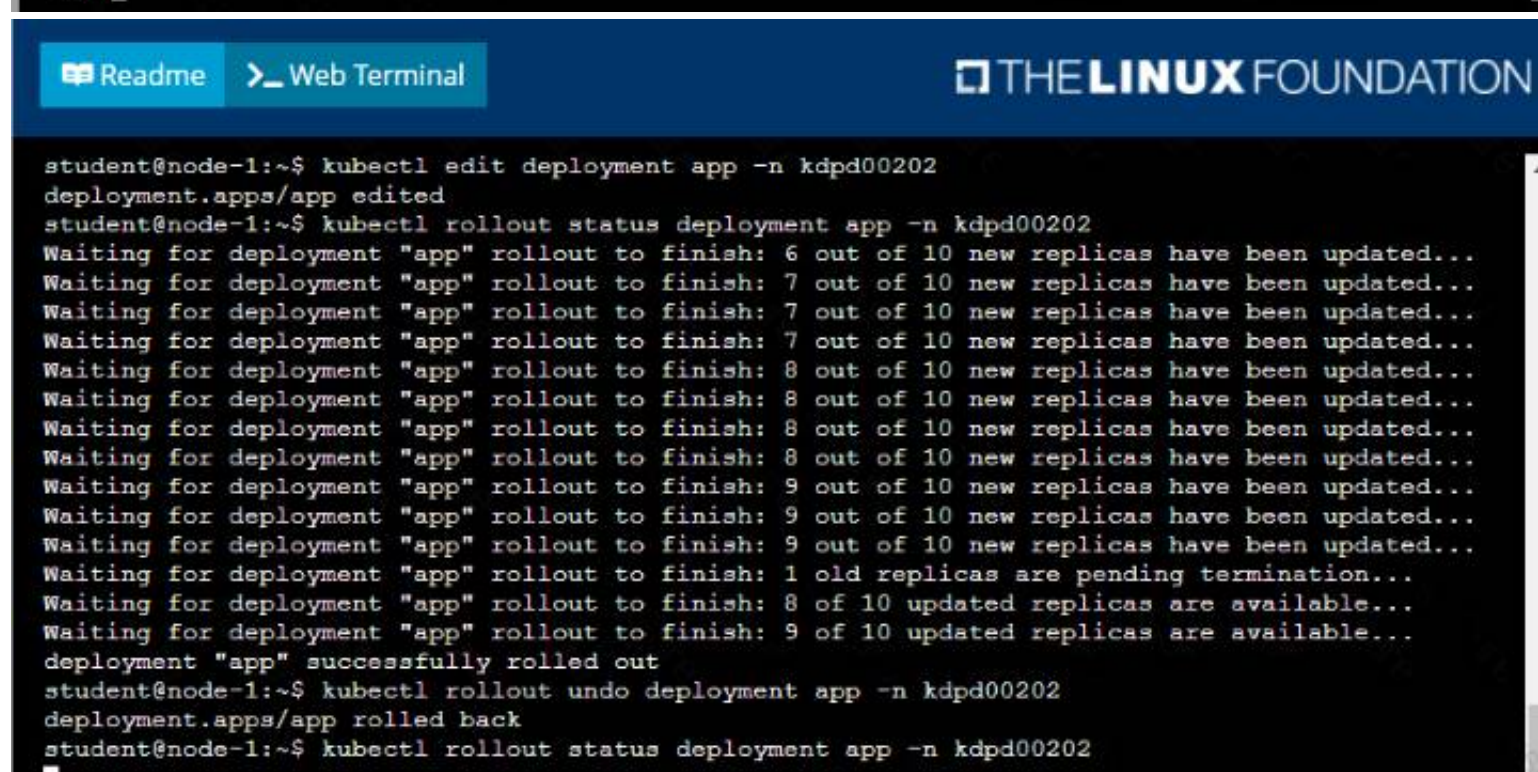
B. Not Mastered

Answer: A
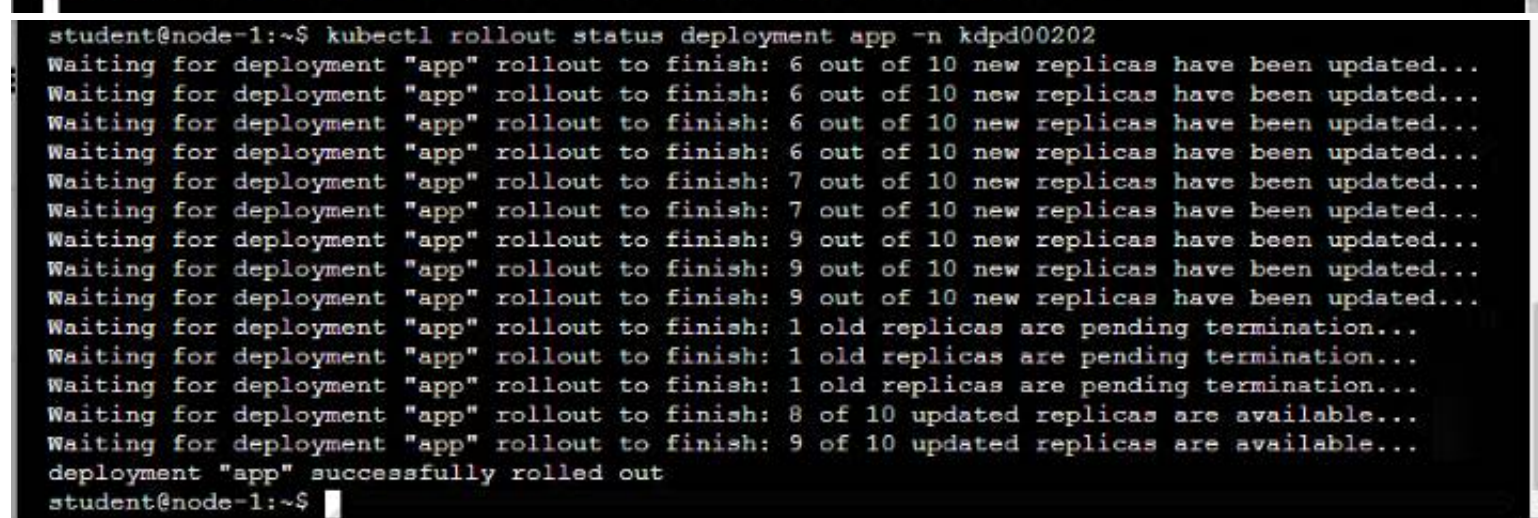
Explanation:
Solution:


```
student@node-1:~$ kubectl edit deployment app -n kdpd00202
```



```
uid: 1dfa2527-5c61-46a9-8dd3-e24643d3ce14
spec:
  progressDeadlineSeconds: 600
  replicas: 10
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
    rollingUpdate:
      maxSurge: 5%
      maxUnavailable: 2
    type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
      - image: lfccncf/nginx:1.13
        imagePullPolicy: IfNotPresent
        name: nginx
        ports:
        - containerPort: 80
          protocol: TCP
:wq!
```



```
student@node-1:~$ kubectl edit deployment app -n kdpd00202
deployment.apps/app edited
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: 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: 7 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 8 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 8 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 8 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 8 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: 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:~$ kubectl rollout undo deployment app -n kdpd00202
deployment.apps/app rolled back
student@node-1:~$ kubectl rollout status deployment app -n kdpd00202
```



```
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 10
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