



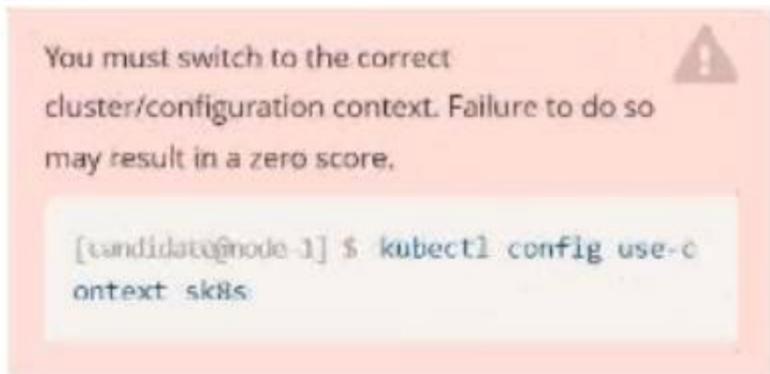
# Linux-Foundation

## Exam Questions CKAD

Certified Kubernetes Application Developer (CKAD) Program

**NEW QUESTION 1**

Exhibit:

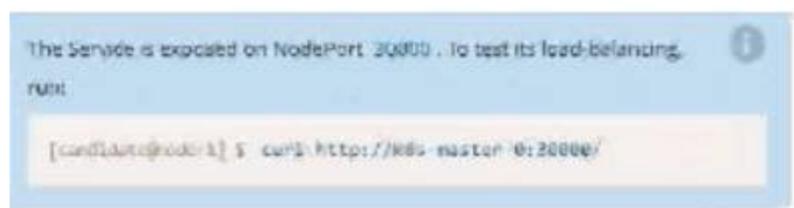
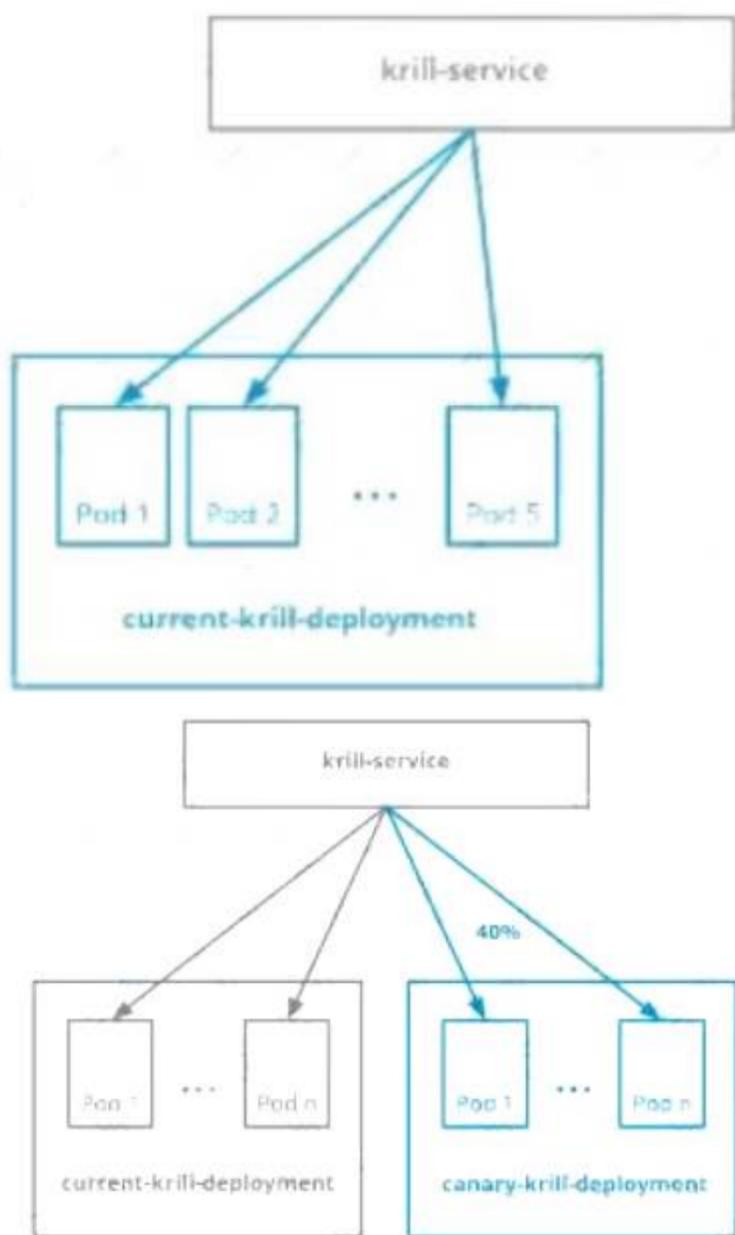


Context

You are asked to prepare a Canary deployment for testing a new application release.

Task:

A Service named krill-Service in the goshawk namespace points to 5 pod created by the Deployment named current-krill-deployment



- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
candidate@node-1:~/humane-stork$ kubectl scale deploy canary-krill-deployment --replicas 4 -n goshawk
deployment.apps/canary-krill-deployment scaled
candidate@node-1:~/humane-stork$ kubectl get deploy -n goshawk
NAME                    READY   UP-TO-DATE   AVAILABLE   AGE
canary-krill-deployment 4/4     4            4           46s
current-krill-deployment 5/5     5            5           7h22m
candidate@node-1:~/humane-stork$ wget https://k8s.io/examples/
```

Text Description automatically generated

```
File Edit View Terminal Tabs Help
candidate@node-1:~/humane-storks$ wget https://k8s.io/examples/admin/resource/quota-pod.yaml
--2022-09-24 11:43:51-- https://k8s.io/examples/admin/resource/quota-pod.yaml
Resolving k8s.io (k8s.io)... 34.107.204.206, 2600:1901:0:26f3::
Connecting to k8s.io (k8s.io)[34.107.204.206]:443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://kubernetes.io/examples/admin/resource/quota-pod.yaml [following]
--2022-09-24 11:43:52-- https://kubernetes.io/examples/admin/resource/quota-pod.yaml
Resolving kubernetes.io (kubernetes.io)... 147.75.40.148
Connecting to kubernetes.io (kubernetes.io)[147.75.40.148]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 90 [application/x-yaml]
Saving to: 'quota-pod.yaml'

quota-pod.yaml      100%[=====>]          90  --.-KB/s   in 0s

2022-09-24 11:43:52 (15.0 MB/s) - 'quota-pod.yaml' saved [90/90]

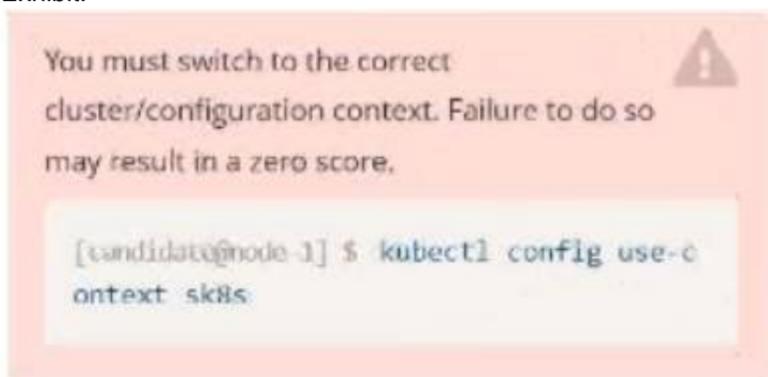
candidate@node-1:~/humane-storks$ vim quota-pod.yaml
```

```
File Edit View Terminal Tabs Help
2022-09-24 11:43:52 (15.0 MB/s) - 'quota-pod.yaml' saved [90/90]

candidate@node-1:~/humane-storks$ vim quota-pod.yaml
candidate@node-1:~/humane-storks$ kubectl create -f quota-pod.yaml
resourcequota/pod-demo created
candidate@node-1:~/humane-storks$ kubectl get quota -n go
No resources found in go namespace.
candidate@node-1:~/humane-storks$ kubectl get quota -n goshawk
NAME      AGE      REQUEST      LIMIT
pod-demo  19s     pods: 9/10
candidate@node-1:~/humane-storks$ curl http://k8s-master-0:30000/
current-krill-deployment-fb7c7995c-kvtjr
app.kubernetes.io/name="current"
app.kubernetes.io/part-of="krill"
pod-template-hash="fb7c7995c"candidate@node-1:~/humane-storks$ curl http://k8s-master-0:30000/
current-krill-deployment-fb7c7995c-4whfm
app.kubernetes.io/name="current"
app.kubernetes.io/part-of="krill"
pod-template-hash="fb7c7995c"candidate@node-1:~/humane-storks$ curl http://k8s-master-0:30000/
canary-krill-deployment-5f78fd4786-dfk7l
app.kubernetes.io/name="canary"
app.kubernetes.io/part-of="krill"
pod-template-hash="5f78fd4786"candidate@node-1:~/humane-storks$ curl http://k8s-master-0:30000/
canary-krill-deployment-5f78fd4786-z5zrt
app.kubernetes.io/name="canary"
app.kubernetes.io/part-of="krill"
pod-template-hash="5f78fd4786"candidate@node-1:~/humane-storks$ curl http://k8s-master-0:30000/
canary-krill-deployment-5f78fd4786-2774b
app.kubernetes.io/name="canary"
app.kubernetes.io/part-of="krill"
pod-template-hash="5f78fd4786"candidate@node-1:~/humane-storks$
```

**NEW QUESTION 2**

Exhibit:



Task:  
 Key3: value1  
 Add an environment variable named BEST\_VARIABLE consuming the value of the secret key3.

- A. Mastered
- B. Not Mastered

**Answer: A**

**Explanation:**

Solution:

```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl create secret generic app-secret -n default --from-literal=key3=value1
secret/app-secret created
candidate@node-1:~$ kubectl get secrets
NAME      TYPE      DATA      AGE
app-secret  Opaque    1          4s
candidate@node-1:~$ kubectl run nginx-secret -n default --image=nginx:stable --dry-run=client -o yaml > sec.yaml
candidate@node-1:~$ vim sec.yaml
```

Text Description automatically generated

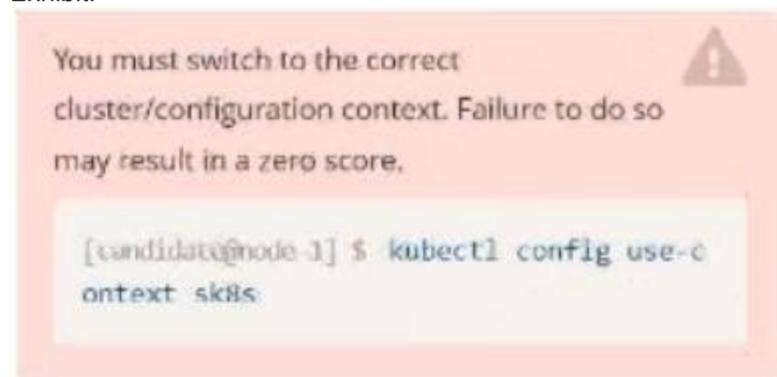
```
File Edit View Terminal Tabs Help
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-secret
    name: nginx-secret
    namespace: default
spec:
  containers:
  - image: nginx:stable
    name: nginx-secret
    env:
    - name: BEST_VARIABLE
      valueFrom:
        secretKeyRef:
          name: app-secret
          key: key3
```

Text Description automatically generated

```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl create secret generic app-secret -n default --from-literal=key3=value1
secret/app-secret created
candidate@node-1:~$ kubectl get secrets
NAME          TYPE          DATA   AGE
app-secret    Opaque        1       4s
candidate@node-1:~$ kubectl run nginx-secret -n default --image=nginx:stable --dry-run=client -o yaml > sec.yaml
candidate@node-1:~$ vim sec.yaml
candidate@node-1:~$ kubectl create -f sec.yaml
pod/nginx-secret created
candidate@node-1:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
nginx-secret  1/1     Running   0           7s
candidate@node-1:~$
```

### NEW QUESTION 3

Exhibit:



Task:

- 1- Update the Propertunel scaling configuration of the Deployment web1 in the ckad00015 namespace setting maxSurge to 2 and maxUnavailable to 59
- 2- Update the web1 Deployment to use version tag 1.13.7 for the lflconf/nginx container image.
- 3- Perform a rollback of the web1 Deployment to its previous version

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl edit deploy web1 -n ckad00015
```

Text Description automatically generated

```
File Edit View Terminal Tabs Help
app: nginx
strategy:
  rollingUpdate:
    maxSurge: 2%
    maxUnavailable: 5%
  type: RollingUpdate
template:
  metadata:
    creationTimestamp: null
    labels:
      app: nginx
  spec:
    containers:
    - image: lfccncf/nginx:1.13.7
      imagePullPolicy: IfNotPresent
      name: nginx
      ports:
      - containerPort: 80
        protocol: TCP
      resources: {}
      terminationMessagePath: /dev/termination-log
      terminationMessagePolicy: File
    dnsPolicy: ClusterFirst
    restartPolicy: Always
    schedulerName: default-scheduler
    securityContext: {}
    terminationGracePeriodSeconds: 30
status:
  availableReplicas: 2
  conditions:
  - lastTransitionTime: "2022-09-24T04:26:41Z"
```

```
File Edit View Terminal Tabs Help
switched to context "k8s".
candidate@node-1:~$ kubectl create secret generic app-secret -n default --from-literal=key3=value1
secret/app-secret created
candidate@node-1:~$ kubectl get secrets
NAME          TYPE          DATA   AGE
app-secret    Opaque        1       4s
candidate@node-1:~$ kubectl run nginx-secret -n default --image=nginx:stable --dry-run=client -o yaml > sec.yaml
candidate@node-1:~$ vim sec.yaml
candidate@node-1:~$ kubectl create -f sec.yaml
pod/nginx-secret created
candidate@node-1:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
nginx-secret  1/1     Running   0           7s
candidate@node-1:~$ kubectl config use-context k8s
switched to context "k8s".
candidate@node-1:~$ kubectl edit deploy web1 -n ckad00015
deployment.apps/web1 edited
candidate@node-1:~$ kubectl rollout status deploy web1 -n ckad00015
deployment "web1" successfully rolled out
candidate@node-1:~$ kubectl rollout undo deploy web1 -n ckad00015
deployment.apps/web1 rolled back
candidate@node-1:~$ kubectl rollout history deploy web1 -n ckad00015
deployment.apps/web1
REVISION  CHANGE-CAUSE
2         <none>
3         <none>

candidate@node-1:~$ kubectl get rs -n ckad00015
NAME          DESIRED   CURRENT   READY   AGE
web1-56f98bcb79  0         0         0       63s
web1-85775b6b79  2         2         2       6h53m
candidate@node-1:~$
```

**NEW QUESTION 4**

Exhibit:



Task

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

- A. Mastered
- B. Not Mastered

**Answer: A**

**Explanation:**

create deploy hello-deploy --image=nginx --dry-run=client -o yaml > hello-deploy.yaml

Update deployment image to nginx:1.17.4: kubec  
 nginx=nginx:1.17.4

**NEW QUESTION 5**

Exhibit:



Context

You sometimes need to observe a pod's logs, and write those logs to a file for further analysis. Task  
 Please complete the following;

- Deploy the counter pod to the cluster using the provided YAMLSpec file at /opt/KDOB00201/counter.yaml
- Retrieve all currently available application logs from the running pod and store them in the file /opt/KDOB00201/log\_Output.txt, which has already been created

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
student@node-1:~$ kubectl create -f /opt/KDOB00201/counter.yaml
pod/counter created
student@node-1:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
counter       1/1     Running   0           10s
liveness-http 1/1     Running   0           6h45m
nginx-101     1/1     Running   0           6h46m
nginx-configmap 1/1     Running   0           107s
nginx-secret  1/1     Running   0           7m21s
poller        1/1     Running   0           6h46m
student@node-1:~$ kubectl logs counter
1: 2b305101817ae25ca60ae46510fb6d11
2: 3648cf2eae95ab680dba8f195f891af4
3: 65c8bbd4dbf70bf81f2a0984a3a44ede
4: 40d3a9c8e46f5533bb4828fbe5c8d038
5: 390442d2530a90c3602901e3fe999ac8
6: b71d95187417e139effb33af77681040
7: 66a8e55a6491e756d2d0549ad6ab90a7
8: ff2b3d583b64125d2f9129c443bb37ff
9: b6c6a12b6e77944ed8baaaf6c242dae4
10: bfcc9a894a0604fc4b814b37d0a200a4
student@node-1:~$ kubectl logs counter > /opt/KDOB00201/log_output.txt
student@node-1:~$
```

```
student@node-1:~$ kubectl logs counter > /opt/KDOB00201/log_output.txt
student@node-1:~$ kubectl logs counter > /opt/KDOB00201/log_output.txt
student@node-1:~$ ca/opt/KDOB00201/log_output.txt
```

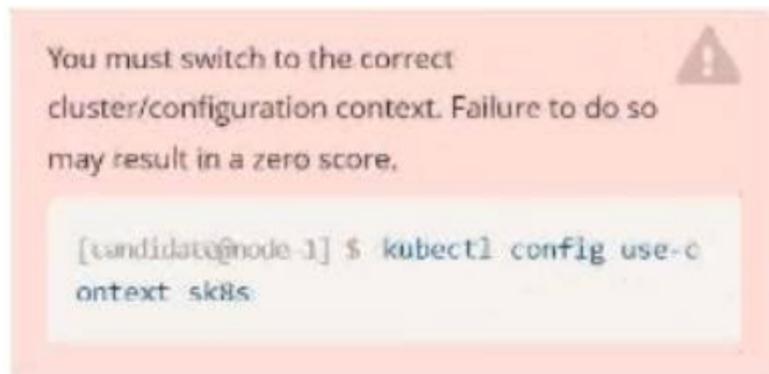
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```

student@node-1:~$ kubectl logs counter > /opt/KDOB00201/log_output.txt
student@node-1:~$ cat /opt/KDOB00201/log_output.txt
1: 2b305101817ae25ca60ae46510fb6d11
2: 3648cf2eae95ab680dba8f195f891af4
3: 65c8bbd4dbf70bf81f2a0984a3a44ede
4: 40d3a9c8e46f5533bb4828fbe5c8d038
5: 390442d2530a90c3602901e3fe999ac8
6: b71d95187417e139effb33af77681040
7: 66a8e55a6491e756d2d0549ad6ab90a7
8: ff2b3d583b64125d2f9129c443bb37ff
9: b6c6a12b6e77944ed8baaaf6c242dae4
10: bfcc9a894a0604fc4b814b37d0a200a4
11: 5493cd16a1790a5fb9512b0c9d4c5dd1
12: 03f169e93e6143438e6dfe4ecb3cc9ed
13: 764b37fe611373c42d0b47154041f6eb
14: 1a56fbe1896b0ee6394136166281839e
15: ecc492eb17715de090c47345a98d98d3
16: 7974a6bec0fb44b6b8bbfc71aa3fbe74
17: 9ae01bef01748b12cc9f97a5f9f72cd6
18: 23fb22ee34d4272e4c9e005f1774515f
19: ec7e1a5d314da9a0ad45d53be5a7acae
20: 0bccdd8ee02cd42029e8162cd1c1197c
21: d6851ea43546216b95bcb81ced997102
22: 7ed9a38ea8bf0d86206569481442af44
23: 29b8416ddc63dbfcb987ab3c8198e9fe
24: 1f2062001df51a108ab25010f506716f
student@node-1:~$
    
```

### NEW QUESTION 6

Exhibit:



Task:

- > To run 2 replicas of the pod
- > Add the following label on the pod:  
Role userUI

- A. Mastered
- B. Not Mastered

**Answer: A**

**Explanation:**

Solution:

Text Description automatically generated

```
File Edit View Terminal Tabs Help
# reopened with the relevant failures.
#
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
    deployment.kubernetes.io/revision: "1"
  creationTimestamp: "2022-09-24T04:27:03Z"
  generation: 1
  labels:
    app: nginx
  name: ckad00017-deployment
  namespace: ckad00017
  resourceVersion: "3349"
  uid: lcd67613-fade-46e9-b741-94298b9c6e7c
spec:
  progressDeadlineSeconds: 600
  replicas: 2
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
    type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
      labels:
-- INSERT --
```

33,14 5%

Text Description automatically generated

```
File Edit View Terminal Tabs Help
name: ckad00017-deployment
namespace: ckad00017
resourceVersion: "3349"
uid: lcd67613-fade-46e9-b741-94298b9c6e7c
spec:
  progressDeadlineSeconds: 600
  replicas: 2
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
    type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
        role: userUI
    spec:
      containers:
      - image: nginx:latest
        imagePullPolicy: Always
        name: nginx
        ports:
        - containerPort: 80
          protocol: TCP
        resources: {}
-- INSERT --
```

35,21 33%

Text Description automatically generated

```

File Edit View Terminal Tabs Help
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:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl edit deploy ckad00017-deployment -n ckad00017
deployment.apps/ckad00017-deployment edited
candidate@node-1:~$

```

```

File Edit View Terminal Tabs Help
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:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl edit deploy ckad00017-deployment -n ckad00017
deployment.apps/ckad00017-deployment edited
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014 ckad00015 ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014 ckad00015 ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014 ckad00015 ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014 ckad00015 ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014 ckad00015 ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014 ckad00015 ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014 ckad00015 ckad00017
candidate@node-1:~$ kubectl expose service/cherry exposed
candidate@node-1:~$

```

```

candidate@node-1:~$ kubectl get svc
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
kubernetes ClusterIP 10.96.0.1 <none> 443/TCP 77d
candidate@node-1:~$ kubectl get svc -n ckad00017
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
cherry NodePort 10.100.100.176 <none> 8888:30683/TCP 24s
candidate@node-1:~$ kubectl expose service deploy ckad00017-deployment -n ckad00017 --name=cherry --port=8888 --type=NodePort
Error from server (NotFound): services "deploy" not found
Error from server (NotFound): services "ckad00017-deployment" not found
candidate@node-1:~$ kubectl get svc -n ckad00017
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
cherry NodePort 10.100.100.176 <none> 8888:30683/TCP 46s
candidate@node-1:~$

```

```

File Edit View Terminal Tabs Help
candidate@node-1:~$ kubectl expose service deploy ckad00017-deployment -n ckad00017 --name=cherry --port=8888 --type=NodePort
Error from server (NotFound): services "deploy" not found
Error from server (NotFound): services "ckad00017-deployment" not found
candidate@node-1:~$ kubectl get svc -n ckad00017
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
cherry    NodePort  10.100.100.176  <none>           8888:30683/TCP  46s
candidate@node-1:~$ history
 1 vi ~/spicy-pikachu/backend-deployment.yaml
 2 kubectl config use-context sk8s
 3 vim .vimrc
 4 vim ~/spicy-pikachu/backend-deployment.yaml
 5 kubectl apply -f ~/spicy-pikachu/backend-deployment.yaml
 6 kubectl get pods -n staging
 7 kubectl get deploy -n staging
 8 vim ~/spicy-pikachu/backend-deployment.yaml
 9 kubectl config use-context k8s
10 kubectl set serviceaccount deploy app-1 app -n frontend
11 kubectl config use-context k8s
12 vim ~/prompt-escargot/buffalo-deployment.yaml
13 kubectl apply -f ~/prompt-escargot/buffalo-deployment.yaml
14 kubectl get pods -n gorilla
15 kubectl get deploy -n gorilla
16 kubectl config use-context k8s
17 kubectl edit deploy ckad00017-deployment -n ckad00017
18 kubectl expose deploy ckad00017-deployment -n ckad00017 --name=cherry --port=8888 --type=NodePort
19 kubectl get svc
20 kubectl get svc -n ckad00017
21 kubectl expose service deploy ckad00017-deployment -n ckad00017 --name=cherry --port=8888 --type=NodePort
22 kubectl get svc -n ckad00017
23 history
candidate@node-1:~$

```

**NEW QUESTION 7**

Exhibit:

```

Set configuration context:
[student@node-1] $ | kubectl config
use-context k8s

```

Context

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

- From the pods running in namespace cpu-stress , write the name only of the pod that is consuming the most CPU to file /opt/KDOBG030/pod.txt, which has already been created.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```

Readme Web Terminal THE LINUX FOUNDATION
student@node-1:~$ kubectl top pods -n cpu-stress
NAME          CPU (cores)  MEMORY (bytes)
max-load-98b9se 68m          6Mi
max-load-ab2d3s 21m          6Mi
max-load-kipb9a 45m          6Mi
student@node-1:~$ echo "max-load-98b9se" > /opt/KDOBG00301/pod.txt

```

**NEW QUESTION 8**

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.

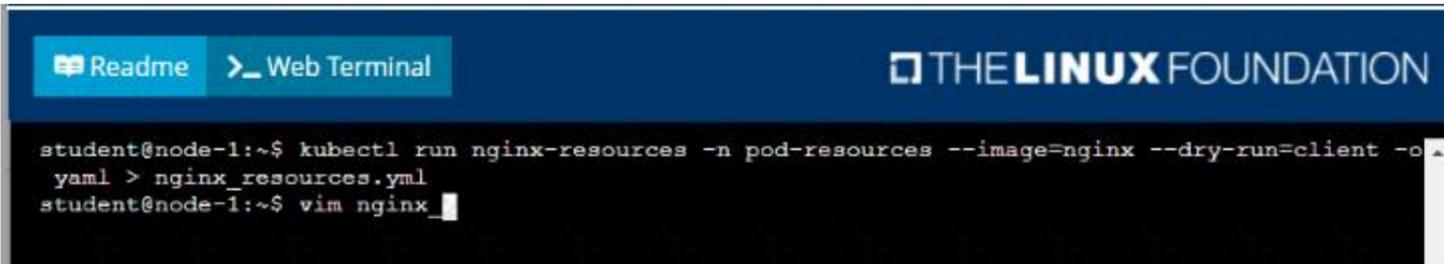
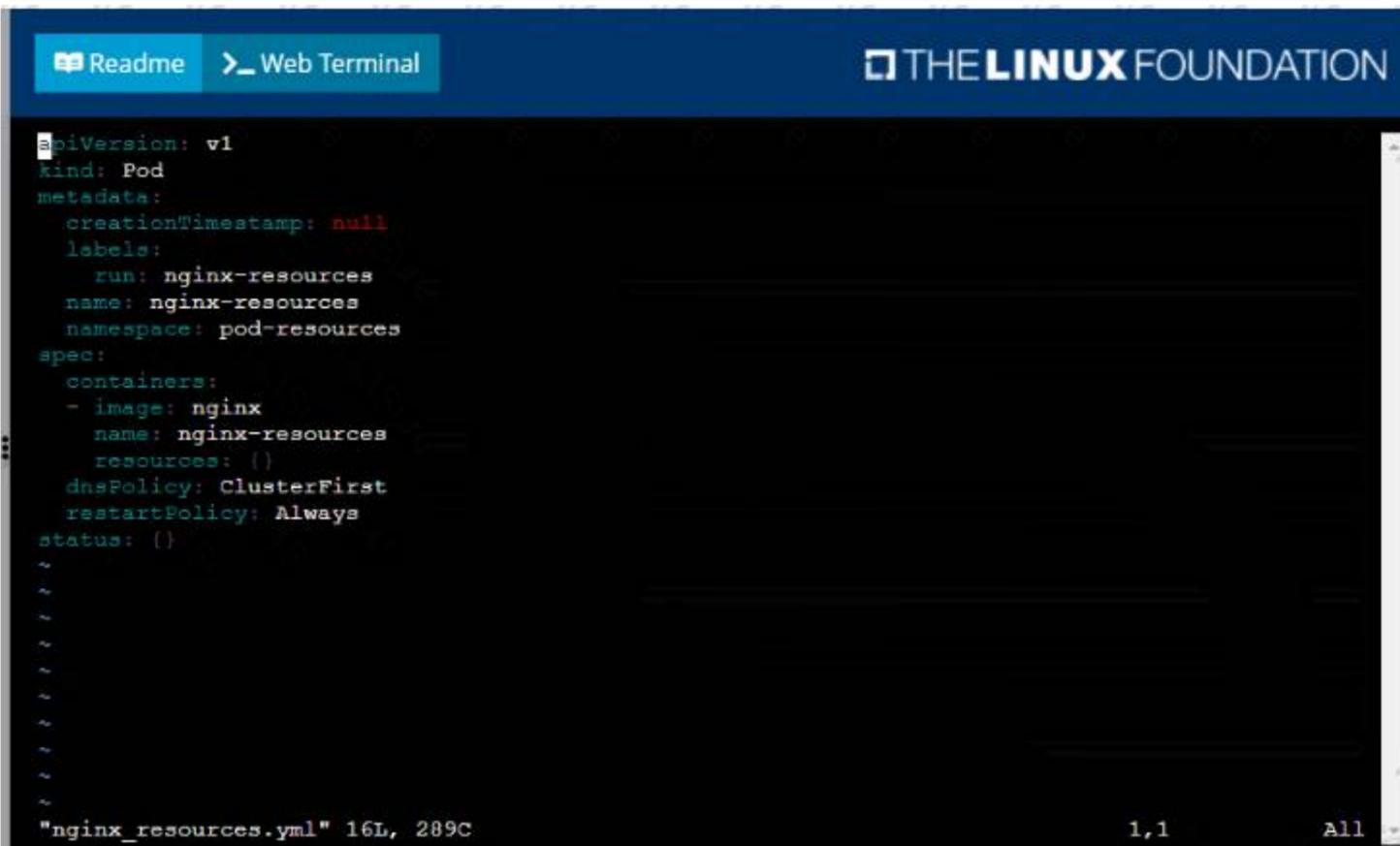
- Create a pod named nginx-resources in the pod-resources namespace that requests a minimum of 200m CPU and 1Gi memory for its container
- The pod should use the nginx image
- The pod-resources namespace has already been created

- A. Mastered
- B. Not Mastered

**Answer:** A

#### Explanation:

Solution:

```

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: {}
  
```

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```

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

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```

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
  
```

Readme Web Terminal THE LINUX FOUNDATION

```

student@node-1:~$ kubectl get pods -n pod-resources
NAME          READY   STATUS    RESTARTS   AGE
nginx-resources 1/1     Running   0           8s
student@node-1:~$
  
```

### NEW QUESTION 9

Exhibit:

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-c
ontext sk8s
```

Task:

Update the Pod ckad00018-newpod in the ckad00018 namespace to use a NetworkPolicy allowing the Pod to send and receive traffic only to and from the pods web and db

All required NetworkPolicies have already been created.

You must not create, modify or delete any NetworkPolicy while working on this task. You may only use existing NetworkPolicies.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
candidate@node-1:~$ kubectl config use-context nk8s
Switched to context "nk8s".
candidate@node-1:~$ kubectl describe netpol -n ckad00018
```

```
Name:          all-access
Namespace:     ckad00018
Created on:    2022-09-24 04:27:37 +0000 UTC
Labels:        <none>
Annotations:   <none>
Spec:
  PodSelector:  all-access=true
  Allowing ingress traffic:
    To Port:    <any> (traffic allowed to all ports)
    From:       <any> (traffic not restricted by source)
  Allowing egress traffic:
    To Port:    <any> (traffic allowed to all ports)
    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:~$
```

**NEW QUESTION 10**

Exhibit:



Context

A pod is running on the cluster but it is not responding. Task  
 The desired behavior is to have Kubernetes 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:

- 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.
- 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.
- Configure the probe-pod pod provided to use these endpoints
- The probes should use port 8080

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

```
Solution:
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 60
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
```

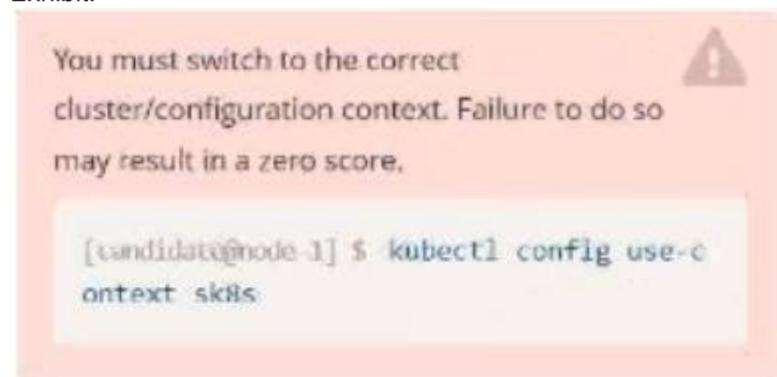
Wait another 30 seconds, and verify that the container has been restarted: `kubectl get pod liveness-exec`

The output shows that RESTARTS has been incremented: NAME READY STATUS RESTARTS AGE

```
liveness-exec 1/1 Running 1 1m
```

### NEW QUESTION 10

Exhibit:



Task

A Deployment named `backend-deployment` in namespace `staging` runs a web application on port 8081.

 The Deployment's manifest files can be found at

```
~/spicy-pikachu/backend-deployment.yaml
```

Modify the Deployment specifying a readiness probe

using path `/healthz`.

Set `initialDelaySeconds` to 8 and `periodSeconds` to 5.

A. Mastered

B. Not Mastered

**Answer:** A

**Explanation:**

Solution:

```
File Edit View Terminal Tabs Help
Warning: Permanently added '172.31.17.21' (ECDSA) to the list of known hosts.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

candidate@node-1:~$ vi ~/spicy-pikachu/backend-deployment.yaml
candidate@node-1:~$ kubectl config use-context sk8s
Switched to context "sk8s".
candidate@node-1:~$ vim .vimrc
candidate@node-1:~$ vim ~/spicy-pikachu/backend-deployment.yaml
```

Text Description automatically generated

```
File Edit View Terminal Tabs Help
apiVersion: apps/v1
kind: Deployment
metadata:
  name: backend-deployment
  namespace: staging
spec:
  selector:
    matchLabels:
      app: nginx
  replicas: 3
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
      - name: nginx
        image: nginx:1.14.2
        ports:
        - containerPort: 8081
        readinessProbe:
          initialDelaySeconds: 8
          periodSeconds: 5
          httpGet:
            path: /healthz
            port: 8081
        volumeMounts:
        - mountPath: /etc/nginx/conf.d/
          name: config
        - mountPath: /usr/share/nginx/html/
          name: www
-- INSERT --
```

```
File Edit View Terminal Tabs Help
Warning: Permanently added '172.31.17.21' (ECDSA) to the list of known hosts.

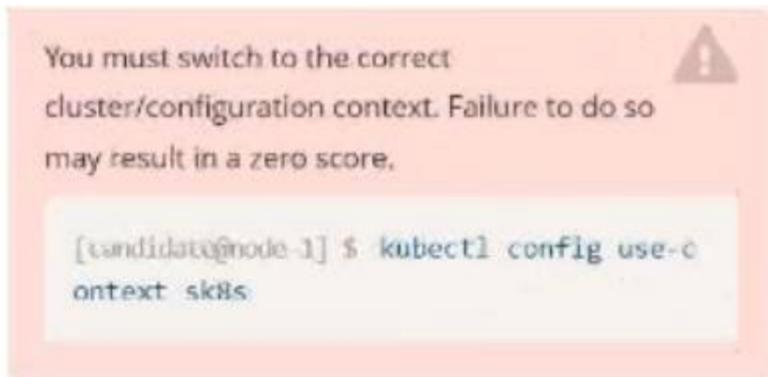
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

candidate@node-1:~$ vi ~/spicy-pikachu/backend-deployment.yaml
candidate@node-1:~$ kubectl config use-context sk8s
Switched to context "sk8s".
candidate@node-1:~$ vim .vimrc
candidate@node-1:~$ vim ~/spicy-pikachu/backend-deployment.yaml
candidate@node-1:~$ kubectl apply -f ~/spicy-pikachu/backend-deployment.yaml
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
```

### NEW QUESTION 13

Exhibit:



Task:

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

1) 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. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

Text Description automatically generated

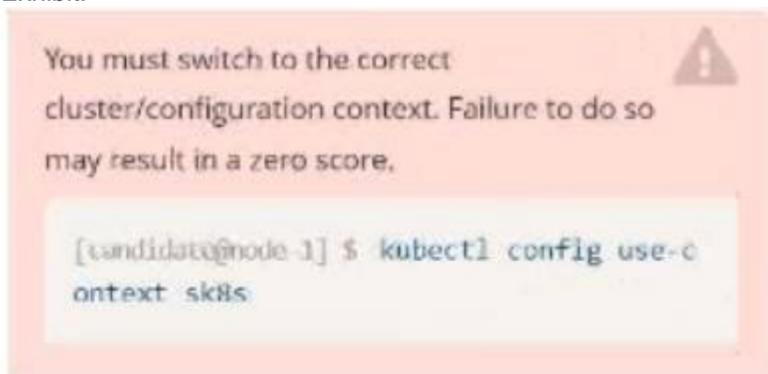
```

File Edit View Terminal Tabs Help
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:~$

```

**NEW QUESTION 16**

Exhibit:



Task:

Create a Pod named nginx resources in the existing pod resources namespace. Specify a single container using nginx:stable image.

Specify a resource request of 300m cpus and 1G1 of memory for the Pod's container.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Solution:

```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl run nginx-resources -n pod-resources --image=nginx:stable --dry-run=client -o yaml > hw.yaml
candidate@node-1:~$ vim hw.yaml
```

Text Description automatically generated with medium confidence

```
File Edit View Terminal Tabs Help
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-resources
  name: nginx-resources
  namespace: pod-resources
spec:
  containers:
  - image: nginx:stable
    name: nginx-resources
    resources:
      requests:
        cpu: 300m
        memory: "1Gi"
```

Text Description automatically generated

```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl run nginx-resources -n pod-resources --image=nginx:stable --dry-run=client -o yaml > hw.yaml
candidate@node-1:~$ vim hw.yaml
candidate@node-1:~$ kubectl create -f hw.yaml
pod/nginx-resources created
candidate@node-1:~$ kubectl get pods -n pod-resources
NAME          READY   STATUS    RESTARTS   AGE
nginx-resources 1/1     Running   0          13s
candidate@node-1:~$ kubectl describe pods -n pod-resources
```

Text Description automatically generated

```
File Edit View Terminal Tabs Help
memory: 1Gi
Environment: <none>
Mounts:
  /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-dmx9j (ro)
Conditions:
  Type             Status
  Initialized       True
  Ready             True
  ContainersReady  True
  PodScheduled     True
Volumes:
  kube-api-access-dmx9j:
    Type: Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds: 3607
    ConfigMapName: kube-root-ca.crt
    ConfigMapOptional: <nil>
    DownwardAPI: true
QoS Class:           Burstable
Node-Selectors:      <none>
Tolerations:         node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                     node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type    Reason      Age   From          Message
  ----    -
  Normal  Scheduled   20s   default-scheduler  Successfully assigned pod-resources/nginx-resources to k8s-node-0
  Normal  Pulling    19s   kubelet        Pulling image "nginx:stable"
  Normal  Pulled     13s   kubelet        Successfully pulled image "nginx:stable" in 6.55664052s
  Normal  Created    13s   kubelet        Created container nginx-resources
  Normal  Started    12s   kubelet        Started container nginx-resources
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl create deploy expose -n ckad00014 --image lfccnrf/nginx:1.13.7 --dry-run=client -o yaml >
```

**NEW QUESTION 18**

Exhibit:



**Context**

A user has reported an application is unteachable due to a failing livenessProbe . Task

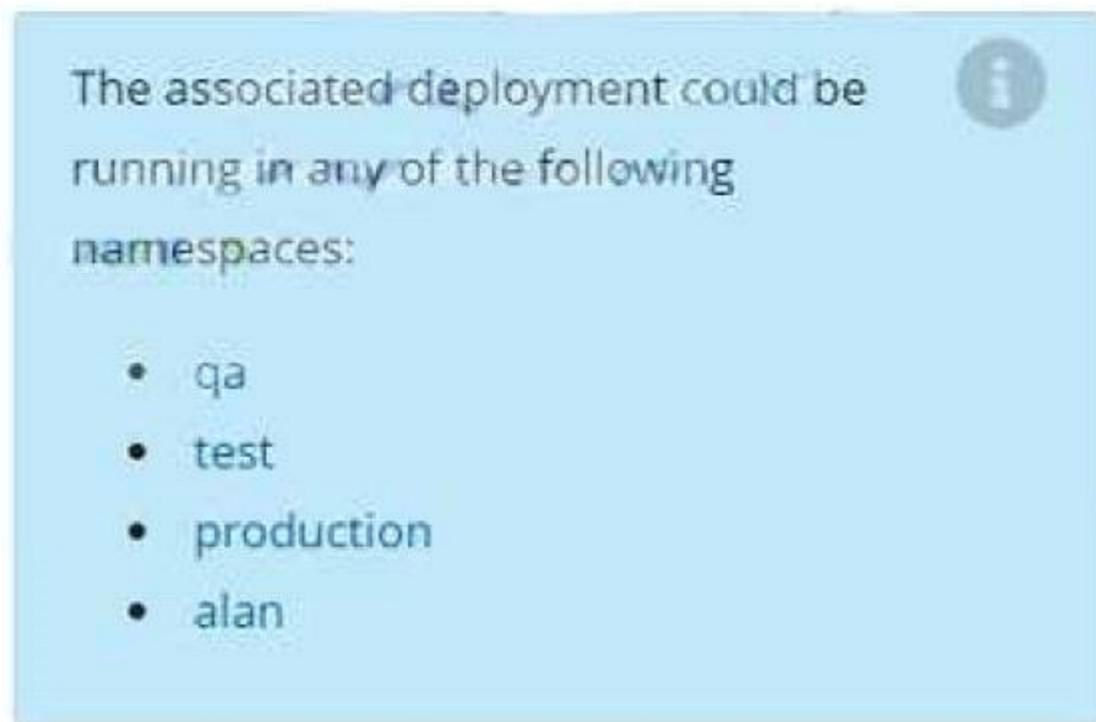
Perform the following tasks:

- 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 SubjectPath 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 SubjectPath 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 22

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=webFrontEnd key/value label to the pod template metadata to identify the pod for the service definition
- Have 4 replicas

Next, create a 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:

```

"/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 27**

.....

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