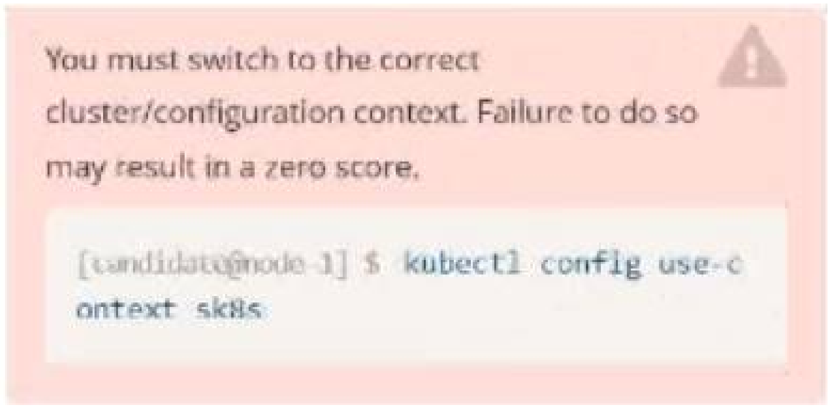
Linux-Foundation

Exam Questions CKAD

Certified Kubernetes Application Developer (CKAD) Program

NEW QUESTION 1
Exhibit:



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

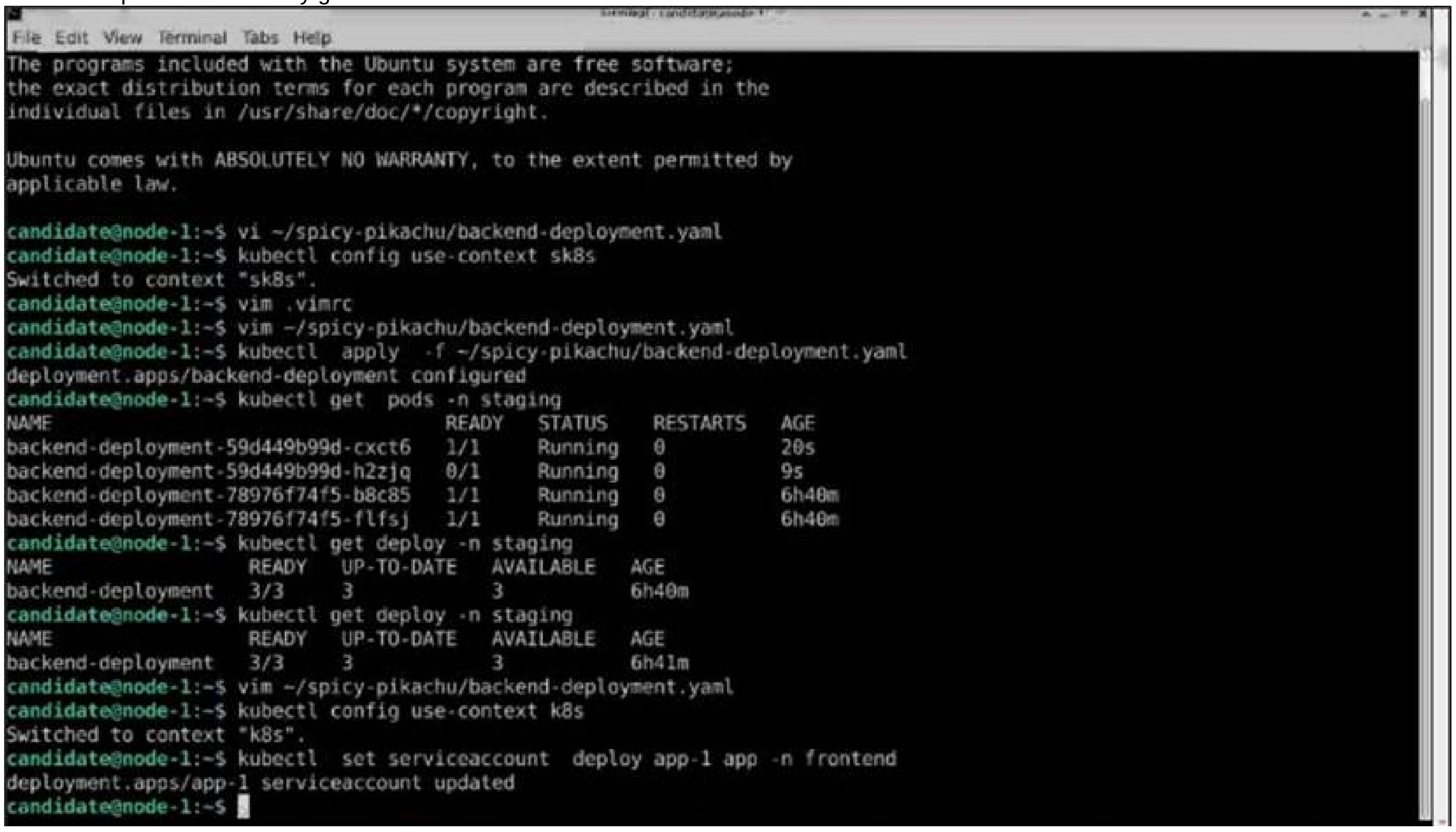
```
[candidate@node-1] $ kubectl config use-c
ontext sk8s
```

Task:
Update the Deployment app-1 in the frontend namespace to use the existing ServiceAccount app.

A. Mastered
B. Not Mastered

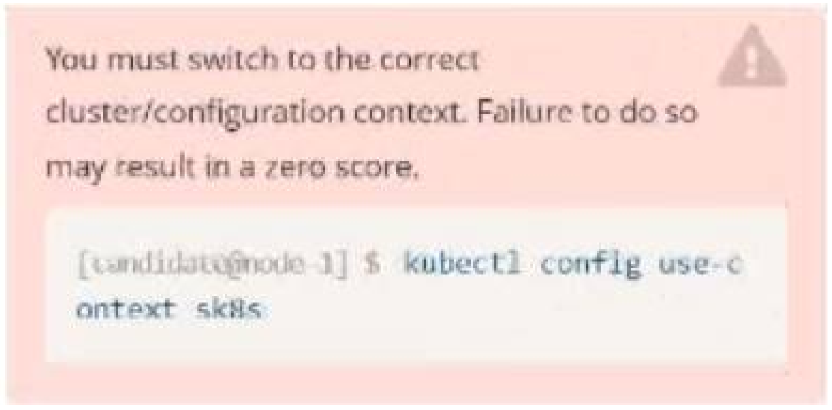
Answer: A

Explanation:
Solution:
Text Description automatically generated



```
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
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:~$
```

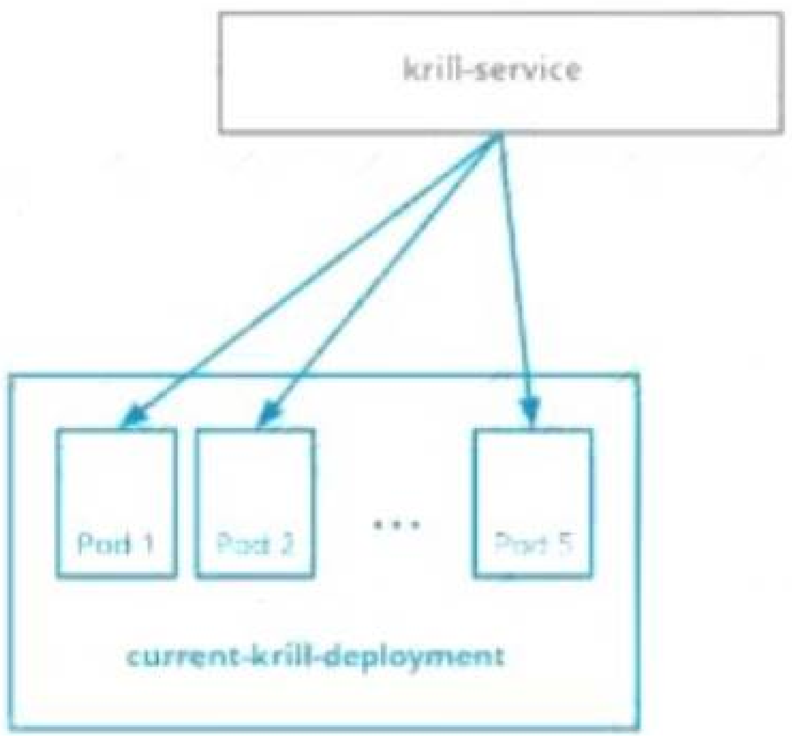
NEW QUESTION 2
Exhibit:

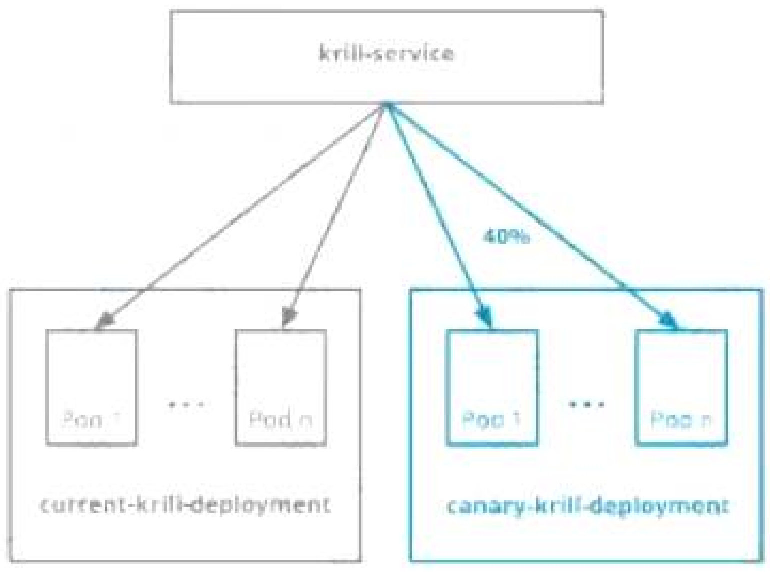


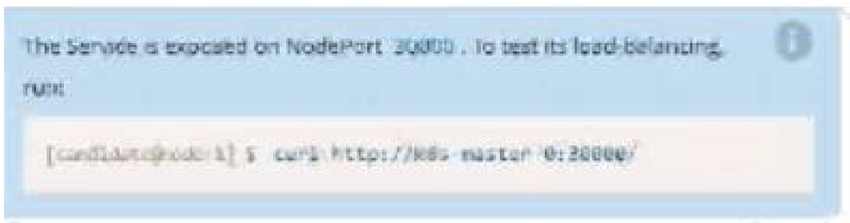
You must switch to the correct cluster/configuration context. Failure to do so may result in a zero score.

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

Context
You are asked to prepare a Canary deployment for testing a new application release.
Task:
A Service named krill-Service in the goshark namespace points to 5 pod created by the Deployment named current-krill-deployment





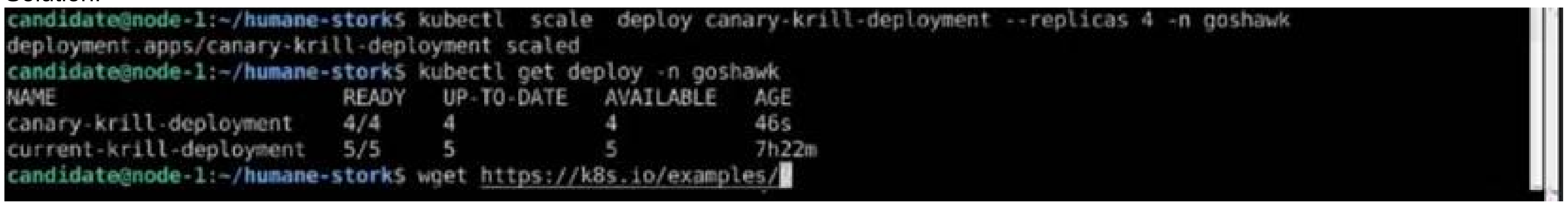

The Service is exposed on NodePort 30000 . To test its load-balancing, run:

```
[candidate@node-1] $ curl http://k8s-master-0:30000/
```

A. Mastered
B. Not Mastered

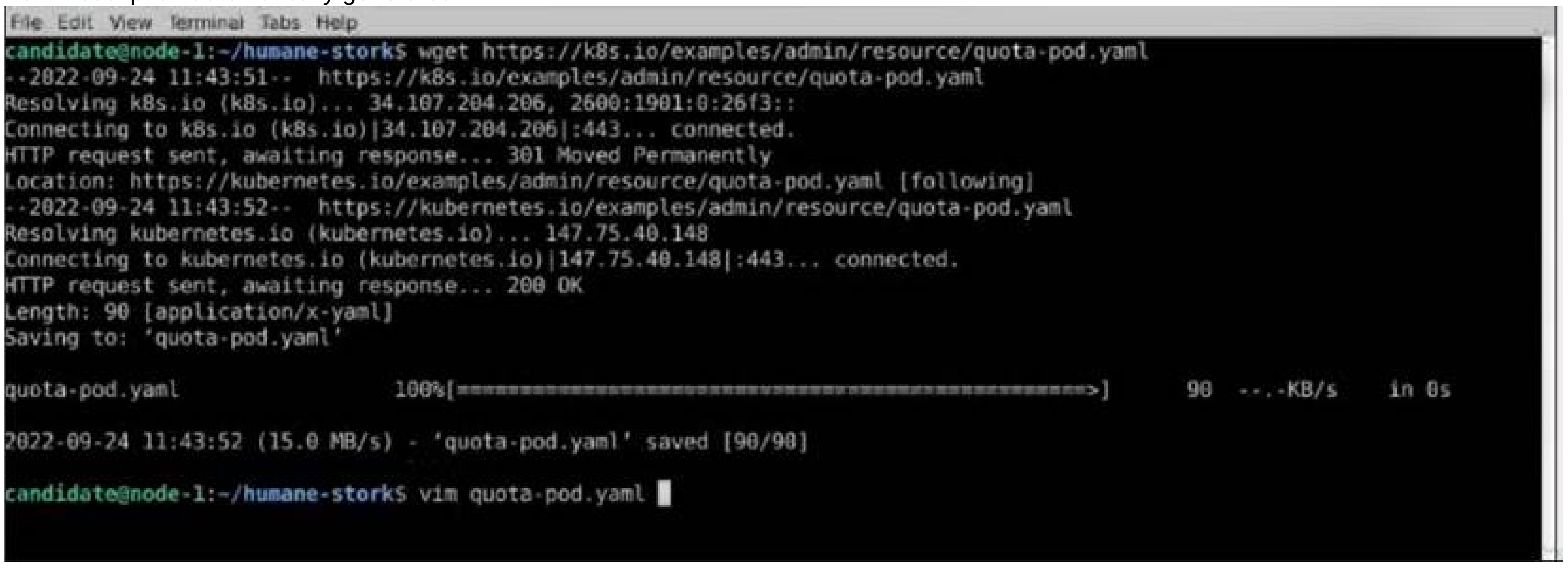
Answer: A

Explanation:
Solution:

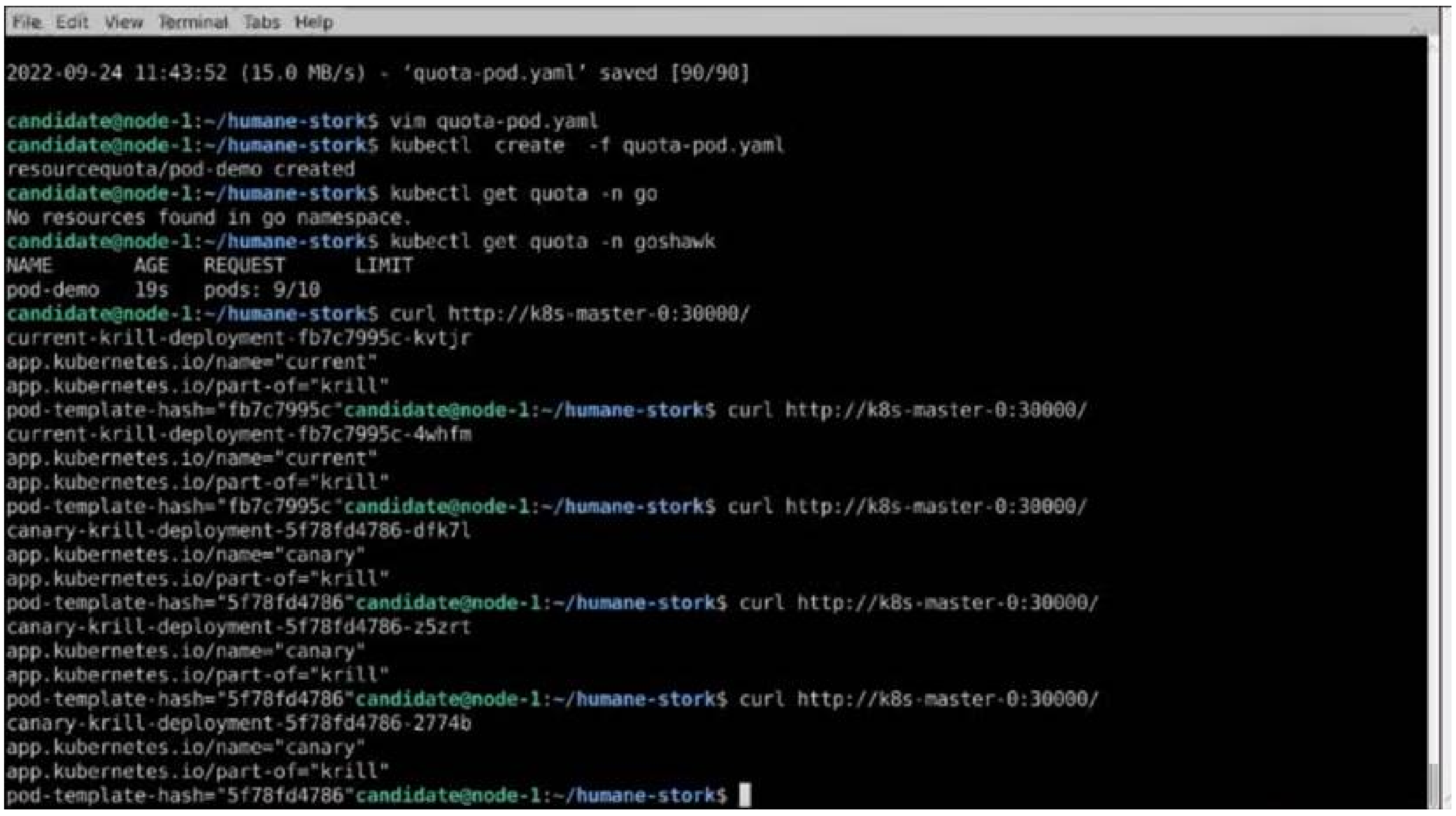


```
candidate@node-1:~/humane-stork$ kubectl  scale  deploy canary-krill-deployment --replicas 4 -n goshawk
deployment.apps/canary-krill-deployment scaled
candidate@node-1:~/humane-stork$ kubectl get deploy -n goshawk
NAME                      READY   UP-TO-DATE   AVAILABLE   AGE
canary-krill-deployment   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

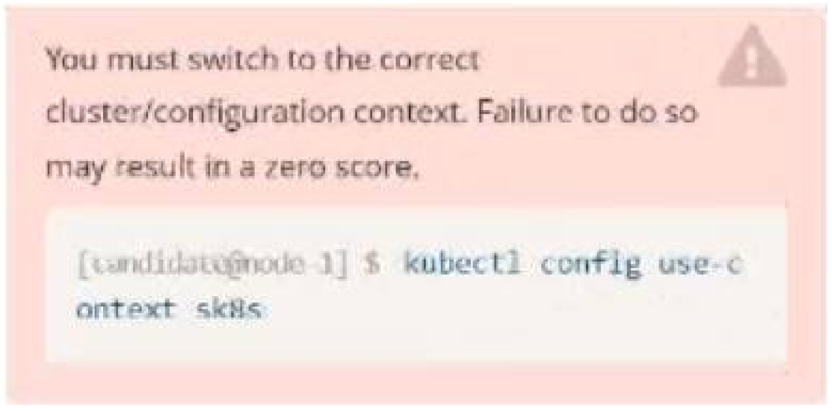


```
candidate@node-1:~/humane-stork$ wget https://k8s.io/examples/admin/resource/quota-pod.yaml
--2022-09-24 11:43:51--  https://k8s.io/examples/admin/resource/quota-pod.yaml
Resolving k8s.io (k8s.io)... 34.107.204.206, 2600:1901:0:26f3::
Connecting to k8s.io (k8s.io)|34.107.204.206|:443... connected.
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-stork$ vim quota-pod.yaml
```


File Edit View Terminal Tabs Help

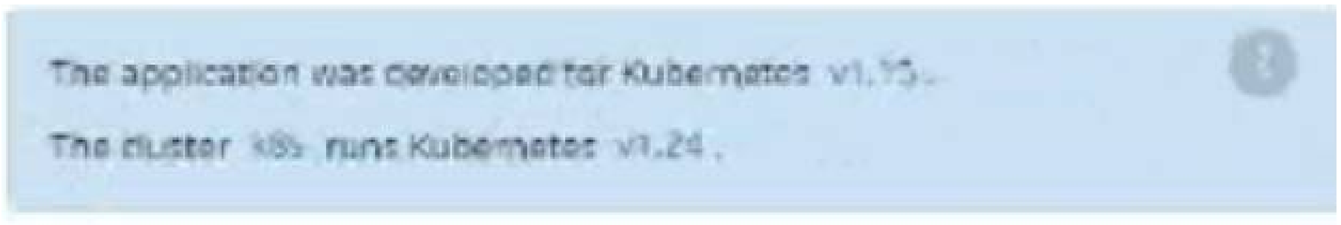
```
2022-09-24 11:43:52 (15.0 MB/s) - 'quota-pod.yaml' saved [90/90]

candidate@node-1:~/humane-stork$ vim quota-pod.yaml
candidate@node-1:~/humane-stork$ kubectl  create  -f quota-pod.yaml
resourcequota/pod-demo created
candidate@node-1:~/humane-stork$ kubectl get quota -n go
No resources found in go namespace.
candidate@node-1:~/humane-stork$ kubectl get quota -n goshawk
NAME       AGE   REQUEST      LIMIT
pod-demo   19s   pods: 9/10
candidate@node-1:~/humane-stork$ 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-stork$ 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-stork$ 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-stork$ 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-stork$ 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-stork$
```

NEW QUESTION 3
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:

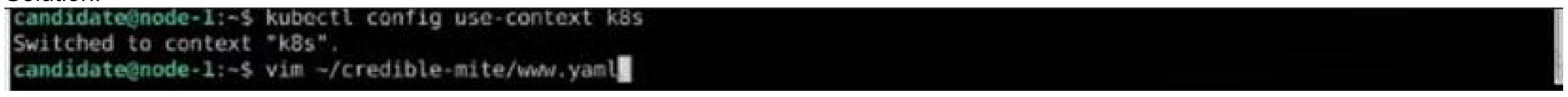

The application was developed for Kubernetes v1.15.

The cluster k8s runs Kubernetes v1.24 .

A. Mastered
B. Not Mastered

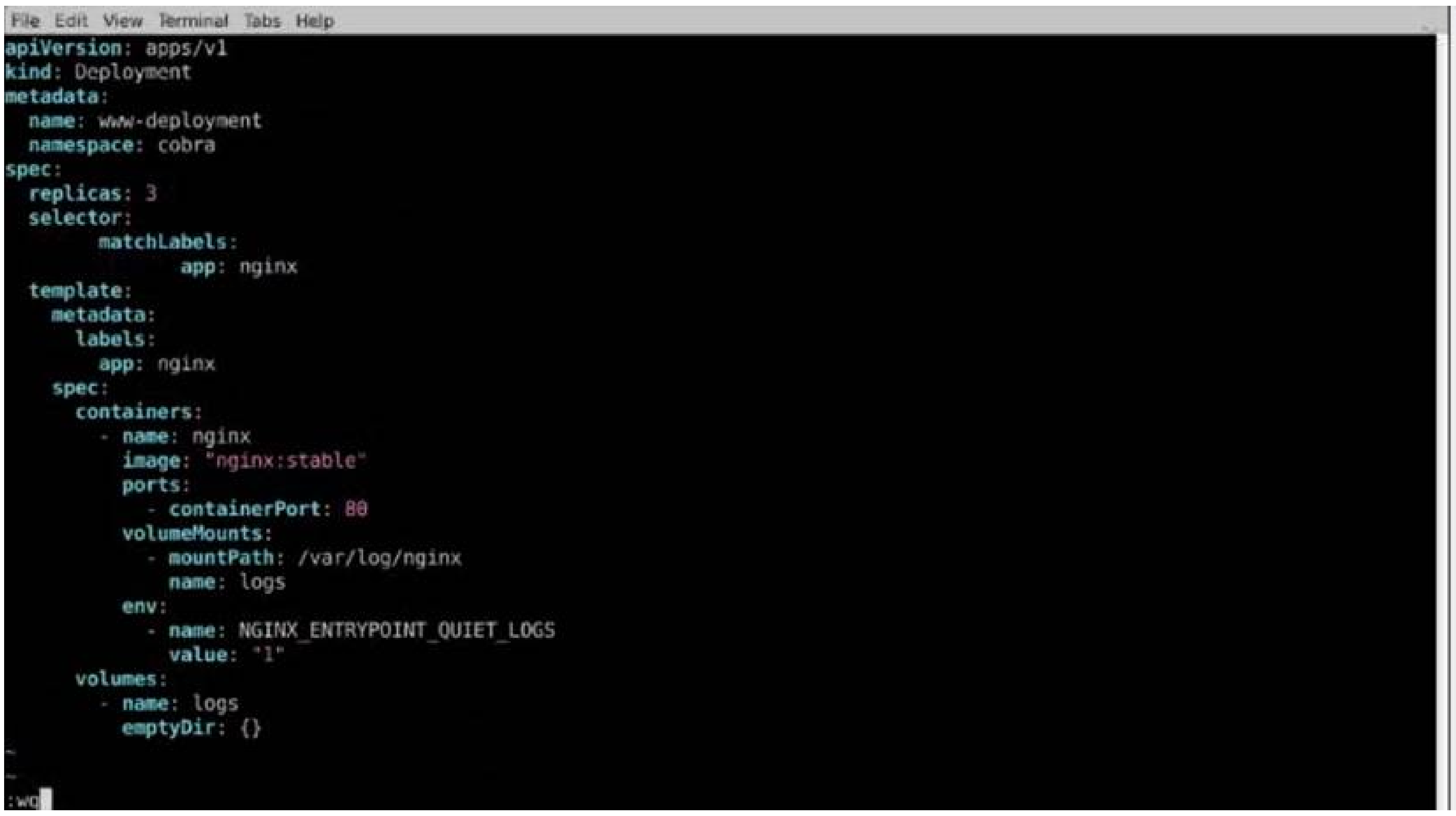
Answer: A

Explanation:
Solution:



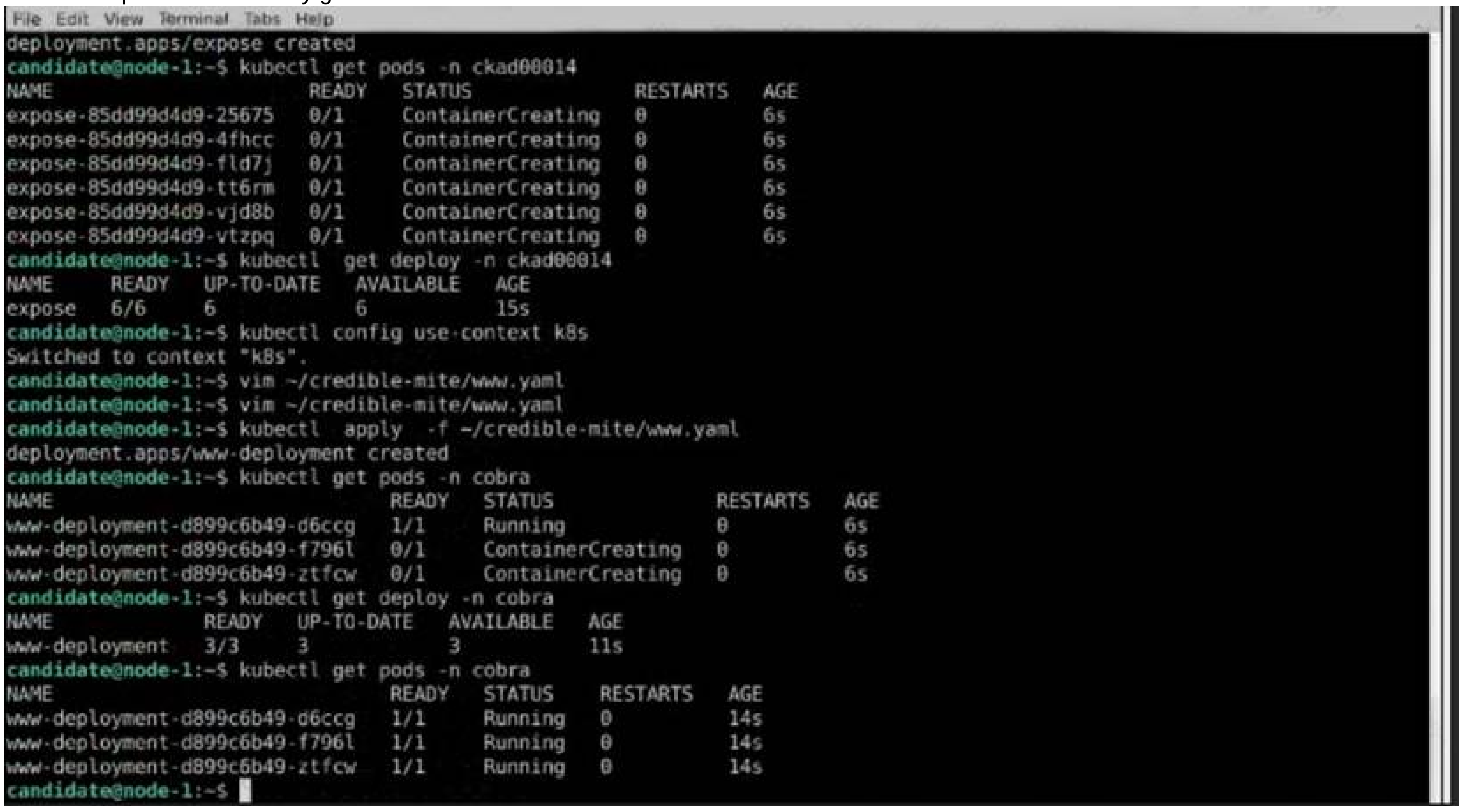
```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ vim ~/credible-mite/www.yaml
```

Text Description automatically generated



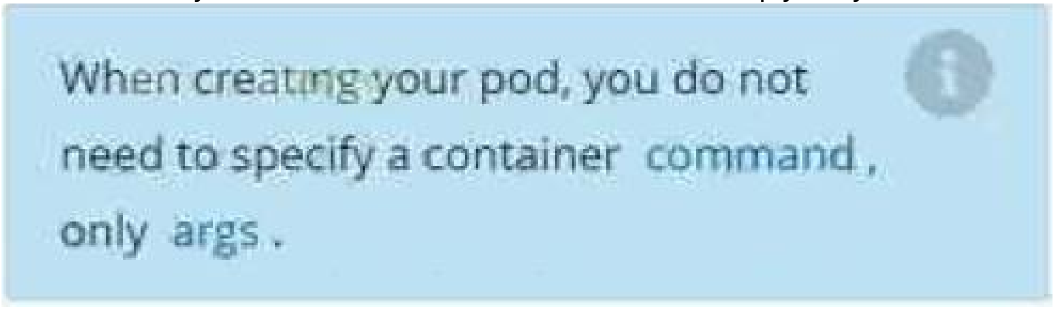
```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: www-deployment
  namespace: cobra
spec:
  replicas: 3
  selector:
        matchLabels:
               app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
        - name: nginx
          image: "nginx:stable"
          ports:
            - containerPort: 80
          volumeMounts:
            - mountPath: /var/log/nginx
              name: logs
          env:
            - name: NGINX_ENTRYPOINT_QUIET_LOGS
              value: "1"
      volumes:
        - name: logs
          emptyDir: {}
~
~
:wq
```

Text Description automatically generated



```
deployment.apps/expose created
candidate@node-1:~$ kubectl get pods -n ckad00014
NAME                          READY   STATUS              RESTARTS   AGE
expose-85dd99d4d9-25675       0/1     ContainerCreating   0          6s
expose-85dd99d4d9-4fhcc       0/1     ContainerCreating   0          6s
expose-85dd99d4d9-fld7j       0/1     ContainerCreating   0          6s
expose-85dd99d4d9-tt6rm       0/1     ContainerCreating   0          6s
expose-85dd99d4d9-vjd8b       0/1     ContainerCreating   0          6s
expose-85dd99d4d9-vtzpq       0/1     ContainerCreating   0          6s
candidate@node-1:~$ kubectl  get deploy -n ckad00014
NAME     READY   UP-TO-DATE   AVAILABLE   AGE
expose   6/6     6            6           15s
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ vim ~/credible-mite/www.yaml
candidate@node-1:~$ vim ~/credible-mite/www.yaml
candidate@node-1:~$ kubectl  apply  -f ~/credible-mite/www.yaml
deployment.apps/www-deployment created
candidate@node-1:~$ kubectl get pods -n cobra
NAME                                READY   STATUS              RESTARTS   AGE
www-deployment-d899c6b49-d6ccg      1/1     Running             0          6s
www-deployment-d899c6b49-f796l      0/1     ContainerCreating   0          6s
www-deployment-d899c6b49-ztfcw      0/1     ContainerCreating   0          6s
candidate@node-1:~$ kubectl get deploy -n cobra
NAME             READY   UP-TO-DATE   AVAILABLE   AGE
www-deployment   3/3     3            3           11s
candidate@node-1:~$ kubectl get pods -n cobra
NAME                                READY   STATUS    RESTARTS   AGE
www-deployment-d899c6b49-d6ccg      1/1     Running   0          14s
www-deployment-d899c6b49-f796l      1/1     Running   0          14s
www-deployment-d899c6b49-ztfcw      1/1     Running   0          14s
candidate@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



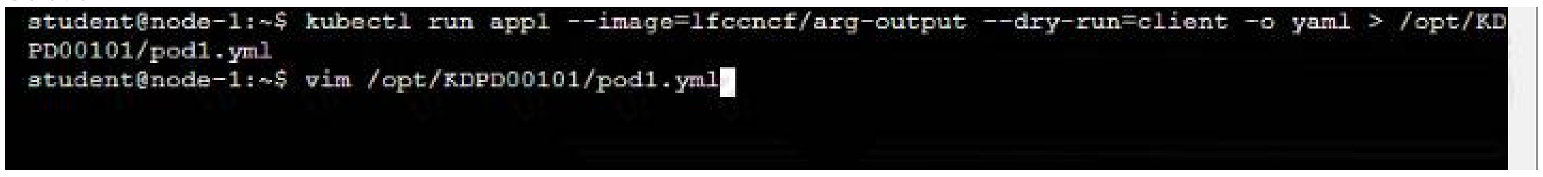
When creating your pod, you do not need to specify a container command, only args.

A. Mastered
B. Not Mastered

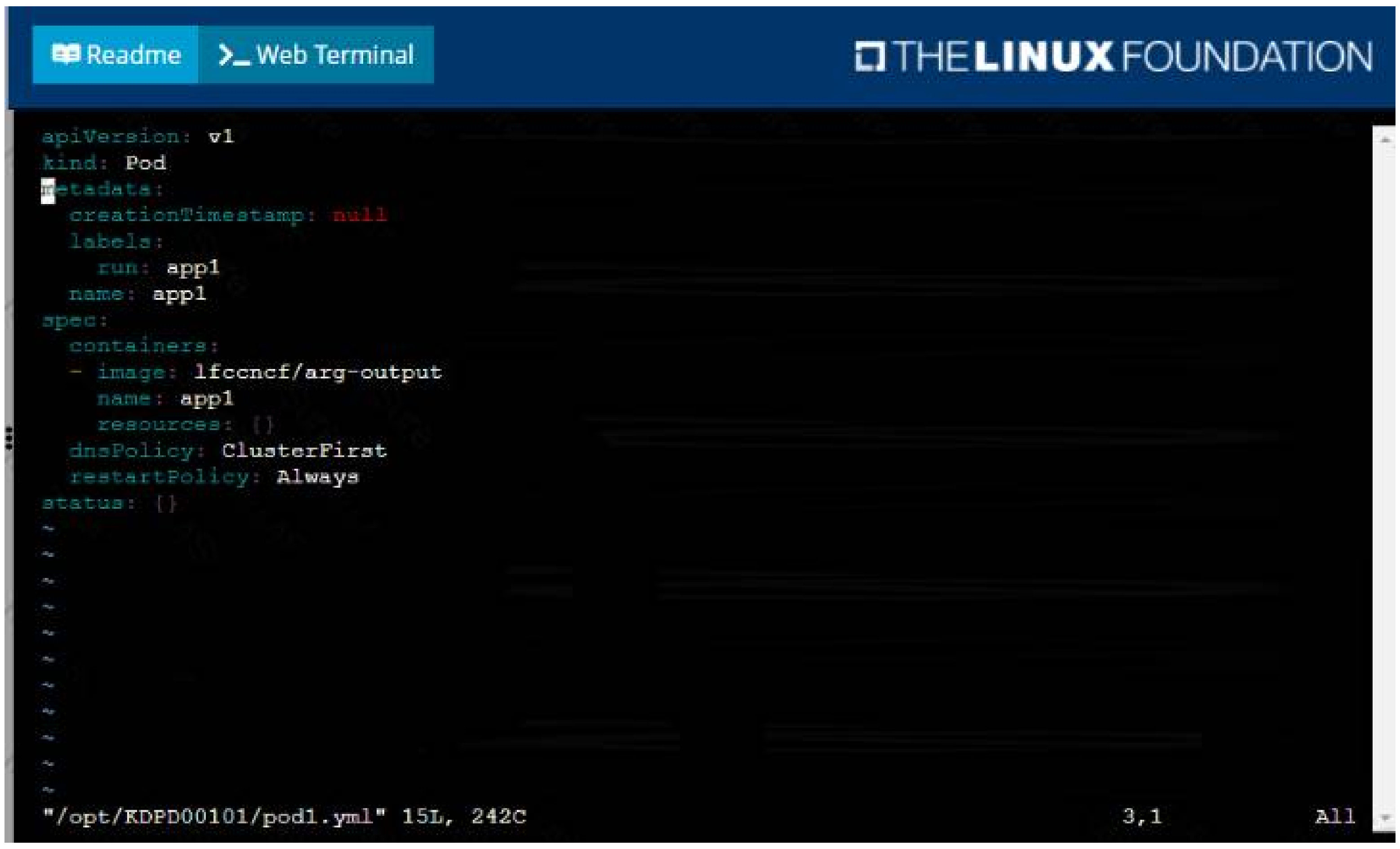
Answer: A

Explanation:

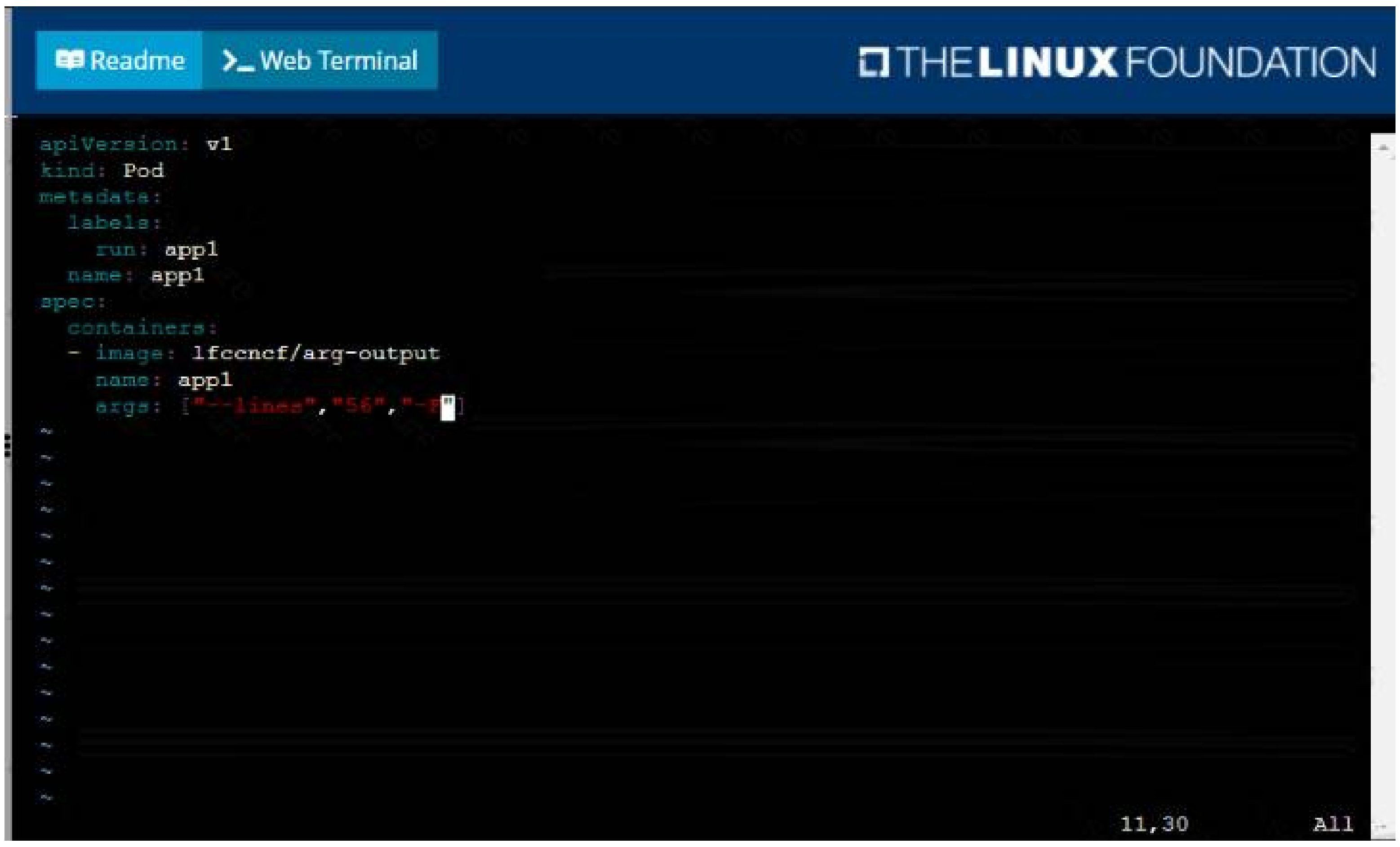
Solution:



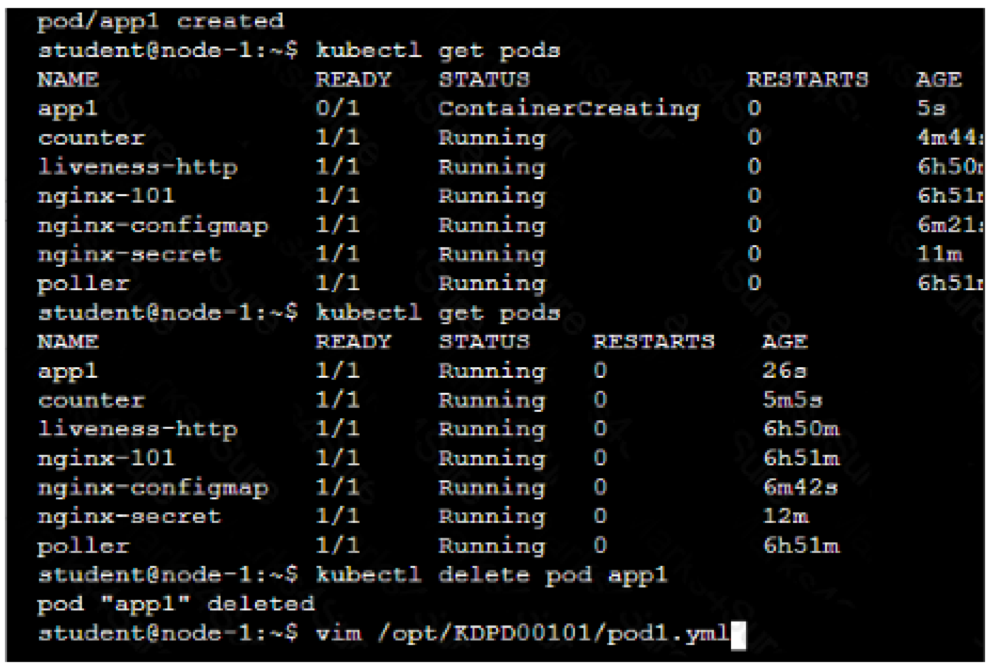
```
student@node-1:~$ kubectl run app1 --image=lfccncf/arg-output --dry-run=client -o yaml > /opt/KD
PD00101/pod1.yml
student@node-1:~$ vim /opt/KDPD00101/pod1.yml
```



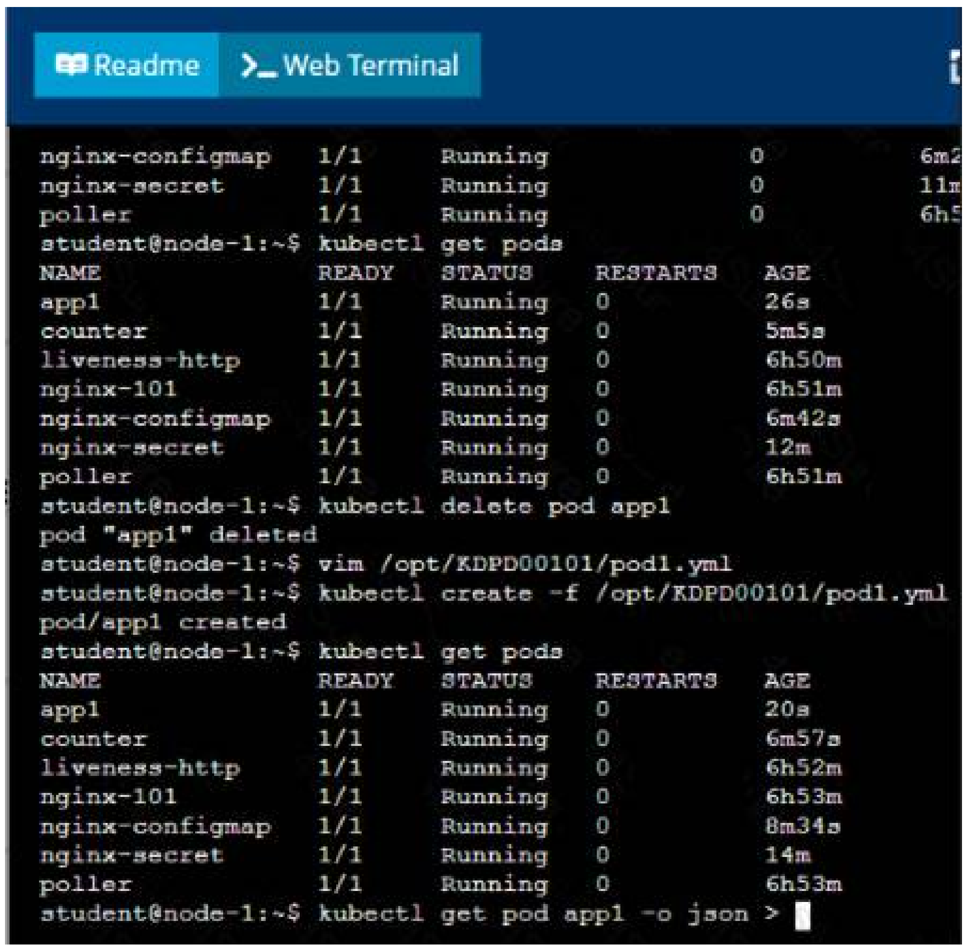
```
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: app1
  name: app1
spec:
  containers:
  - image: lfccncf/arg-output
    name: app1
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}
~
~
~
~
~
~
~
~
~
~
~
"/opt/KDPD00101/pod1.yml" 15L, 242C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



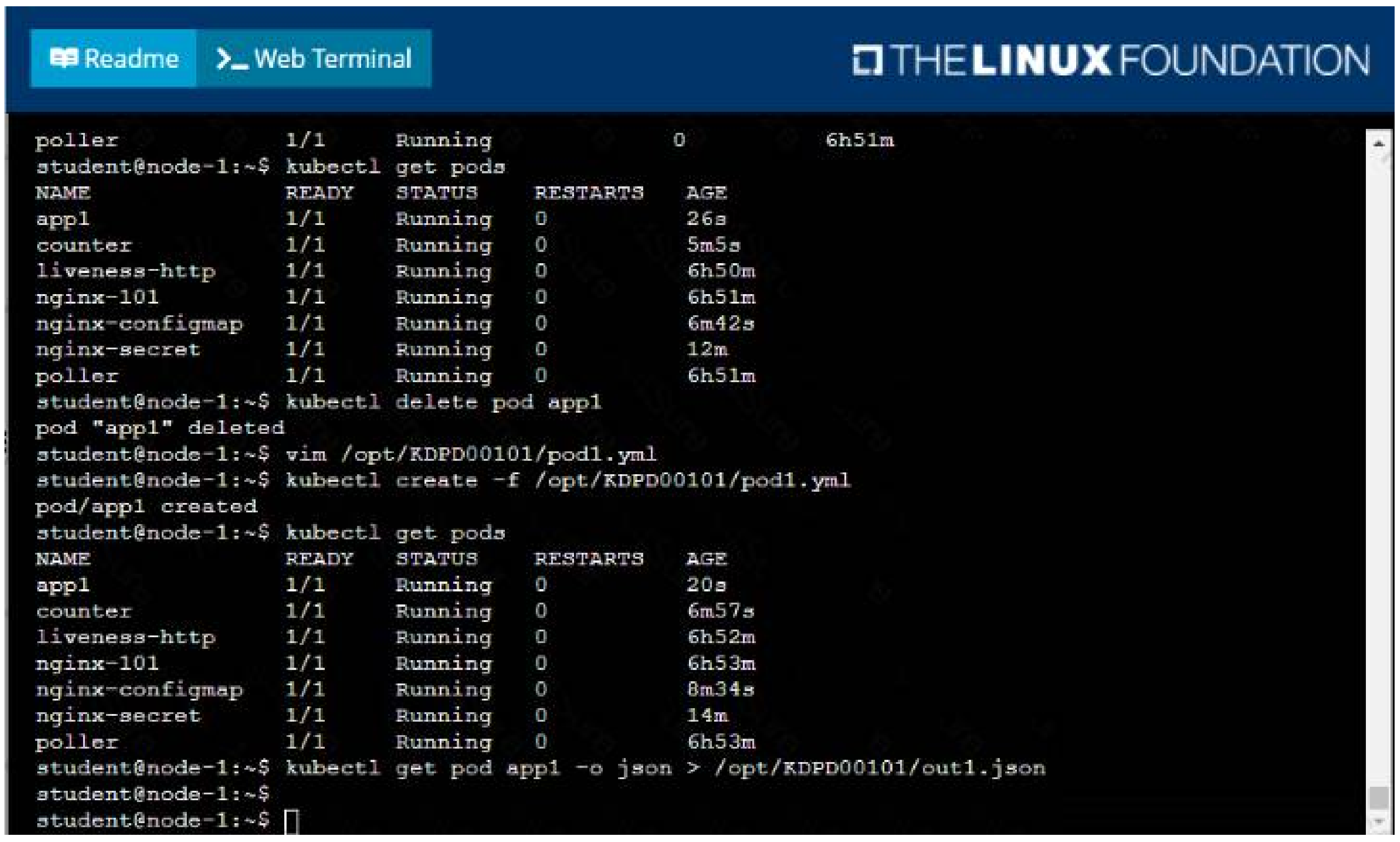
```
apiVersion: v1
kind: Pod
metadata:
  labels:
    run: app1
  name: app1
spec:
  containers:
  - image: lfccncf/arg-output
    name: app1
    args: ["--lines","56","-F"]
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
                                                                          11,30         All
```



```
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          6h50
nginx-101         1/1     Running             0          6h51
nginx-configmap   1/1     Running             0          6m21
nginx-secret      1/1     Running             0          11m
poller            1/1     Running             0          6h51
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
```

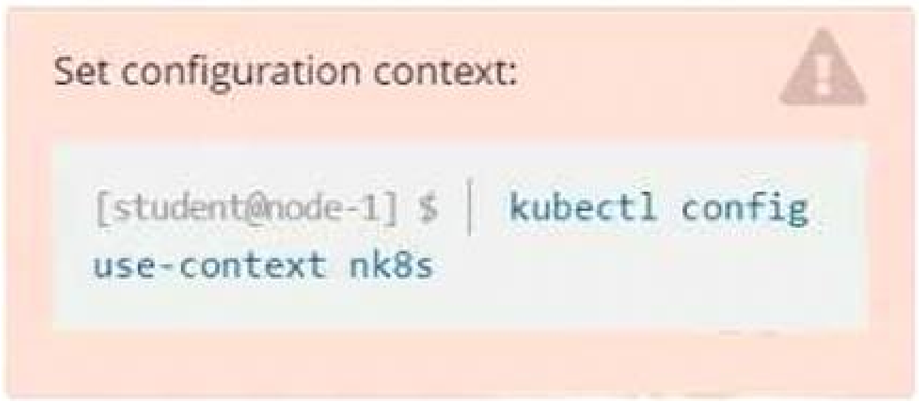


```
nginx-configmap   1/1     Running             0          6m2
nginx-secret      1/1     Running             0          11
poller            1/1     Running             0          6h5
student@node-1:~$ kubectl get pods
NAME              READY   STATUS    RESTARTS   AGE
app1              1/1     Running   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 >
```



```
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
```

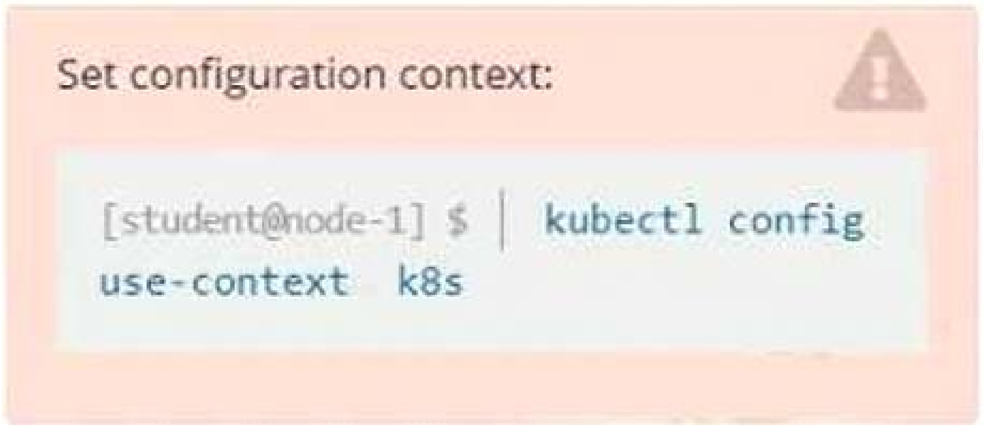
Task
A deployment is falling on the cluster due to an incorrect image being specified. Locate the deployment, and fix the problem.

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 6
Exhibit:



Set configuration context:

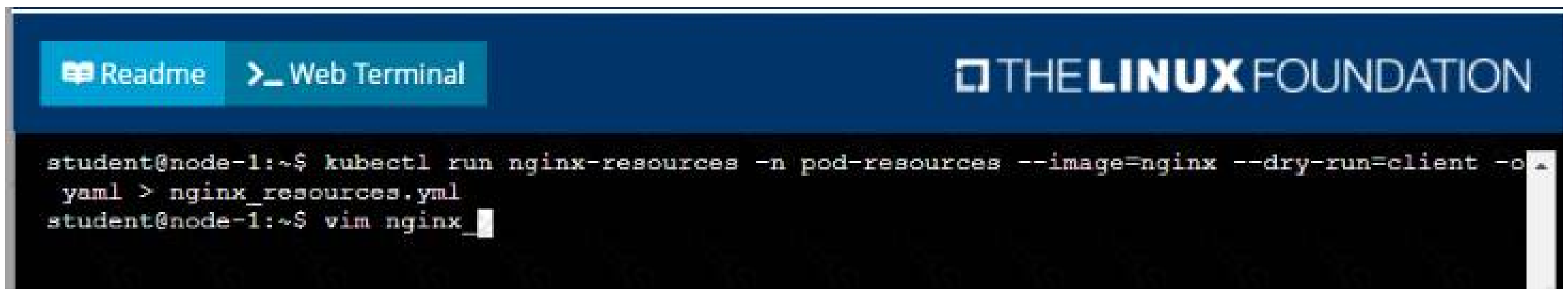
```
[student@node-1] $ | kubectl config
use-context  k8s
```

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

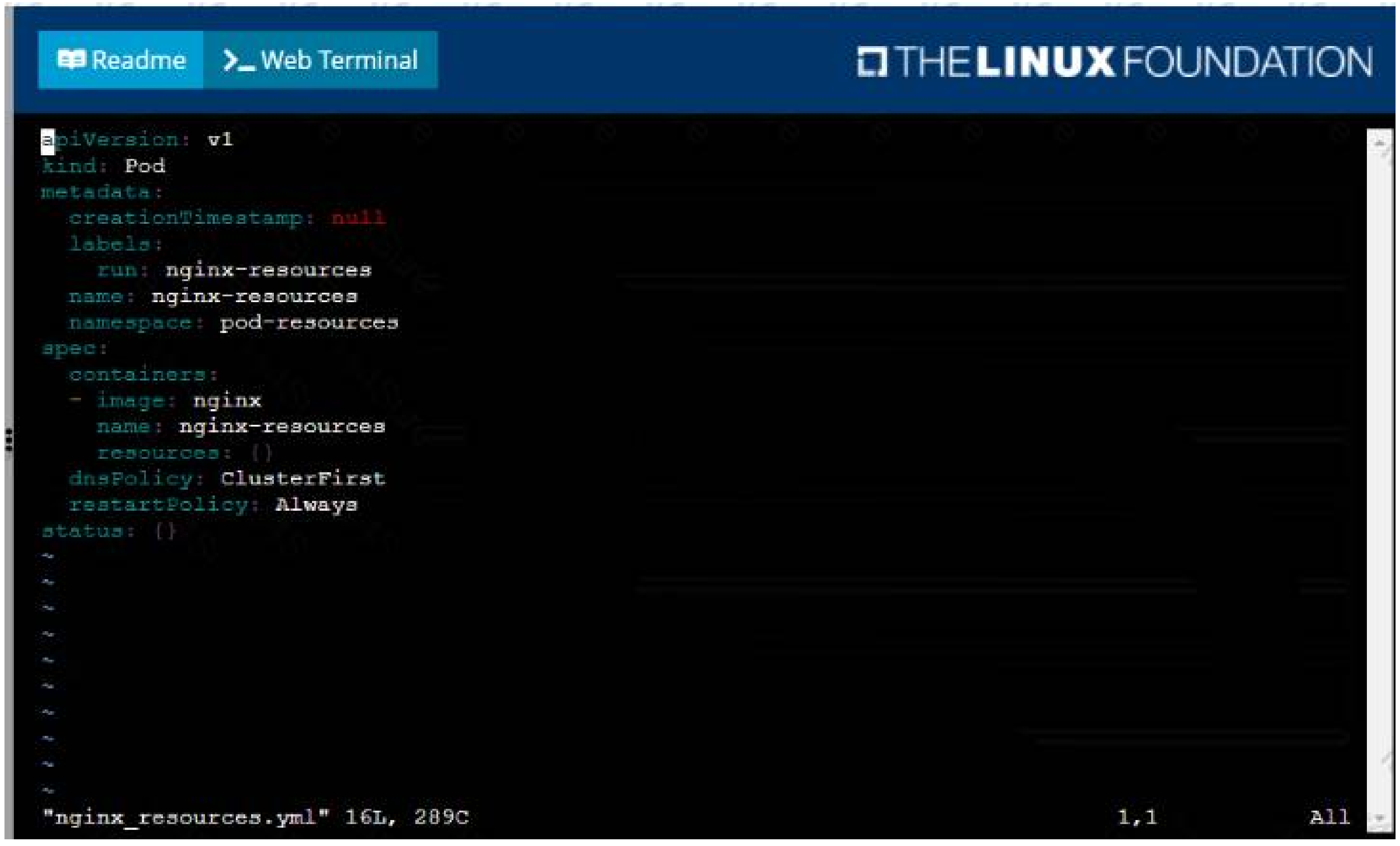
A. Mastered
B. Not Mastered

Answer: A

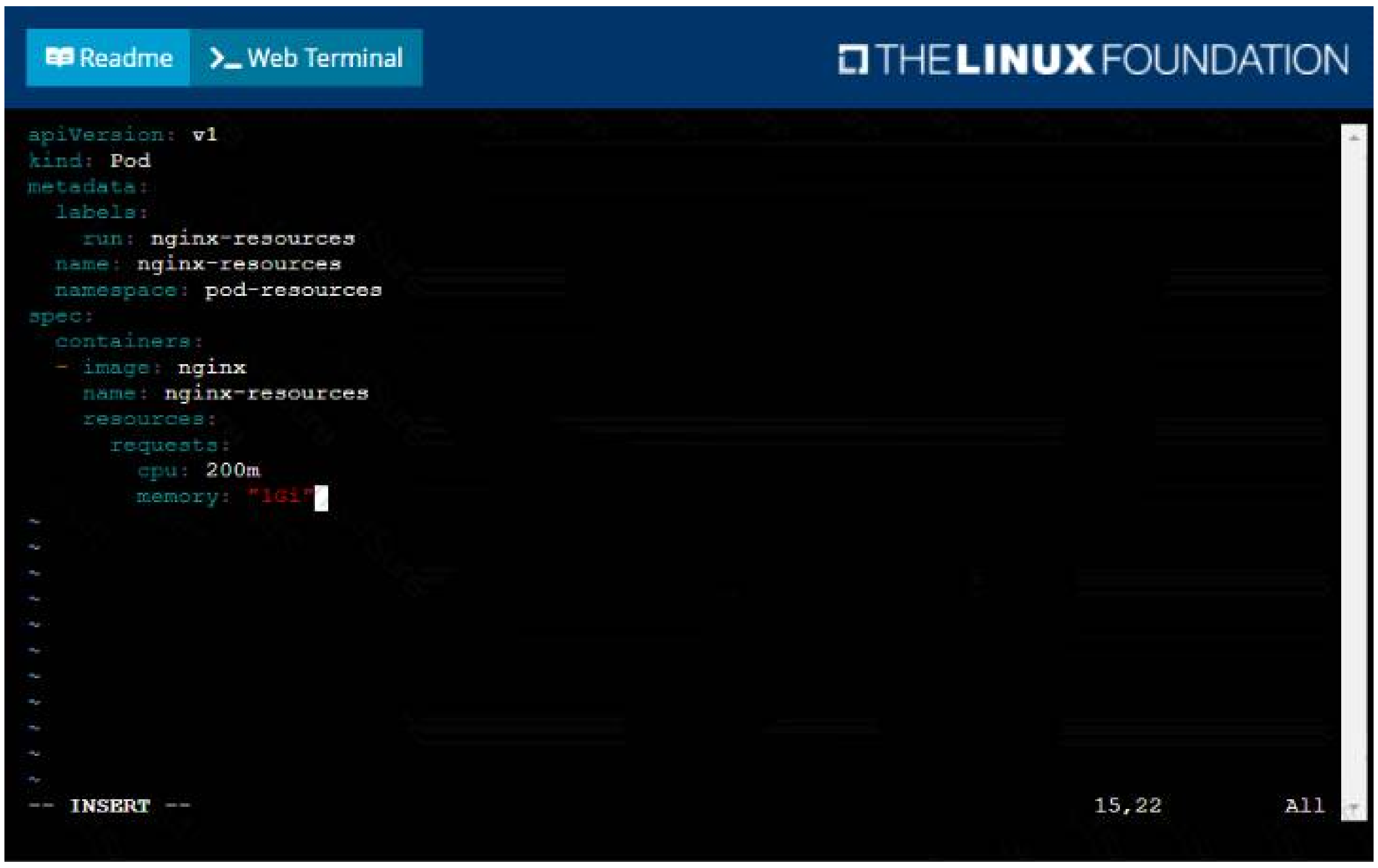
Explanation:
Solution:



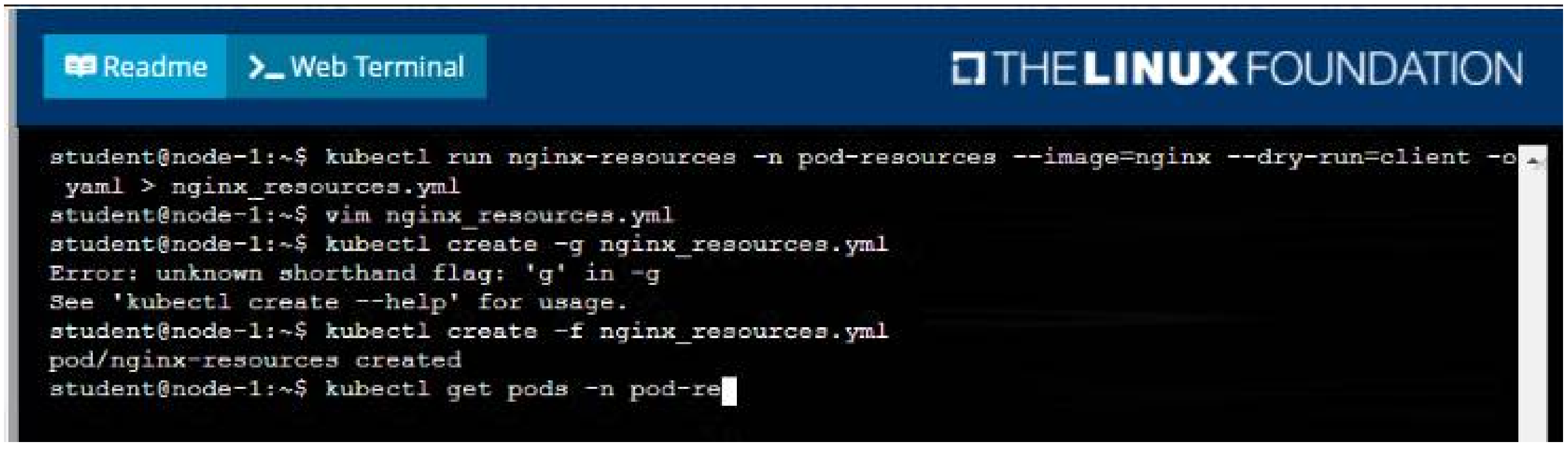
```
student@node-1:~$ kubectl run nginx-resources -n pod-resources --image=nginx --dry-run=client -o
 yaml > nginx_resources.yml
student@node-1:~$ vim nginx_
```



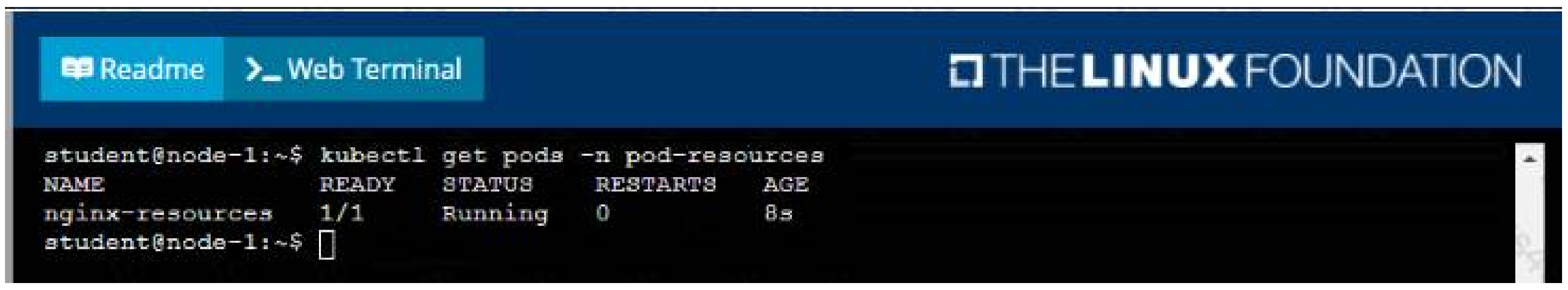
```
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-resources
  name: nginx-resources
  namespace: pod-resources
spec:
  containers:
  - image: nginx
    name: nginx-resources
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}
~
~
~
~
~
~
~
~
~
~
"nginx_resources.yml" 16L, 289C                              1,1           All
```



```
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
```

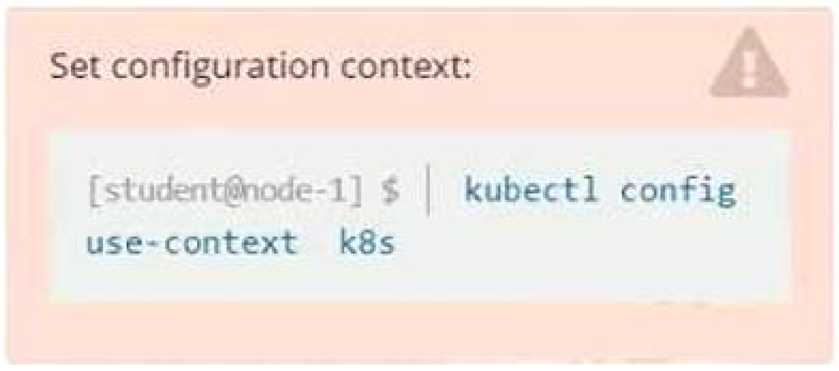


```
student@node-1:~$ kubectl run nginx-resources -n pod-resources --image=nginx --dry-run=client -o
 yaml > nginx_resources.yml
student@node-1:~$ vim nginx_resources.yml
student@node-1:~$ kubectl create -g nginx_resources.yml
Error: unknown shorthand flag: 'g' in -g
See 'kubectl create --help' for usage.
student@node-1:~$ kubectl create -f nginx_resources.yml
pod/nginx-resources created
student@node-1:~$ kubectl get pods -n pod-re
```



```
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 7
Exhibit:


Set configuration context:

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

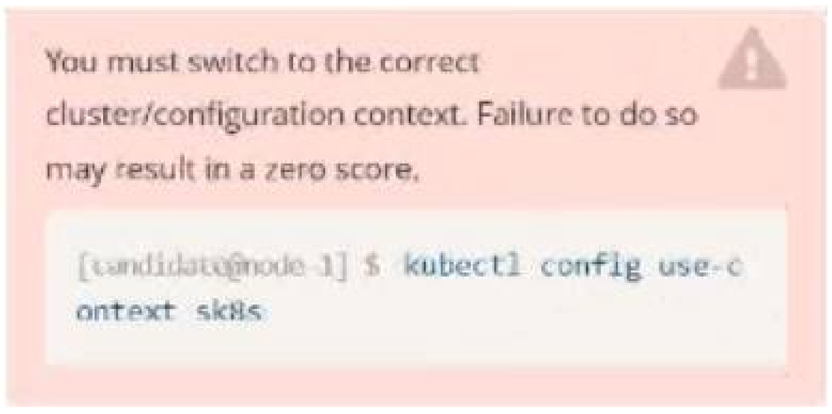
Context
A pod is running on the cluster but it is not responding. Task
The desired behavior is to have Kubemetes restart the pod when an endpoint returns an HTTP 500 on the
/healthz endpoint. The service, probe-pod, should never send traffic to the pod while it is failing. Please complete the following:
• 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 600
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 co
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 8
Exhibit:

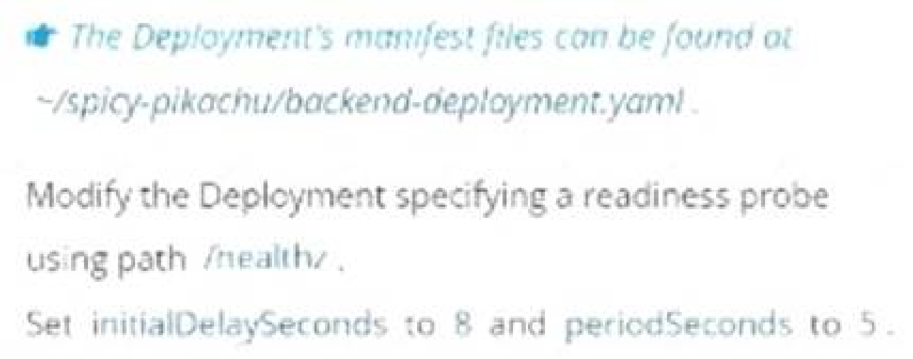


You must switch to the correct cluster/configuration context. Failure to do so may result in a zero score.

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

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 .

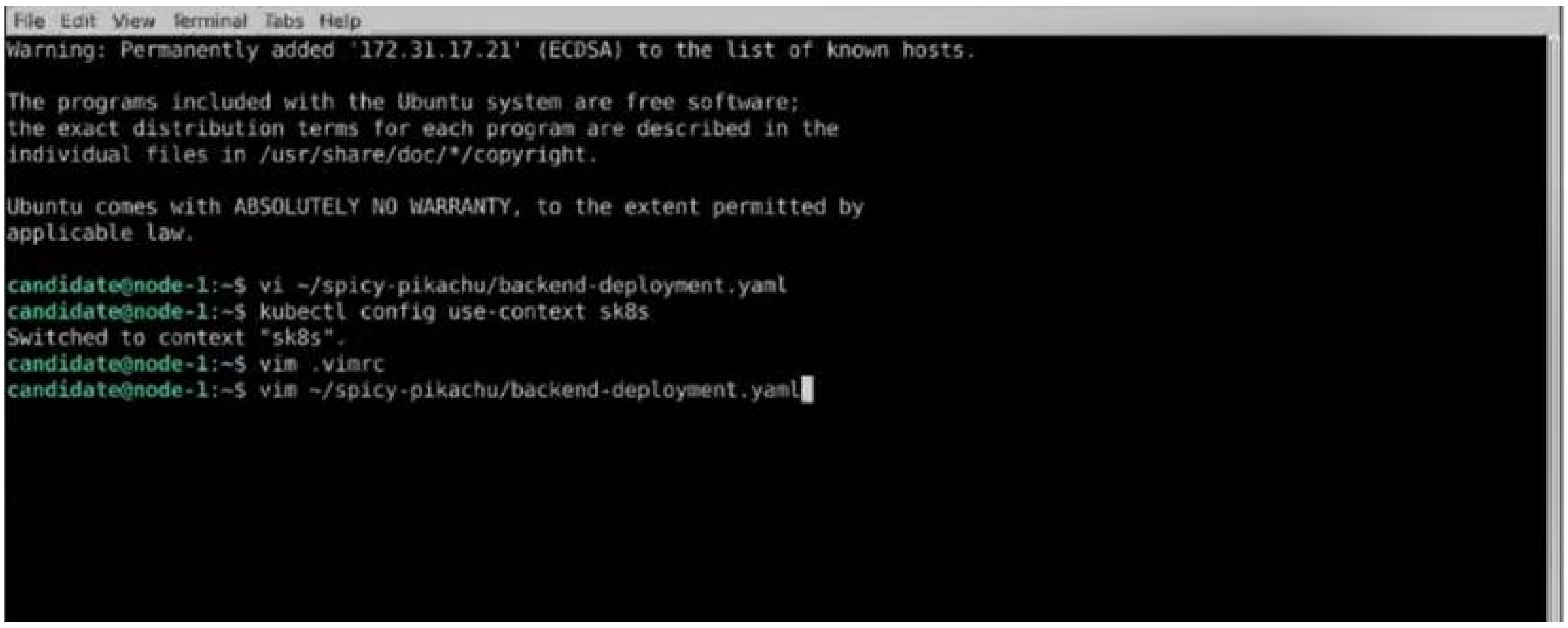
A. Mastered

B. Not Mastered

Answer: A

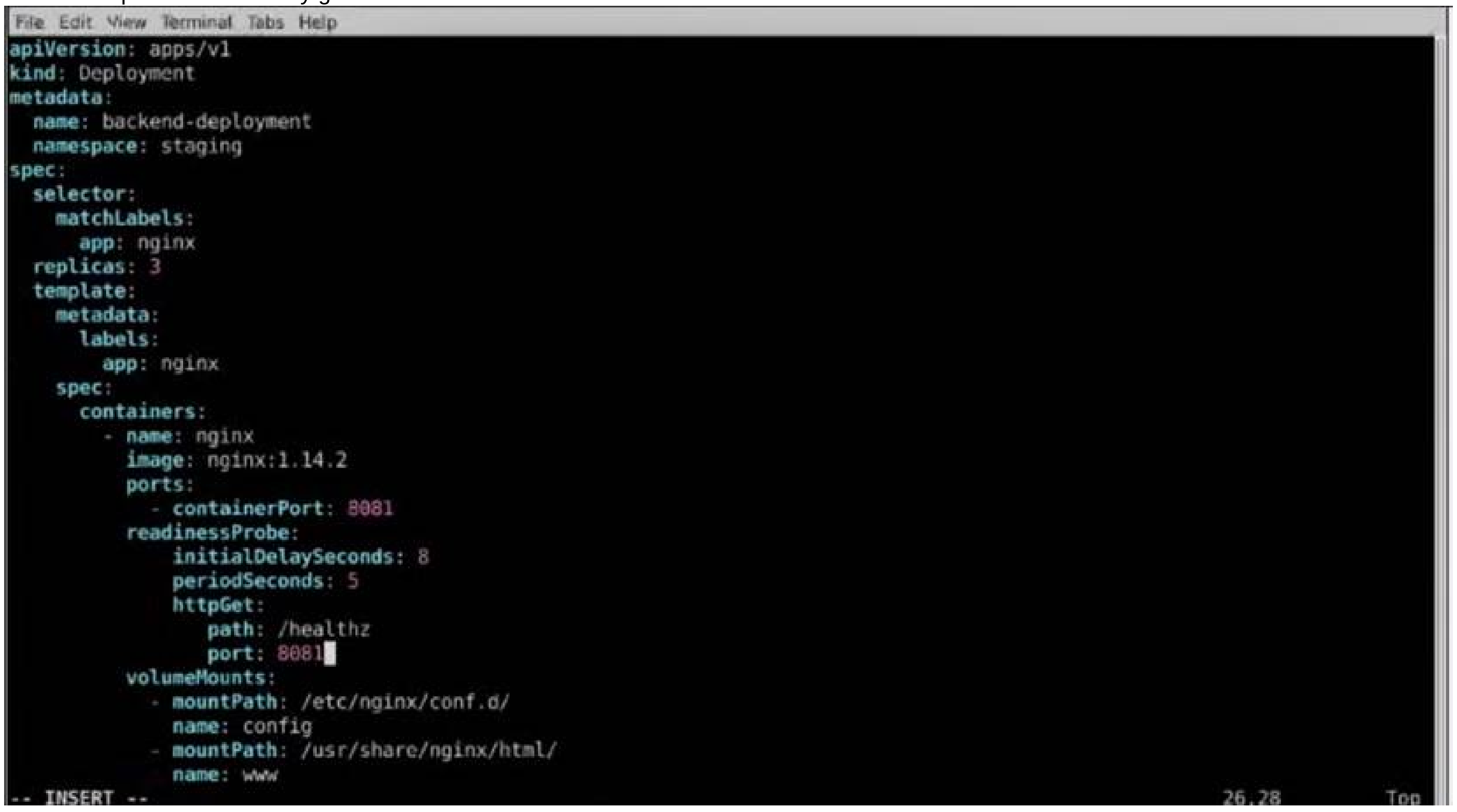
Explanation:

Solution:

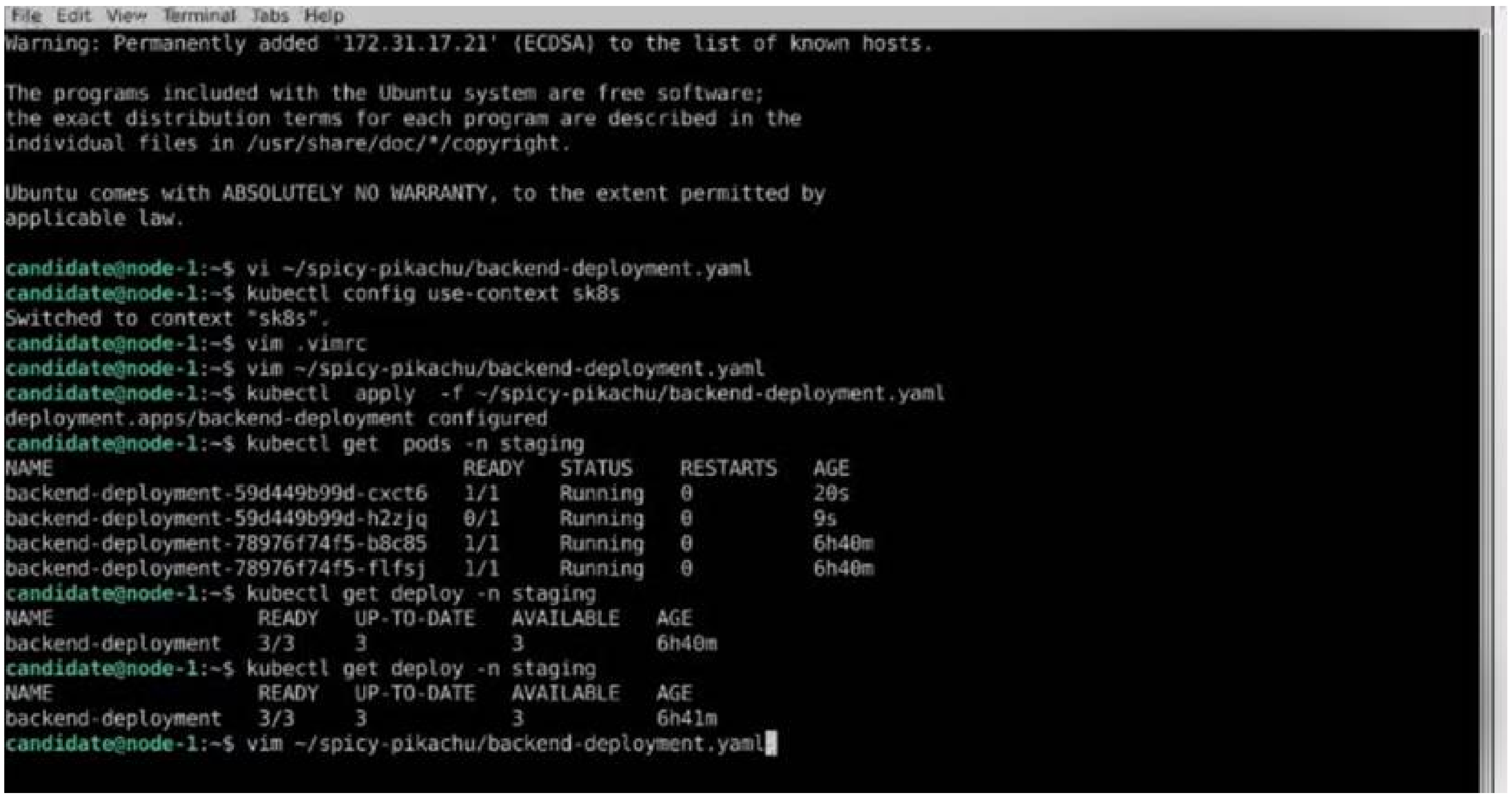


```
Warning: Permanently added '172.31.17.21' (ECDSA) to the list of known hosts.

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

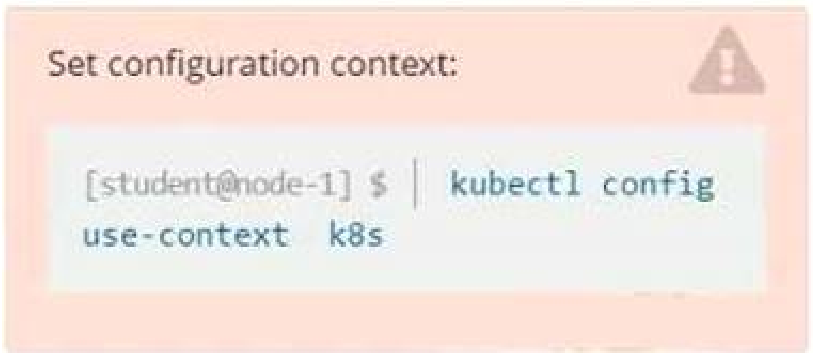


```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: backend-deployment
  namespace: staging
spec:
  selector:
    matchLabels:
      app: nginx
  replicas: 3
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
        - name: nginx
          image: nginx:1.14.2
          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 --                                                                    26,28         Top
```



```
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 9
Exhibit:



Set configuration context:

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

Context
A container within the poller pod is hard-coded to connect the nginxsvc service on port 90. As this port changes to 5050 an additional container needs to be added to the poller pod which adapts the container to connect to this new port. This should be realized as an ambassador container within the pod.
Task
• Update the nginxsvc service to serve on port 5050.
• Add an HAproxy container named haproxy bound to port 90 to the poller pod and deploy the enhanced pod. Use the image haproxy and inject the configuration located at /opt/KDMC00101/haproxy.cfg, with a ConfigMap named haproxy-config, mounted into the container so that haproxy.cfg is available at /usr/local/etc/haproxy/haproxy.cfg. Ensure that you update the args of the poller container to connect to
localhost instead of nginxsvc so that the connection is correctly proxied to the new service endpoint. You must not modify the port of the endpoint in poller's args . The spec file used to create the initial poller pod is available in /opt/KDMC00101/poller.yaml

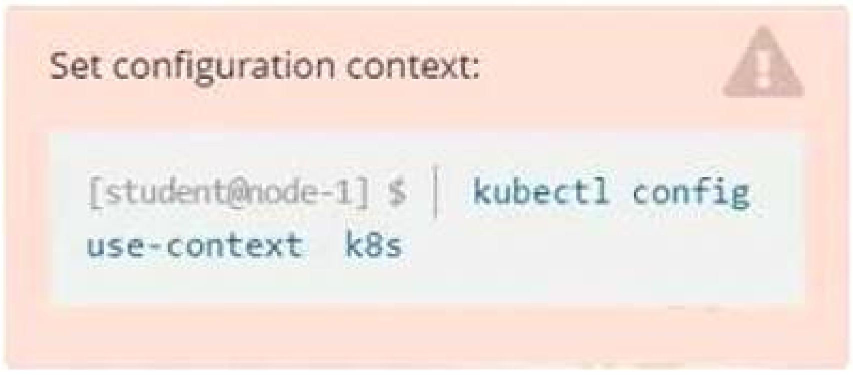
A. Mastered
B. Not Mastered

Answer: A

Explanation:

Solution:
apiVersion: apps/v1 kind: Deployment metadata:
name: my-nginx spec:
selector:
matchLabels: run: my-nginx replicas: 2 template: metadata: labels:
run: my-nginx spec: containers:
- name: my-nginx image: nginx ports:
- containerPort: 90
This makes it accessible from any node in your cluster. Check the nodes the Pod is running on: kubectl apply -f ./run-my-nginx.yaml
kubectl get pods -l run=my-nginx -o wide
NAME READY STATUS RESTARTS AGE IP NODE
my-nginx-3800858182-jr4a2 1/1 Running 0 13s 10.244.3.4 kubernetes-minion-905m my-nginx-3800858182-kna2y 1/1 Running 0 13s 10.244.2.5 kubernetes-minion-ljyd Check your pods' IPs:
kubectl get pods -l run=my-nginx -o yaml | grep podIP podIP: 10.244.3.4
podIP: 10.244.2.5

NEW QUESTION 10
Exhibit:


Set configuration context:

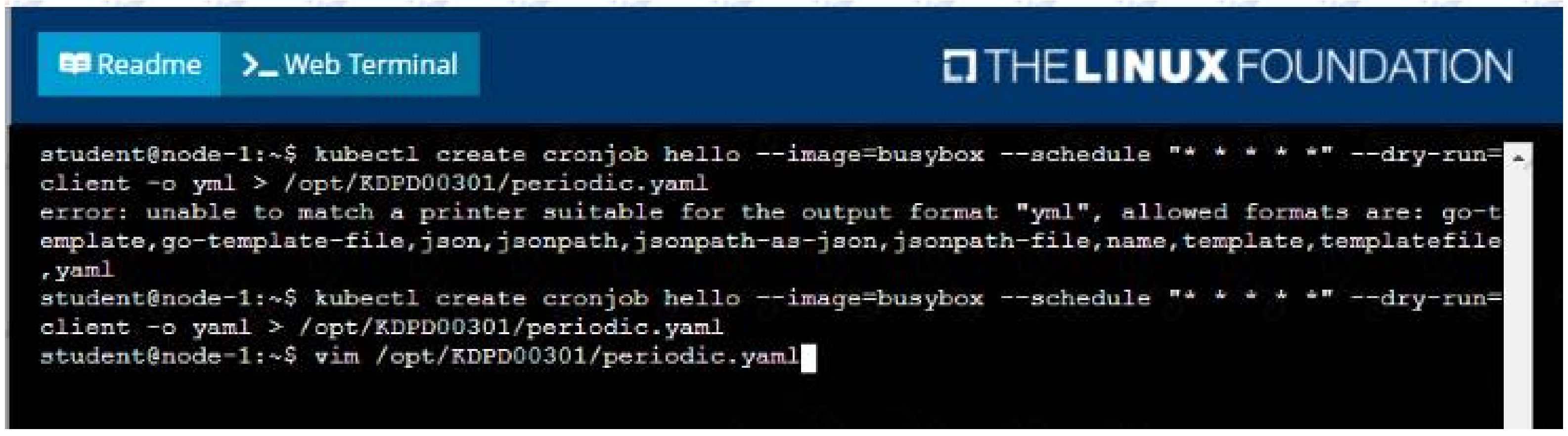
```
[student@node-1] $ | kubectl config
use-context k8s
```

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

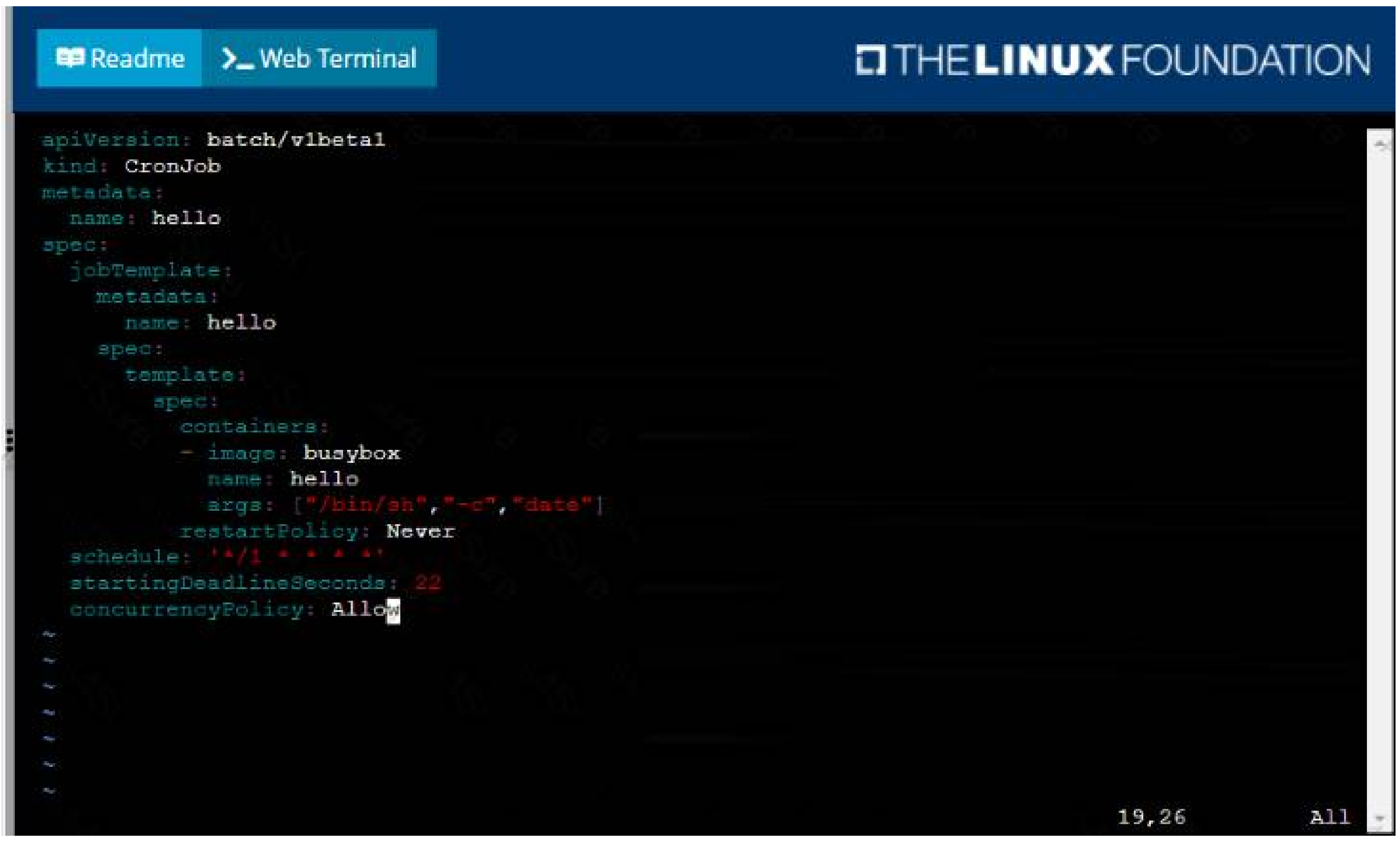
A. Mastered
B. Not Mastered

Answer: A

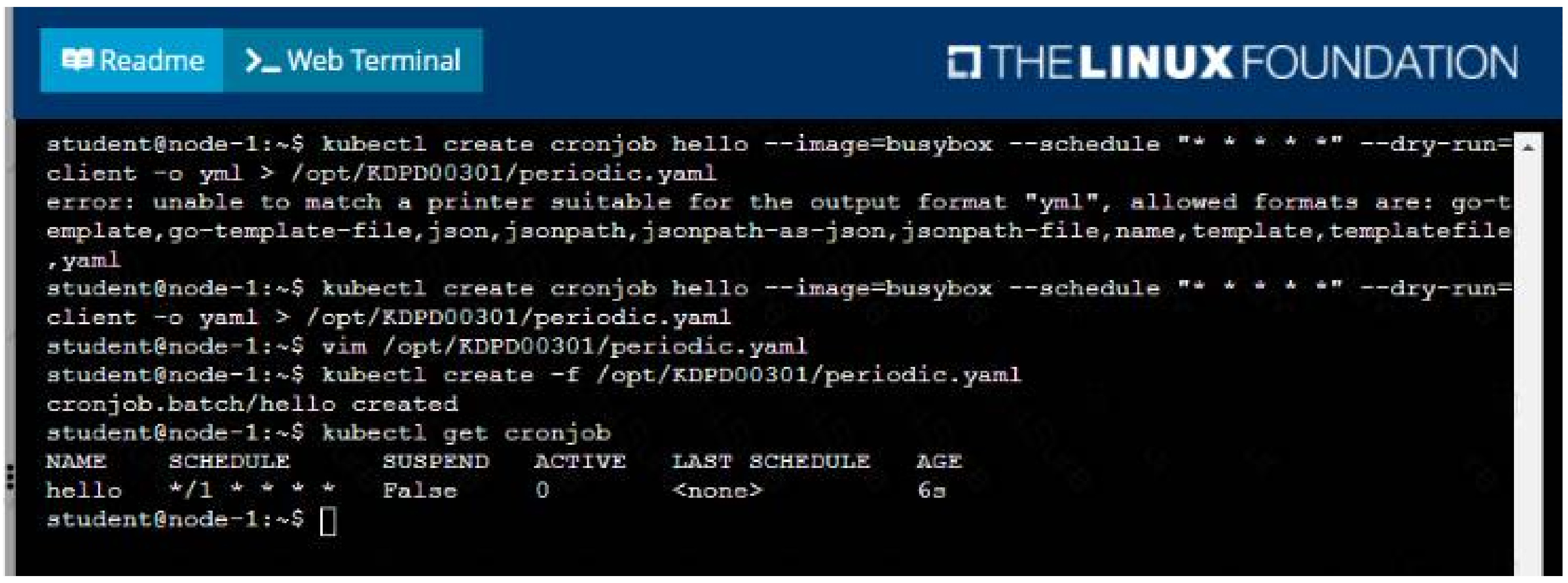
Explanation:
Solution:



```
student@node-1:~$ kubectl create cronjob hello --image=busybox --schedule "* * * * *" --dry-run=
client -o yml > /opt/KDPD00301/periodic.yaml
error: unable to match a printer suitable for the output format "yml", allowed formats are: go-t
emplate,go-template-file,json,jsonpath,jsonpath-as-json,jsonpath-file,name,template,templatefile
,yaml
student@node-1:~$ kubectl create cronjob hello --image=busybox --schedule "* * * * *" --dry-run=
client -o yaml > /opt/KDPD00301/periodic.yaml
student@node-1:~$ vim /opt/KDPD00301/periodic.yaml
```

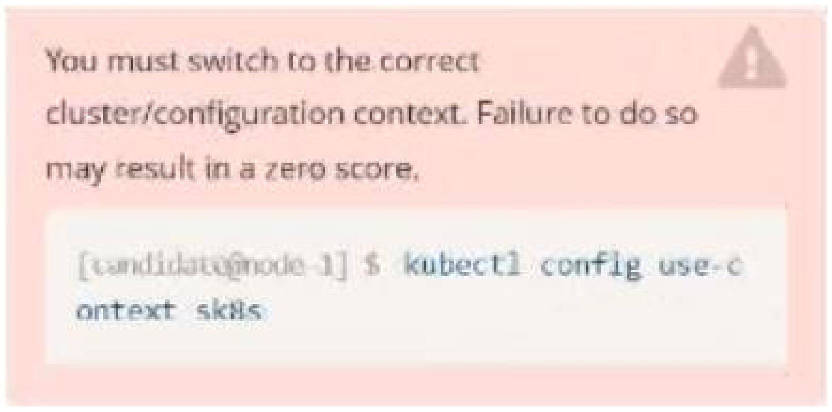


```
apiVersion: batch/v1beta1
kind: CronJob
metadata:
  name: hello
spec:
  jobTemplate:
    metadata:
      name: hello
    spec:
      template:
        spec:
          containers:
          - image: busybox
            name: hello
            args: ["/bin/sh","-c","date"]
          restartPolicy: Never
  schedule: '*/1 * * * *'
  startingDeadlineSeconds: 22
  concurrencyPolicy: Allow
~
~
~
~
~
~
~
                                                                    19,26         All
```



```
student@node-1:~$ kubectl create cronjob hello --image=busybox --schedule "* * * * *" --dry-run=
client -o yml > /opt/KDPD00301/periodic.yaml
error: unable to match a printer suitable for the output format "yml", allowed formats are: go-t
emplate,go-template-file,json,jsonpath,jsonpath-as-json,jsonpath-file,name,template,templatefile
,yaml
student@node-1:~$ kubectl create cronjob hello --image=busybox --schedule "* * * * *" --dry-run=
client -o yaml > /opt/KDPD00301/periodic.yaml
student@node-1:~$ vim /opt/KDPD00301/periodic.yaml
student@node-1:~$ kubectl create -f /opt/KDPD00301/periodic.yaml
cronjob.batch/hello created
student@node-1:~$ kubectl get cronjob
NAME    SCHEDULE      SUSPEND   ACTIVE   LAST SCHEDULE   AGE
hello   */1 * * * *   False     0        <none>          6s
student@node-1:~$ 
```

NEW QUESTION 10
Exhibit:



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

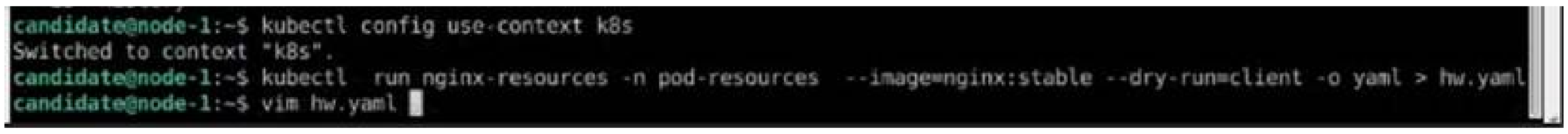
```
[candidate@node-1] $ kubectl config use-context sk8s
```

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

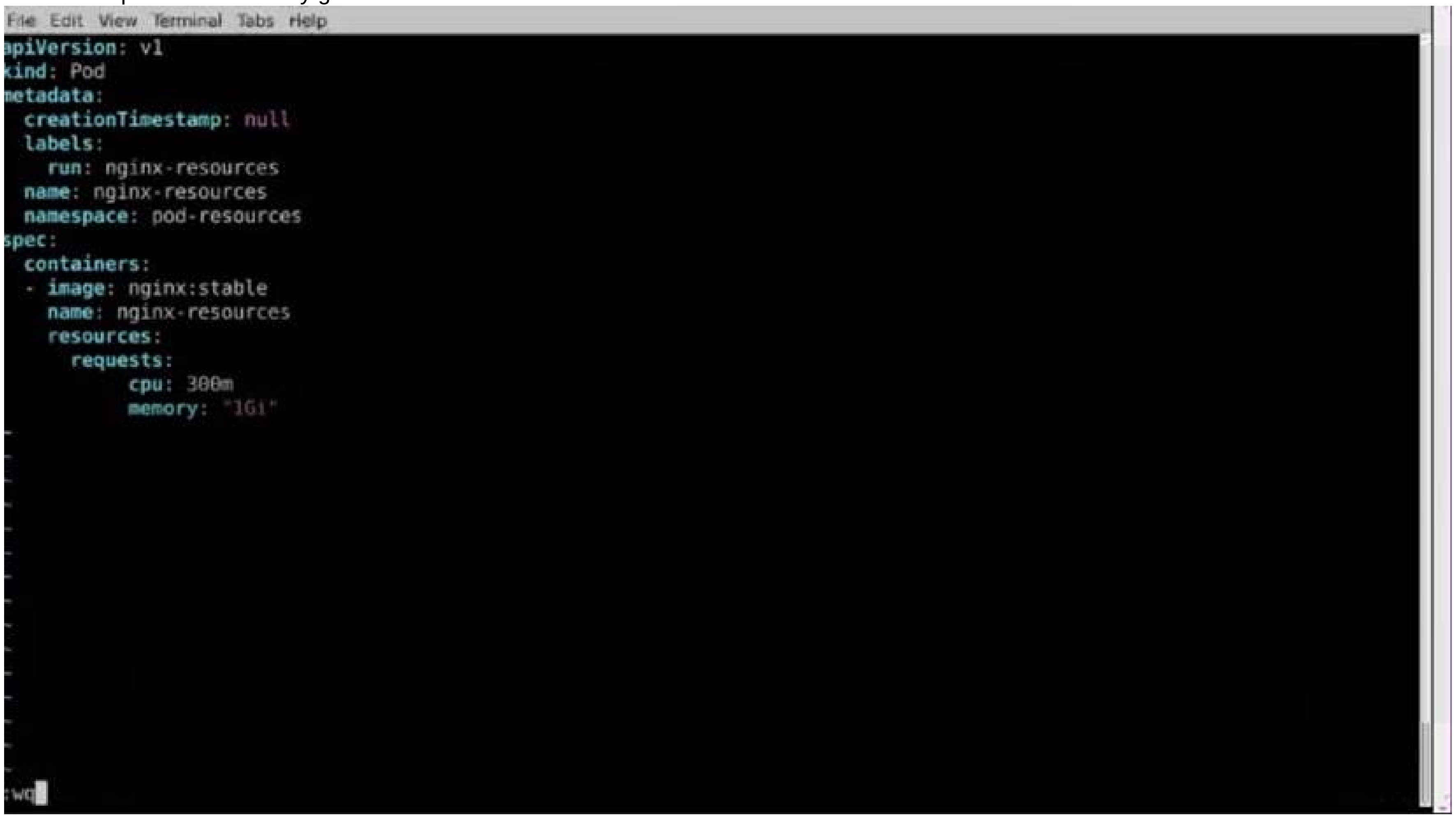
Answer: A

Explanation:
Solution:



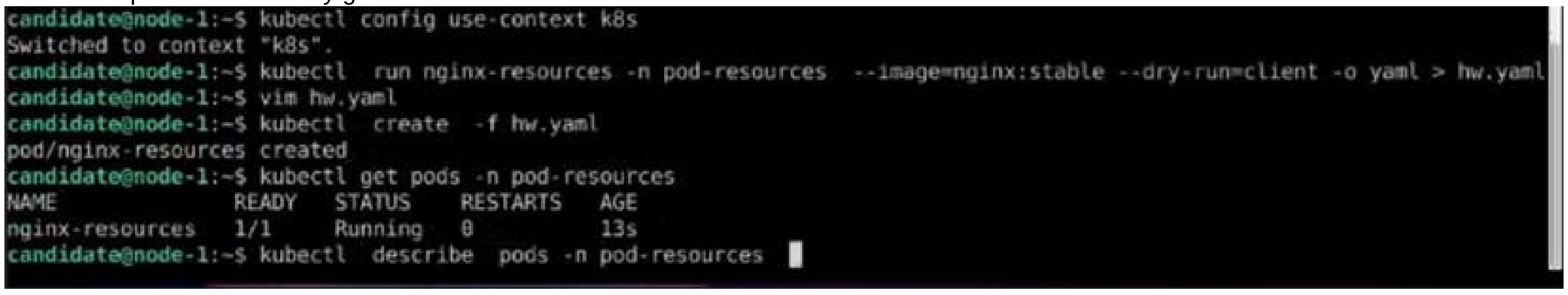
```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl  run nginx-resources -n pod-resources  --image=nginx:stable --dry-run=client -o yaml > hw.yaml
candidate@node-1:~$ vim hw.yaml
```

Text Description automatically generated with medium confidence



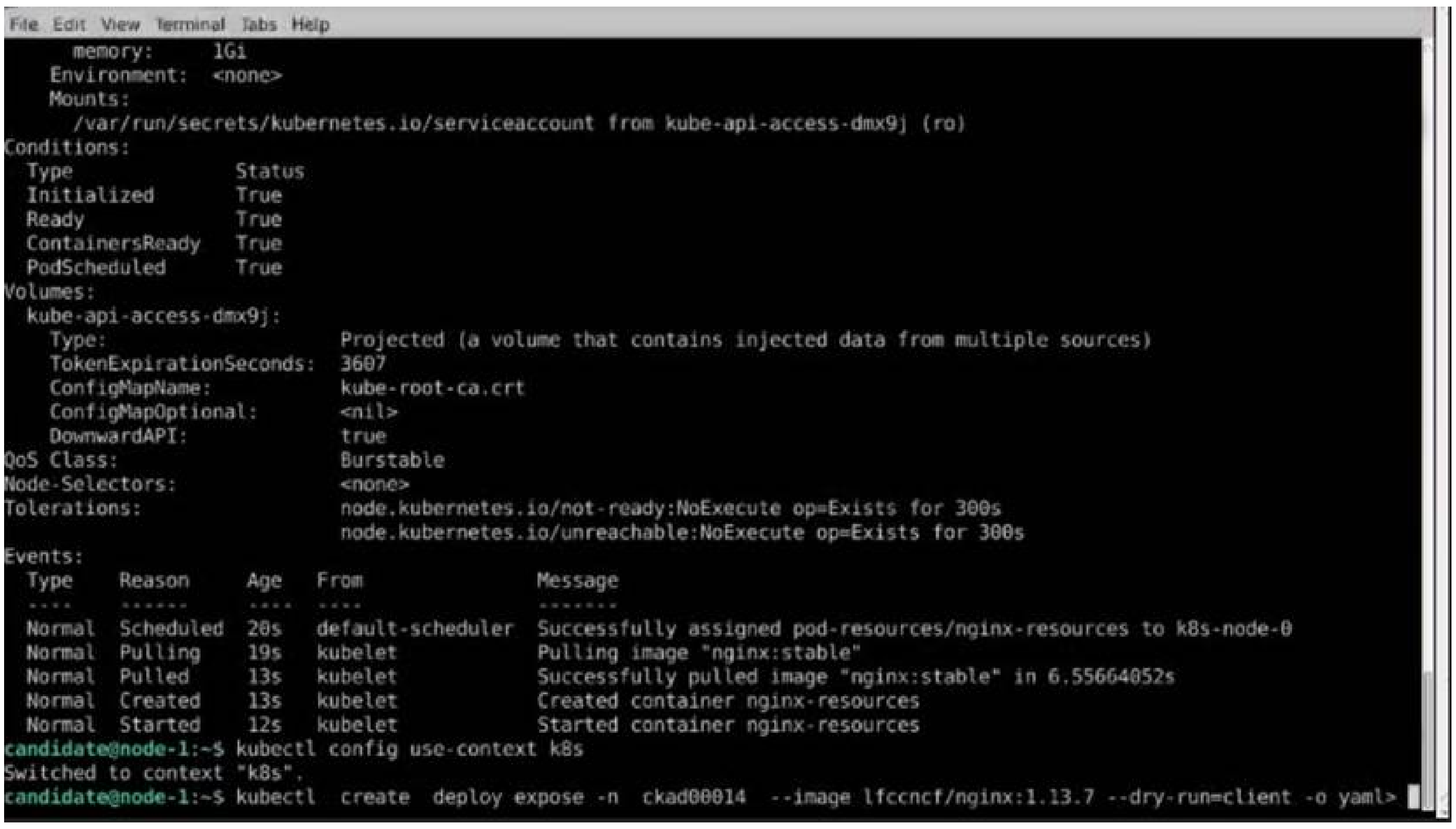
```
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-resources
  name: nginx-resources
  namespace: pod-resources
spec:
  containers:
  - image: nginx:stable
    name: nginx-resources
    resources:
      requests:
        cpu: 300m
        memory: "1Gi"
:wq
```

Text Description automatically generated



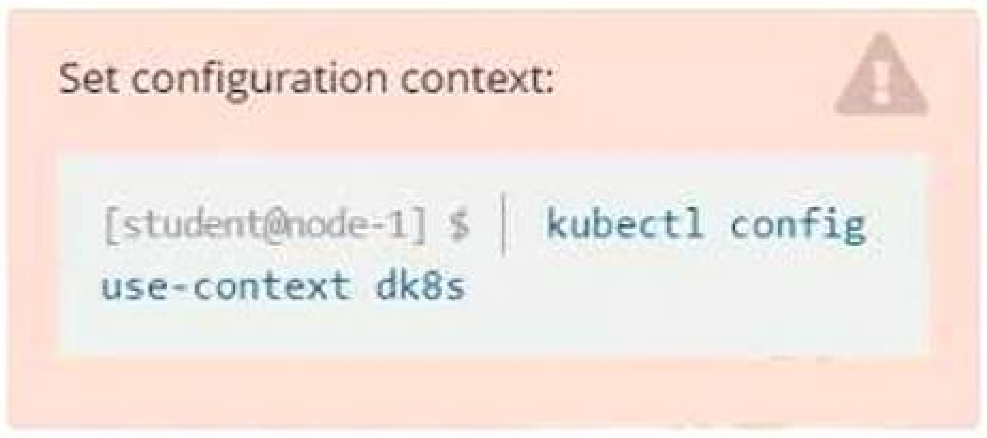
```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl  run nginx-resources -n pod-resources  --image=nginx:stable --dry-run=client -o yaml > hw.yaml
candidate@node-1:~$ vim hw.yaml
candidate@node-1:~$ kubectl  create  -f hw.yaml
pod/nginx-resources 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 lfccncf/nginx:1.13.7 --dry-run=client -o yaml>
```

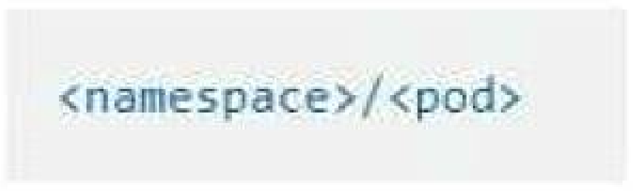
NEW QUESTION 13
Exhibit:



Set configuration context:

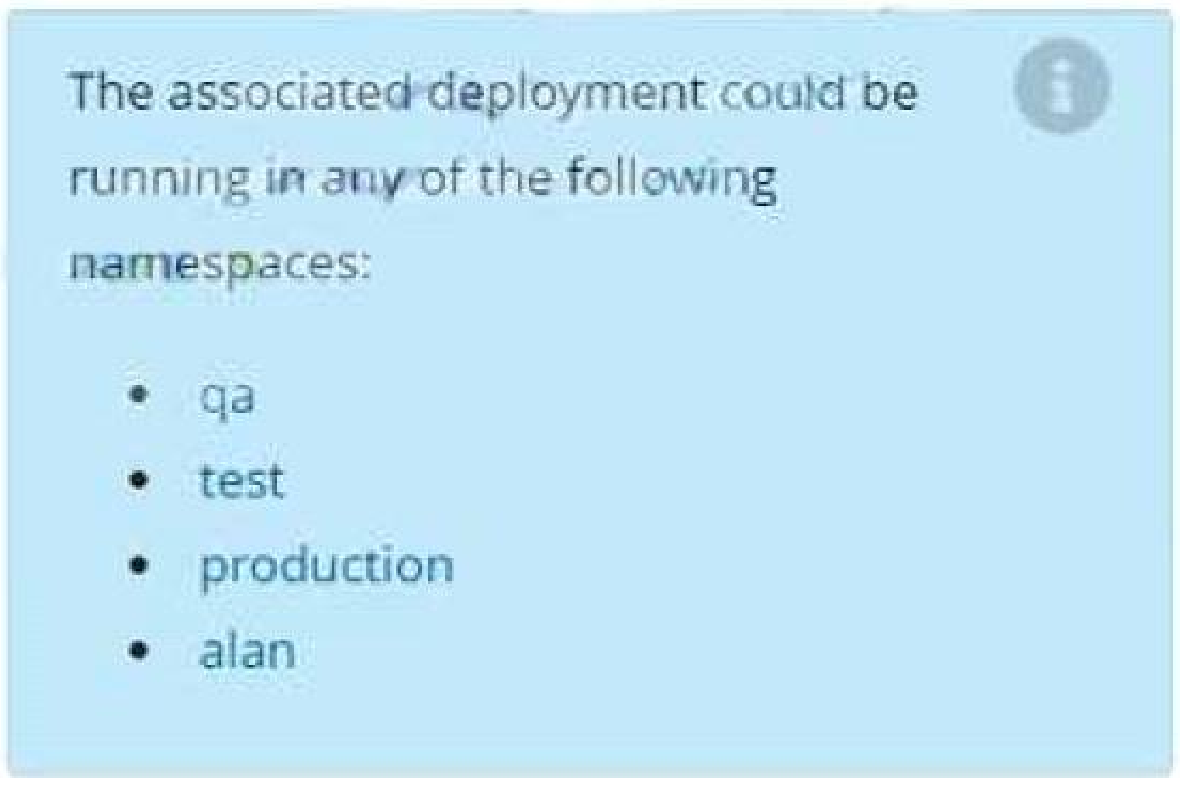
```
[student@node-1] $ | kubectl config
use-context dk8s
```

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: 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
```

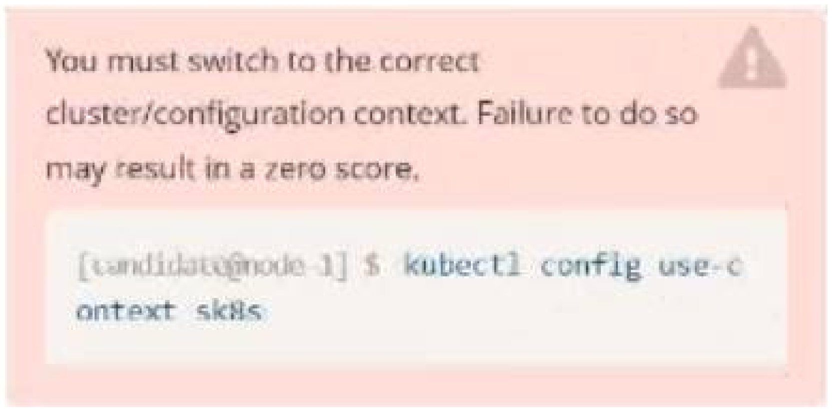
After 35 seconds, view the Pod events again: kubectl describe pod liveness-exec
At the bottom of the output, there are messages indicating that the liveness probes have failed, and the containers have been killed and recreated.

```
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:

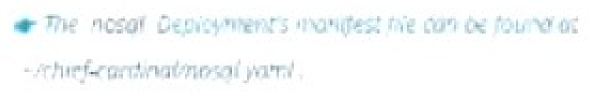
```
NAME READY STATUS RESTARTS AGE
liveness-exec 1/1 Running 1 m
```

NEW QUESTION 18
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-context sk8s
```

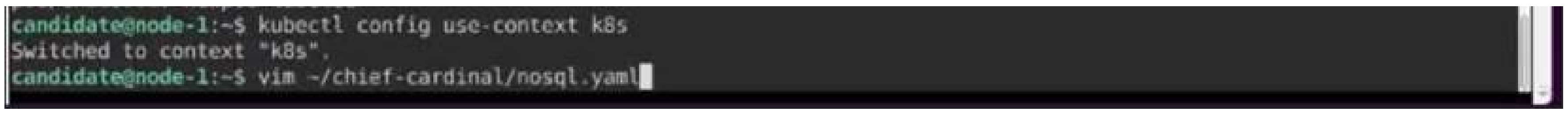
Task:
The pod for the Deployment named nosql in the craytisn namespace fails to start because its container runs out of resources.
Update the nosol Deployment so that the Pod:


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

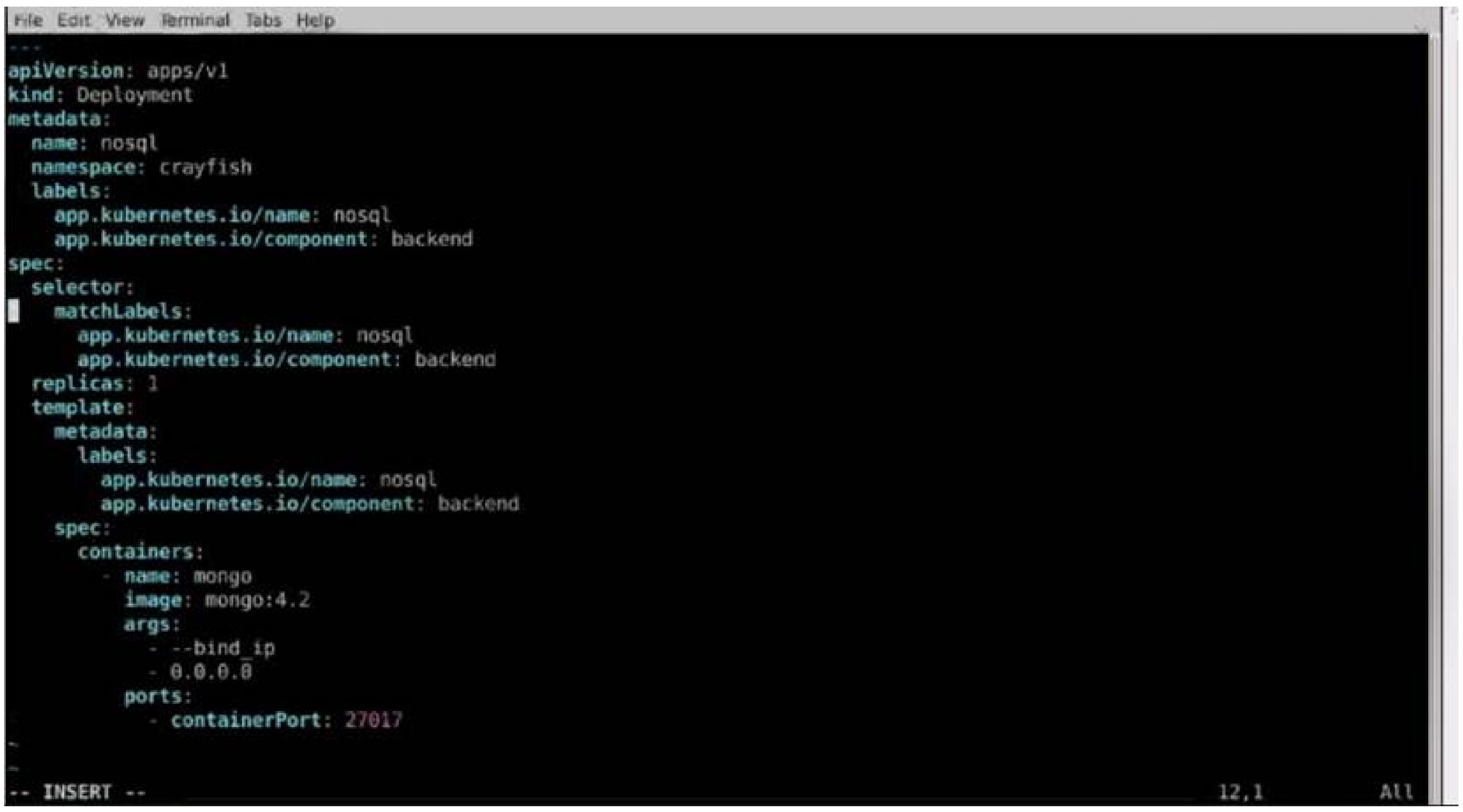
A. Mastered
B. Not Mastered

Answer: A

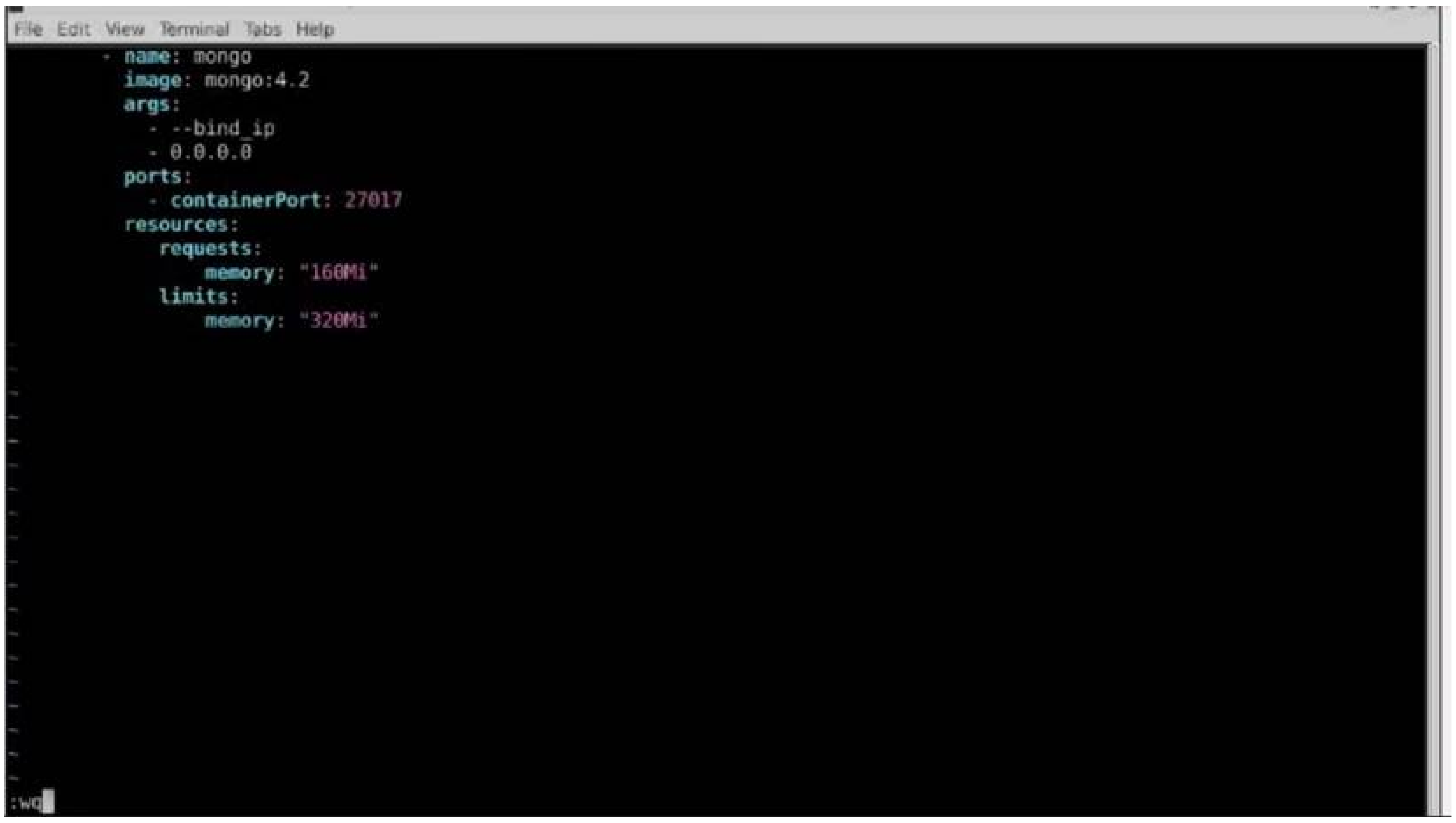
Explanation:
Solution:



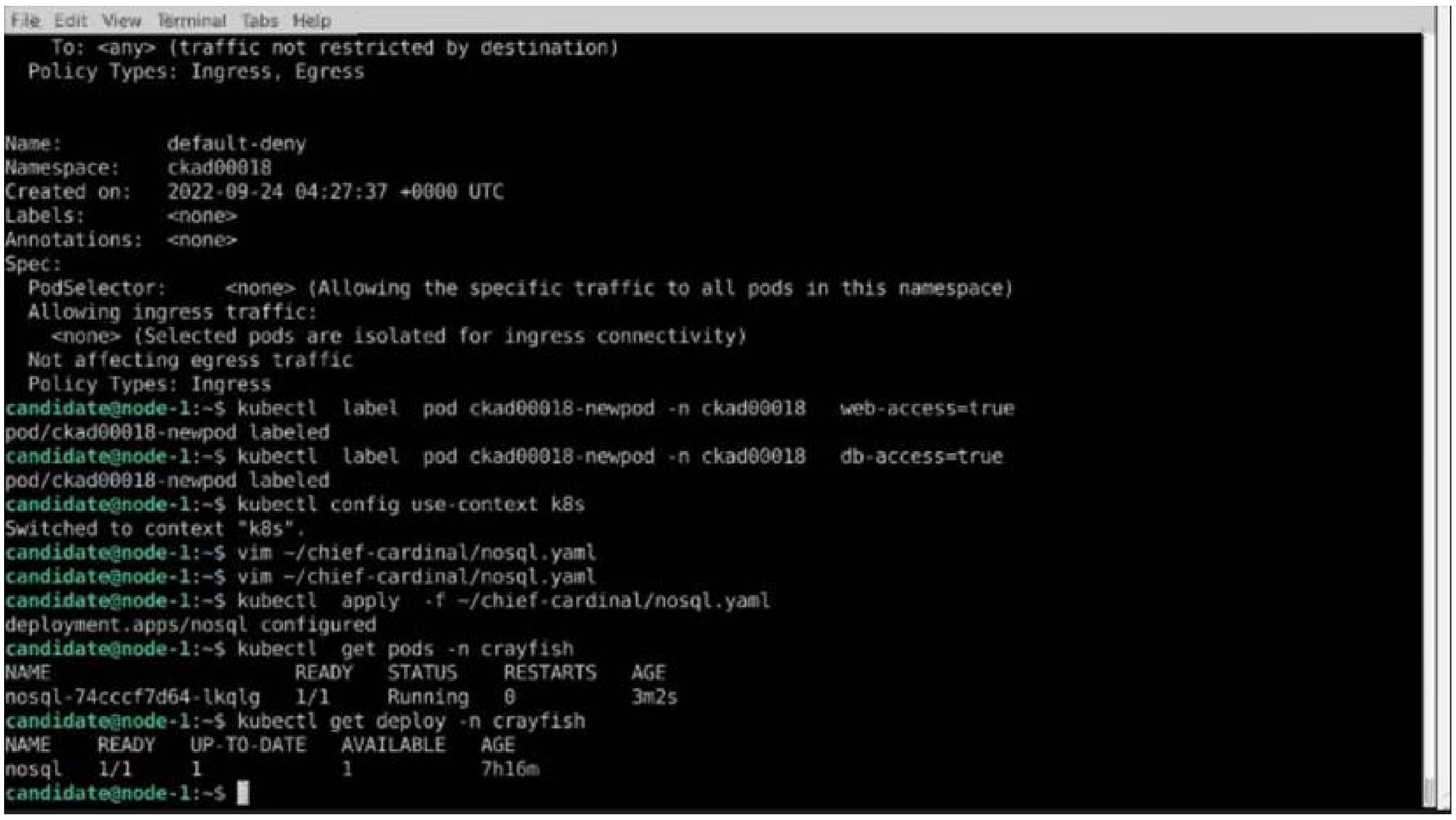
```
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ vim ~/chief-cardinal/nosql.yaml
```



```
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nosql
  namespace: crayfish
  labels:
    app.kubernetes.io/name: nosql
    app.kubernetes.io/component: backend
spec:
  selector:
    matchLabels:
      app.kubernetes.io/name: nosql
      app.kubernetes.io/component: backend
  replicas: 1
  template:
    metadata:
      labels:
        app.kubernetes.io/name: nosql
        app.kubernetes.io/component: backend
    spec:
      containers:
      - name: mongo
        image: mongo:4.2
        args:
          - --bind_ip
          - 0.0.0.0
        ports:
          - containerPort: 27017
~
~
-- INSERT --                                                    12,1          All
```



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



```
    To: <any> (traffic not restricted by destination)
  Policy Types: Ingress, Egress


Name:         default-deny
Namespace:    ckad00018
Created on:   2022-09-24 04:27:37 +0000 UTC
Labels:       <none>
Annotations:  <none>
Spec:
  PodSelector:     <none> (Allowing the specific traffic to all pods in this namespace)
  Allowing ingress traffic:
    <none> (Selected pods are isolated for ingress connectivity)
  Not affecting egress traffic
  Policy Types: Ingress
candidate@node-1:~$ kubectl  label  pod ckad00018-newpod -n ckad00018   web-access=true
pod/ckad00018-newpod labeled
candidate@node-1:~$ kubectl  label  pod ckad00018-newpod -n ckad00018   db-access=true
pod/ckad00018-newpod labeled
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ vim ~/chief-cardinal/nosql.yaml
candidate@node-1:~$ vim ~/chief-cardinal/nosql.yaml
candidate@node-1:~$ kubectl  apply  -f ~/chief-cardinal/nosql.yaml
deployment.apps/nosql configured
candidate@node-1:~$ kubectl  get pods -n crayfish
NAME                     READY   STATUS    RESTARTS   AGE
nosql-74cccf7d64-lkqlg   1/1     Running   0          3m2s
candidate@node-1:~$ kubectl get deploy -n crayfish
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
nosql   1/1     1            1           7h16m
candidate@node-1:~$
```

NEW QUESTION 19

......