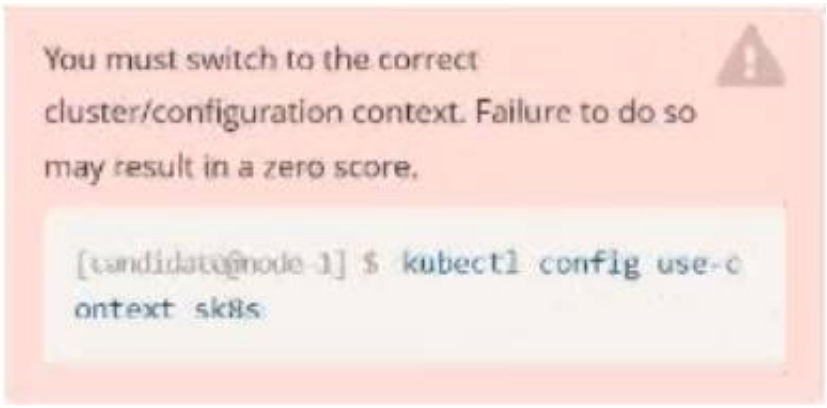
Linux-Foundation

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 goshark namespace points to 5 pod created by the Deployment named current-krill-deployment

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Solution:

Text Description automatically generated

```
File  Edit  View  Terminal  Tabs  Help
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$
```

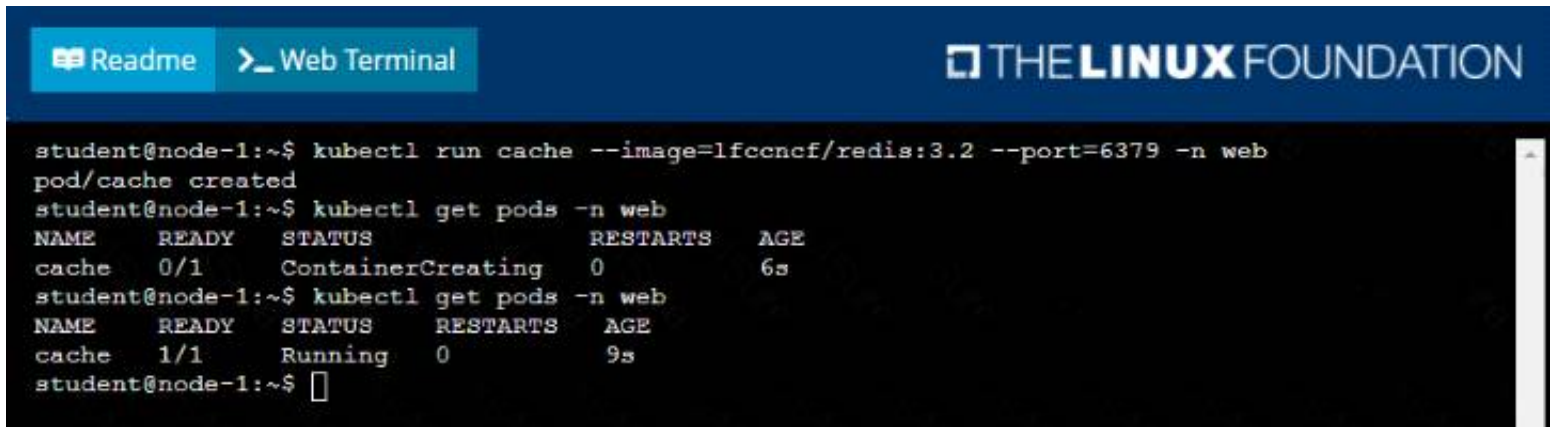
NEW QUESTION 2
Exhibit:

Context
A web application requires a specific version of redis to be used as a cache. Task
Create a pod with the following characteristics, and leave it running when complete:
• The pod must run in the web namespace. The namespace has already been created
• The name of the pod should be cache
• Use the Ifccncf/redis image with the 3.2 tag
• Expose port 6379

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Solution:



NEW QUESTION 3
Exhibit:

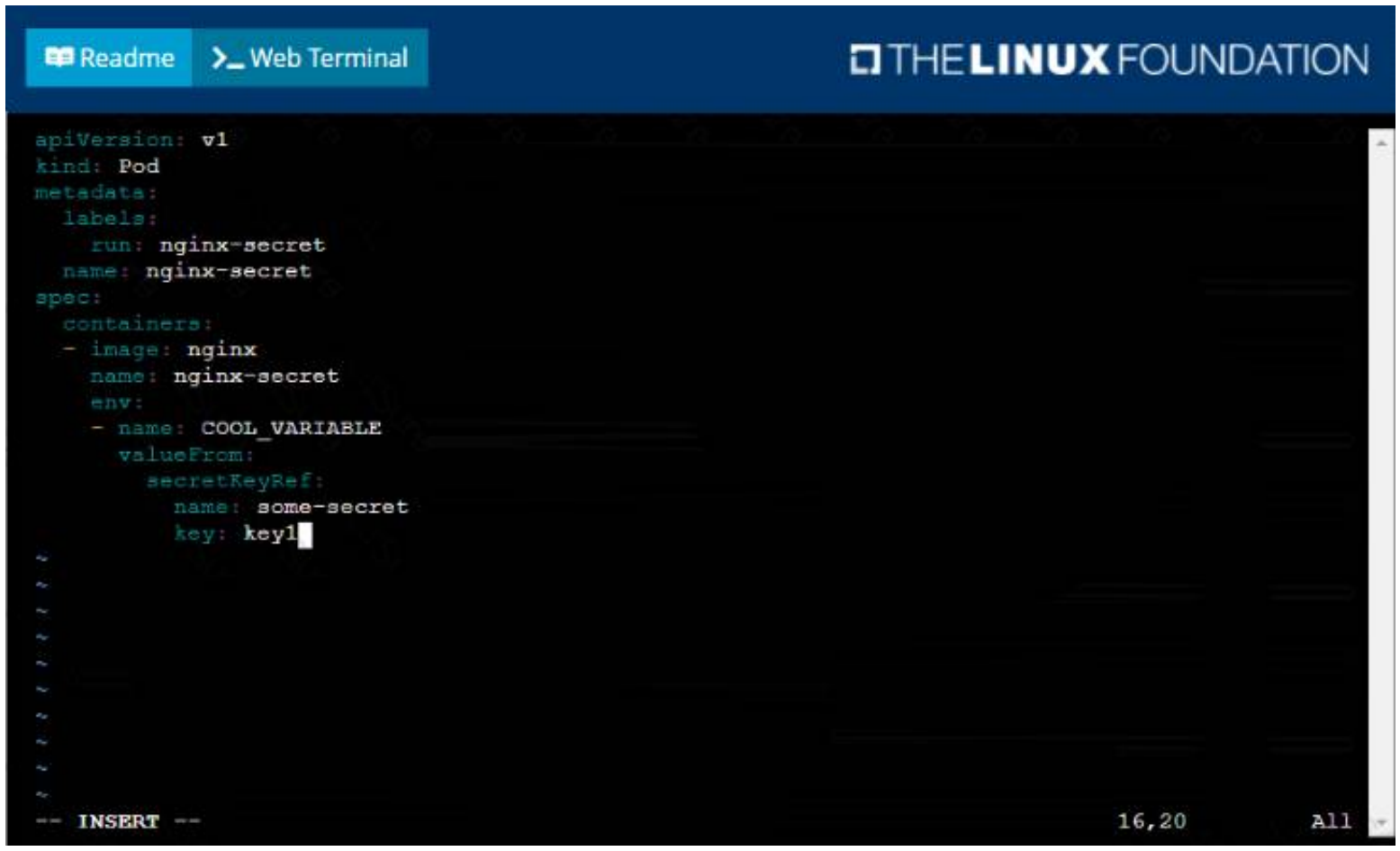
Context
You are tasked to create a secret and consume the secret in a pod using environment variables as follow:
Task
• Create a secret named another-secret with a key/value pair; key1/value4
• Start an nginx pod named nginx-secret using container image nginx, and add an environment variable exposing the value of the secret key key 1, using COOL_VARIABLE as the name for the environment variable inside the pod

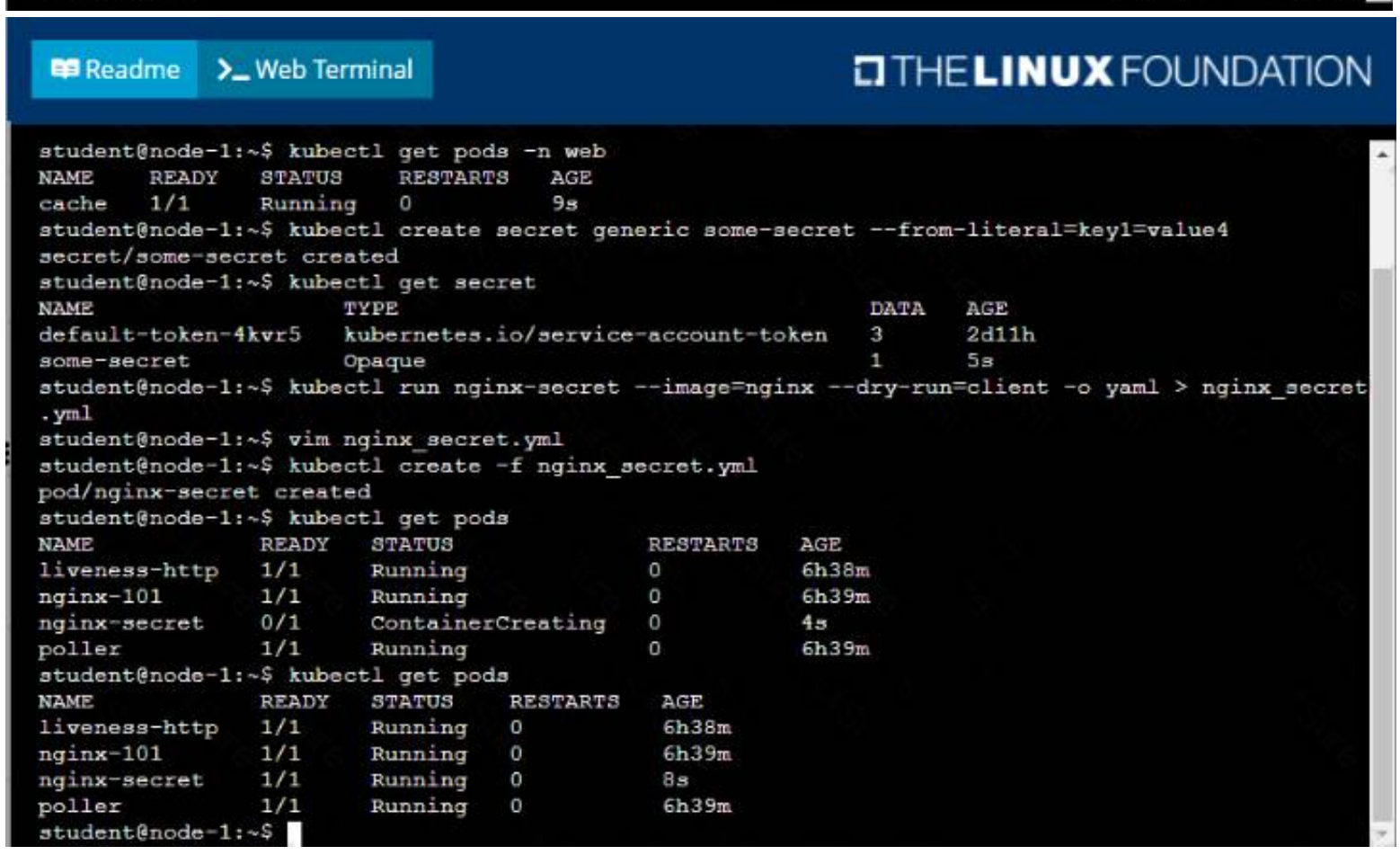
A. Mastered
B. Not Mastered

Answer: A

Explanation:

Solution:





NEW QUESTION 4
Exhibit:

Task
You are required to create a pod that requests a certain amount of CPU and memory, so it gets scheduled to-a node that has those resources available.
• Create a pod named nginx-resources in the pod-resources namespace that requests a minimum of 200m CPU and 1Gi memory for its container
• The pod should use the nginx image
• The pod-resources namespace has already been created

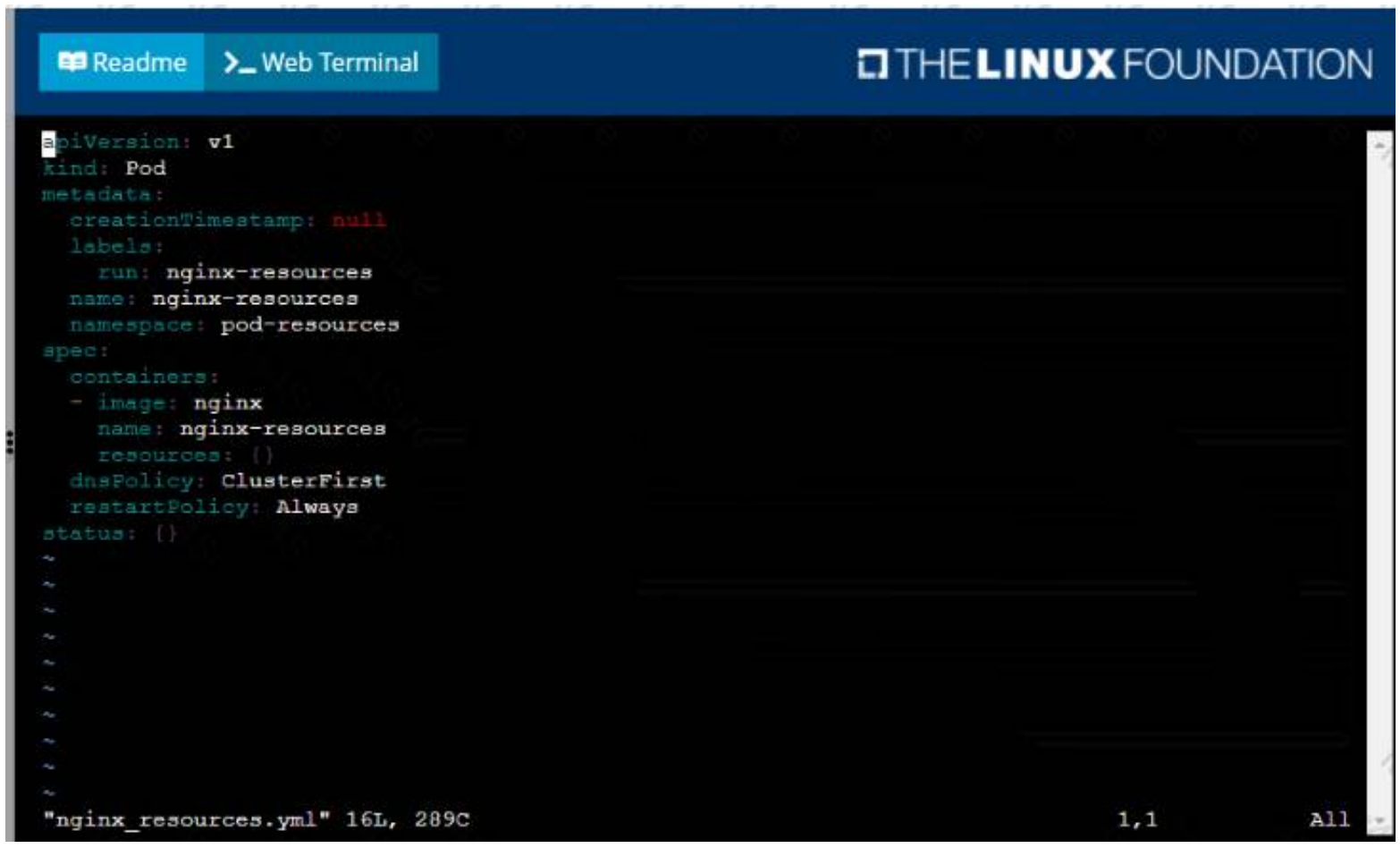
A. Mastered
B. Not Mastered

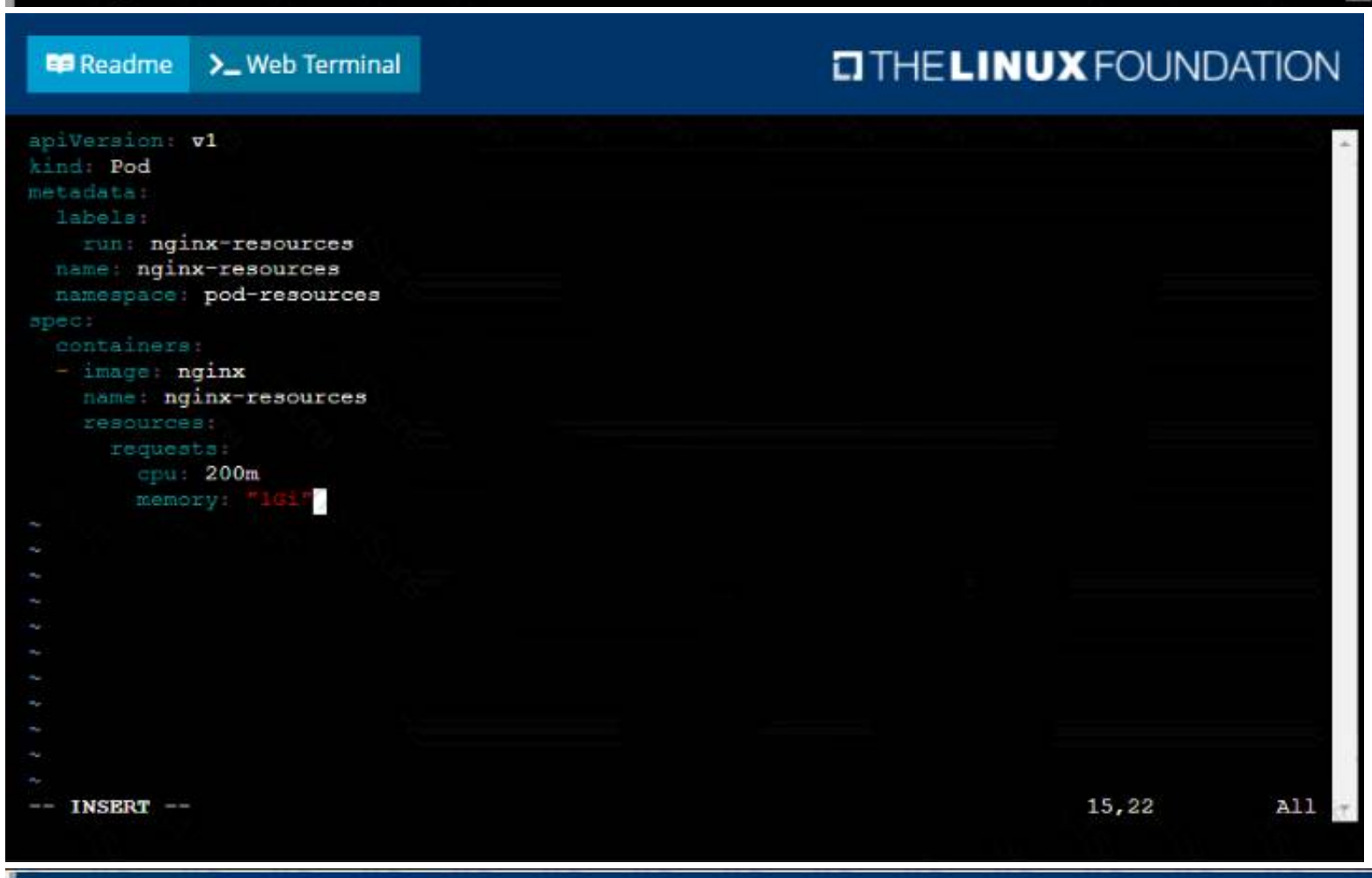
Answer: A

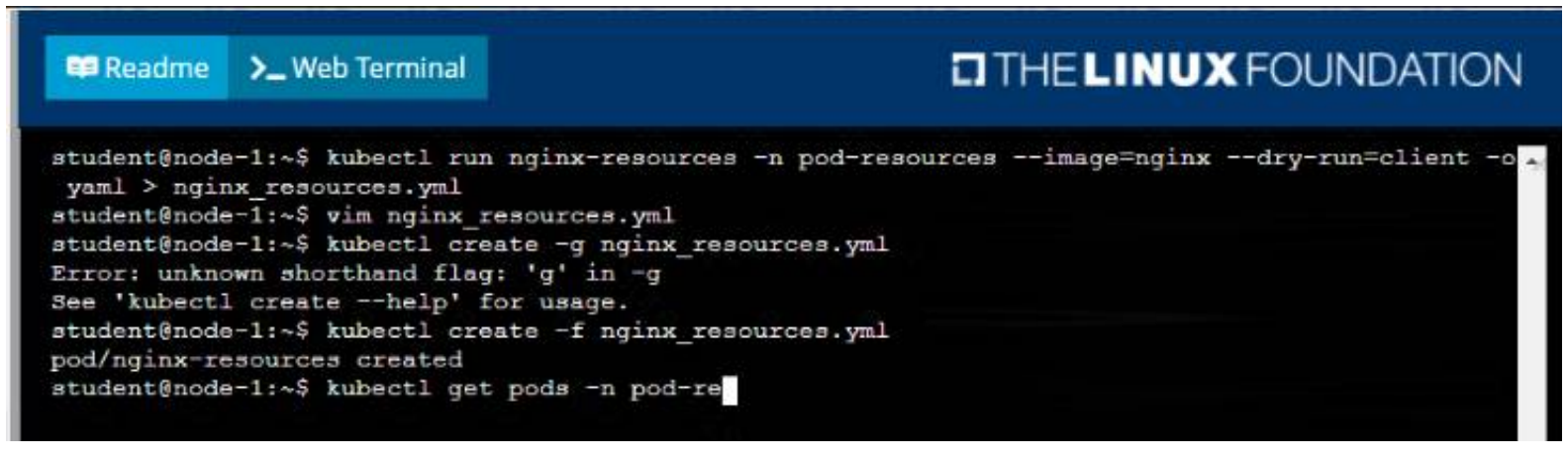
Explanation:

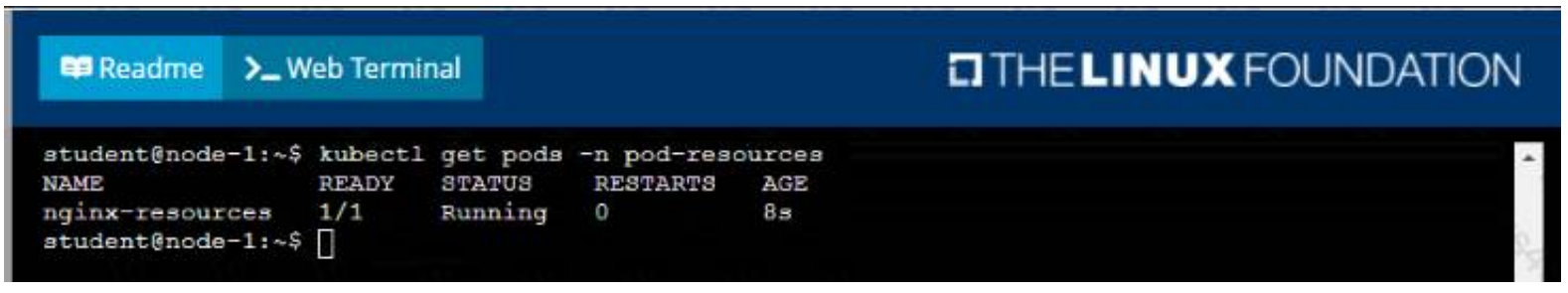
Solution:


Readme
Web Terminal
THE LINUX FOUNDATION
student@node-1:~$ kubectl run nginx-resources -n pod-resources --image=nginx --dry-run=client -o
yaml > nginx_resources.yml
student@node-1:~$ vim nginx_

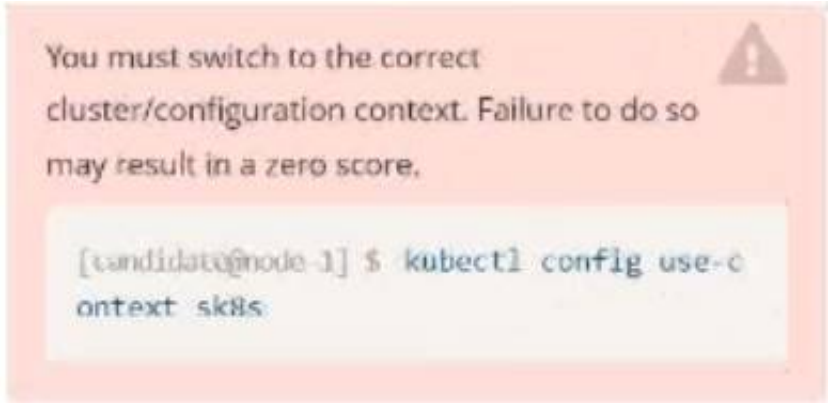

Readme
Web Terminal
THE LINUX FOUNDATION
apiVersion: v1
kind: Pod
metadata:
creationTimestamp: null
labels:
run: nginx-resources
name: nginx-resources
namespace: pod-resources
spec:
containers:
- image: nginx
name: nginx-resources
resources: {}
dnsPolicy: ClusterFirst
restartPolicy: Always
status: {}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


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


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



NEW QUESTION 5
Exhibit:



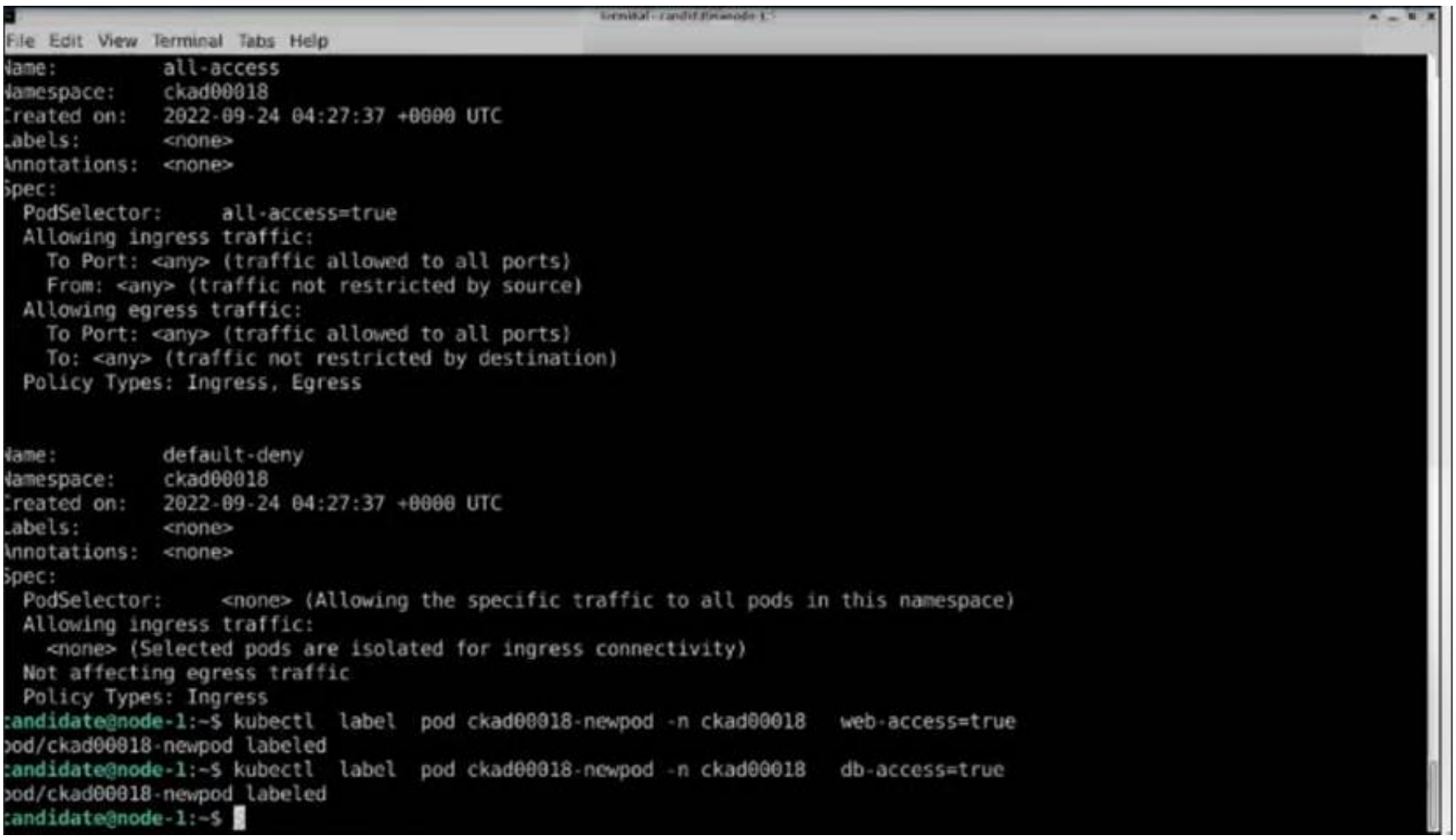
Task:
Update the Pod ckad00018-newpod in the ckad00018 namespace to use a NetworkPolicy allowing the Pod to send and receive traffic only to and from the pods web and db

A. Mastered
B. Not Mastered

Answer: A

Explanation:

Solution:



NEW QUESTION 6

Exhibit:

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

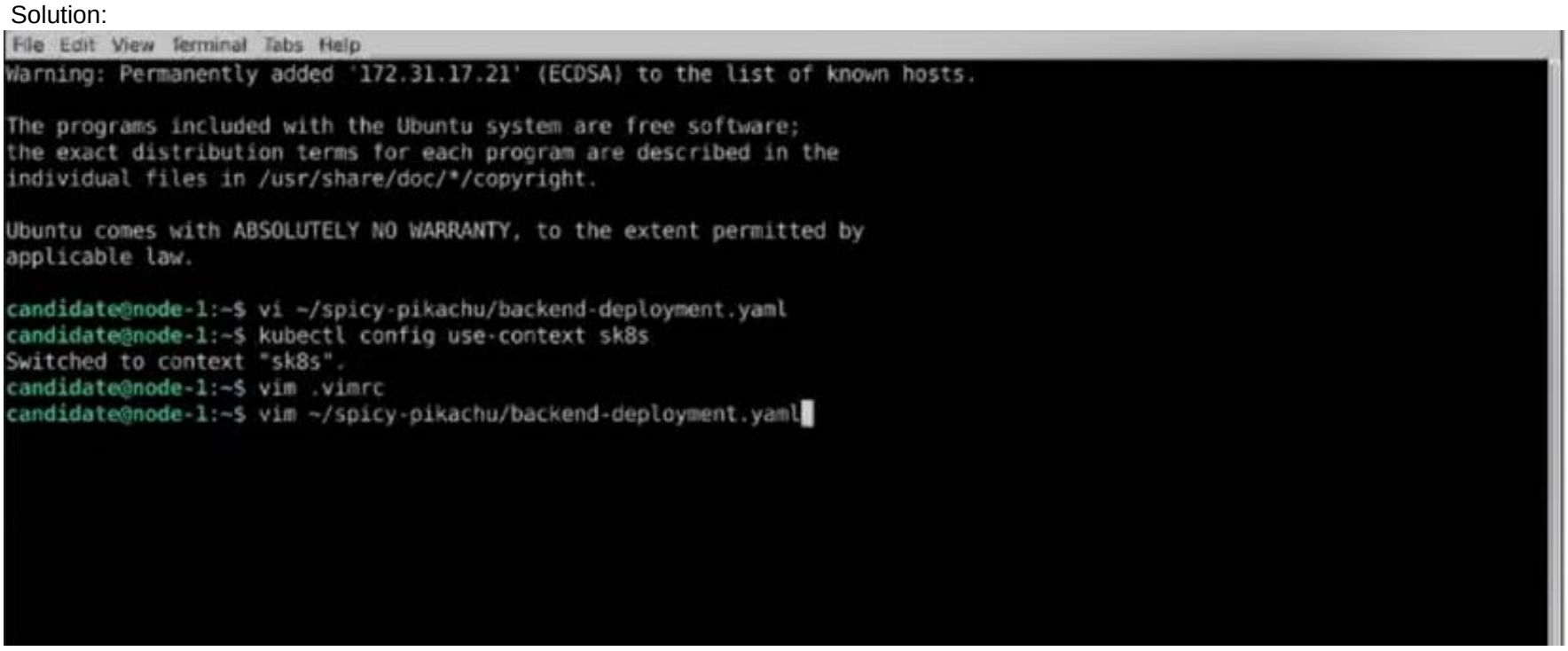
NEW QUESTION 7
Exhibit:

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

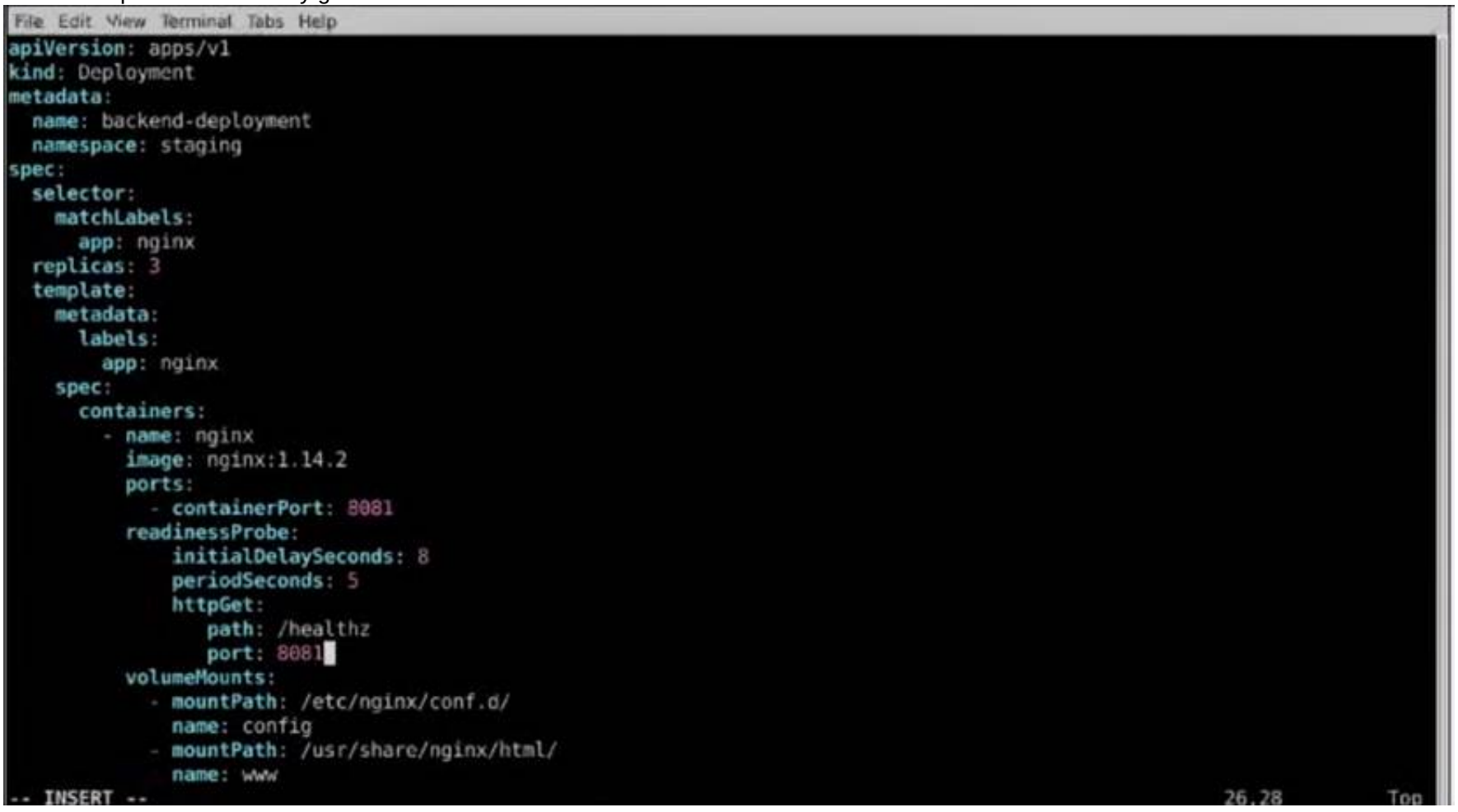
A. Mastered
B. Not Mastered

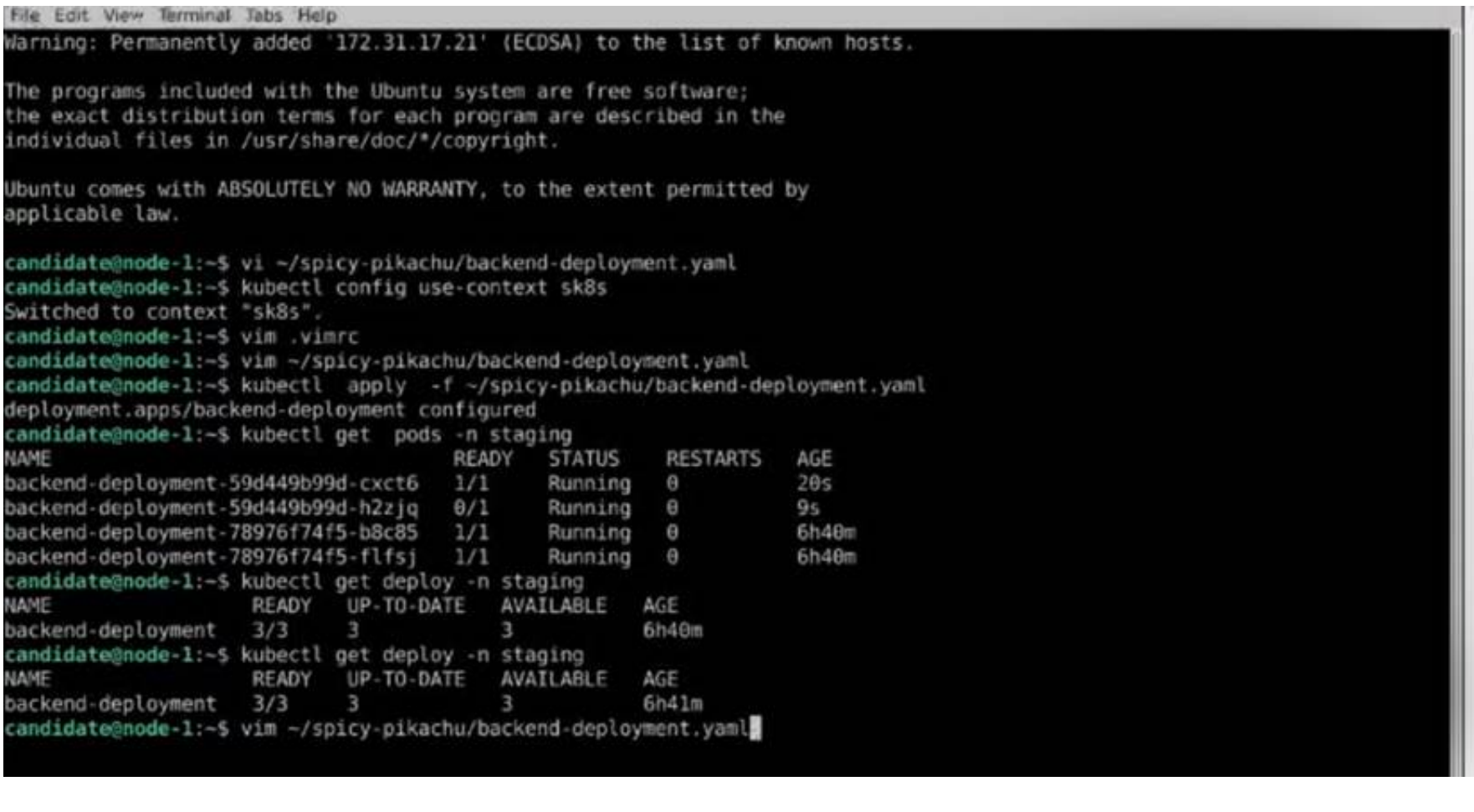
Answer: A

Explanation:
Solution:



Text Description automatically generated





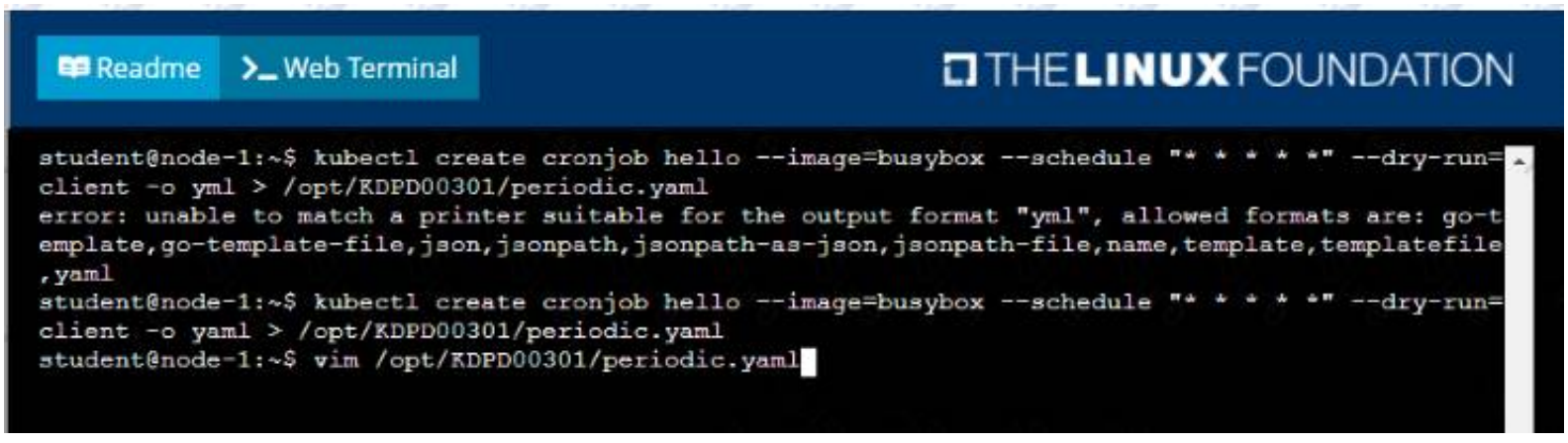
NEW QUESTION 8
Exhibit:

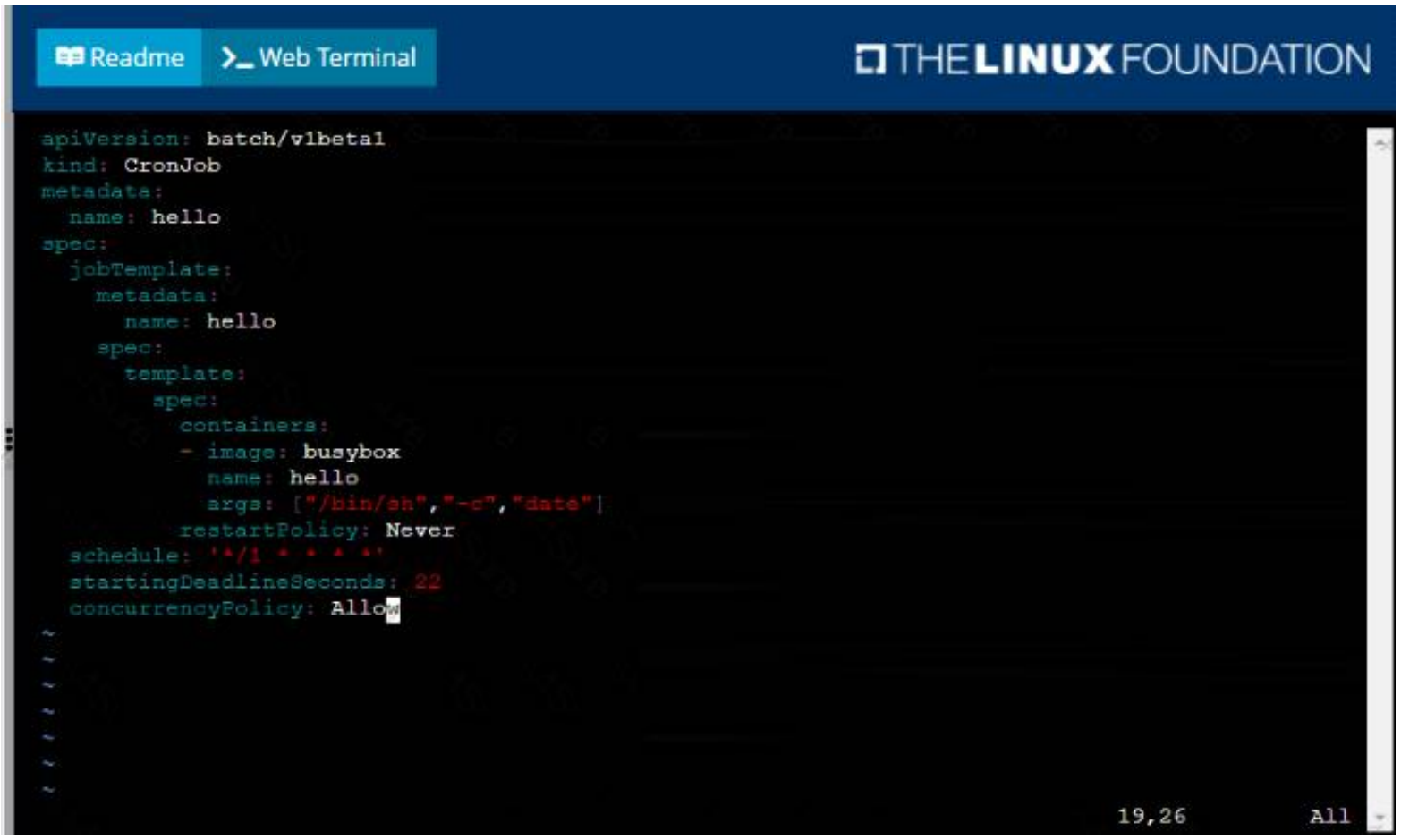
Context
Developers occasionally need to submit pods that run periodically. Task
Follow the steps below to create a pod that will start at a predetermined time and]which runs to completion only once each time it is started:
• Create a YAML formatted Kubernetes manifest /opt/KDPD00301/periodic.yaml that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

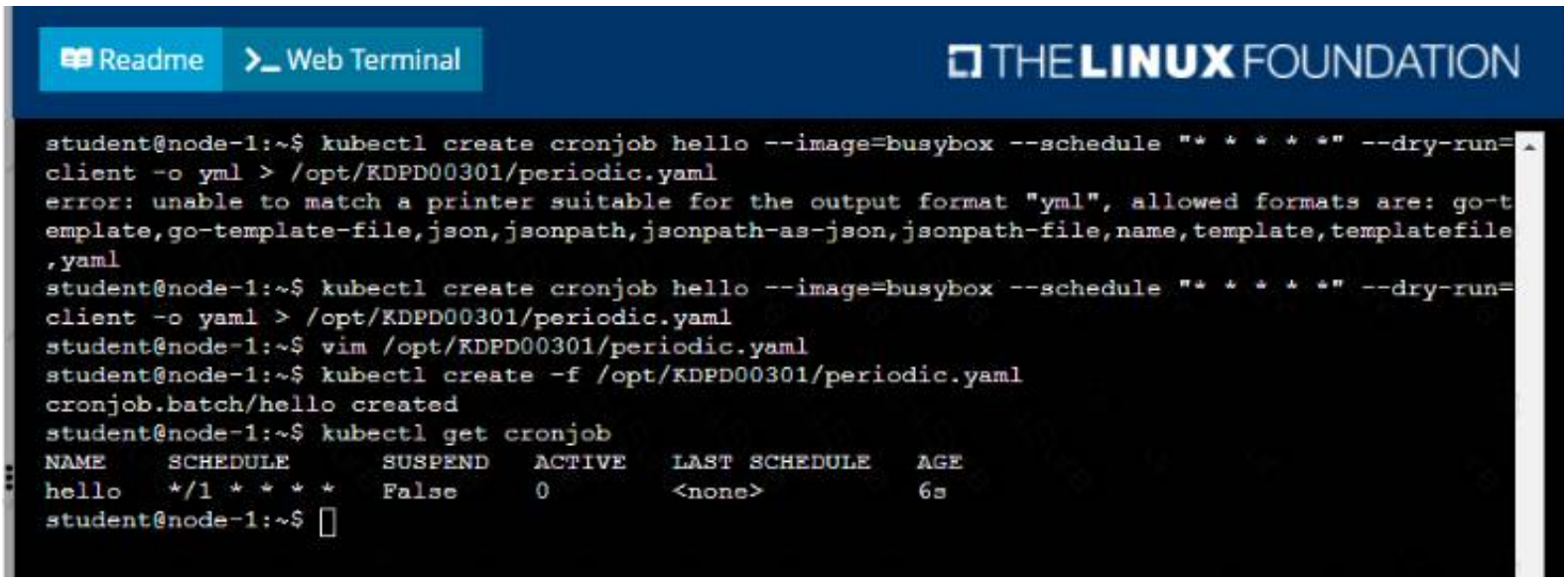
A. Mastered
B. Not Mastered

Answer: A

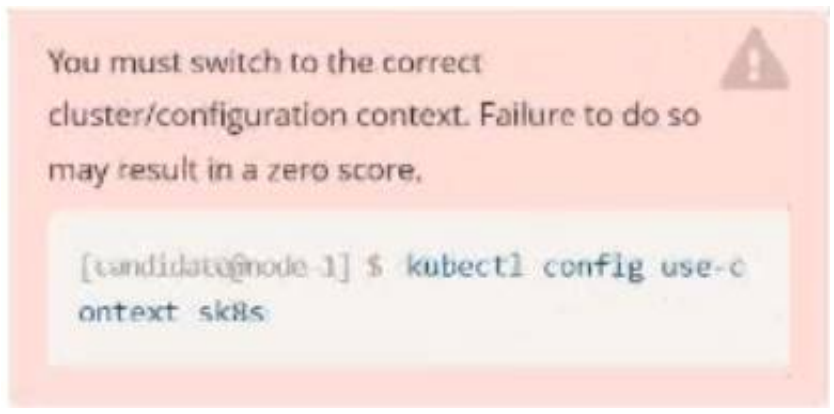
Explanation:
Solution:







NEW QUESTION 9
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:

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"
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
:wq
```

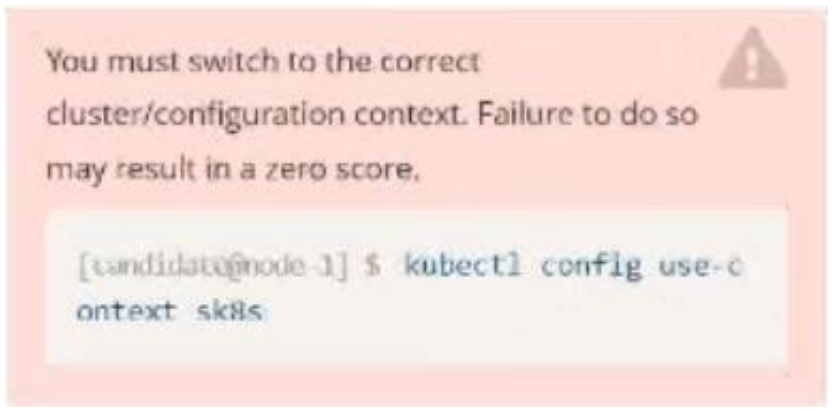
Text Description automatically generated

```
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 10
Exhibit:



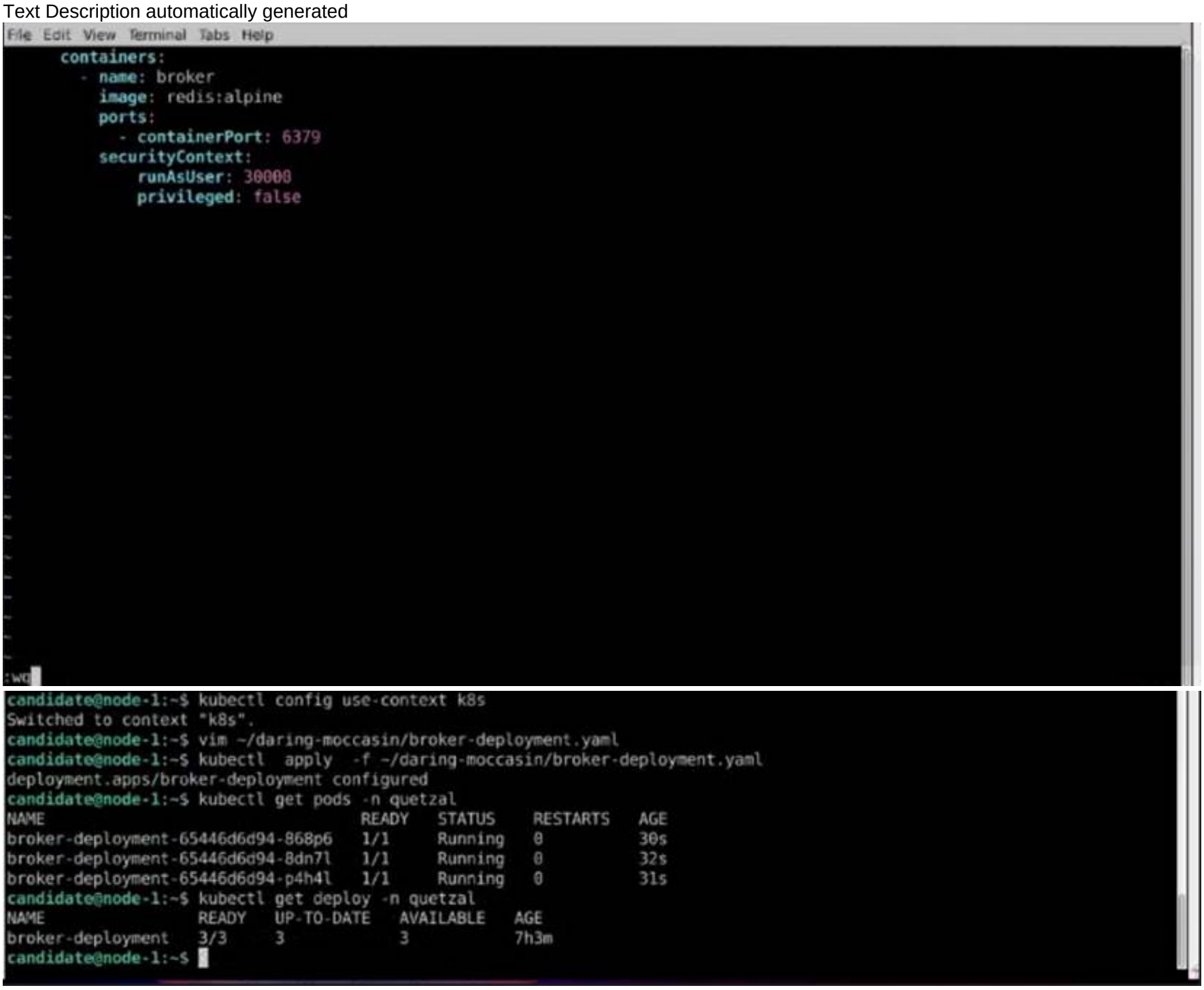
Task:
Modify the existing Deployment named broker-deployment running in namespace quetzal so that its containers.
The broker-deployment is manifest file can be found at:
~/daring-moccasin/broker-deployment.yaml

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Solution:

Text Description automatically generated



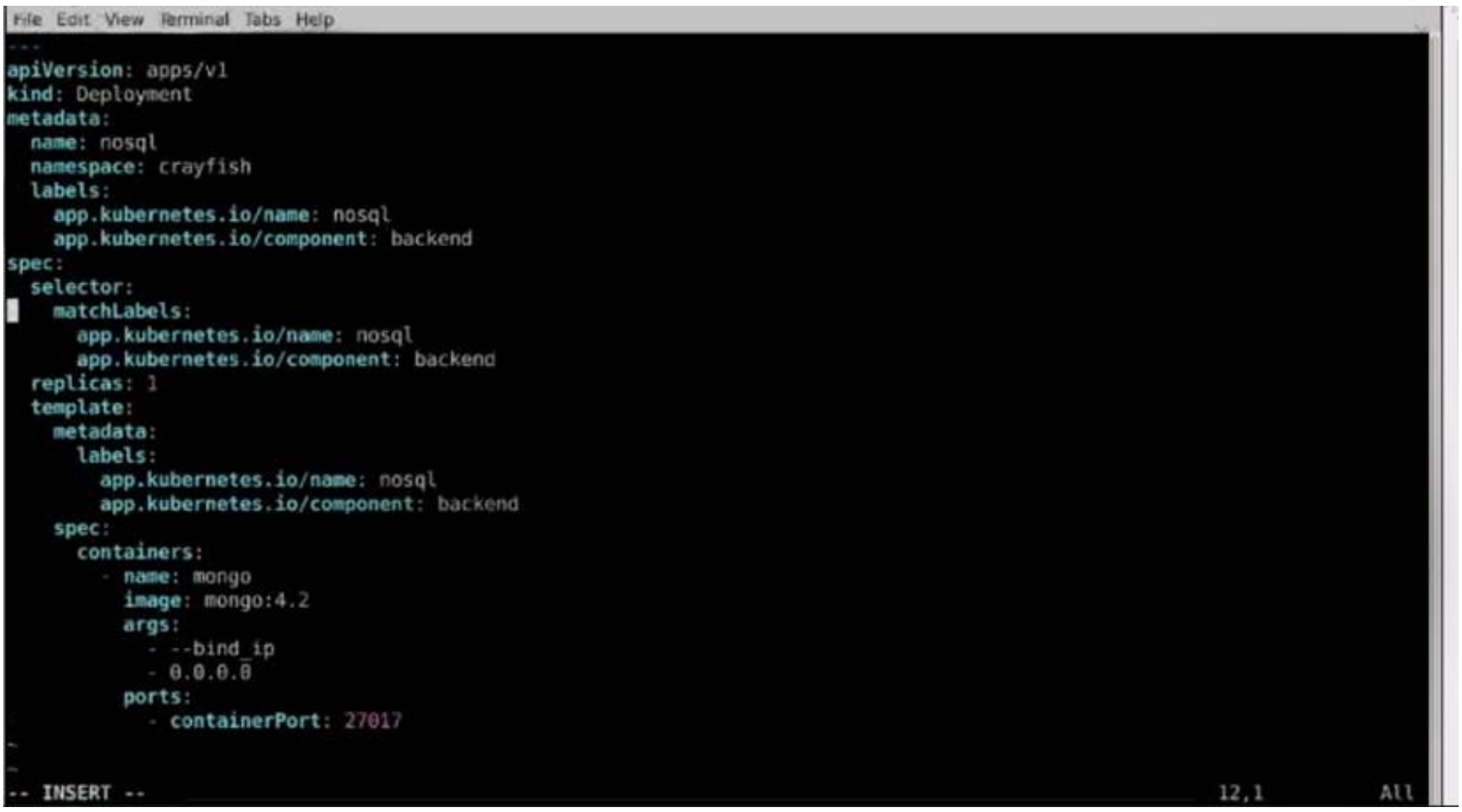
NEW QUESTION 10
Exhibit:

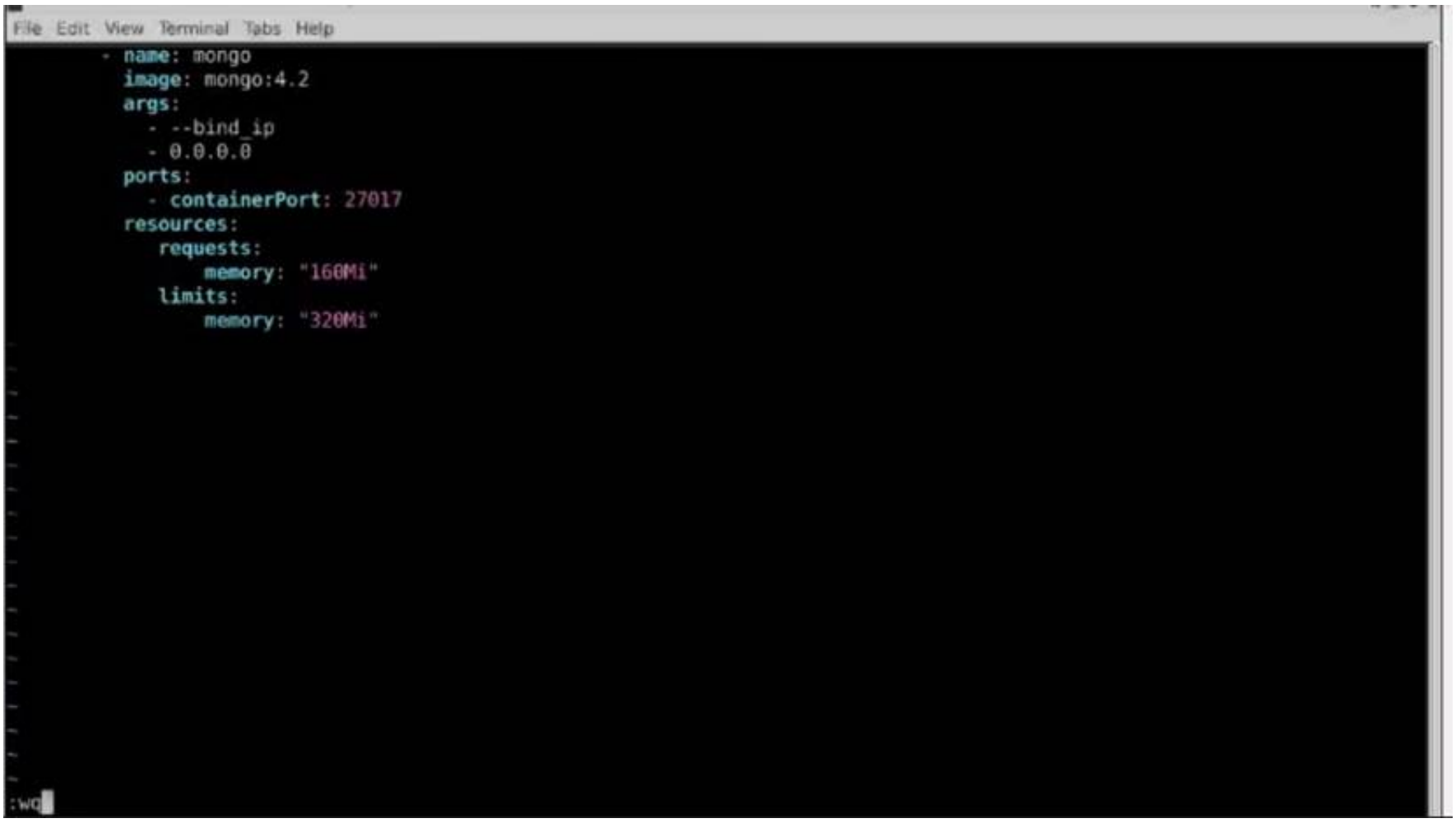
Task:
The pod for the Deployment named nosql in the craytisn namespace fails to start because its container runs out of resources.
Update the nosol Deployment so that the Pod:

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Solution:





NEW QUESTION 12
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 ana deploy in namespace kdsn00l01 a service that accomplishes the following:
• Exposes the service on TCP port 8080
• is mapped to me pods defined by the specification of kdsn00l01-deployment

• Is of type NodePort
• Has a name of cherry

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Solution:

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

Readme | Web Terminal — THE LINUX FOUNDATION

```
# 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
```

Readme | Web Terminal — THE LINUX FOUNDATION

```
  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
```

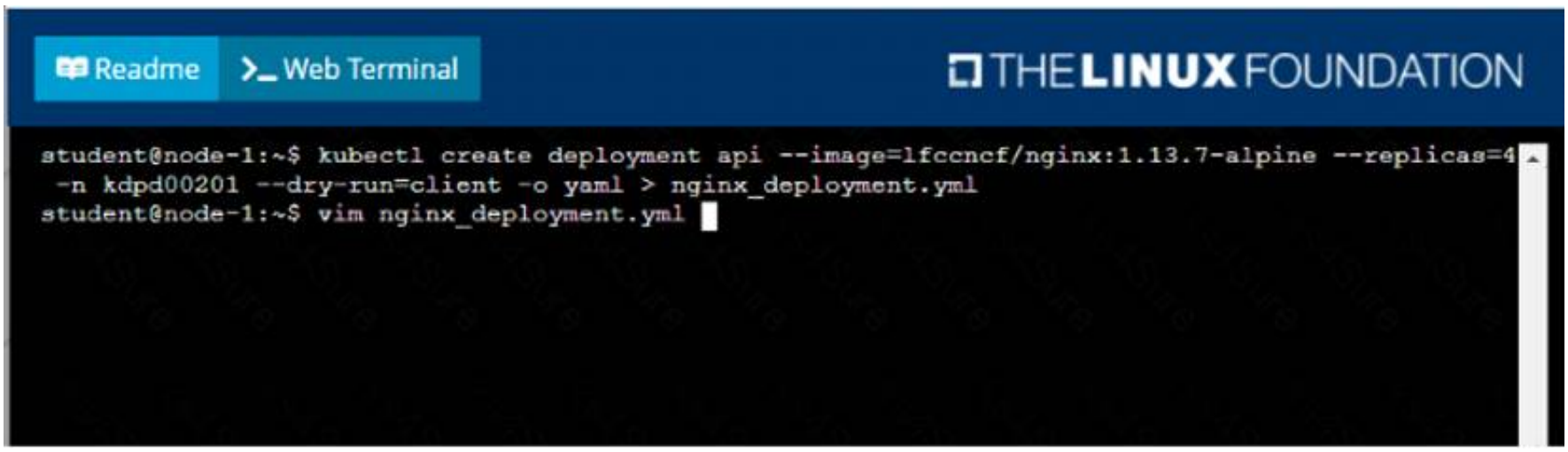
NEW QUESTION 16
Exhibit:

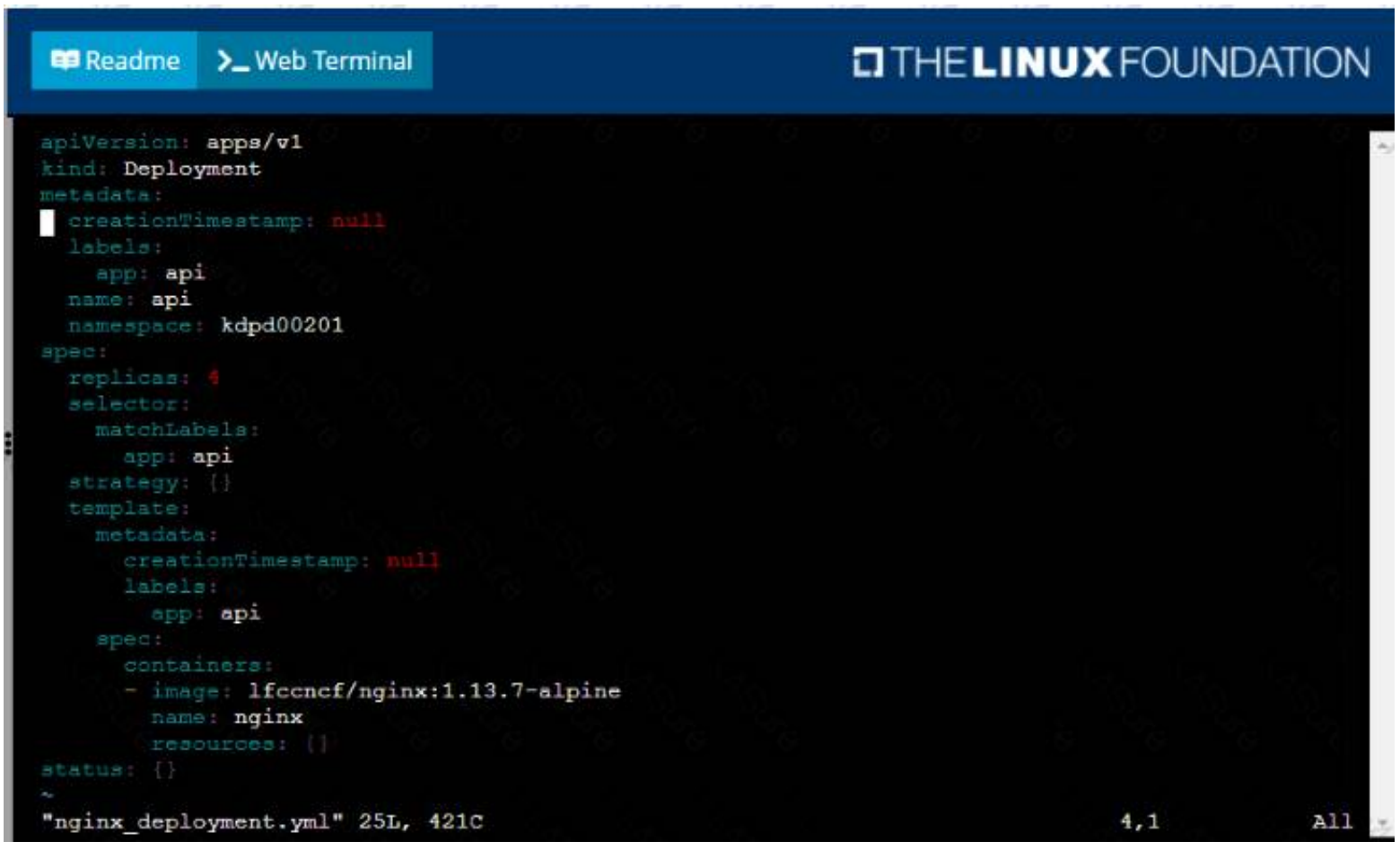
Task
Create a new deployment for running.nginx with the following parameters;
• Run the deployment in the kdpd00201 namespace. The namespace has already been created
• Name the deployment frontend and configure with 4 replicas
• Configure the pod with a container image of lfccncf/nginx:1.13.7
• Set an environment variable of NGINX PORT=8080 and also expose that port for the container above

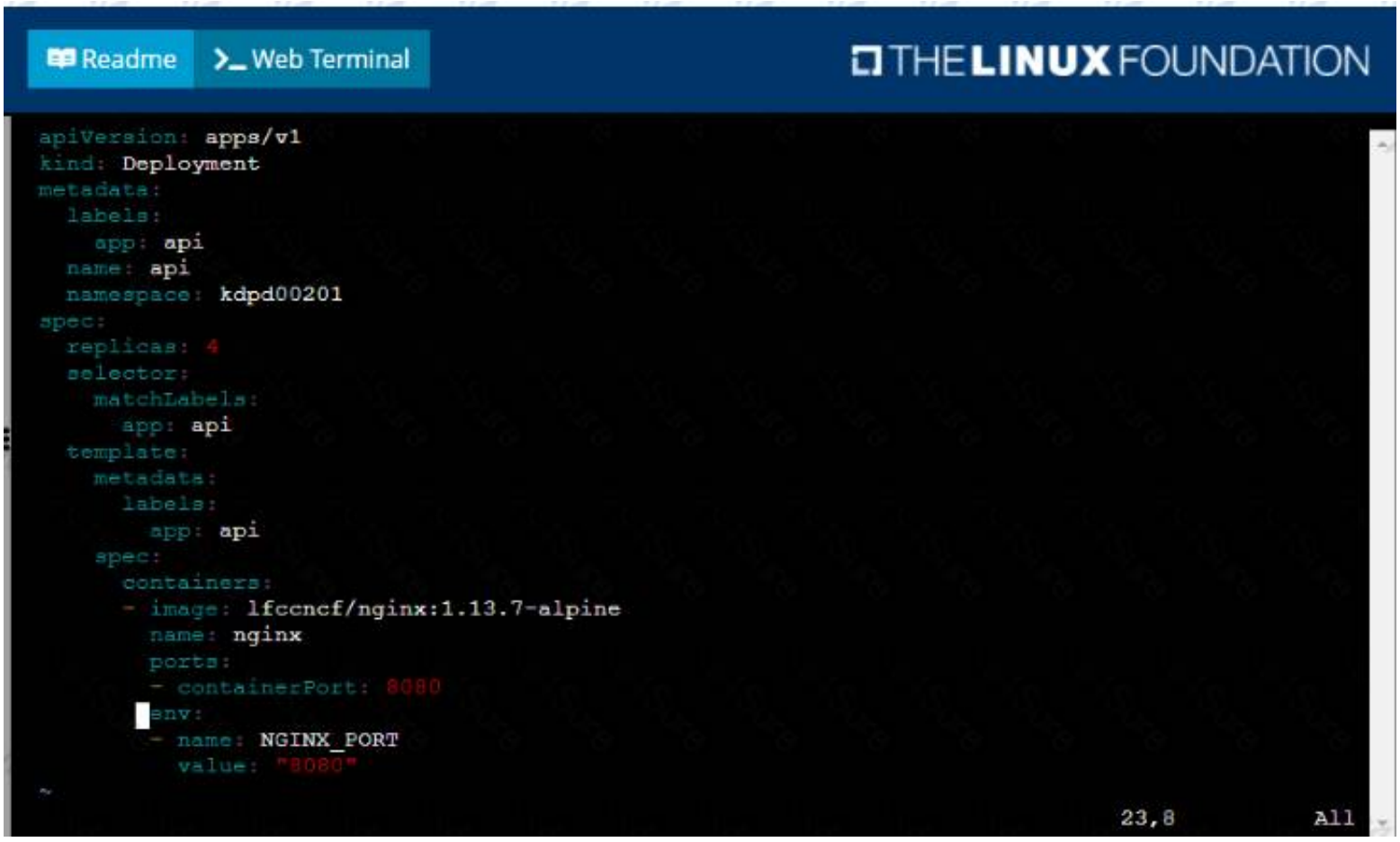
A. Mastered
B. Not Mastered

Answer: A

Explanation:
Solution:







NEW QUESTION 17

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