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.
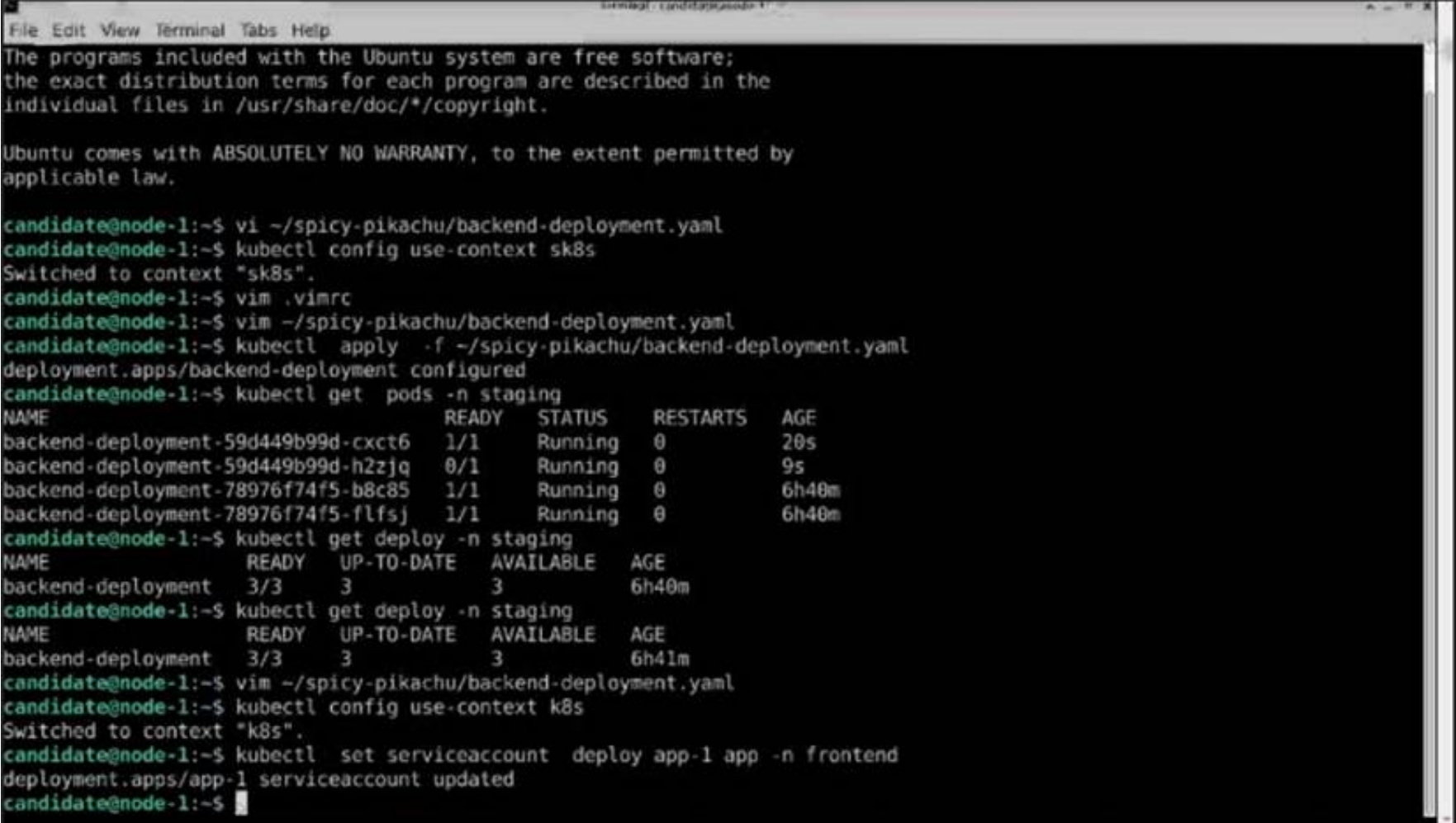
[candidate@node-1] $ kubectl config use-context sk8s
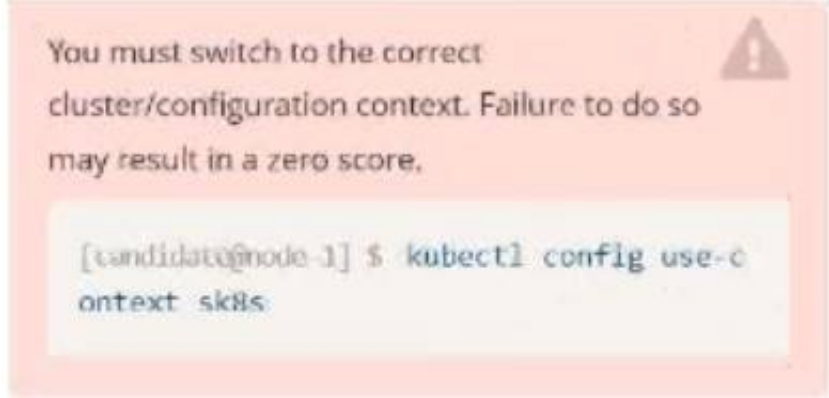
Task:
Update the Deployment app-1 in the frontend namespace to use the existing ServiceAccount app.
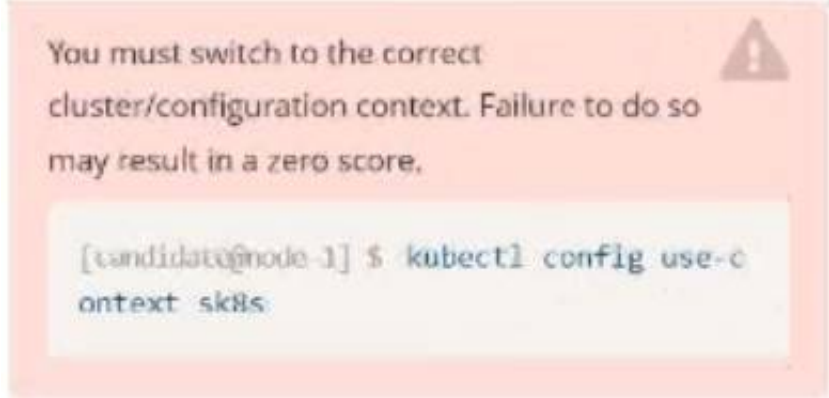
A. Mastered
B. Not Mastered

Answer: A

Explanation:
 Solution:
Text Description automatically generated

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-context sk8s

Task:
Create a Deployment named expose in the existing ckad00014 namespace running 6 replicas of a Pod. Specify a single container using the ifccncf/nginx: 1.13.7 image
Add an environment variable named NGINX_PORT with the value 8001 to the container then expose port 8001

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  deploy expose -n  ckad00014  --image lfccncf/nginx:1.13.7 --dry-run=client -o yaml> d
ep.yaml
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$

candidate@node-1:~$
candidate@node-1:~$
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candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
```

Text Description automatically generated

```
File Edit View Terminal Tabs Help
apiVersion: apps/v1
kind: Deployment
metadata:
  creationTimestamp: null
  labels:
    app: expose
  name: expose
  namespace: ckad00014
spec:
  replicas: 6
  selector:
    matchLabels:
      app: expose
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: expose
    spec:
      containers:
      - image: lfccncf/nginx:1.13.7
        name: nginx
        ports:
          - containerPort: 8001
        env:
          - name: NGINX_PORT
            value: "8001"


:wq
```

Text Description automatically generated

```
File Edit View Terminal Tabs Help
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> d
ep.yaml
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
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candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$
candidate@node-1:~$ vim dep.yaml
candidate@node-1:~$ kubectl  create  -f dep.yaml
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:~$
```

NEW QUESTION 3
Exhibit:

Set configuration context:

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

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:
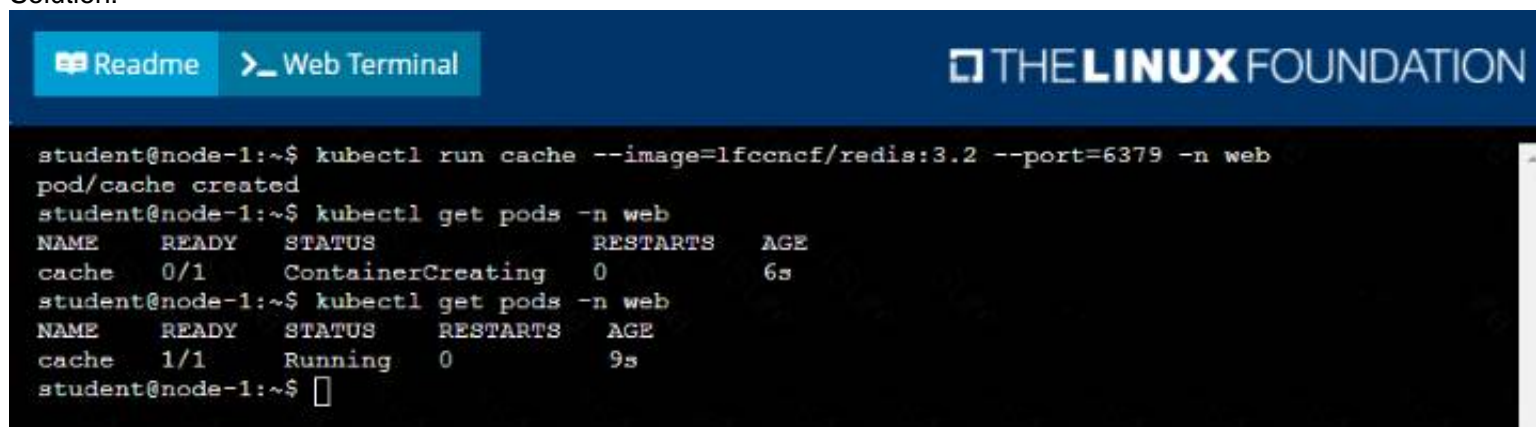• The pod must run in the web namespace. The namespace has already been created
• The name of the pod should be cache
• Use the lfccncf/redis image with the 3.2 tag
• Expose port 6379

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Solution:

```
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student@node-1:~$ kubectl run cache --image=lfccncf/redis:3.2 --port=6379 -n web
pod/cache created
student@node-1:~$ kubectl get pods -n web
NAME      READY    STATUS            RESTARTS    AGE
cache     0/1      ContainerCreating  0          6s
student@node-1:~$ kubectl get pods -n web
NAME      READY    STATUS    RESTARTS    AGE
cache     1/1      Running   0           9s
student@node-1:~$ []
```

NEW QUESTION 4
Exhibit:

Set configuration context:

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

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:
```
student@node-1:~$ kubectl create secret generic some-secret --from-literal=key1=value4
secret/some-secret created
student@node-1:~$ kubectl get secret
NAME                  TYPE                                  DATA    AGE
default-token-4kvr5   kubernetes.io/service-account-token   3       2d11h
some-secret           Opaque                                1       5s
student@node-1:~$ kubectl run nginx-secret --image=nginx --dry-run=client -o yaml > nginx_secret
.yml
student@node-1:~$ vim nginx_secret.yml
```

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```
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-secret
  name: nginx-secret
spec:
  containers:
  - image: nginx
    name: nginx-secret
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}
~
~
~
~
~
~
~
~
~
~
"nginx_secret.yml" 15L, 253C                    1,1          All
```

📖 Readme >_ Web Terminal   □ THE **LINUX** FOUNDATION

```
apiVersion: v1
kind: Pod
metadata:
  labels:
    run: nginx-secret
  name: nginx-secret
spec:
  containers:
  - image: nginx
    name: nginx-secret
    env:
    - name: COOL_VARIABLE
      valueFrom:
        secretKeyRef:
          name: some-secret
          key: key1
~
~
~
~
~
~
~
~
~
~
-- INSERT --                                    16,20        All
```

📖 Readme >_ Web Terminal   □ THE **LINUX** FOUNDATION
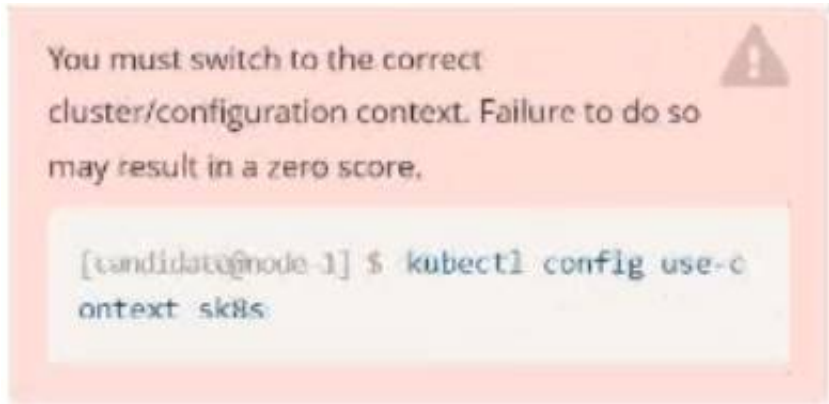
```
student@node-1:~$ kubectl get pods -n web
NAME    READY    STATUS    RESTARTS    AGE
cache   1/1      Running   0           9s
student@node-1:~$ kubectl create secret generic some-secret --from-literal=key1=value4
secret/some-secret created
student@node-1:~$ kubectl get secret
NAME                TYPE                                   DATA    AGE
default-token-4kvr5 kubernetes.io/service-account-token    3       2d11h
some-secret         Opaque                                 1       5s
student@node-1:~$ kubectl run nginx-secret --image=nginx --dry-run=client -o yaml > nginx_secret
.yml
student@node-1:~$ vim nginx_secret.yml
student@node-1:~$ kubectl create -f nginx_secret.yml
pod/nginx-secret created
student@node-1:~$ kubectl get pods
NAME            READY    STATUS            RESTARTS    AGE
liveness-http   1/1      Running           0           6h38m
nginx-101       1/1      Running           0           6h39m
nginx-secret    0/1      ContainerCreating 0           4s
poller          1/1      Running           0           6h39m
student@node-1:~$ kubectl get pods
NAME            READY    STATUS     RESTARTS    AGE
liveness-http   1/1      Running    0           6h38m
nginx-101       1/1      Running    0           6h39m
nginx-secret    1/1      Running    0           8s
poller          1/1      Running    0           6h39m
student@node-1:~$
```

NEW QUESTION 5
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
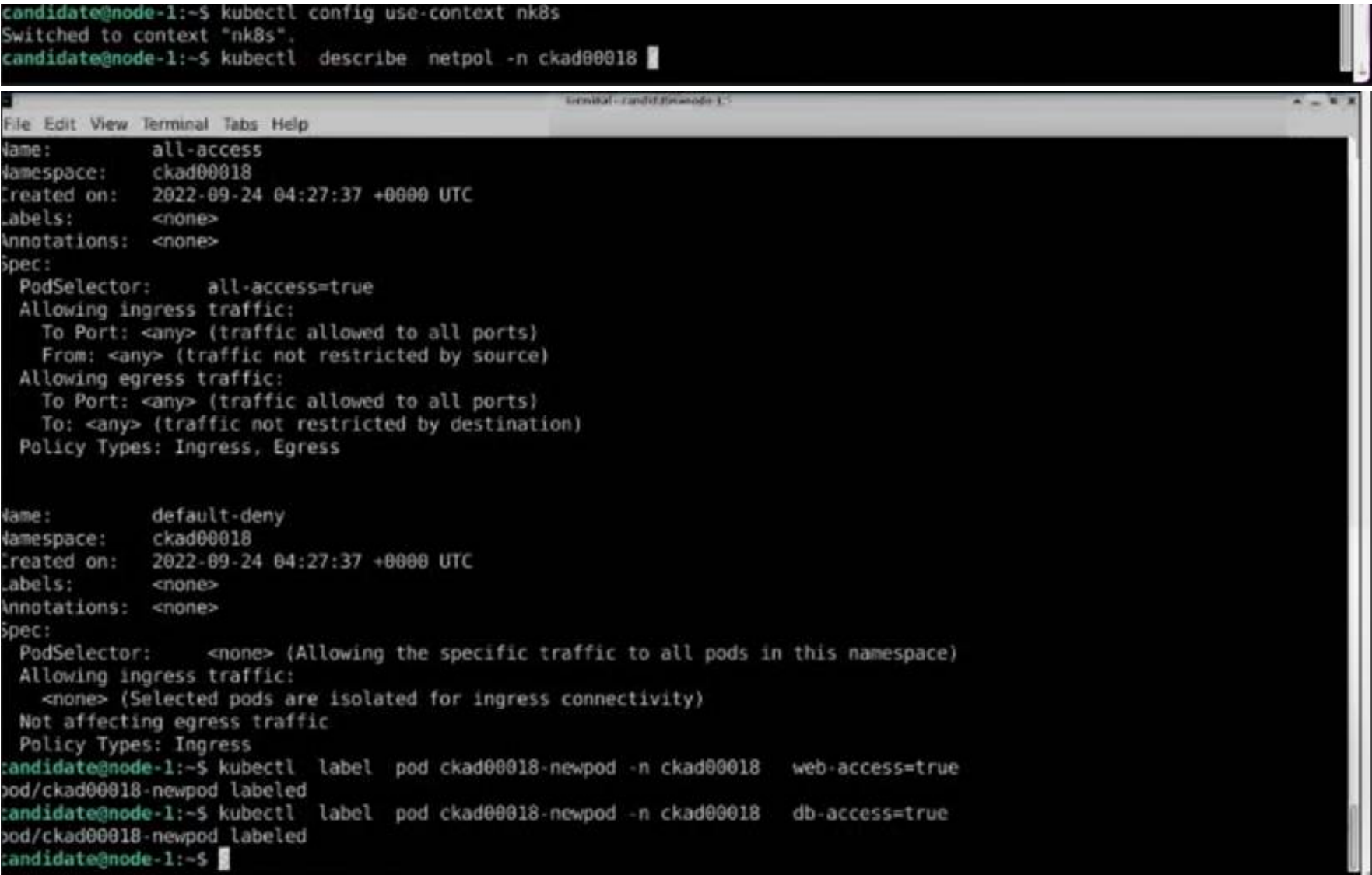
All required NetworkPolicies have already been created.

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
```

```
File Edit View Terminal Tabs Help
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 6
Exhibit:

Set configuration context:

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

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

A. Mastered
B. Not Mastered

Answer: A

Explanation:

Solution:

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```
student@node-1:~$ kubectl get serviceaccount -n production
NAME              SECRETS    AGE
default           1          6h46m
restrictedservice 1          6h46m
student@node-1:~$ kubectl get deployment -n production
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
app-a   3/3     3            3           6h46m
student@node-1:~$ kubectl set serviceaccount deployment app-a restrictedservice -n production
deployment.apps/app-a serviceaccount updated
student@node-1:~$ []
```

NEW QUESTION 7
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 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
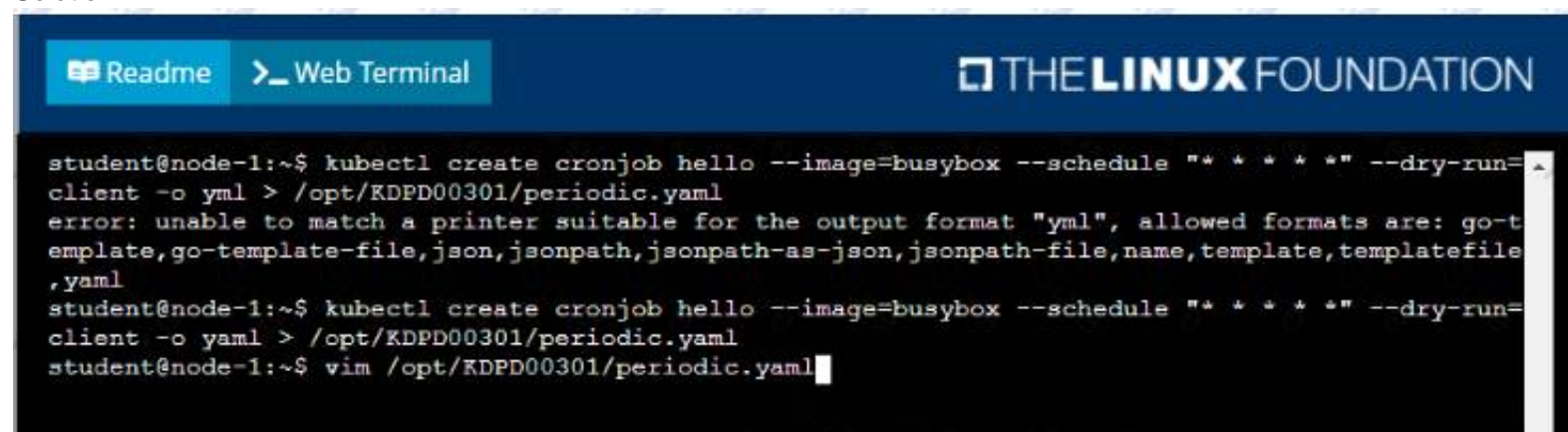
Explanation:
Solution:

```
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 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
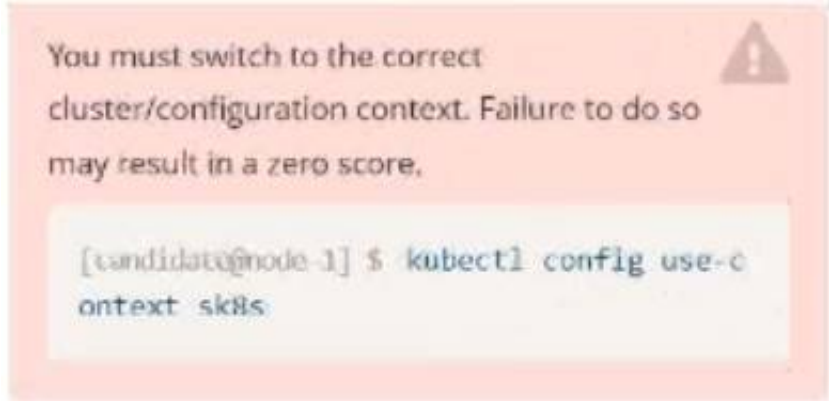
Task:
A pod within the Deployment named buffale-deployment and in namespace gorilla is logging errors.
1) Look at the logs identify errors messages.
Find errors, including User "system:serviceaccount:gorilla:default" cannot list resource "deployment" […] in the namespace "gorilla"
The buffalo-deployment '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 10
Exhibit:

Set configuration context:

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

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:

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```
student@node-1:~$ kubectl create deployment api --image=lfccncf/nginx:1.13.7-alpine --replicas=4
 -n kdpd00201 --dry-run=client -o yaml > nginx_deployment.yml
student@node-1:~$ vim nginx_deployment.yml
```

NEW QUESTION 10
......

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