Vendor: Linux Foundation

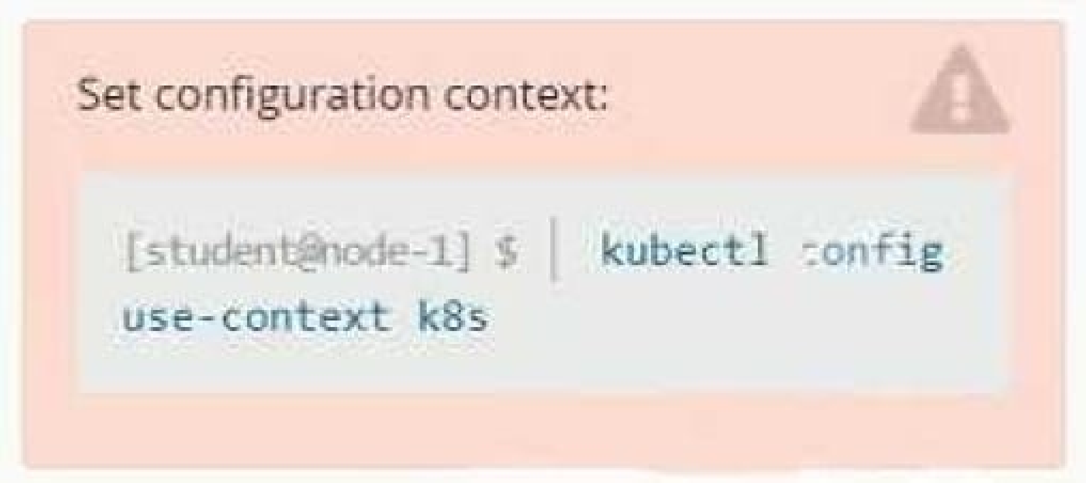
Exam Code:CKAD

Exam Name: Certified Kubernetes Application Developer (CKAD) Program

Version: Demo

QUESTION 1

CORRECT TEXT



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:

1.

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.

2.

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.

3.

Configure the probe-pod pod provided to use these endpoints

4.

The probes should use port 8080

A. Please check explanations

B. Place Holder

Correct Answer: A

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 code.

Create the Pod:

kubectl apply -f https://k8s.io/examples/pods/probe/exec-liveness.yaml Within 30 seconds, view the Pod events:

```
kubectl describe pod liveness-exec
```

The output indicates that no liveness probes have failed yet:

FirstSeen LastSeen Count From SubobjectPath Type Reason Message --------- -------- ----- ---- ------------- -------- ------ ------- 24s 24s 1 {default-scheduler } Normal Scheduled Successfully assigned liveness-exec to worker0

23s 23s 1 {kubelet worker0} spec.containers{liveness} Normal Pulling pulling image "k8s.gcr.io/busybox"

23s 23s 1 {kubelet worker0} spec.containers{liveness} Normal Pulled Successfully pulled image "k8s.gcr.io/busybox"

23s 23s 1 {kubelet worker0} spec.containers{liveness} Normal Created Created container with docker id 86849c15382e; Security:[seccomp=unconfined] 23s 23s 1 {kubelet worker0} spec.containers{liveness} Normal Started Started container

with docker id 86849c15382e

After 35 seconds, view the Pod events again:

```
kubectl describe pod liveness-exec
```

At the bottom of the output, there are messages indicating that the liveness probes have failed, and the containers have been killed and recreated. FirstSeen LastSeen Count From SubobjectPath Type Reason Message --------- -------- ----- ---- ------------- -------- ------ ------- 37s 37s 1 {default-scheduler } Normal Scheduled Successfully assigned liveness-exec to worker0

36s 36s 1 {kubelet worker0} spec.containers{liveness} Normal Pulling pulling image "k8s.gcr.io/busybox"

36s 36s 1 {kubelet worker0} spec.containers{liveness} Normal Pulled Successfully pulled image "k8s.gcr.io/busybox"

36s 36s 1 {kubelet worker0} spec.containers{liveness} Normal Created Created container with docker id 86849c15382e; Security:[seccomp=unconfined] 36s 36s 1 {kubelet worker0} spec.containers{liveness} Normal Started Started container

with docker id 86849c15382e

2s 2s 1 {kubelet worker0} spec.containers{liveness} Warning Unhealthy Liveness probe failed: cat: can\\'t open \\'/tmp/healthy\\': No such file or directory Wait another 30 seconds, and verify that the container has been restarted:

```
kubectl get pod liveness-exec
```

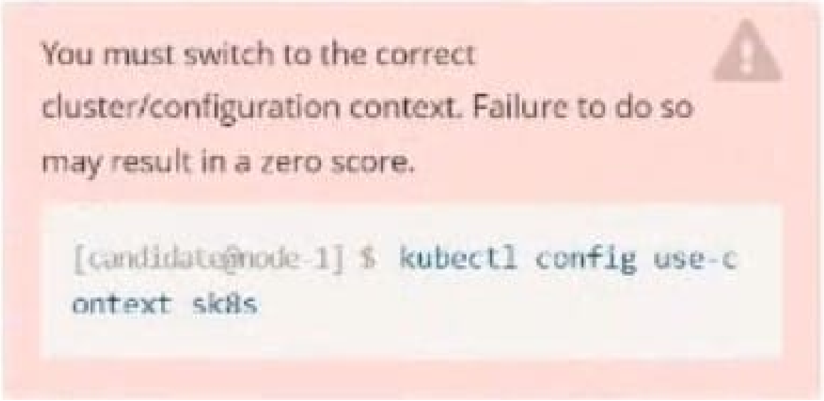
The output shows that RESTARTS has been incremented:

```
NAME READY STATUS RESTARTS AGE

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

QUESTION 2

CORRECT TEXT



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

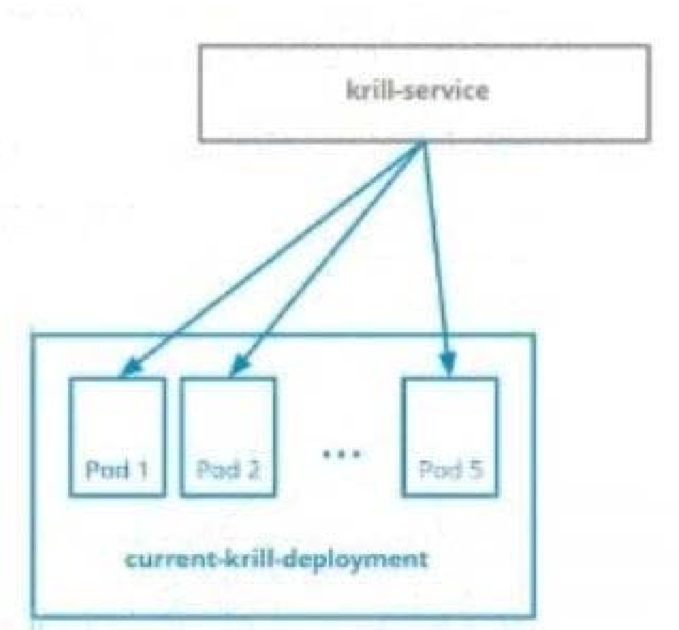
```
[candidate@node-1] $ kubectl config use-c
ontext sk8s
```

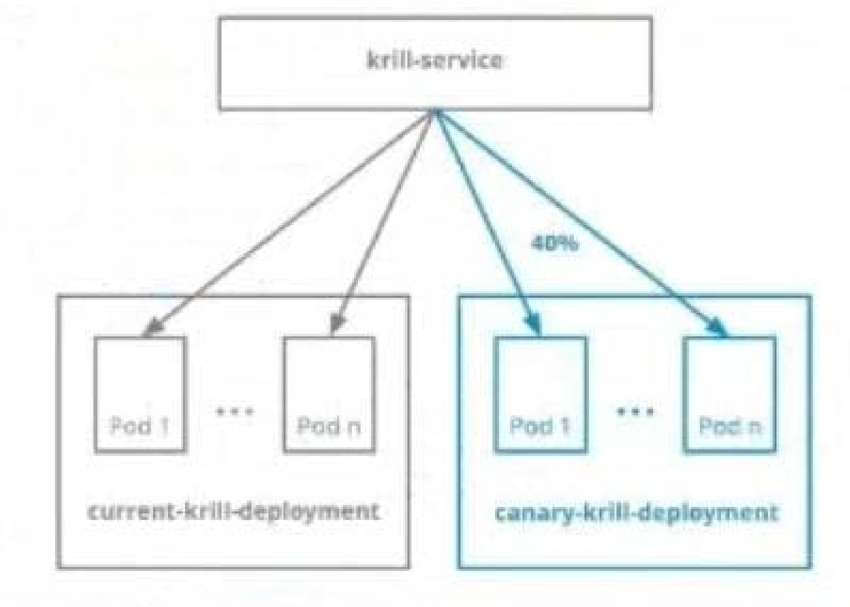
Context

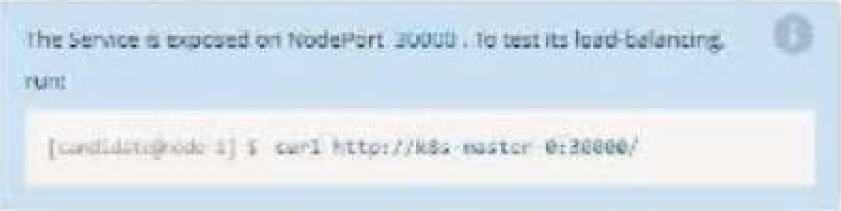
You are asked to prepare a Canary deployment for testing a new application release.

Task:

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





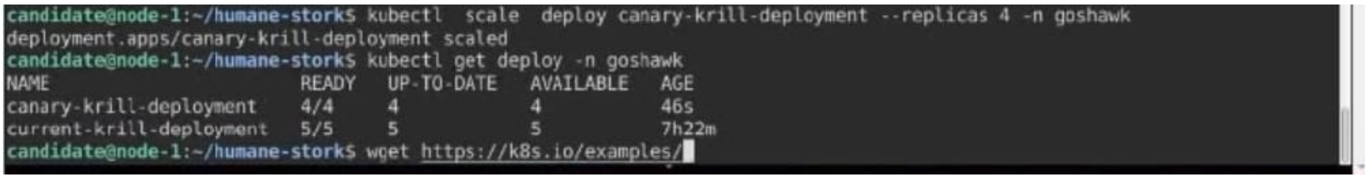

The Service is exposed on NodePort 30000 . To test its load-balancing, run:

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

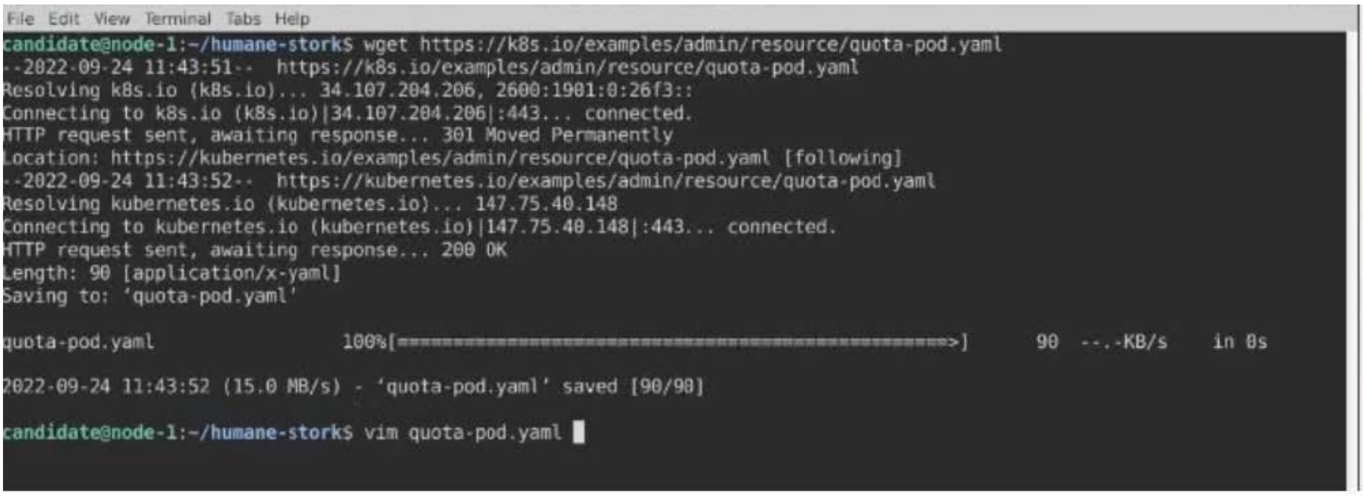
A. Please check explanations

B. Place Holder

Correct Answer: A



```
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/
```

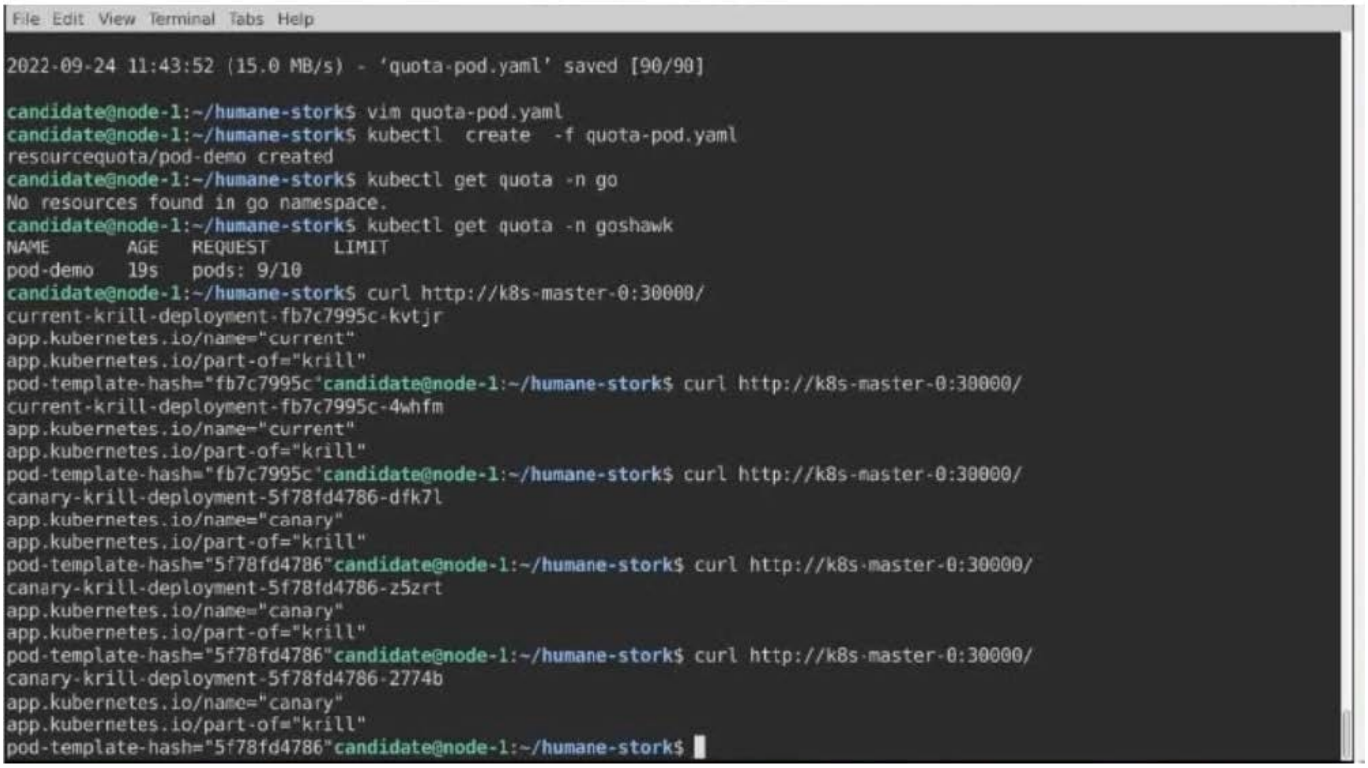


```
candidate@node-1:~/humane-stork$ wget https://k8s.io/examples/admin/resource/quota-pod.yaml
--2022-09-24 11:43:51--  https://k8s.io/examples/admin/resource/quota-pod.yaml
Resolving k8s.io (k8s.io)... 34.107.204.206, 2600:1901:0:26f3::
Connecting to k8s.io (k8s.io)|34.107.204.206|:443... connected.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

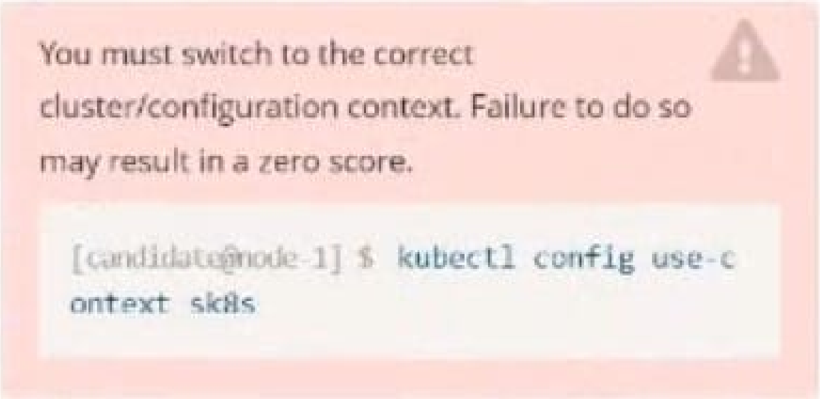


```
2022-09-24 11:43:52 (15.0 MB/s) - 'quota-pod.yaml' saved [90/90]

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$
```

QUESTION 3

CORRECT TEXT



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

Look at the logs identify errors messages.

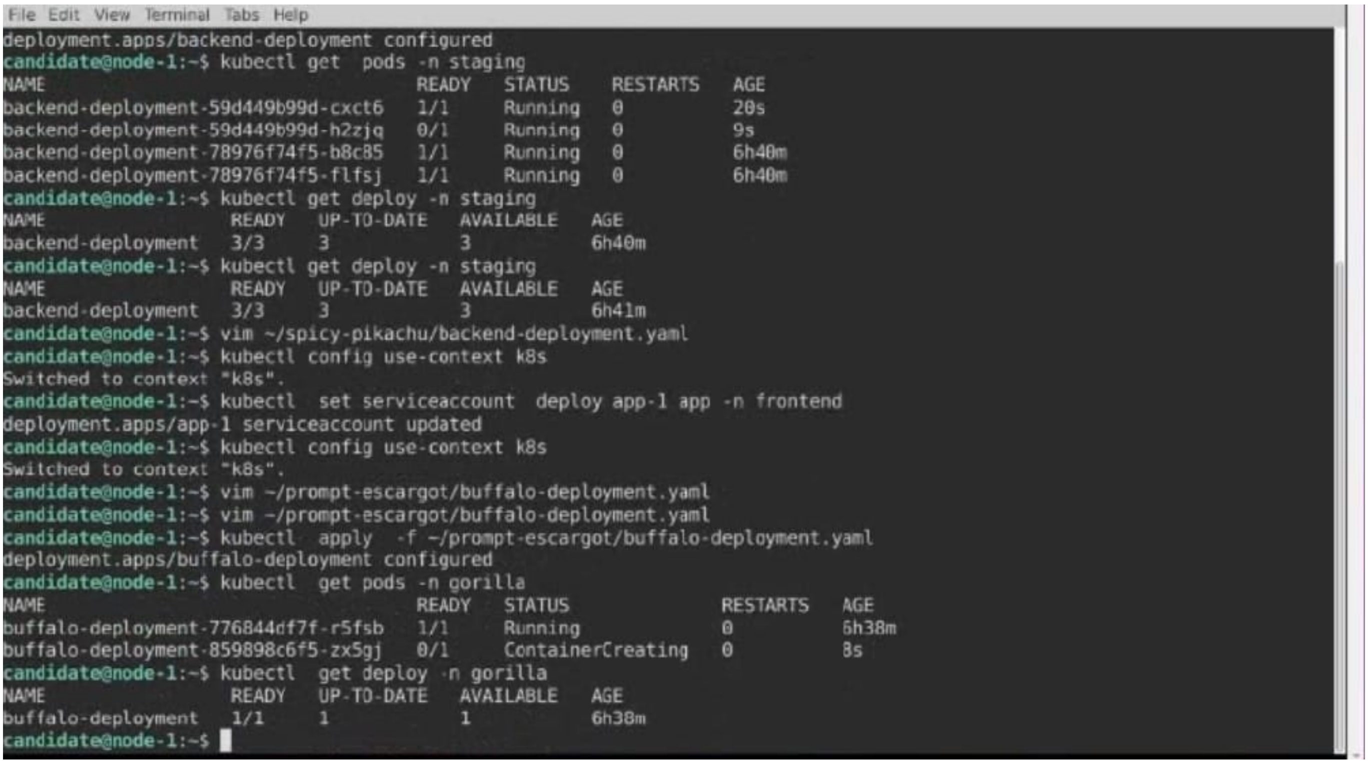
Find errors, including User "system:serviceaccount:gorilla:default" cannot list resource "deployment" [...] in the namespace "gorilla"

The buffalo-deployment `S manifest can be found at -/prompt/escargot/buffalo- deployment.yaml

A. Please check explanations

B. Place Holder

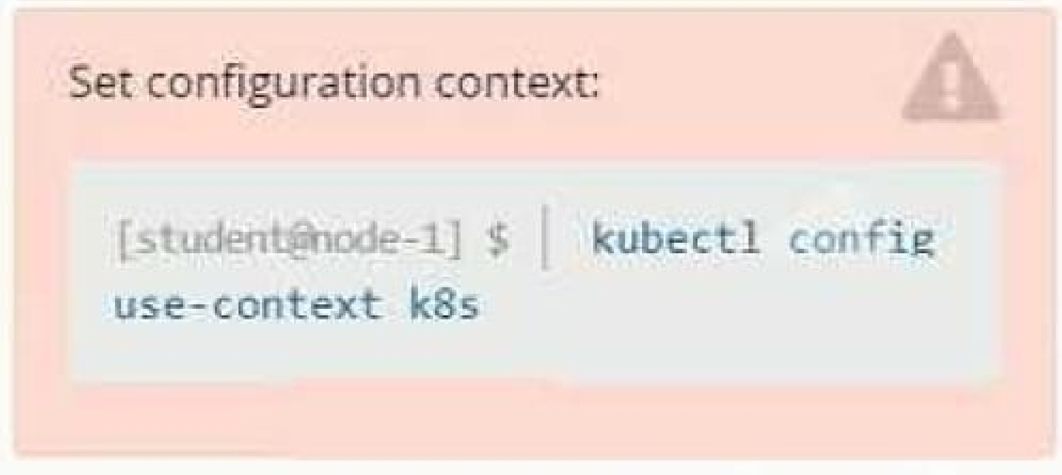
Correct Answer: A



```
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:~$
```

QUESTION 4

CORRECT TEXT



Set configuration context:

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

Context

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

Task

From the pods running in namespace cpu-stress, write the name only of the pod that is consuming the most CPU to file /opt/KDOBG030l/pod.txt, which has already been created.

A. Please check explanations

B. Place Holder

Correct Answer: A

QUESTION 5

CORRECT TEXT 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:

1.

Create a YAML formatted pod manifest

2.

/opt/KDPD00101/podl.yml to create a pod named app1 that runs a container named app1cont using image Ifccncf/arg-output with these command line arguments: -lines 56 -F

3.

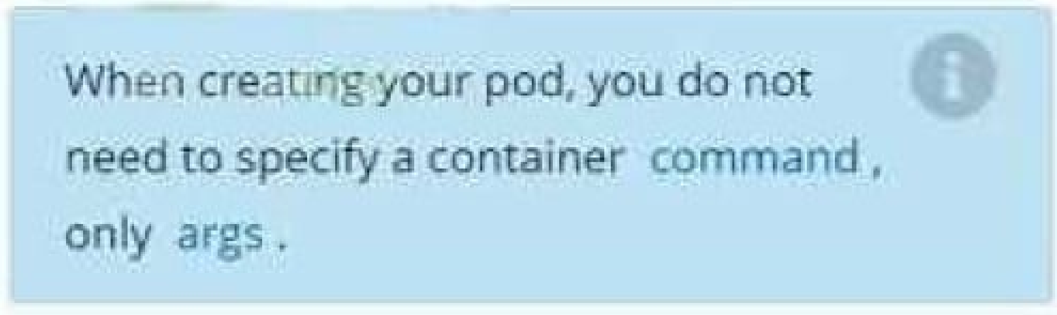
Create the pod with the kubect1 command using the YAML file created in the previous step

4.

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

5.

All of the files you need to work with have been created, empty, for your convenience

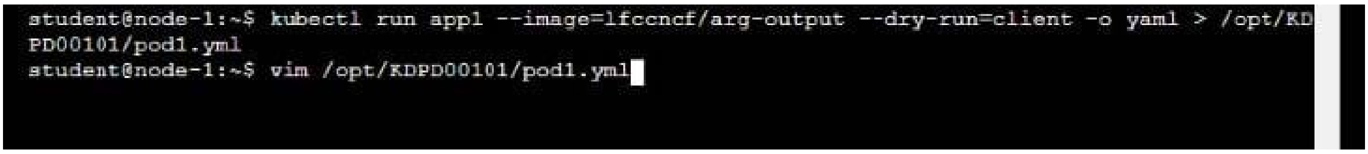


When creating your pod, you do not need to specify a container command , only args .

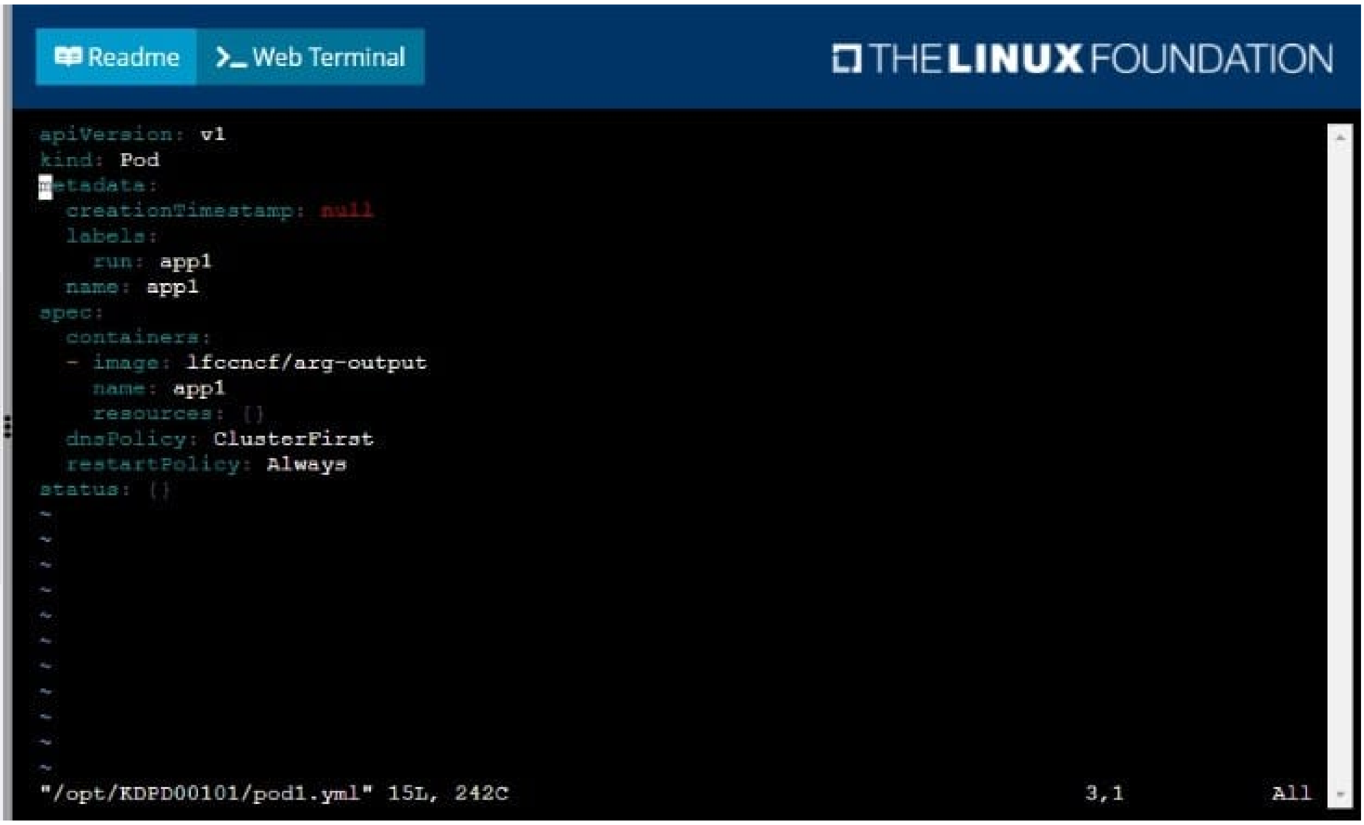
A. Please check explanations

B. Place Holder

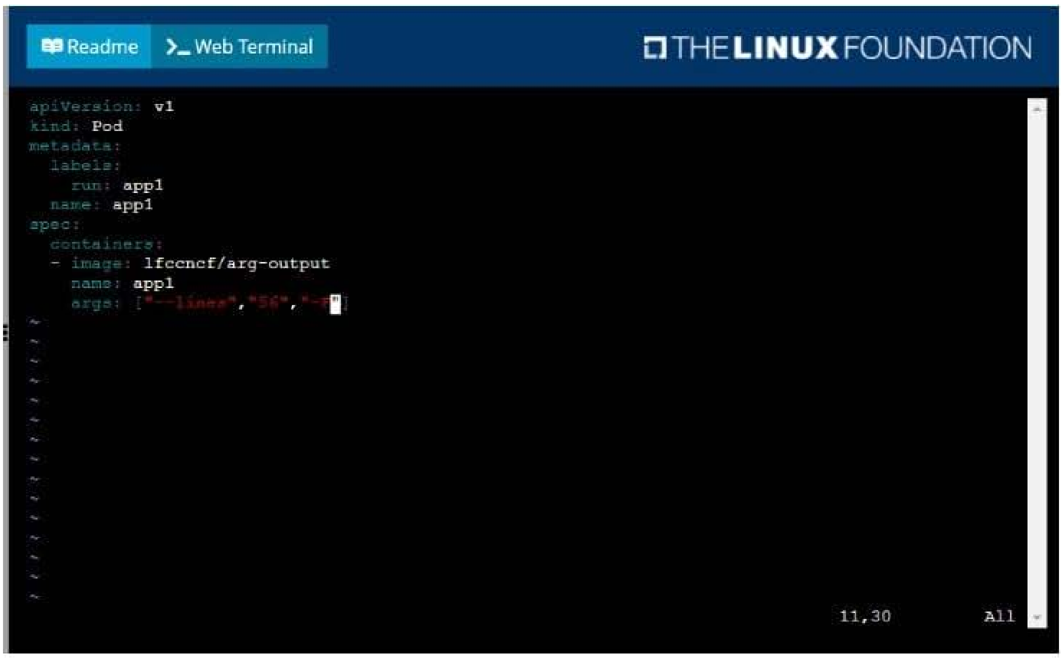
Correct Answer: A



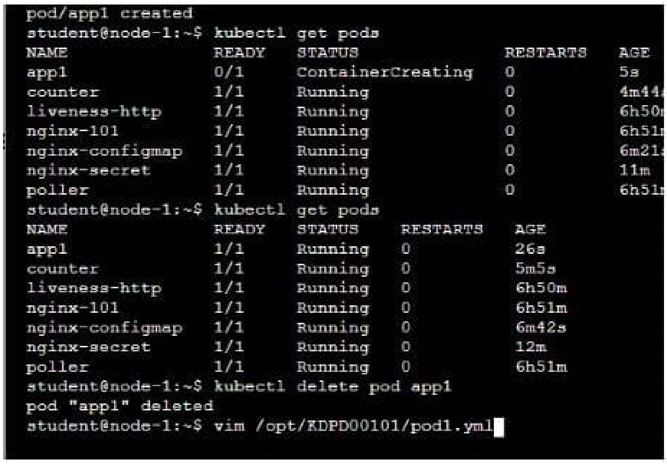
```
student@node-1:~$ kubectl run app1 --image=lfccncf/arg-output --dry-run=client -o yaml > /opt/KD
PD00101/pod1.yml
student@node-1:~$ vim /opt/KDPD00101/pod1.yml
```



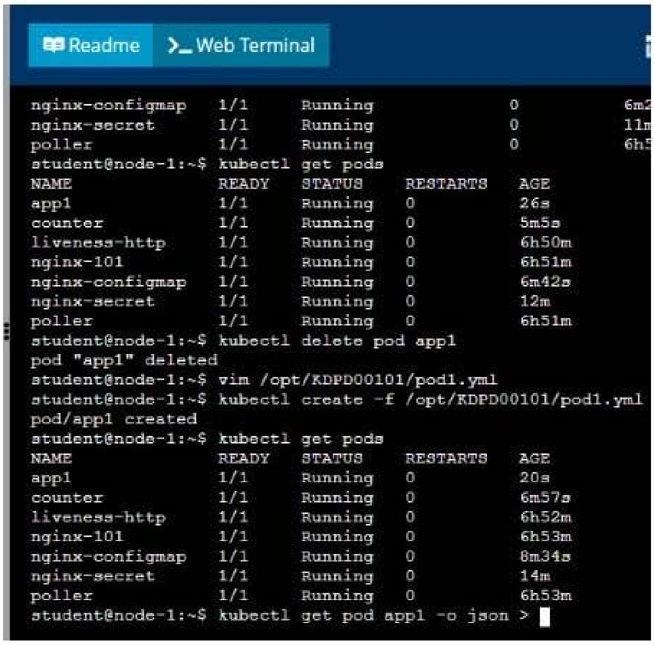
```
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: app1
  name: app1
spec:
  containers:
  - image: lfccncf/arg-output
    name: app1
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}
~
~
~
~
~
~
~
~
~
~
~
"/opt/KDPD00101/pod1.yml" 15L, 242C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



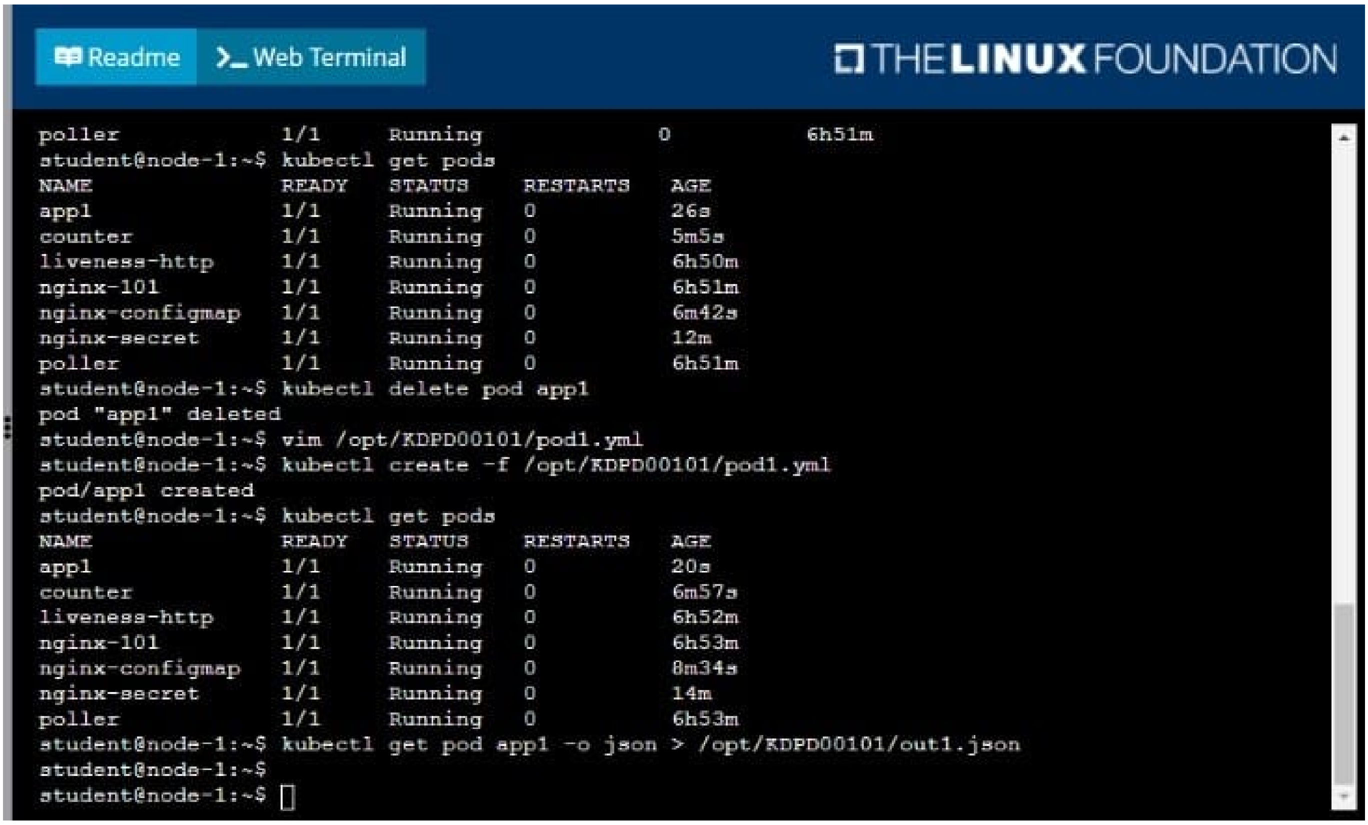
```
apiVersion: v1
kind: Pod
metadata:
  labels:
    run: app1
  name: app1
spec:
  containers:
  - image: lfccncf/arg-output
    name: app1
    args: ["--lines","56","-F"]
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
                                                                         11,30         All
```



```
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
```



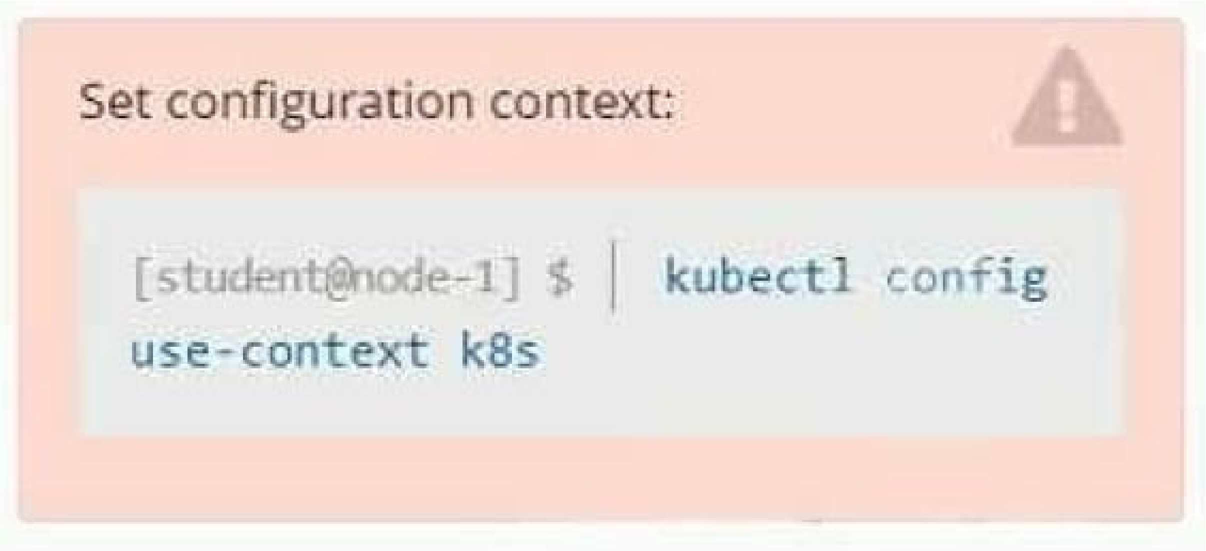
```
nginx-configmap  1/1     Running             0          6m2
nginx-secret     1/1     Running             0          11m
poller           1/1     Running             0          6h5
student@node-1:~$ kubectl get pods
NAME             READY   STATUS    RESTARTS   AGE
app1             1/1     Running   0          26s
counter          1/1     Running   0          5m5s
liveness-http    1/1     Running   0          6h50m
nginx-101        1/1     Running   0          6h51m
nginx-configmap  1/1     Running   0          6m42s
nginx-secret     1/1     Running   0          12m
poller           1/1     Running   0          6h51m
student@node-1:~$ kubectl delete pod app1
pod "app1" deleted
student@node-1:~$ vim /opt/KDPD00101/pod1.yml
student@node-1:~$ kubectl create -f /opt/KDPD00101/pod1.yml
pod/app1 created
student@node-1:~$ kubectl get pods
NAME             READY   STATUS    RESTARTS   AGE
app1             1/1     Running   0          20s
counter          1/1     Running   0          6m57s
liveness-http    1/1     Running   0          6h52m
nginx-101        1/1     Running   0          6h53m
nginx-configmap  1/1     Running   0          8m34s
nginx-secret     1/1     Running   0          14m
poller           1/1     Running   0          6h53m
student@node-1:~$ kubectl get pod app1 -o json > 
```



```
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:~$ 
```

QUESTION 6

CORRECT TEXT



Set configuration context:

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

Context

As a Kubernetes application developer you will often find yourself needing to update a running application.

Task

Please complete the following:

1.

Update the app deployment in the kdpd00202 namespace with a maxSurge of 5% and a maxUnavailable of 2%

2.

Perform a rolling update of the web1 deployment, changing the Ifccncf/ngmx image version to 1.13

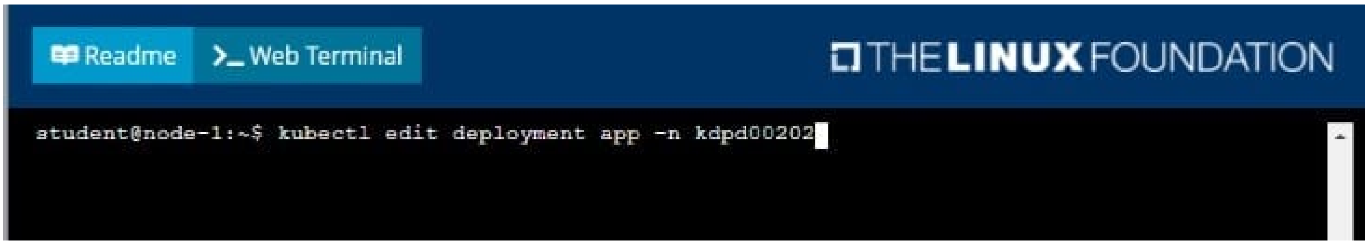
3.

Roll back the app deployment to the previous version

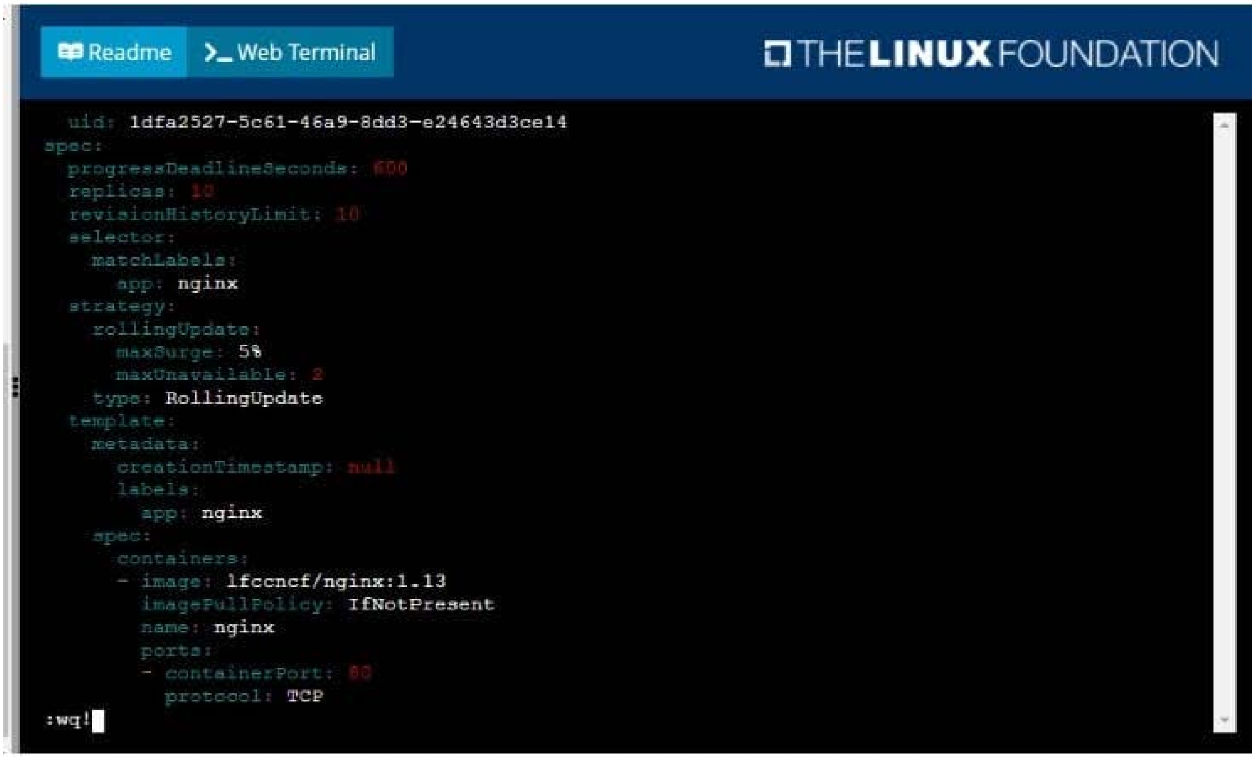
A. Please check explanations

B. Place Holder

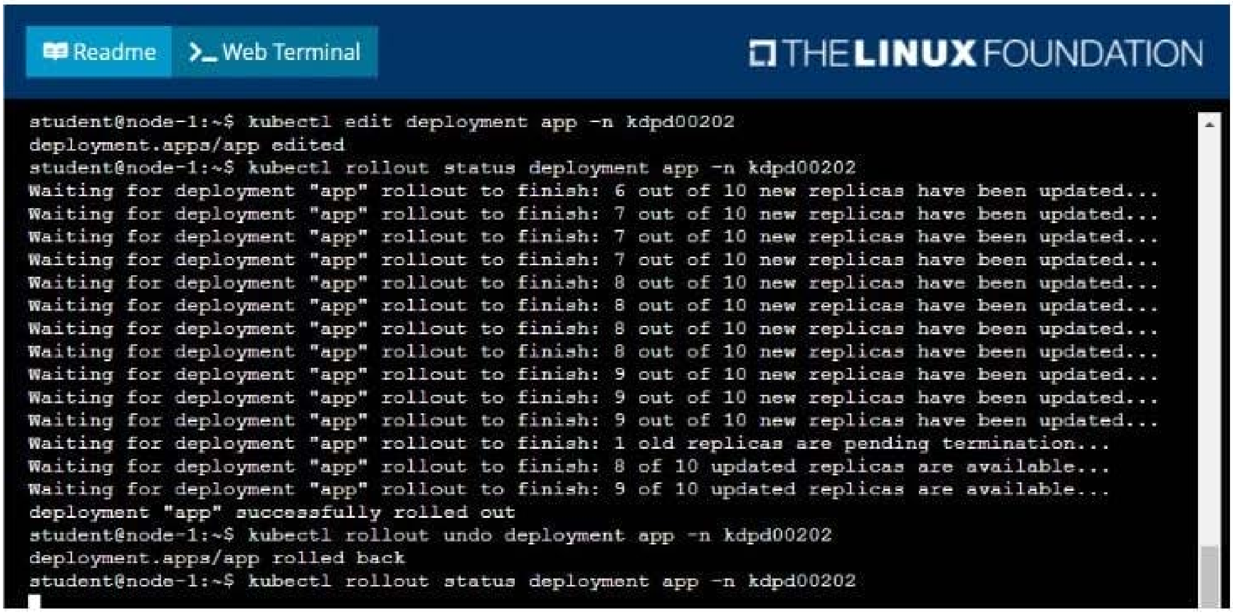
Correct Answer: A



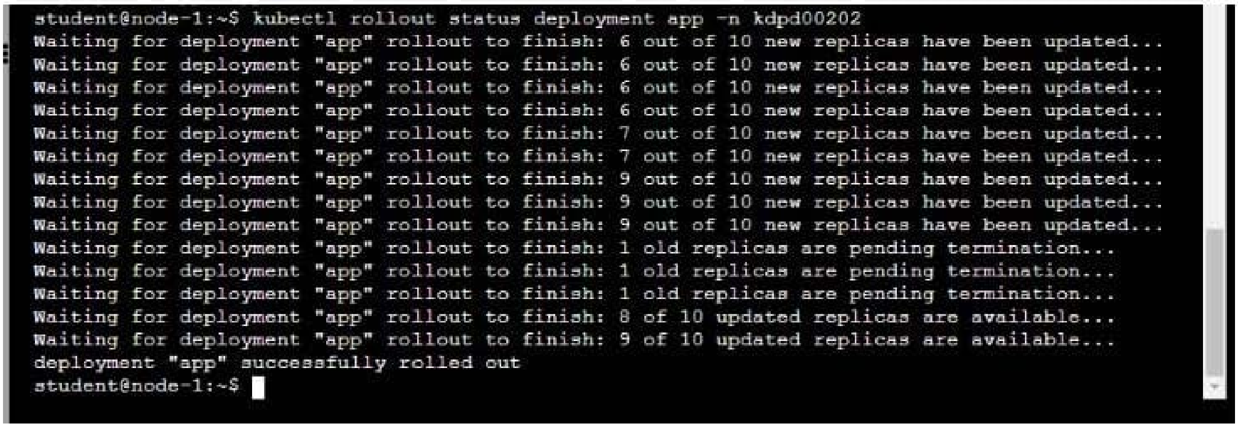
```
student@node-1:~$ kubectl edit deployment app -n kdpd00202
```



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



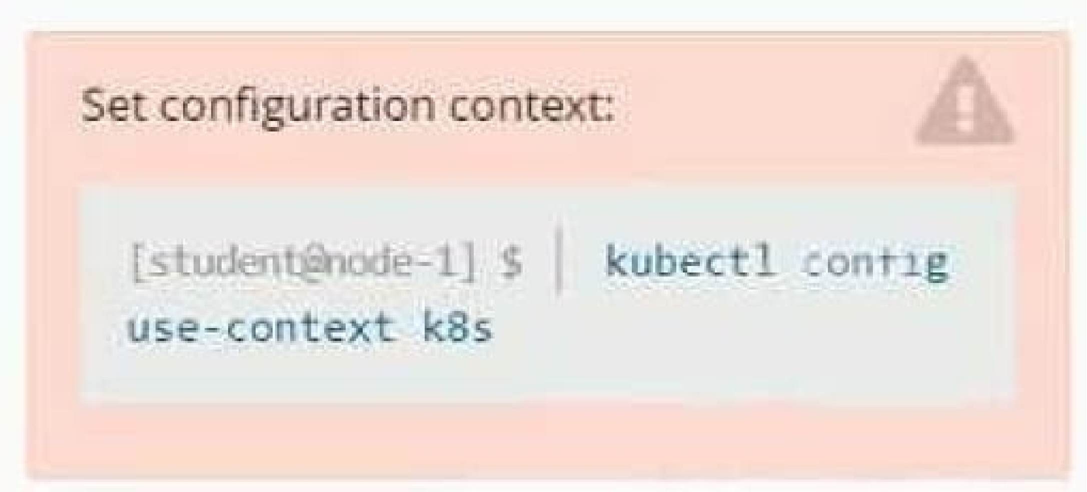
```
student@node-1:~$ kubectl edit deployment app -n kdpd00202
deployment.apps/app edited
student@node-1:~$ kubectl rollout status deployment app -n kdpd00202
Waiting for deployment "app" rollout to finish: 6 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 7 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 7 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 7 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 8 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 8 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 8 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 8 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 9 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 9 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 9 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 1 old replicas are pending termination...
Waiting for deployment "app" rollout to finish: 8 of 10 updated replicas are available...
Waiting for deployment "app" rollout to finish: 9 of 10 updated replicas are available...
deployment "app" successfully rolled out
student@node-1:~$ kubectl rollout undo deployment app -n kdpd00202
deployment.apps/app rolled back
student@node-1:~$ kubectl rollout status deployment app -n kdpd00202
```



```
student@node-1:~$ kubectl rollout status deployment app -n kdpd00202
Waiting for deployment "app" rollout to finish: 6 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 6 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 6 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 6 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 7 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 7 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 9 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 9 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 9 out of 10 new replicas have been updated...
Waiting for deployment "app" rollout to finish: 1 old replicas are pending termination...
Waiting for deployment "app" rollout to finish: 1 old replicas are pending termination...
Waiting for deployment "app" rollout to finish: 1 old replicas are pending termination...
Waiting for deployment "app" rollout to finish: 8 of 10 updated replicas are available...
Waiting for deployment "app" rollout to finish: 9 of 10 updated replicas are available...
deployment "app" successfully rolled out
student@node-1:~$
```

QUESTION 7

CORRECT TEXT



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

1.

Create a secret named another-secret with a key/value pair; key1/value4

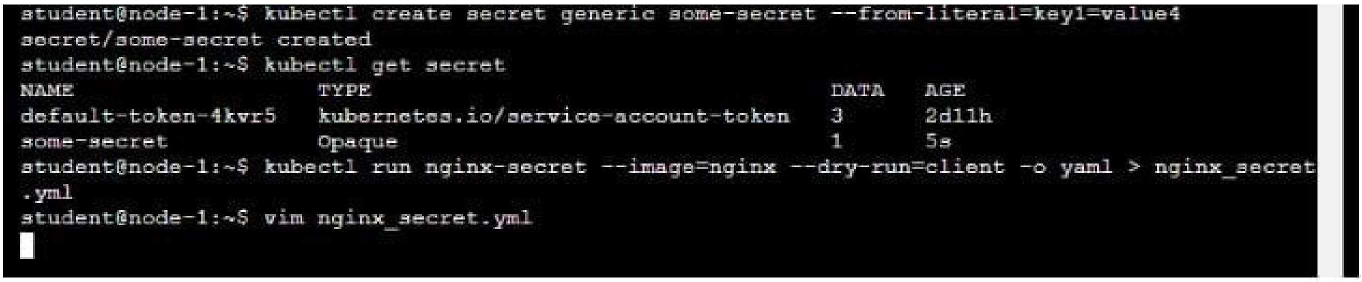
2.

Start an nginx pod named nginx-secret using container image nginx, and add an environment variable exposing the value of the secret key key1, using COOL_VARIABLE as the name for the environment variable inside the pod

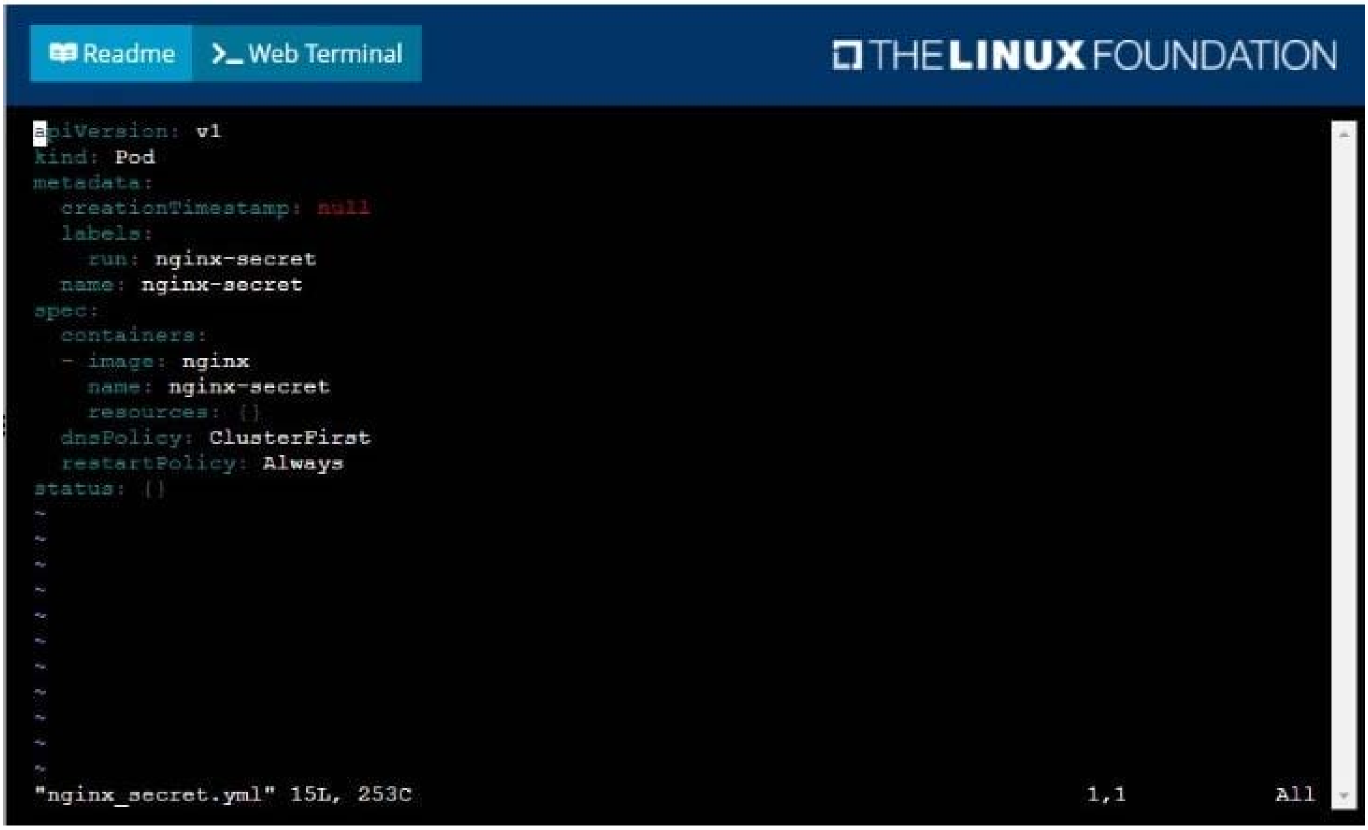
A. Please check explanations

B. Place Holder

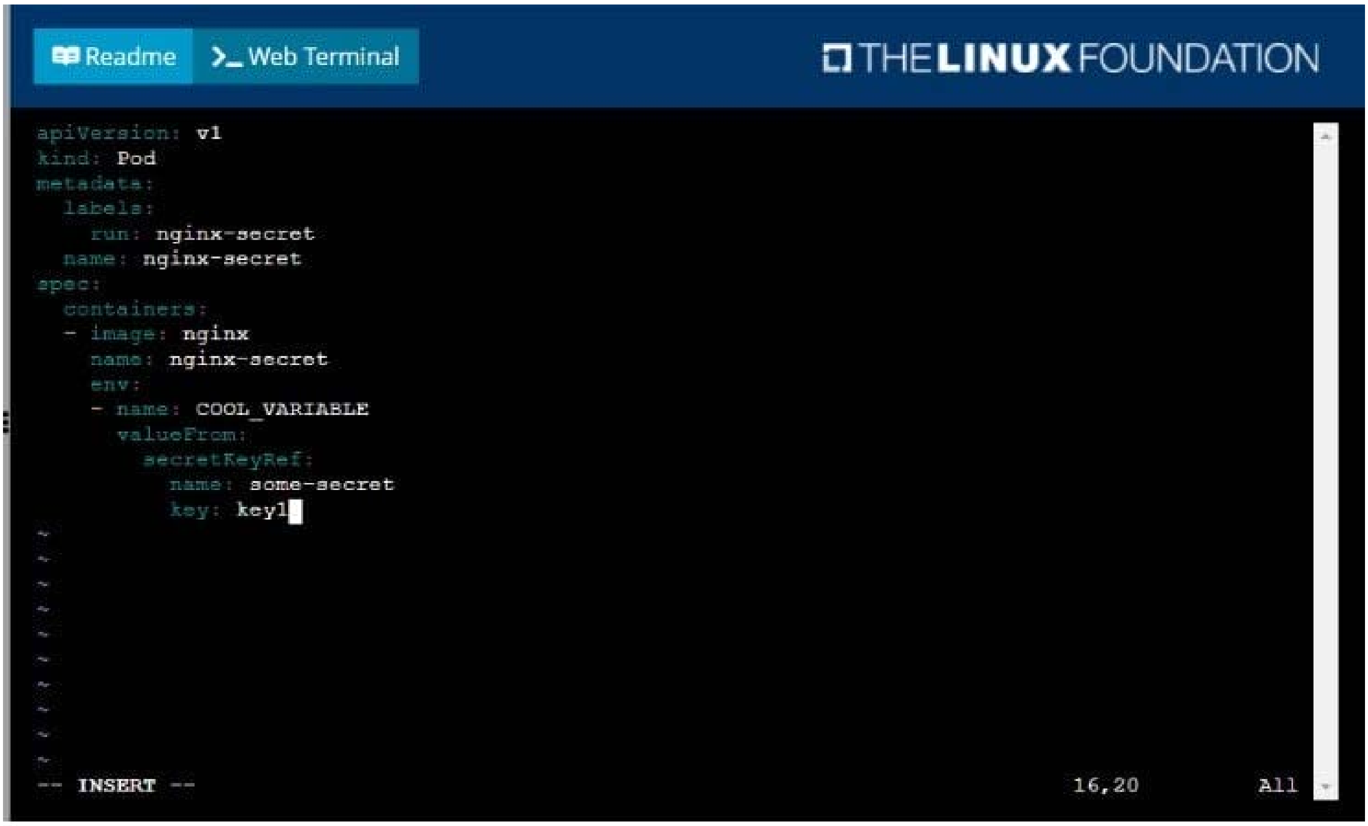
Correct Answer: A



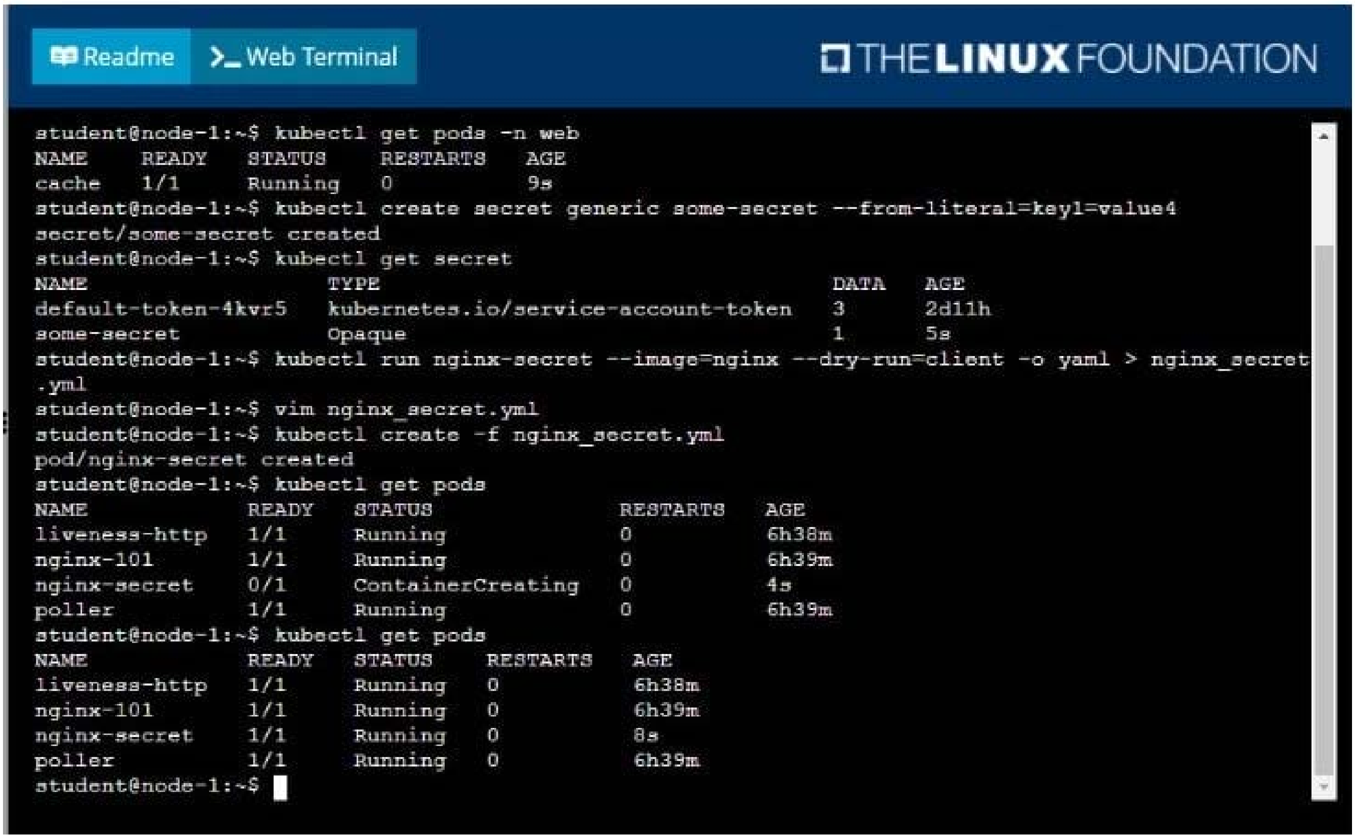
```
student@node-1:~$ kubectl create secret generic some-secret --from-literal=key1=value4
secret/some-secret created
student@node-1:~$ kubectl get secret
NAME                  TYPE                                  DATA   AGE
default-token-4kvr5   kubernetes.io/service-account-token   3      2d11h
some-secret           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
```



```
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
```



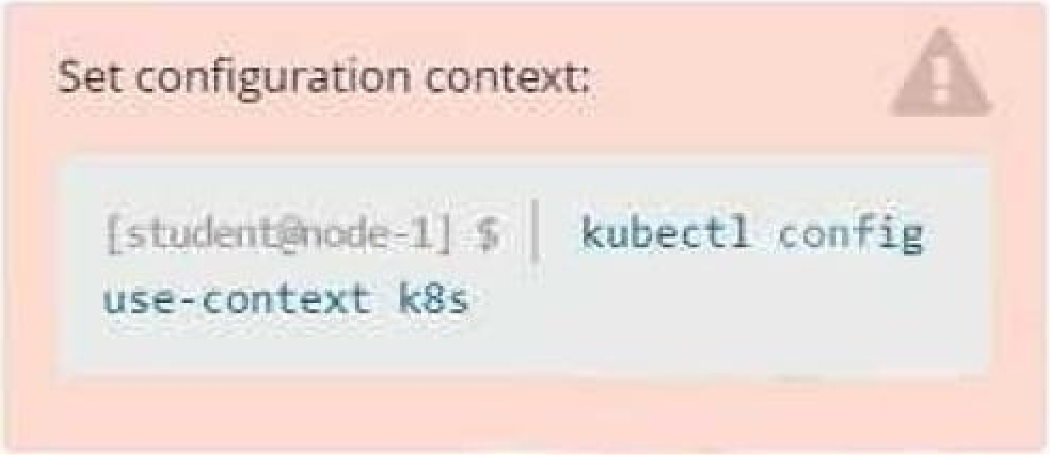
```
apiVersion: v1
kind: Pod
metadata:
  labels:
    run: nginx-secret
  name: nginx-secret
spec:
  containers:
  - image: nginx
    name: nginx-secret
    env:
    - name: COOL_VARIABLE
      valueFrom:
        secretKeyRef:
          name: some-secret
          key: key1
~
~
~
~
~
~
~
~
~
~
-- INSERT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



```
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:~$
```

QUESTION 8

CORRECT TEXT



Set configuration context:

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

Task

Create a new deployment for running.nginx with the following parameters:

1.

Run the deployment in the kdpd00201 namespace. The namespace has already been created

2.

Name the deployment frontend and configure with 4 replicas

3.

Configure the pod with a container image of lfccncf/nginx:1.13.7

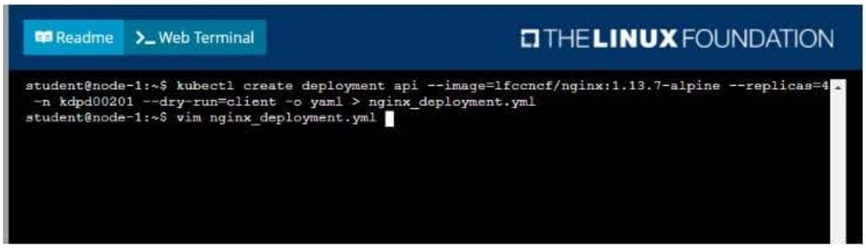
4.

Set an environment variable of NGINX__PORT=8080 and also expose that port for the container above

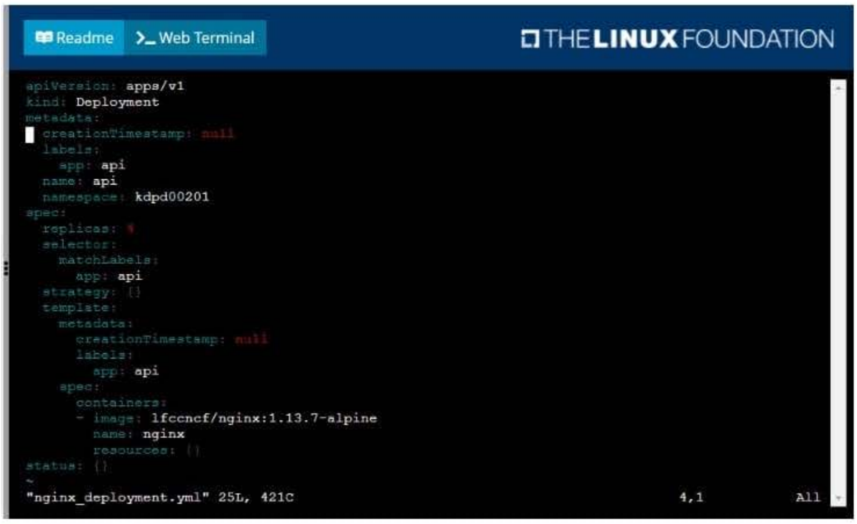
A. Please check explanations

B. Place Holder

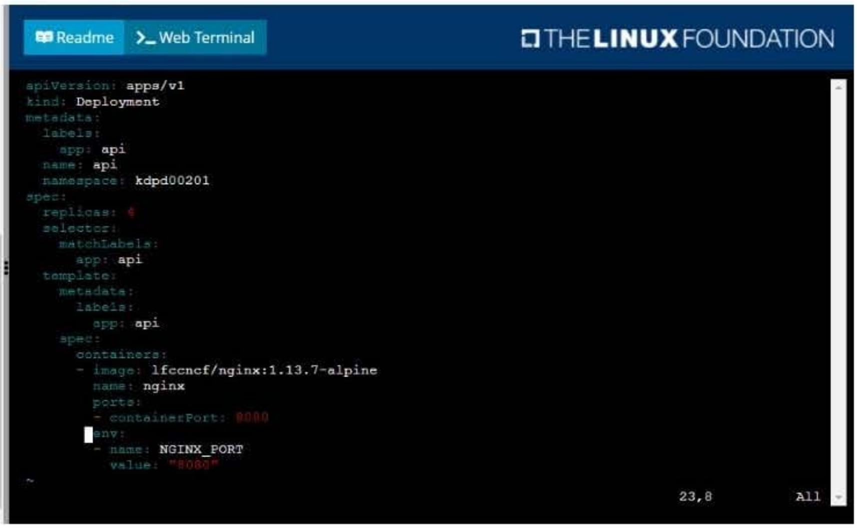
Correct Answer: A



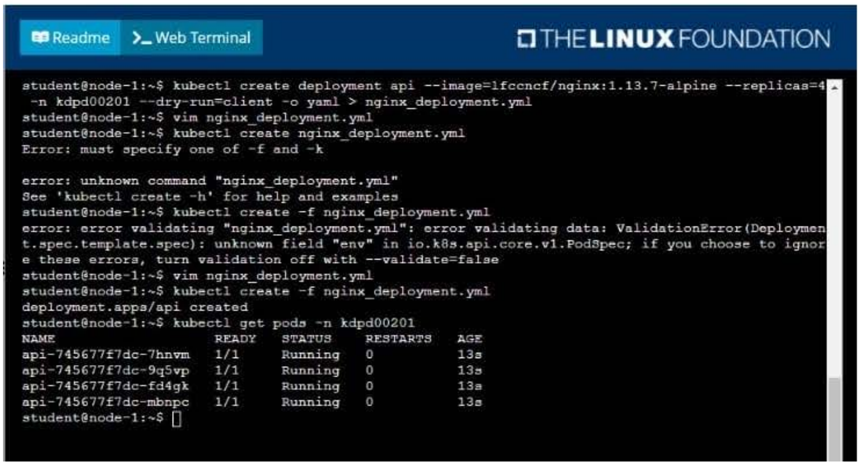
```
student@node-1:~$ kubectl create deployment api --image=lfccncf/nginx:1.13.7-alpine --replicas=4
 -n kdpd00201 --dry-run=client -o yaml > nginx_deployment.yml
student@node-1:~$ vim nginx_deployment.yml
```



```
apiVersion: apps/v1
kind: Deployment
metadata:
  creationTimestamp: null
  labels:
    app: api
  name: api
  namespace: kdpd00201
spec:
  replicas: 4
  selector:
    matchLabels:
      app: api
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: api
    spec:
      containers:
      - image: lfccncf/nginx:1.13.7-alpine
        name: nginx
        resources: {}
status: {}
~
"nginx_deployment.yml" 25L, 421C                                         4,1           All
```



```
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: api
  name: api
  namespace: kdpd00201
spec:
  replicas: 4
  selector:
    matchLabels:
      app: api
  template:
    metadata:
      labels:
        app: api
    spec:
      containers:
      - image: lfccncf/nginx:1.13.7-alpine
        name: nginx
        ports:
        - containerPort: 8080
       env:
        - name: NGINX_PORT
          value: "8080"
~
                                                                         23,8          All
```

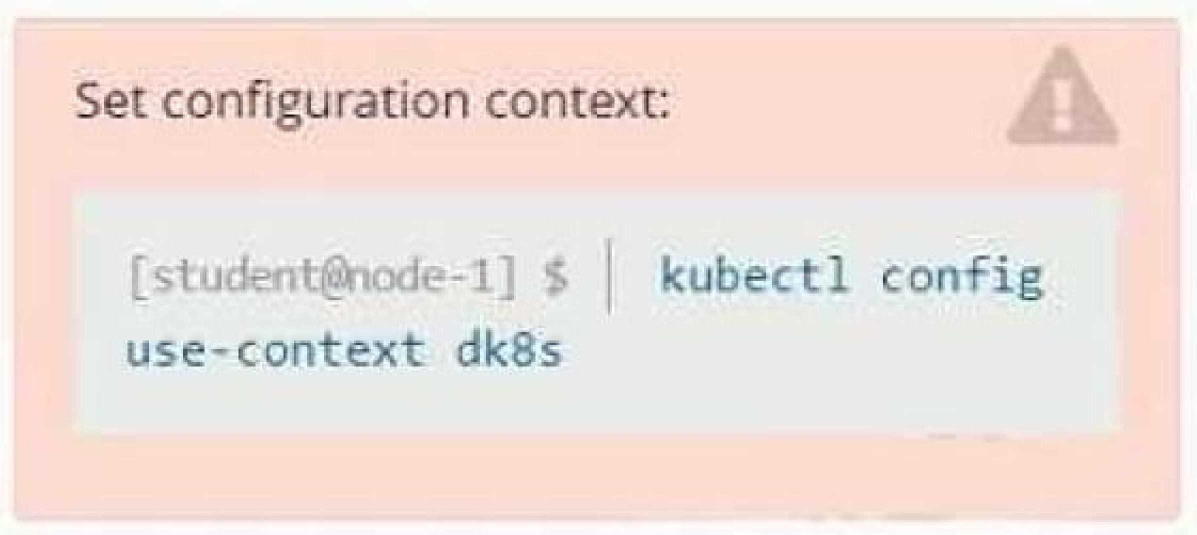


```
student@node-1:~$ kubectl create deployment api --image=lfccncf/nginx:1.13.7-alpine --replicas=4
 -n kdpd00201 --dry-run=client -o yaml > nginx_deployment.yml
student@node-1:~$ vim nginx_deployment.yml
student@node-1:~$ kubectl create nginx_deployment.yml
Error: must specify one of -f and -k

error: unknown command "nginx_deployment.yml"
See 'kubectl create -h' for help and examples
student@node-1:~$ kubectl create -f nginx_deployment.yml
error: error validating "nginx_deployment.yml": error validating data: ValidationError(Deploymen
t.spec.template.spec): unknown field "env" in io.k8s.api.core.v1.PodSpec; if you choose to ignor
e these errors, turn validation off with --validate=false
student@node-1:~$ vim nginx_deployment.yml
student@node-1:~$ kubectl create -f nginx_deployment.yml
deployment.apps/api created
student@node-1:~$ kubectl get pods -n kdpd00201
NAME                   READY   STATUS    RESTARTS   AGE
api-745677f7dc-7hnvm   1/1     Running   0          13s
api-745677f7dc-9q5vp   1/1     Running   0          13s
api-745677f7dc-fd4gk   1/1     Running   0          13s
api-745677f7dc-mbnpc   1/1     Running   0          13s
student@node-1:~$ 
```

QUESTION 9

CORRECT TEXT



Set configuration context:

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

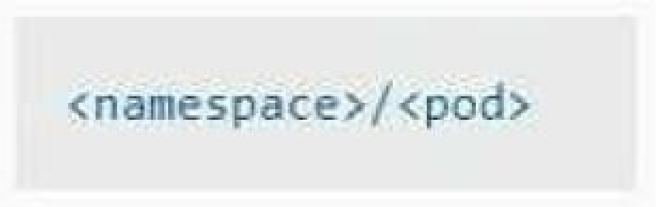
Context

A user has reported an application is unreachable 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>
```

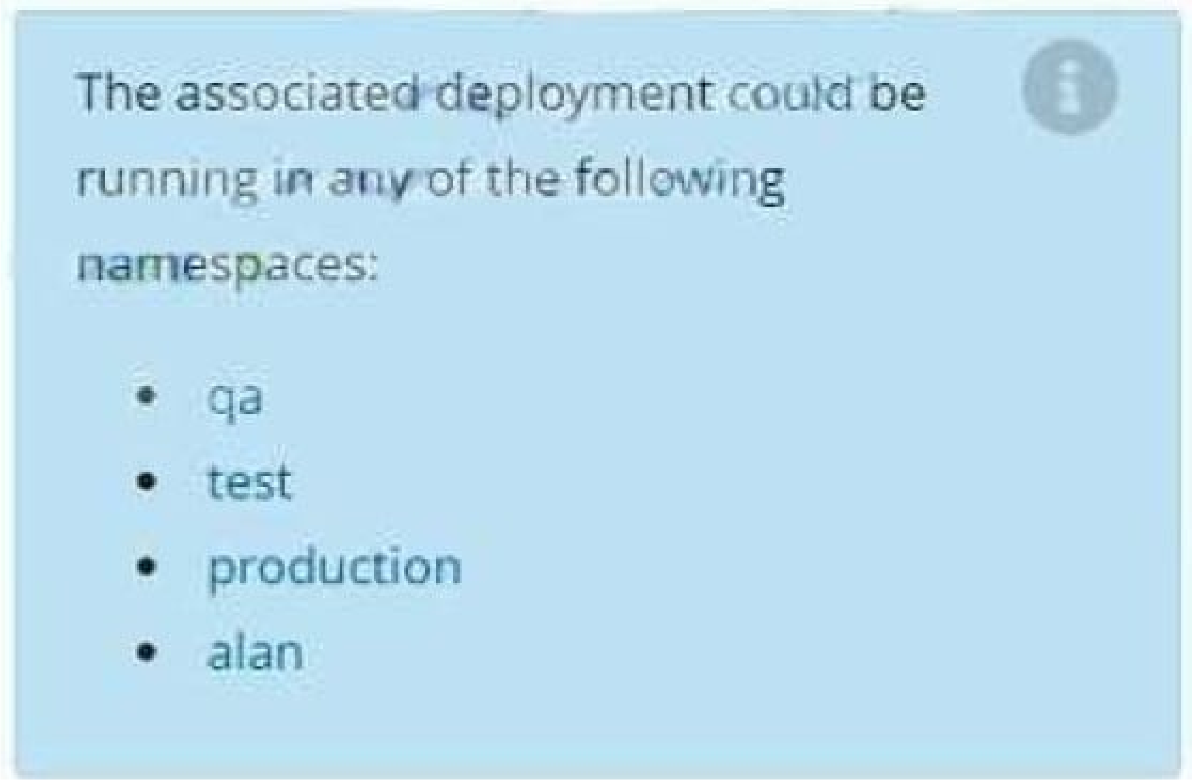
The output file has already been created

1.

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

2.

Fix the issue.



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

- qa
- test
- production
- alan

A. Please check explanations

B. Place Holder

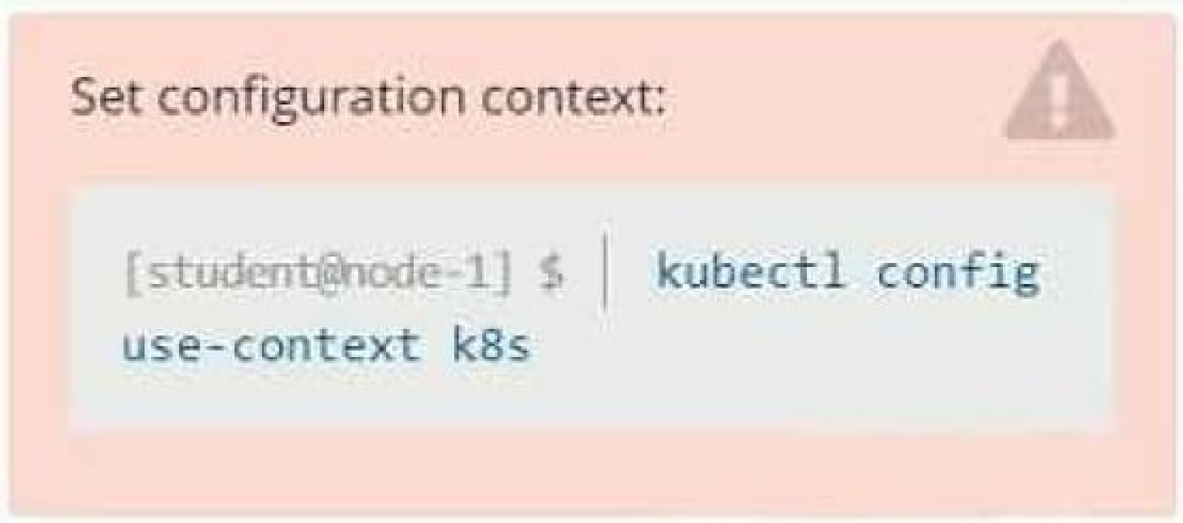
Correct Answer: A

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

---

QUESTION 10

CORRECT TEXT



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.

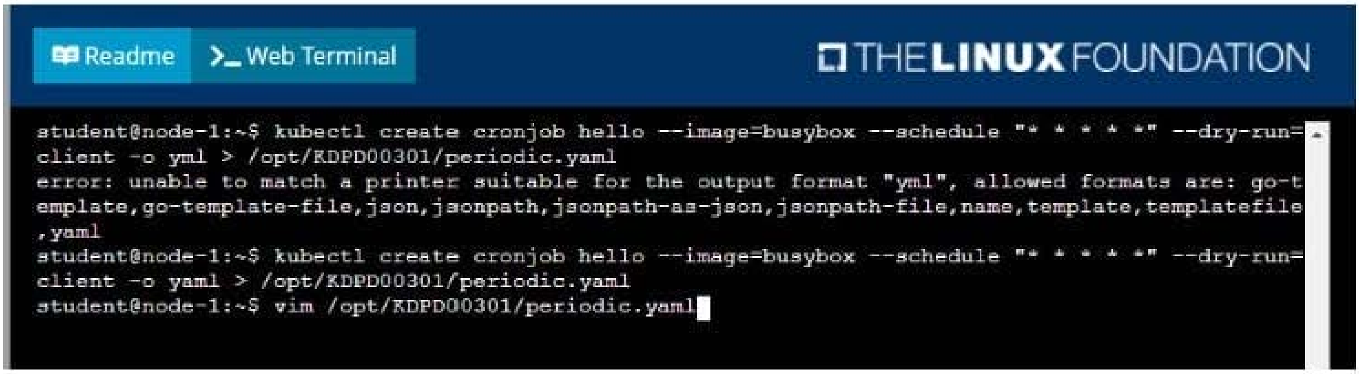
The command should run every minute and must complete within 22 seconds or be terminated oy Kubernetes. The Cronjob name and container name should both be hello

Create the resource in the above manifest and verify that the job executes successfully at least once

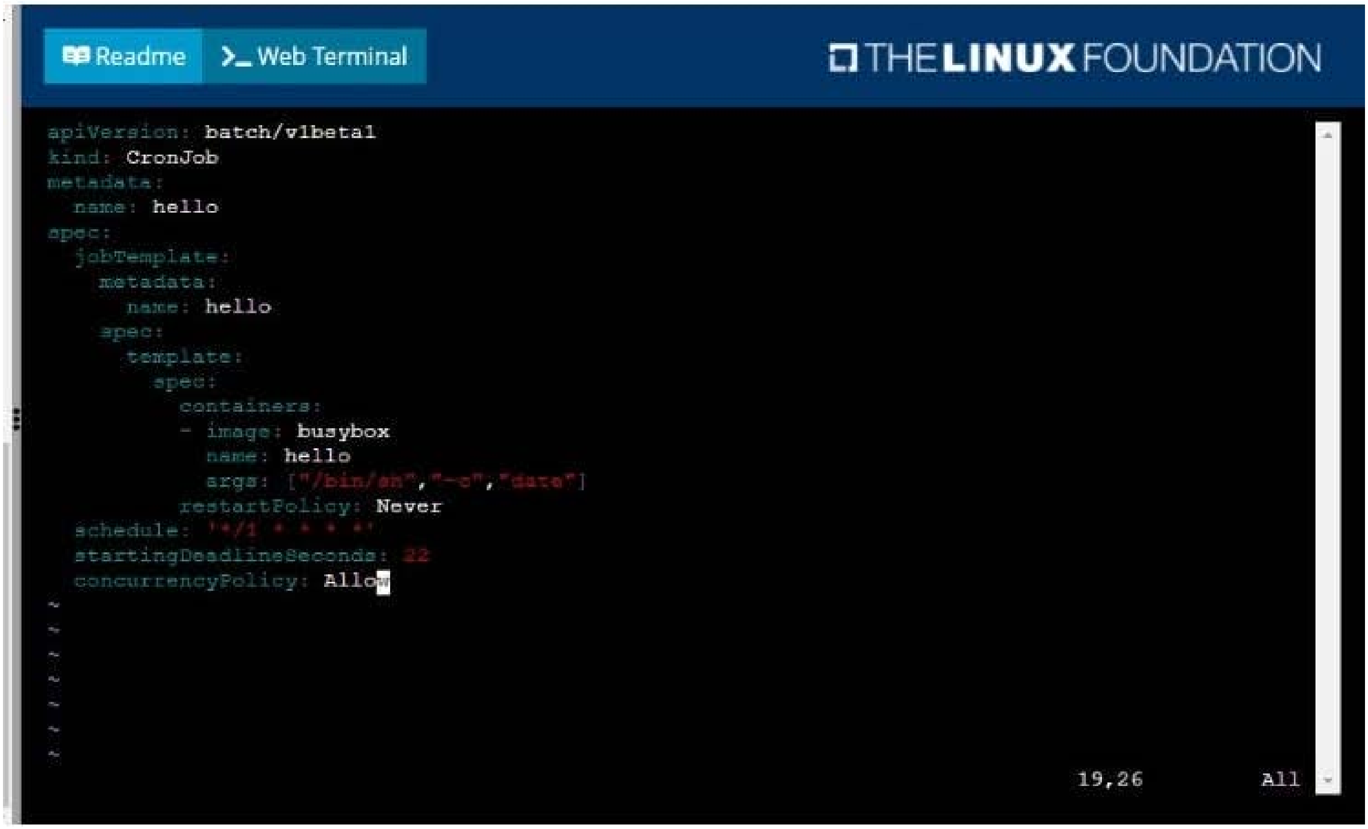
A. Please check explanations

B. Place Holder

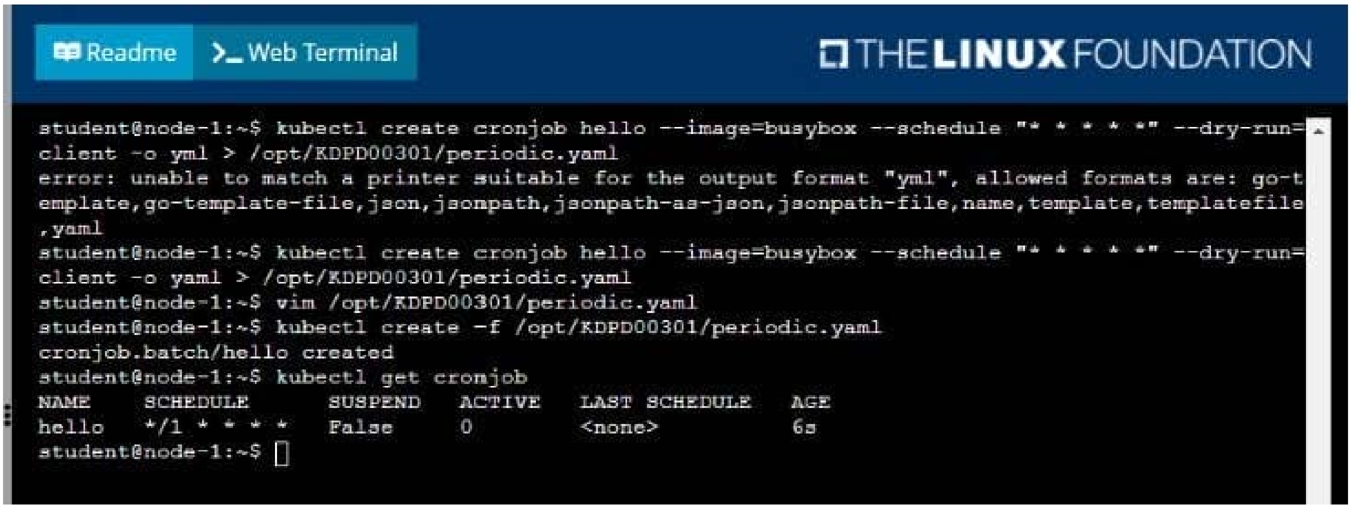
Correct Answer: A



```
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
```



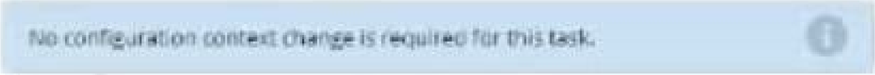
```
apiVersion: batch/v1beta1
kind: CronJob
metadata:
  name: hello
spec:
  jobTemplate:
    metadata:
      name: hello
    spec:
      template:
        spec:
          containers:
          - image: busybox
            name: hello
            args: ["/bin/sh","-c","date"]
          restartPolicy: 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:~$ 
```

QUESTION 11

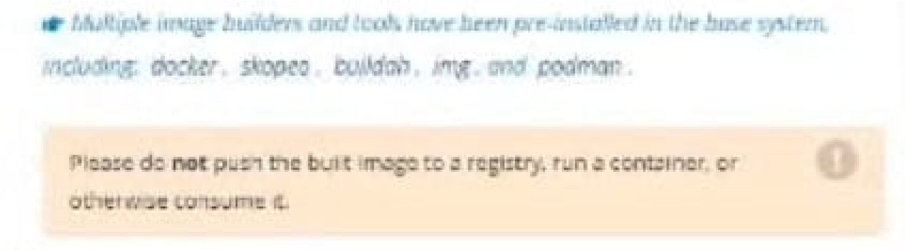
CORRECT TEXT



No configuration context change is required for this task.

Task:

A Dockerfile has been prepared at -/human-stork/build/Dockerfile



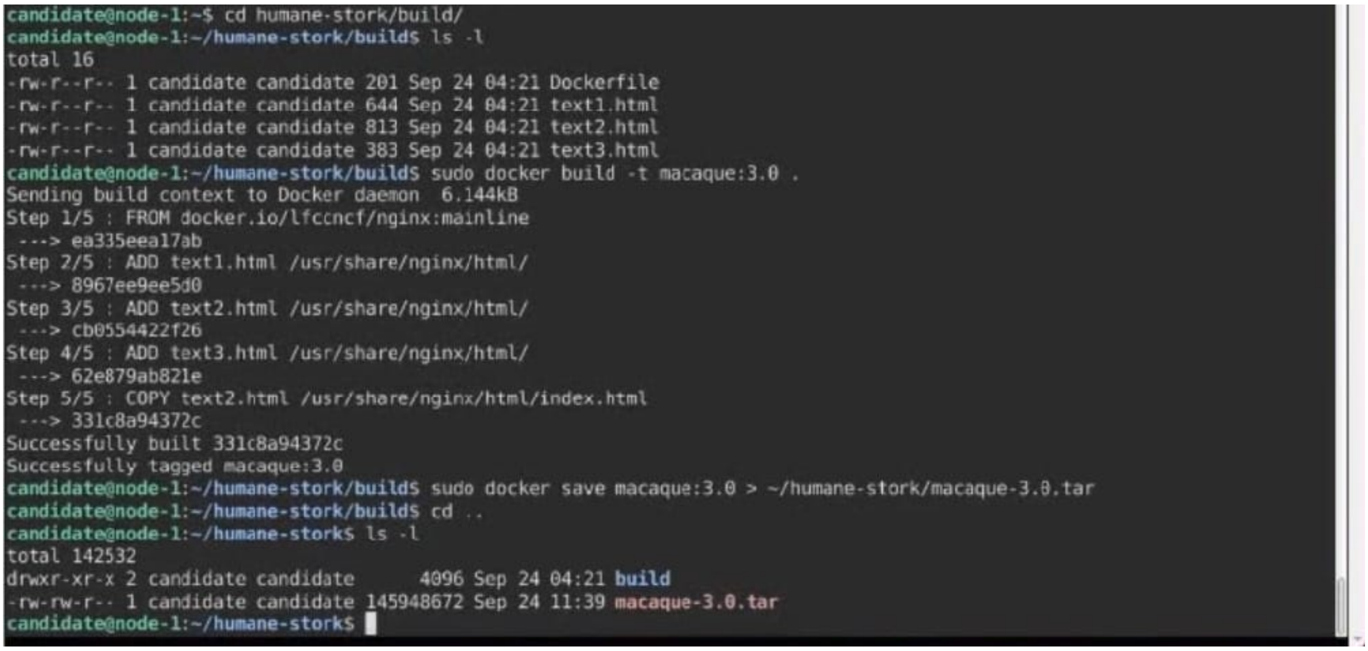
Multiple image builders and tools have been pre-installed in the base system, including: docker, skopeo, buildah, img, and podman.

Please do **not** push the built image to a registry, run a container, or otherwise consume it.

A. Please check explanations

B. Place Holder

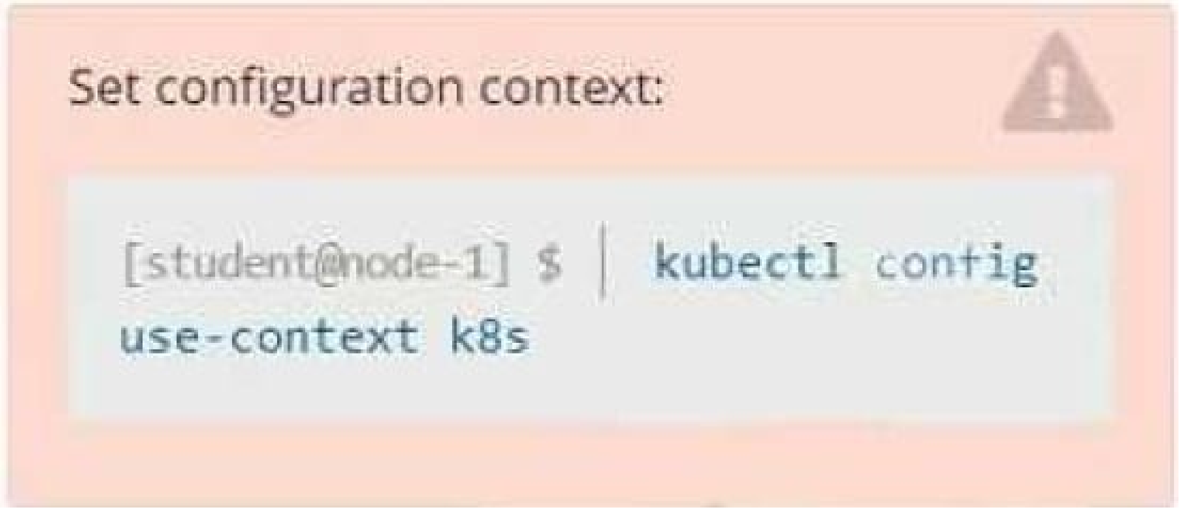
Correct Answer: A



```
candidate@node-1:~$ cd humane-stork/build/
candidate@node-1:~/humane-stork/build$ ls -l
total 16
-rw-r--r-- 1 candidate candidate 201 Sep 24 04:21 Dockerfile
-rw-r--r-- 1 candidate candidate 644 Sep 24 04:21 text1.html
-rw-r--r-- 1 candidate candidate 813 Sep 24 04:21 text2.html
-rw-r--r-- 1 candidate candidate 383 Sep 24 04:21 text3.html
candidate@node-1:~/humane-stork/build$ sudo docker build -t macaque:3.0 .
Sending build context to Docker daemon  6.144kB
Step 1/5 : FROM docker.io/lfccncf/nginx:mainline
 ---> ea335eea17ab
Step 2/5 : ADD text1.html /usr/share/nginx/html/
 ---> 8967ee9ee5d0
Step 3/5 : ADD text2.html /usr/share/nginx/html/
 ---> cb0554422f26
Step 4/5 : ADD text3.html /usr/share/nginx/html/
 ---> 62e879ab821e
Step 5/5 : COPY text2.html /usr/share/nginx/html/index.html
 ---> 331c8a94372c
Successfully built 331c8a94372c
Successfully tagged macaque:3.0
candidate@node-1:~/humane-stork/build$ sudo docker save macaque:3.0 > ~/humane-stork/macaque-3.0.tar
candidate@node-1:~/humane-stork/build$ cd ..
candidate@node-1:~/humane-stork$ ls -l
total 142532
drwxr-xr-x 2 candidate candidate      4096 Sep 24 04:21 build
-rw-rw-r-- 1 candidate candidate 145948672 Sep 24 11:39 macaque-3.0.tar
candidate@node-1:~/humane-stork$
```

QUESTION 12

CORRECT TEXT



Set configuration context:

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

Context

You have been tasked with scaling an existing deployment for availability, and creating a service to expose the deployment within your infrastructure.

Task

Start with the deployment named kdsn00101-deployment which has already been deployed to the namespace kdsn00101. Edit it to:

1.

Add the func=webFrontEnd key/value label to the pod template metadata to identify the pod for the service definition

2.

Have 4 replicas

Next, create and deploy in namespace kdsn00l01 a service that accomplishes the following:

1.

Exposes the service on TCP port 8080

2.

is mapped to me pods defined by the specification of kdsn00l01-deployment

3.

Is of type NodePort

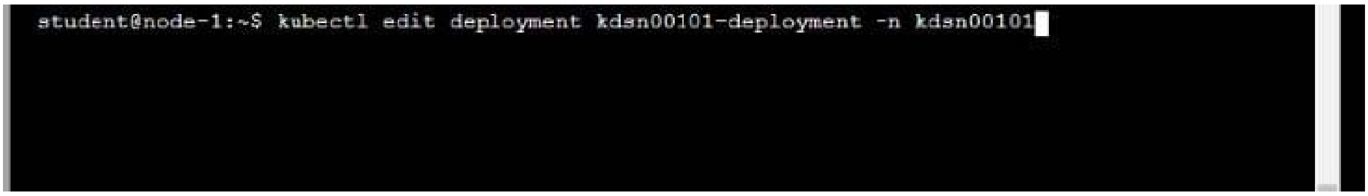
4.

Has a name of cherry

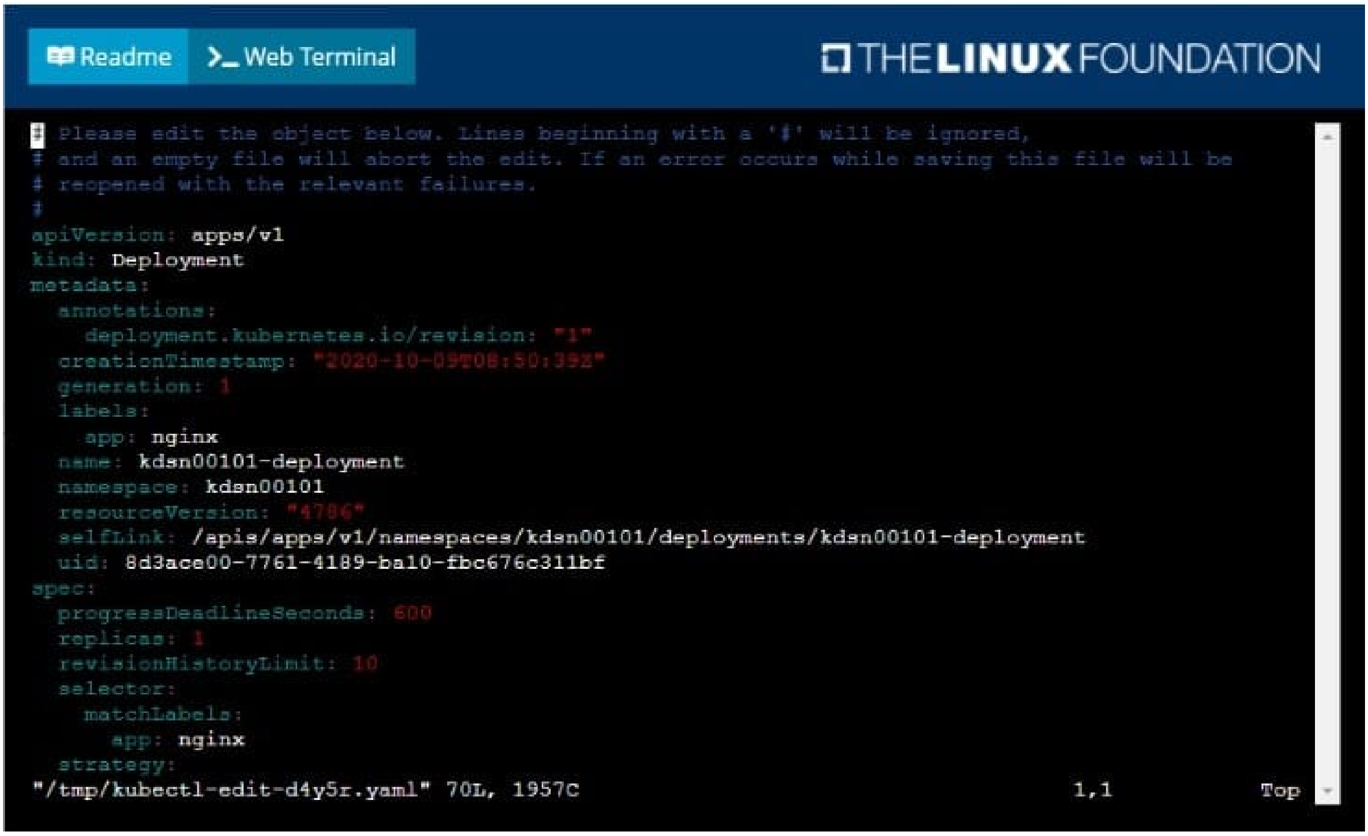
A. Please check explanations

B. Place Holder

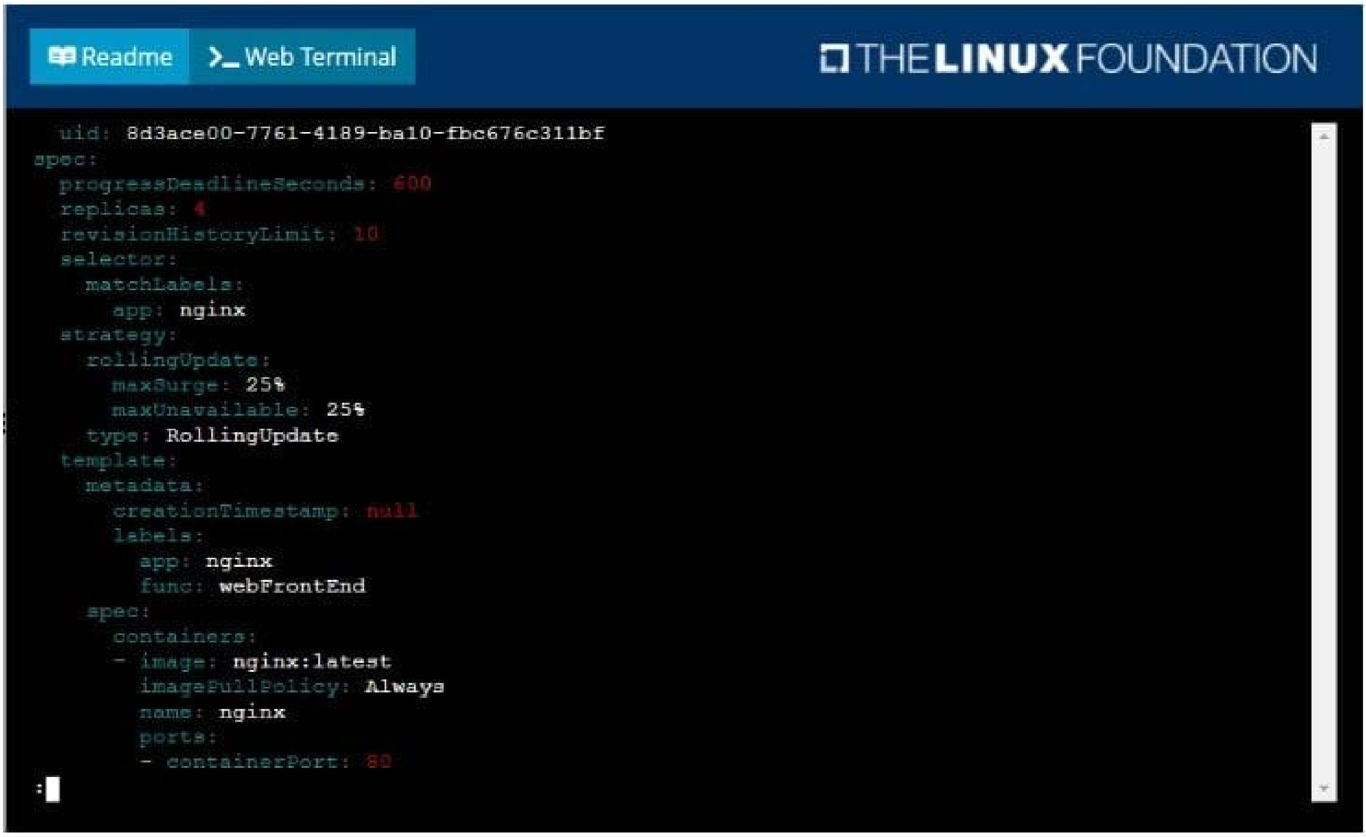
Correct Answer: A



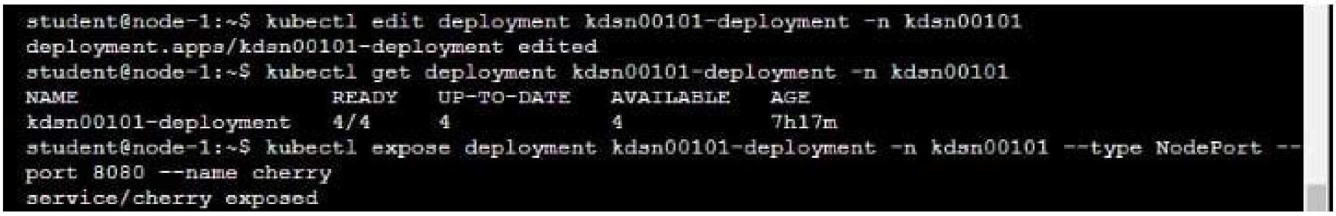
```
student@node-1:~$ kubectl edit deployment kdsn00101-deployment -n kdsn00101
```



```
# 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
```



```
  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
```