LAB GUIDE

Lab: Deploy an Azure Kubernetes Service (AKS) cluster using the Azure portal

Learning Objectives

```
- How to deploy an AKS cluster using the Azure portal.
```

Pre-requisites

- Microsoft Azure Account: You'll need a valid and active Azure account for the Azure labs.
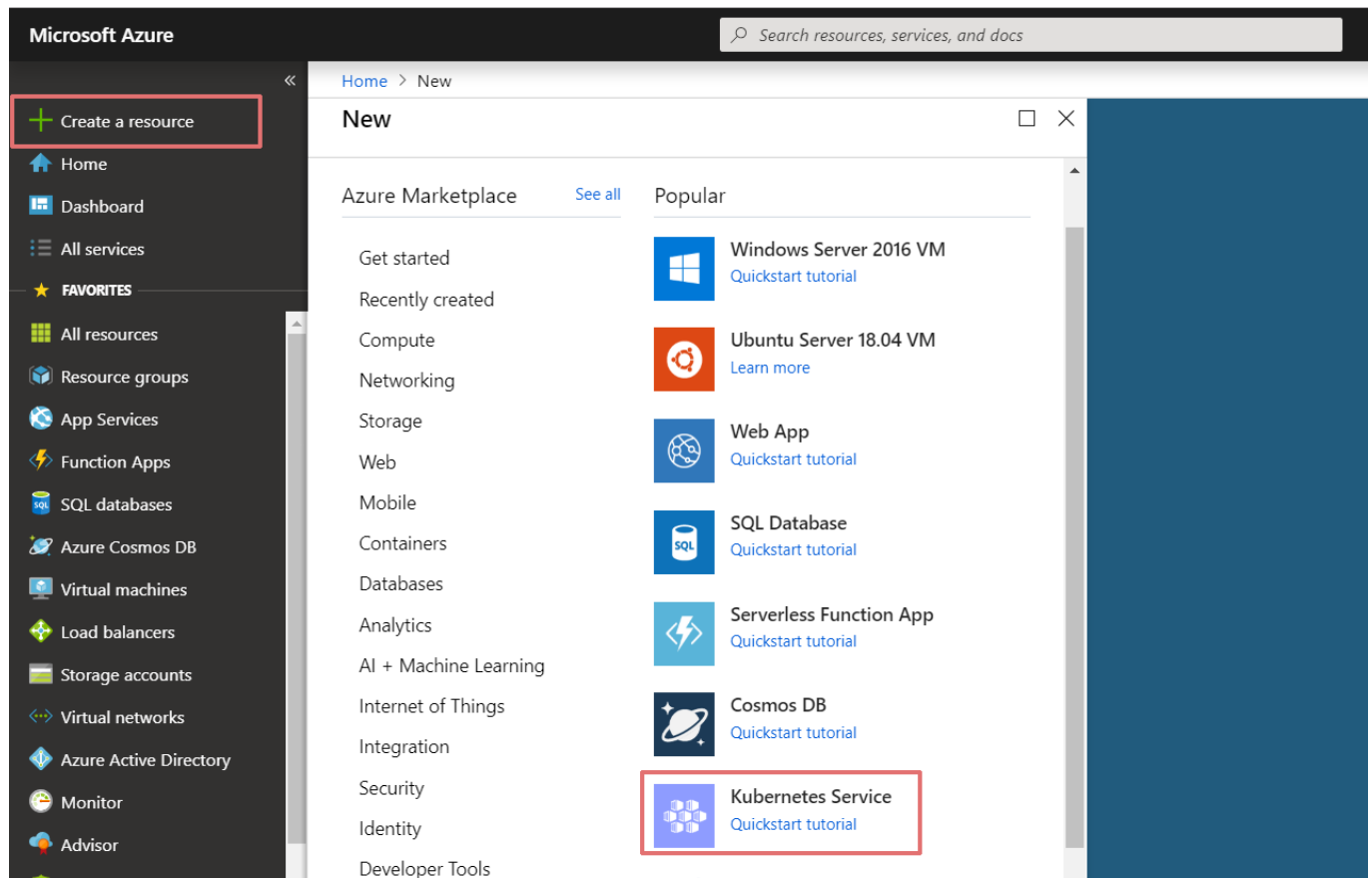
Length

50 minutes

Before you begin

1. Sign in into the Azure Portal and follow the instructions

Exercise 1: Create an AKS Cluster

1. First, click on **Create a resource** then click on **Kubernetes Service** button to initiate the configuration

2. Set the next options in **PROJECT DETAILS** and **CLUSTER DETAILS** sections and then click on **Next: Authentication >**

- Subscription: Select the subscription you are using for this lab.
- Version: Select the default version
- Resource group: Select the Module-03-XXXXX resource group, where XXXXX is the number generated for this lab
- Kubernetes cluster name: Enter a cluster name, for example myAKScluster
- DNS name prefix: This field its automatically filled when typing the cluster name, if not, set a DNS name prefix, for example myAKScluster-dns

PROJECT DETAILS

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

* Subscription ⓘ   Pase para Azure: patrocinio ⌄

    └─── * Resource group ⓘ   Module-03-12345 ⌄
                                Create new

CLUSTER DETAILS

* Kubernetes cluster name ⓘ   myAKScluster ✓

* Region ⓘ   East US ⌄

* Kubernetes version ⓘ   1.11.9 (default) ⌄

* DNS name prefix ⓘ   myAKScluster-dns ✓

SCALE

The number and size of nodes in your cluster. For production workloads, at least 3 nodes are recommended for resiliency. For development or test workloads, only one node is required. You will not be able to change the node size after cluster creation, but you will be able to change the number of nodes in your cluster after creation. Learn more about scaling in Azure Kubernetes Service

* Node size ⓘ   **Standard DS2 v2**
                                2 vcpus, 7 GB memory
                                Change size

* Node count ⓘ   ◯|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 3

Virtual nodes (preview) ⓘ   [Disabled] Enabled

[Review + create]   [Previous]   [Next : Authentication >]

3. Click on **Configure service principal** then check the **Use Existing**, On Service principal client ID, enter the Application/Client ID obtained for this lab, and in the Service principal client secret, enter the Application Secret Key obtained for this lab, this both settings could be founded at the screen presented at the beginning of the labs, then click on **Ok**

Service Principal Details

Application/Client Id   db70c46a-4a8a-4add-89b9-4ac3977b599c

Application Display Name   https://odl_user_sp_55693

Application Secret Key   mxxm32YLE*ya

Subscription Id   4f31fe58-0344-43f6-a029-e2e6e2354c3c

Tenant Id   cefcb8e7-ee30-49b8-b190-133f1daafd85

Tenant Domain Name   msazurelabs.onmicrosoft.com

4. click on **Yes** on **Enable RBAC** option for Kubernetes role-based access controls (RBAC)

5. Go to Monitoring Tab and Set **No** for Enable container monitoring

6. click on **Review + create**, after Azure completes the review click on create

Create Kubernetes cluster

✓ Validation passed

Basics   Authentication   Networking   Monitoring   Tags   **Review + create**

BASICS

Subscription	
Resource group	
Region	East US
Kubernetes cluster name	
Kubernetes version	
DNS name prefix	
Node count	3
Node size	Standard_DS2_v2
Virtual nodes (preview)	Disabled

AUTHENTICATION

Enable RBAC	Yes

NETWORKING

HTTP application routing	No
Network configuration	Basic

MONITORING

Enable container monitoring   Yes

| **Create** | Previous | Next | Download a template for automation |

note It takes a few minutes to create the AKS cluster and to be ready for use. When finished, browse to the AKS cluster resource group, such as Module-03-XXXXX, and select the AKS resource, such as myAKSCluster. The AKS cluster dashboard is shown.
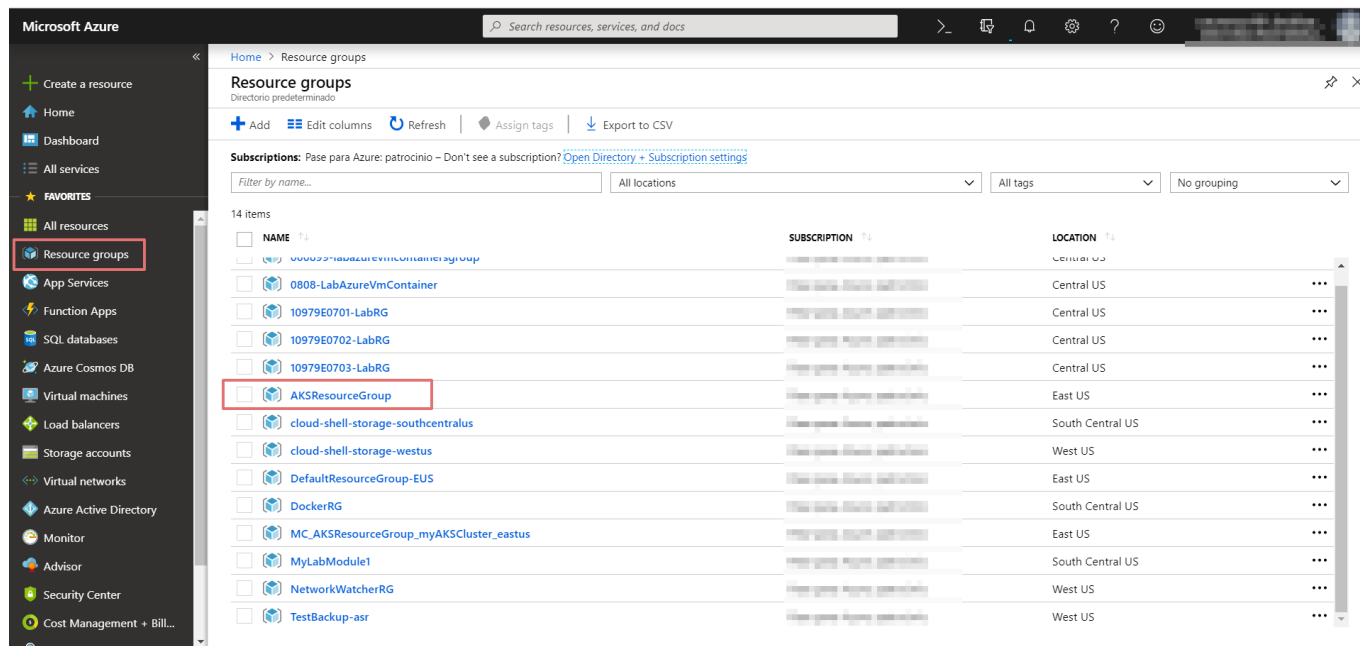
Task 2: Connect to the cluster

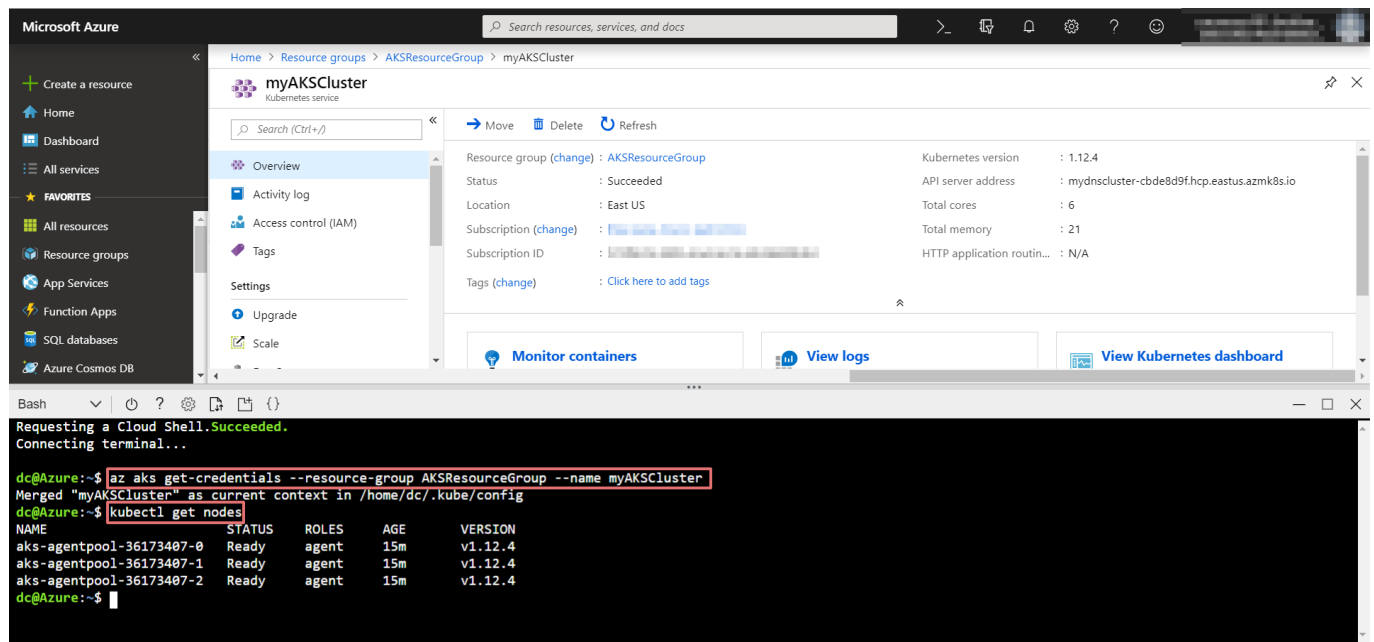1. Click on the marked to open Cloud Shell
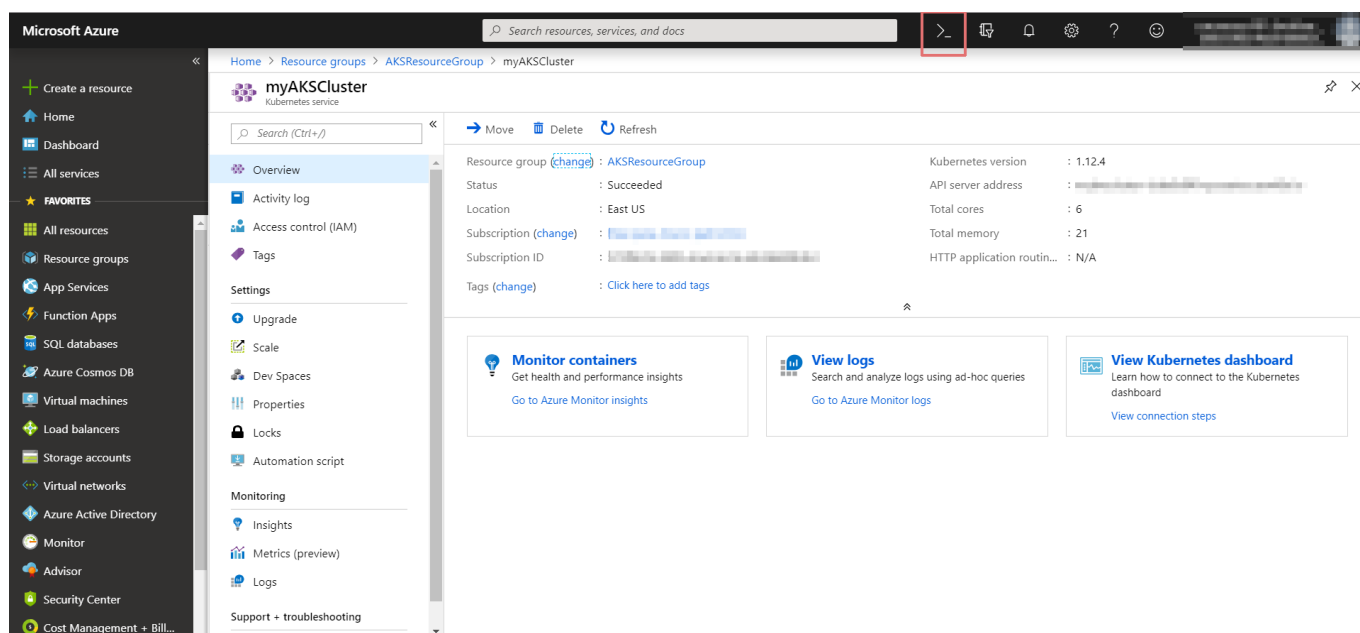
2. Write the next command to obtain the credentials to your Kubernetes cluster, replace the XXXXX on the resource group to match the with the number generated for your lab, and replace the myAKSCluster with the name you specified on the past task.

```
az aks get-credentials --resource-group Module-03-XXXXX --name myAKSCluster
```

3. Write the next command to configure kubectl to connect to your Kubernetes cluster

```
kubectl get nodes
```

note This command downloads credentials and configures the Kubernetes CLI to use them
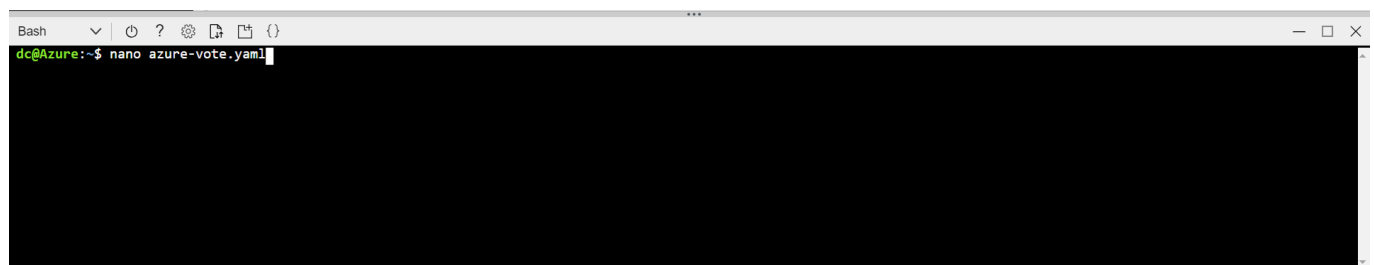
Exercise 2: Run the application

1. Write the next command to create a new file named **azure-vote.yaml**

```
nano azure-vote.yaml
```


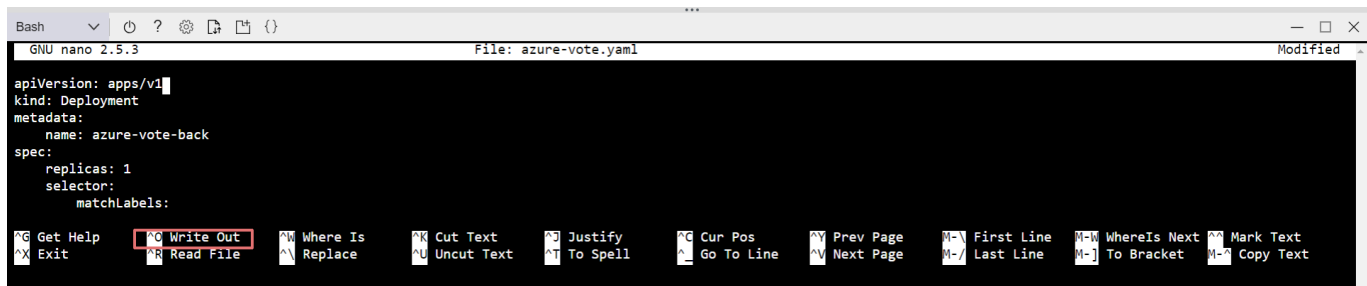**note** you can use **nano** or **vi** to create the file

2. Copy the next content and paste in your new file

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: azure-vote-back
spec:
  replicas: 1
  selector:
    matchLabels:
      app: azure-vote-back
  template:
    metadata:
      labels:
        app: azure-vote-back
```

```
      spec:
        containers:
        - name: azure-vote-back
          image: redis
          resources:
            requests:
              cpu: 100m
              memory: 128Mi
            limits:
              cpu: 250m
              memory: 256Mi
          ports:
          - containerPort: 6379
            name: redis
---
apiVersion: v1
kind: Service
metadata:
  name: azure-vote-back
spec:
  ports:
  - port: 6379
  selector:
    app: azure-vote-back
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: azure-vote-front
spec:
  replicas: 1
  selector:
    matchLabels:
      app: azure-vote-front
  template:
    metadata:
      labels:
        app: azure-vote-front
    spec:
      containers:
      - name: azure-vote-front
        image: microsoft/azure-vote-front:v1
        resources:
          requests:
            cpu: 100m
            memory: 128Mi
          limits:
            cpu: 250m
            memory: 256Mi
        ports:
        - containerPort: 80
        env:
        - name: REDIS
          value: "azure-vote-back"
```
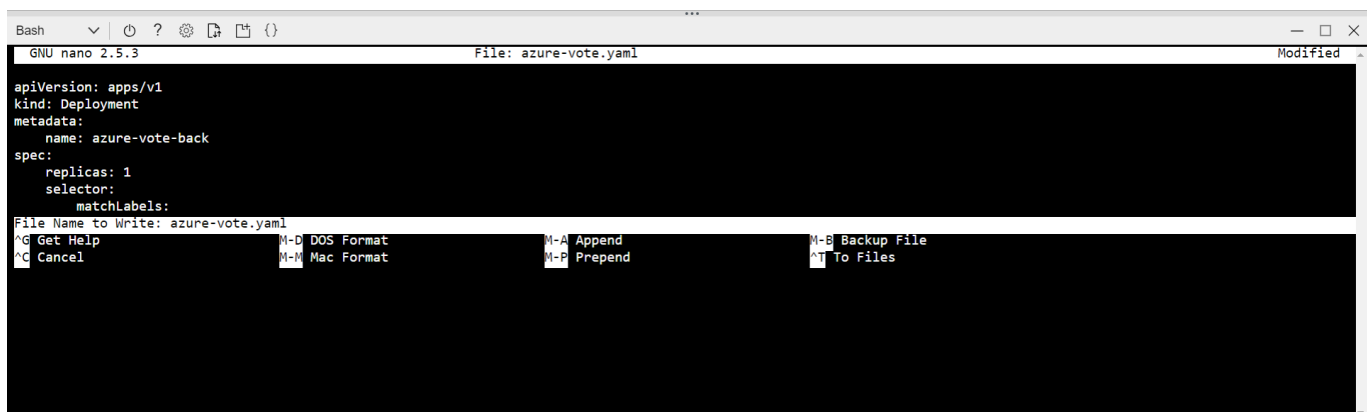
```
---
apiVersion: v1
kind: Service
metadata:
  name: azure-vote-front
spec:
  type: LoadBalancer
  ports:
  - port: 80
  selector:
    app: azure-vote-front
```
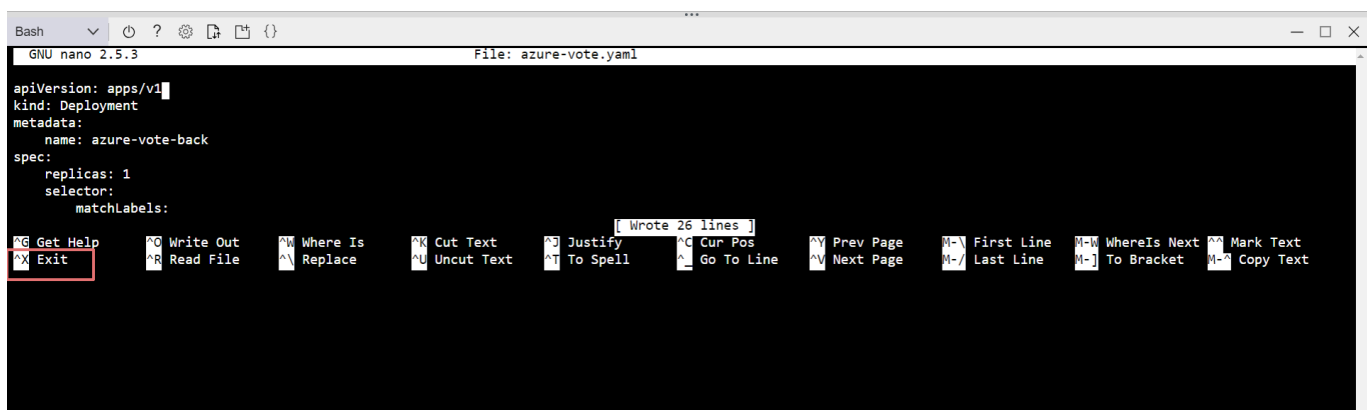

2. Press ctrl+O

3. Press Enter

4. Press ctrl+X

5. Type the next command to deploy the application

```
kubectl apply -f azure-vote.yaml
```

```
dc@Azure:~$ nano azure-vote.yaml
dc@Azure:~$ kubectl apply -f azure-vote.yaml
deployment.apps/azure-vote-back unchanged
service/azure-vote-back created
deployment.apps/azure-vote-front created
service/azure-vote-front created
dc@Azure:~$ ▮
```

note When you complete this exercise your application will be deployed

Exercise 3: Test the application

1. Run the next command to monitor the progress

```
kubectl get service azure-vote-front --watch
```

```
dc@Azure:~$ kubectl get service azure-vote-front --watch
NAME                 TYPE           CLUSTER-IP    EXTERNAL-IP      PORT(S)        AGE
azure-vote-front     LoadBalancer   10.0.22.149   40.121.95.100    80:31149/TCP   3m
▮
```

note If **EXTERNAL-IP** is **pending** wait until the value changes to an actual **public IP**

2. When the **EXTERNAL-IP** address changes from pending to an actual public IP address, use CTRL+C to stop the **kubectl** watch process

3. Open a new tab on your browser, enter your external-IP, and you'll see your service running

note your application is now online

4. Close the Cloud Shell Window.

End of the lab