

Full Stack Blockchain

Final Exam - Question 1

```
(base) aristotle@Aristotles-MacBook-Air-3 ~ % az login
A web browser has been opened at https://login.microsoftonline.com/organizations/oauth2/v2.0/authorize. Please continue the login in the web browser. If no web browser is available or if the web browser fails to open, use device code flow with `az login --use-device-code`.

Retrieving tenants and subscriptions for the selection...

[Tenant and subscription selection]

No Subscription name Subscription ID Tenant
[1] * Azure for Students 7b0a02df-610c-494c-9d32-e5883372662e George Brown College

The default is marked with an *; the default tenant is 'George Brown College' and subscription is 'Azure for Students' (7b0a02df-610c-494c-9d32-e5883372662e).

Select a subscription and tenant (Type a number or Enter for no changes):

Tenant: George Brown College
Subscription: Azure for Students (7b0a02df-610c-494c-9d32-e5883372662e)

[Announcements]
With the new Azure CLI login experience, you can select the subscription you want to use more easily. Learn more about it and its configuration at https://go.microsoft.com/fwlink/?linkid=2271236

If you encounter any problem, please open an issue at https://aka.ms/azclibug

[Warning] The login output has been updated. Please be aware that it no longer displays the full list of available subscriptions by default.

[Survey] Tell us what you think of Azure CLI. This survey should take about 2 minutes. Run 'az survey' to open in browser. Learn more at https://go.microsoft.com/fwlink/?linkid=2203309

(base) aristotle@Aristotles-MacBook-Air-3 ~ % az aks get-credentials --resource-group fullstack --name fullstackcluster
Merged "fullstackcluster" as current context in /Users/aristotle/.kube/config
```

```
(base) aristotle@Aristotles-MacBook-Air-3 ~ % kubectl get nodes
NAME                  STATUS   ROLES      AGE     VERSION
aks-agentpool-34559286-vmss000000 Ready    <none>    39m    v1.32.5
aks-agentpool-34559286-vmss000001 Ready    <none>    40m    v1.32.5
(base) aristotle@Aristotles-MacBook-Air-3 ~ % git clone https://github.com/Azure-Samples/aks-store-demo.git
Cloning into 'aks-store-demo'...
remote: Enumerating objects: 3812, done.
remote: Counting objects: 100% (1450/1450), done.
remote: Compressing objects: 100% (210/210), done.
remote: Total 3812 (delta 1333), reused 1240 (delta 1240), pack-reused 2362 (from 7)
Receiving objects: 100% (3812/3812), 9.16 MiB | 24.96 MiB/s, done.
Resolving deltas: 100% (2511/2511), done.
(base) aristotle@Aristotles-MacBook-Air-3 ~ % cd aks-store-demo
```

```
(base) aristotle@Aristotles-MacBook-Air-3 aks-store-demo % cd kustomize
(base) aristotle@Aristotles-MacBook-Air-3 kustomize % ls
base          overlays
(base) aristotle@Aristotles-MacBook-Air-3 kustomize % kubectl apply -k base

configmap/rabbitmq-enabled-plugins created
service/makeline-service created
service/mongodb created
service/order-service created
service/product-service created
service/rabbitmq created
service/store-admin created
service/store-front created
deployment.apps/makeline-service created
deployment.apps/order-service created
deployment.apps/product-service created
deployment.apps/store-admin created
deployment.apps/store-front created
deployment.apps/virtual-customer created
deployment.apps/virtual-worker created
statefulset.apps/mongodb created
statefulset.apps/rabbitmq created
```

```
(base) aristotle@Aristotles-MacBook-Air-3 kustomize % kubectl get deployments
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
makeline-service   1/1     1           1           80s
order-service    1/1     1           1           80s
product-service   1/1     1           1           80s
store-admin      1/1     1           1           80s
store-front       1/1     1           1           80s
virtual-customer 1/1     1           1           80s
virtual-worker    1/1     1           1           80s

(base) aristotle@Aristotles-MacBook-Air-3 kustomize % kubectl get pods
NAME                           READY   STATUS    RESTARTS   AGE
makeline-service-6c8ffb5857-nmvdk 1/1     Running   0          85s
mongodb-0                      1/1     Running   0          85s
order-service-5c85f45984-2wfpqg  1/1     Running   0          85s
product-service-5b8794b597-8pqm7  1/1     Running   0          85s
rabbitmq-0                      1/1     Running   0          85s
store-admin-5588c957-gdmdv       1/1     Running   0          85s
store-front-6ff78d4f79-ptg78     1/1     Running   0          85s
virtual-customer-f5d4cd9f7-hpq7z 1/1     Running   0          85s
virtual-worker-865bcd78f-mbhr8   1/1     Running   0          85s

(base) aristotle@Aristotles-MacBook-Air-3 kustomize % kubectl get svc
NAME        TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
kubernetes  ClusterIP  10.0.0.1     <none>        443/TCP         47m
makeline-service  ClusterIP  10.0.15.44   <none>        3001/TCP        90s
mongodb       ClusterIP  10.0.90.127   <none>        27017/TCP       90s
order-service  ClusterIP  10.0.4.225    <none>        3000/TCP        90s
product-service ClusterIP  10.0.101.60   <none>        3002/TCP        89s
rabbitmq      ClusterIP  10.0.93.154   <none>        5672/TCP,15672/TCP  89s
store-admin    LoadBalancer 10.0.188.180  130.107.161.17  80:30144/TCP    89s
store-front    LoadBalancer 10.0.52.13    4.174.196.138  80:32524/TCP    89s
```

4.174.196.138

Not Secure 4.174.196.138

Products Cart (0)



Contoso Catnip's Friend

Watch your feline friend embark on a fishing adventure with Contoso Catnip's Friend toy. Packed with irresistible catnip and dangling fish lure.

9.99



Salty Sailor's Squeaky Squid

Let your dog set sail with the Salty Sailor's Squeaky Squid. This interactive toy provides hours of fun, featuring multiple squeakers and crinkle tentacles.

6.99



Mermaid's Mice Trio

Entertain your kitty with the Mermaid's Mice Trio. These adorable plush mice are dressed as mermaids and filled with catnip to captivate their curiosity.

12.99



Ocean Explorer's Puzzle Ball

Challenge your pet's problem-solving skills with the Ocean Explorer's Puzzle Ball. This interactive toy features hidden compartments and treats, providing mental stimulation and entertainment.

11.99

```
(base) aristotle@Aristotles-MacBook-Air-3 kustomize % cd ..
(base) aristotle@Aristotles-MacBook-Air-3 aks-store-demo % ls
ai-service.yaml                      docs
aks-store-all-in-one.yaml             infra
aks-store-ingress-quickstart.yaml    kustomize
aks-store-quickstart.yaml            LICENSE.md
assets                                Makefile
azure-bicep.yaml                     rabbitmq_enabled_plugins
azure.yaml                           README.md
CHANGELOG.md                         sample-manifests
charts                                SECURITY.md
CONTRIBUTING.md                     src
docker-compose-quickstart.yml        tests
docker-compose.yml
(base) aristotle@Aristotles-MacBook-Air-3 aks-store-demo % touch store-hpa.yaml
(base) aristotle@Aristotles-MacBook-Air-3 aks-store-demo % nano store-hpa.yaml
(base) aristotle@Aristotles-MacBook-Air-3 aks-store-demo % cat store-hpa.yaml
apiVersion: autoscaling/v1
kind: HorizontalPodAutoscaler
metadata:
  name: store-front-hpa
spec:
  scaleTargetRef:
    apiVersion: apps/v1
    kind: Deployment
    name: store-front
  minReplicas: 2
  maxReplicas: 5
  targetCPUUtilizationPercentage: 75

(base) aristotle@Aristotles-MacBook-Air-3 aks-store-demo % kubectl apply -f store-hpa.yaml
horizontalpodautoscaler.autoscaling/store-front-hpa created
(base) aristotle@Aristotles-MacBook-Air-3 aks-store-demo % kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS   MAXPODS   REPLICAS   AGE
store-front-hpa  Deployment/store-front  cpu: <unknown>/75%  2          5          0          11s
(base) aristotle@Aristotles-MacBook-Air-3 aks-store-demo %
(base) aristotle@Aristotles-MacBook-Air-3 aks-store-demo % █
```

Kubernetes services | Workloads

fullstackcluster | Kubernetes service

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Workloads

Name	Namespace	Ready	Age	CPU	Memory
coredns	kube-system	2/2	49 minutes	Enable metrics	
coredns-autoscaler	kube-system	1/1	49 minutes		
connectivity-agent	kube-system	2/2	49 minutes		
connectivity-agent-autc	kube-system	1/1	49 minutes		
metrics-server	kube-system	2/2	49 minutes		
eraser-controller-manag	kube-system	1/1	46 minutes		
azure-wi-webhook-cont	kube-system	2/2	46 minutes		
makefile-service	default	1/1	4 minutes		
order-service	default	1/1	4 minutes		
product-service	default	1/1	4 minutes		
store-admin	default	1/1	4 minutes		
store-front	default	2/2	4 minutes		
virtual-customer	default	1/1	4 minutes		
virtual-worker	default	1/1	4 minutes		

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store-front | Overview

Deployment

Overview

YAML	Namespace : default	Cluster : fullstackcluster
Events	Ready : 5/5	Creation time : 2025-07-19T01:22:42.000Z
Live logs	Revision history : 10	Min ready seconds : 0
	Strategy type : RollingUpdate	Replicas : 5 desired, 5 updated, 5 total, 5 available, 0 unavailable
	Labels : -	Rolling update strategy : 25% max unavailable, 25% max surge
Selector	: app=store-front	See more

Events

Workloads

Pods

Pod name	Ready	Status	Restart count	Age	CPU	Memory	Node
store-front-6ff78d4f79-ptg78	1/1	Running	0	23 minutes	Enable metrics		aks-agent
store-front-6ff78d4f79-456qp	1/1	Running	0	20 minutes			aks-agent
store-front-6ff78d4f79-fsrxx	1/1	Running	0	18 minutes			aks-agent
store-front-6ff78d4f79-bl9cz	1/1	Running	0	16 minutes			aks-agent
store-front-6ff78d4f79-btvxp	1/1	Running	0	14 minutes			aks-agent

Resource utilization

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