MINIKUBE PROJECT2 SETUP

PROJECT2 LINK - https://github.com/praveen1994dec/kubernetes_java_deployment.git

STEP 1 –MINIKUBE AND DOCKER INSTALLATION ON AMAZON LINUX

1. Launch an instance from an Amazon Linux 2 or Amazon Linux AMI

2. Connect to your instance.

3. Update the packages and package caches you have installed on your instance.

```
yum update -y
```

4. Install the latest Docker Engine packages.

Amazon Linux 2 amazon-linux-extras install docker

```
yum install docker -y
```

5. Start the Docker service.

```
systemctl start docker

systemctl enable docker
```

6. Install Conntrack and Minikube:

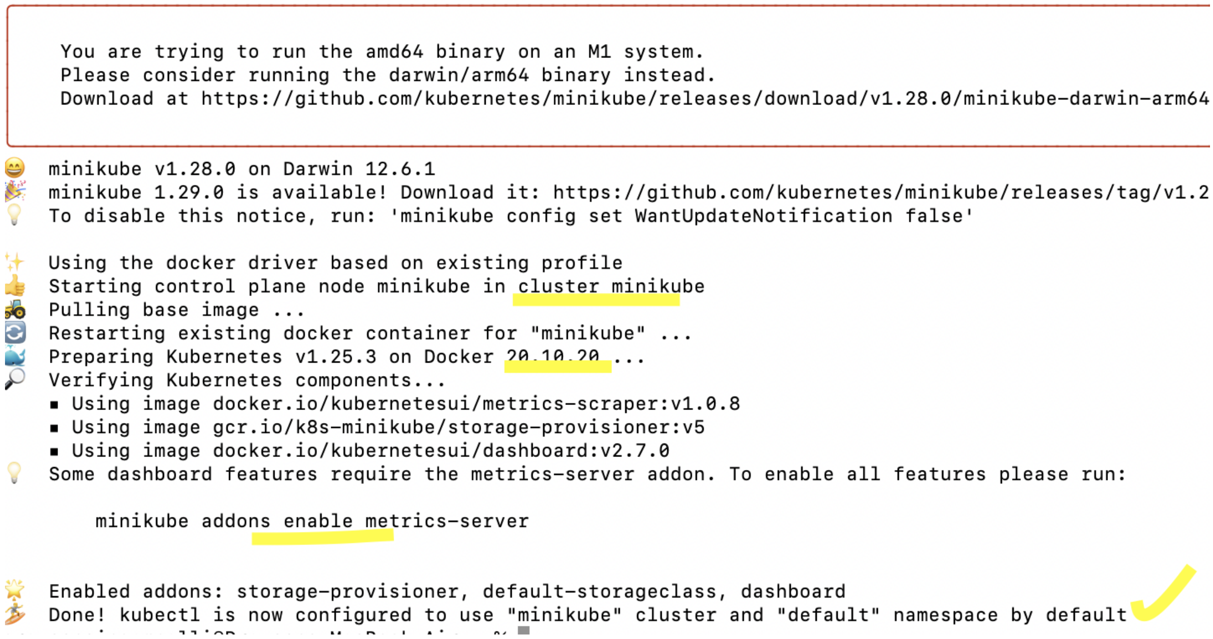
yum install conntrack -y

curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64\

sudo install minikube-linux-amd64 /usr/local/bin/minikube

7. Start your MINIKUBE

/usr/local/bin/minikube start --force --driver=docker



```
    You are trying to run the amd64 binary on an M1 system.
    Please consider running the darwin/arm64 binary instead.
    Download at https://github.com/kubernetes/minikube/releases/download/v1.28.0/minikube-darwin-arm64

😄  minikube v1.28.0 on Darwin 12.6.1
🎉  minikube 1.29.0 is available! Download it: https://github.com/kubernetes/minikube/releases/tag/v1.2
💡  To disable this notice, run: 'minikube config set WantUpdateNotification false'

✨  Using the docker driver based on existing profile
👍  Starting control plane node minikube in cluster minikube
🚜  Pulling base image ...
🔄  Restarting existing docker container for "minikube" ...
🐳  Preparing Kubernetes v1.25.3 on Docker 20.10.20 ...
🔎  Verifying Kubernetes components...
    ▪ Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
    ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
    ▪ Using image docker.io/kubernetesui/dashboard:v2.7.0
💡  Some dashboard features require the metrics-server addon. To enable all features please run:

        minikube addons enable metrics-server


🌟  Enabled addons: storage-provisioner, default-storageclass, dashboard
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

STEP2 – INSTALL DOCKER/MAVEN/GIT/JAVA

DOCKER

```
yum install docker -y
systemctl  start docker
systemctl enable docker
```

MAVEN

```
cd /opt/
wget
http://mirrors.estointernet.in/apache/maven/maven-3/3.6.3/binaries/apache-maven-3.6.3-bin.tar.gz
tar xvzf  apache-maven-3.6.3-bin.tar.gz
vi /etc/profile.d/maven.sh
export MAVEN_HOME=/opt/apache-maven-3.6.3
export PATH=$PATH:$MAVEN_HOME/bin
```

GIT

```
yum install git -y
```

JAVA

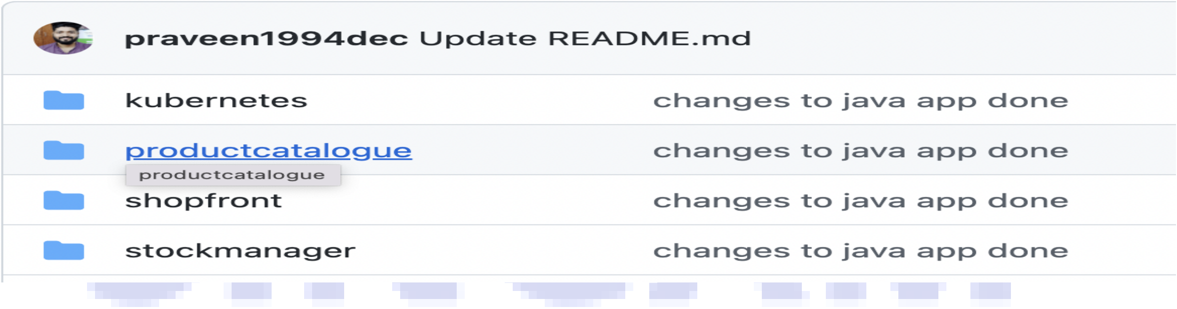
```
yum install java -y
```

STEP 3 – INSTALL KUBECTL

```
curl -o kubectl https://amazon-eks.s3.us-west-2.amazonaws.com/1.20.4/2021-04-12/bin/linux/amd64/kubectl
chmod +x ./kubectl
mkdir -p $HOME/bin
cp ./kubectl $HOME/bin/kubectl
export PATH=$HOME/bin:$PATH
echo 'export PATH=$HOME/bin:$PATH' >> ~/.bashrc
source $HOME/.bashrc
kubectl version --short –client
```

STEP 4 –

git clone https://github.com/praveen1994dec/kubernetes_java_deployment.git



praveen1994dec Update README.md

kubernetes	changes to java app done
productcatalogue	changes to java app done
shopfront	changes to java app done
stockmanager	changes to java app done

STEP 5 – IMPORTANT STEP

[3 SERVICES IN PROJECT]

SERVICE1 [Give your dockerhub ID in place of praveensingam1994]

```
cd shopfront/
mvn clean install -DskipTests
docker build -t praveensingam1994/shopfront:latest .
docker push praveensingam1994/shopfront:latest
```

SERVICE2 [Give your dockerhub ID in place of praveensingam1994]

```
cd productcatalogue/
mvn clean install -DskipTests
docker build -t praveensingam1994/productcatalogue:latest .
docker push praveensingam1994/productcatalogue:latest
```

SERVICE3 [Give your dockerhub ID in place of praveensingam1994]

```
cd stockmanager/
mvn clean install -DskipTests
docker build -t praveensingam1994/stockmanager:latest .
docker push praveensingam1994/stockmanager:latest
```

STEP 6 - GO TO KUBERNETES FOLDER IN SAME PROJECT

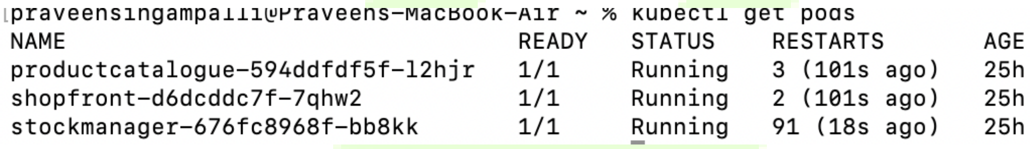
cd kubernetes

kubectl apply -f shopfront-service.yaml

kubectl apply -f productcatalogue-service.yaml

kubectl apply -f stockmanager-service.yaml

STEP 7 – kubectl get pods



```
praveensingampalli@Praveens-MacBook-Air ~ % kubectl get pods
NAME                                 READY   STATUS    RESTARTS       AGE
productcatalogue-594ddfdf5f-l2hjr    1/1     Running   3 (101s ago)   25h
shopfront-d6dcddc7f-7qhw2            1/1     Running   2 (101s ago)   25h
stockmanager-676fc8968f-bb8kk        1/1     Running   91 (18s ago)   25h
```

STEP 8 – Hit the below command to **start** the kubernetes dashboard in EC2

/usr/local/bin/minikube dashboard

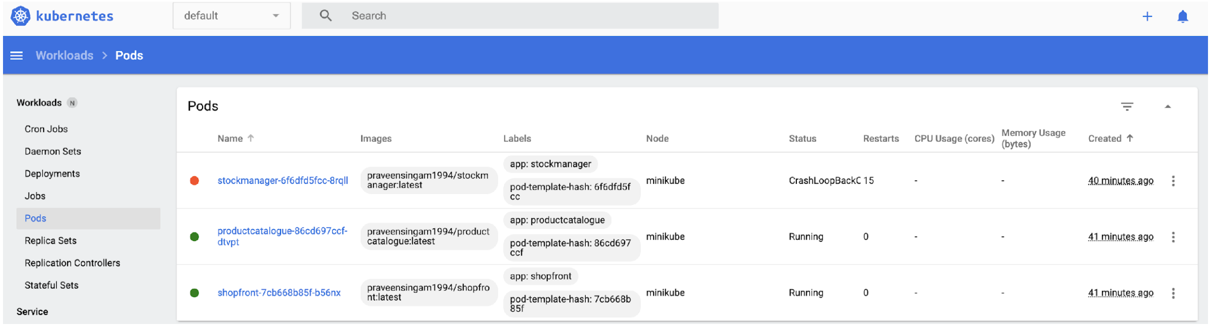
STEP 9 [IN NEW EC2 WINDOW] -

Open the EC2 in new window and set the PROXY

kubectl proxy --address='0.0.0.0' --accept-hosts='^*$'

STEP 9 - Hit in browser to view the dashboard

http://<EC2-IP>:8001/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/#/pod?namespace=default



Pods

	Name ↑	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created ↑
●	stockmanager-6f6dfd5fcc-8rqll	praveensingam1994/stockmanager:latest	app: stockmanager pod-template-hash: 6f6dfd5fcc	minikube	CrashLoopBackC	15	-	-	40 minutes ago
●	productcatalogue-86cd697ccf-dtvpt	praveensingam1994/productcatalogue:latest	app: productcatalogue pod-template-hash: 86cd697ccf	minikube	Running	0	-	-	41 minutes ago
●	shopfront-7cb668b85f-b56nx	praveensingam1994/shopfront:latest	app: shopfront pod-template-hash: 7cb668b85f	minikube	Running	0	-	-	41 minutes ago

[YOU WILL SEE YOUR APPS]

STEP 10 – Hit the below command for each service in different console of EC2

[EC2 LOGIN FIRST]

```
kubectl port-forward --address 0.0.0.0 svc/shopfront 8080:8010
```

[EC2 LOGIN FIRST]

```
kubectl port-forward --address 0.0.0.0 svc/productcatalogue 8090:8020
```

[EC2 LOGIN FIRST]

```
kubectl port-forward --address 0.0.0.0 svc/stockmanager 9008:8030
```

STEP 11 –

- http://<EC2IP>:8090/products

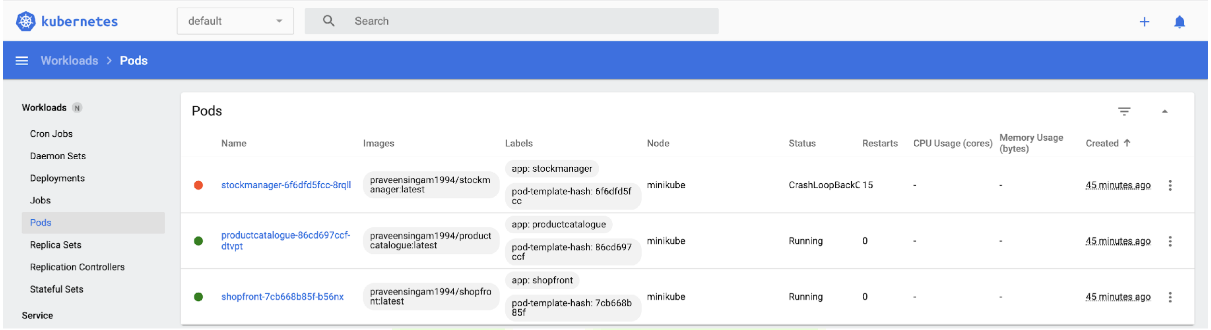
-
  ```
  [{"id":"1","name":"Widget","description":"Premium ACME Widgets","price":1.1999999999999999555910790149937383830547332763671875},{"id":"2","name":"Sprocket","description":"Grade B sprockets","price":4.0999999999999996447286321199499070644378662109375},{"id":"3","name":"Anvil","description":"Large Anvils","price":45.5},{"id":"4","name":"Cogs","description":"Grade Y cogs","price":1.8000000000000000444089209850062616169452667236328125},{"id":"5","name":"Multitool","description":"Multitools","price":154.099999999999994315658113919198513031005859375}]
  ```

- http://<EC2IP>:9008/stocks

-
  ```
  [{"productId":"1","sku":"12345678","amountAvailable":5},{"productId":"2","sku":"34567890","amountAvailable":2},{"productId":"3","sku":"54326745","amountAvailable":999},{"productId":"4","sku":"93847614","amountAvailable":0},{"productId":"5","sku":"11856388","amountAvailable":1}]
  ```

STEP 12 – ANALYZE THE DASHBOARD

[IGNORE THE ERROR IN 1 POD, It is due to PROBES as discussed in class]



Pods

	Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created ↑
🟥	stockmanager-6f6dfd5fcc-8rqll	praveensingam1994/stockmanager:latest	app: stockmanager pod-template-hash: 6f6dfd5fcc	minikube	CrashLoopBackC	15	-	-	45 minutes ago
🟩	productcatalogue-86cd697ccf-dtvpt	praveensingam1994/productcatalogue:latest	app: productcatalogue pod-template-hash: 86cd697ccf	minikube	Running	0	-	-	45 minutes ago
🟩	shopfront-7cb668b85f-b56nx	praveensingam1994/shopfront:latest	app: shopfront pod-template-hash: 7cb668b85f	minikube	Running	0	-	-	45 minutes ago

GO TO EACH SEGMENT ON LEFT HAND SIDE AND EXPLORE ☺ ☺