

Lab – 3
Name – Reetika
student Id – 101496084

```
minikube version: v1.32.0
commit: 8220a6eb95f0a4d75f7f2d7b14cef975f050512d
reetika@DESKTOP-17FQPRN:~$ minikube start --nodes 2 -p multinode-demo
[multinode-demo] minikube v1.32.0 on Ubuntu 22.04 (amd64)
🔧 Automatically selected the docker driver
🔧 Using Docker driver with root privileges
! For an improved experience it's recommended to use Docker Engine instead of Docker Desktop.
Docker Engine installation instructions: https://docs.docker.com/engine/install/#server
🔥 Starting control plane node multinode-demo in cluster multinode-demo
📡 Pulling base image ...
📦 Downloading Kubernetes v1.28.3 preload ...
> preloaded-images-k8s-v18-v1...: 403.35 MiB / 403.35 MiB 100.00% 2.89 Mi
> gcr.io/k8s-minikube/kicbase...: 453.90 MiB / 453.90 MiB 100.00% 2.92 Mi
🔥 Creating docker container (CPUs=2, Memory=2200MB) ...
📡 Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...
  ▪ Generating certificates and keys ...
  ▪ Booting up control plane ...
  ▪ Configuring RBAC rules ...
🔗 Configuring CNI (Container Networking Interface) ...
📡 Verifying Kubernetes components...
  ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🌟 Enabled addons: storage-provisioner, default-storageclass

🔥 Starting worker node multinode-demo-m02 in cluster multinode-demo
📡 Pulling base image ...
🔥 Creating docker container (CPUs=2, Memory=2200MB) ...
🌐 Found network options:
  ▪ NO_PROXY=192.168.49.2
📡 Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...
  ▪ env NO_PROXY=192.168.49.2
📡 Verifying Kubernetes components...
🔥 Done! kubectrl is now configured to use "multinode-demo" cluster and "default" namespace by default
reetika@DESKTOP-17FQPRN:~$
```

Command Prompt

```
reetika@DESKTOP-17FQPRN:~$ kubectl get nodes
NAME                STATUS    ROLES    AGE   VERSION
multinode-demo      Ready    control-plane   4m26s   v1.28.3
multinode-demo-m02  Ready    <none>         3m42s   v1.28.3
reetika@DESKTOP-17FQPRN:~$ minikube status -p multinode-demo
multinode-demo
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

multinode-demo-m02
type: Worker
host: Running
kubelet: Running

reetika@DESKTOP-17FQPRN:~$ minikube dashboard -p multinode-demo
  Enabling dashboard ...
    Using image docker.io/kubernetesui/dashboard:v2.7.0
    Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
  ⚠ Some dashboard features require the metrics-server addon. To enable all features please run:

      minikube -p multinode-demo addons enable metrics-server

  Verifying dashboard health ...
  Launching proxy ...
  Verifying proxy health ...
  Opening http://127.0.0.1:46683/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in your default browser...
  http://127.0.0.1:46683/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/
```

127.0.0.1:50935 x New Tab x OneDrive x OneDrive x George Brown C x New Tab x Kubernetes Dasi x

127.0.0.1:46683/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/#/workloads?namespace=default

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kubernetes default Search

Workloads

Workloads N

Cron Jobs

Daemon Sets

Deployments

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

Ingresses N

Ingress Classes

Services H

Config and Storage

There is nothing to display here

You can [deploy a containerized app](#), select other namespace or [take the Dashboard Tour](#) to learn more.

127.0.0.1:50935 x New Tab x OneDrive x OneDrive x George Brown C x New Tab x Kubernetes Dasi x

127.0.0.1:46683/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/#/workloads?namespace=default

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kubernetes default Search

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Config and Storage

There is nothing to display here

You can [deploy a containerized app](#), select other namespace or [take the Dashboard Tour](#) to learn more.

#command demo screenshots

```
reetika@DESKTOP-17FQPRN:~$ kubectl apply -f replicaset.yaml
replicaset.apps/nginx created
reetika@DESKTOP-17FQPRN:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
nginx-29zt5   0/1     ContainerCreating   0          22s
nginx-m756p   0/1     ContainerCreating   0          22s
nginx-z4chs   0/1     ContainerCreating   0          22s
reetika@DESKTOP-17FQPRN:~$ kubectl delete pod nginx-29zt5
pod "nginx-29zt5" deleted
reetika@DESKTOP-17FQPRN:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
nginx-2p426   1/1     Running    0           12s
nginx-m756p   1/1     Running    0          117s
nginx-z4chs   1/1     Running    0          117s
reetika@DESKTOP-17FQPRN:~$ kubectl get replicaset
NAME          DESIRED   CURRENT   READY   AGE
nginx         3         3         3       2m4s
```

```
reetika@DESKTOP-17FQPRN:~$ kubectl apply -f deployment.yaml
deployment.apps/nginx-deployment created
reetika@DESKTOP-17FQPRN:~$ kubectl get deployments
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment 3/3     3            3          4m59s
reetika@DESKTOP-17FQPRN:~$ kubectl rollout status deployment nginx
Error from server (NotFound): deployments.apps "nginx" not found
reetika@DESKTOP-17FQPRN:~$ kubectl rollout status deployment nginx-deployment
deployment "nginx-deployment" successfully rolled out
```

```
reetika@DESKTOP-17FQPRN:~$ kubectl apply -f statefulsets-nginx.yaml
error: the path "statefulsets-nginx.yaml" does not exist
reetika@DESKTOP-17FQPRN:~$ kubectl apply -f statefulsets.yaml
service/nginx created
deployment.apps/web created
statefulset.apps/web created
reetika@DESKTOP-17FQPRN:~$ kubectl get statefulsets
NAME          READY   AGE
web           0/3     7s
reetika@DESKTOP-17FQPRN:~$ kubectl apply -f daemonSet.yaml
daemonset.apps/nginx created
reetika@DESKTOP-17FQPRN:~$ kubectl get daemonSet
NAME          DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE SELECTOR   AGE
nginx         1         1         1       1            1          <none>         16s
reetika@DESKTOP-17FQPRN:~$
```

```
reetika@DESKTOP-17FQPRN:~$ kubectl apply -f deployment-resource-limit.yaml
deployment.apps/nginx-deployment configured
reetika@DESKTOP-17FQPRN:~$ kubectl get deployments
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment 3/3     3            3          20h
web           3/3     3            3          20h
reetika@DESKTOP-17FQPRN:~$ kubectl apply -f deployment-heathcheck.yaml
deployment.apps/nginx-deployment configured
reetika@DESKTOP-17FQPRN:~$ kubectl get deployments
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment 3/3     1            3          20h
web           3/3     3            3          20h
reetika@DESKTOP-17FQPRN:~$
```

Kubernetes app demo

```

reetika@DESKTOP-17FQPRN:~$ cd /mnt/d/kubernetes-demo/kubernetes
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f secrets/mongodb-secret.yml
secret/mongodb-secret created
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f stateful-sets/mongodb-stateful-set.yml
statefulset.apps/mongodb-stateful-set created
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f services/mongodb-service.yml
service/mongodb-service created
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f deployments/note-server-depl.yml
deployment.apps/note-server-deployment created
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f services/note-server-service.yml
service/note-server-service created
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f deployments/note-depl.yml
deployment.apps/note-deployment created
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f services/note-service.yml
service/note-service created

reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f services/note-service.yml
service/note-service unchanged
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ minikube service note-service

```

NAMESPACE	NAME	TARGET PORT	URL
default	note-service	3000	http://192.168.49.2:31749

```

✎ Starting tunnel for service note-service.

```

NAMESPACE	NAME	TARGET PORT	URL
default	note-service		http://127.0.0.1:42459

```

🚀 Opening service default/note-service in default browser...
👉 http://127.0.0.1:42459
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.

```

note.

Assignments Add Assignment Notes Add Note

Important Assignments

```

reetika@DESKTOP-17FQPRN:~$ cd /mnt/d/kubernetes-demo/kubernetes
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f deployments/mongo-express-depl.yml
deployment.apps/mongo-express-deployment created
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f services/mongo-express-service.yml
service/mongo-express-service created

```

```
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ kubectl apply -f services/mongo-express-service.yml
service/mongo-express-service unchanged
reetika@DESKTOP-17FQPRN:/mnt/d/kubernetes-demo/kubernetes$ minikube service mongo-express-service
```

NAMESPACE	NAME	TARGET PORT	URL
default	mongo-express-service	8081	http://192.168.49.2:30095

✨ Starting tunnel for service mongo-express-service.

NAMESPACE	NAME	TARGET PORT	URL
default	mongo-express-service		http://127.0.0.1:39231

🌐 Opening service default/mongo-express-service in default browser...
 🖱️ http://127.0.0.1:39231
 ! Because you are using a Docker driver on linux, the terminal needs to be open to run it.

Home - Mongo Express

127.0.0.1:39231

Google Chrome isn't your default browser [Set as default](#)

Mongo Express Database

Mongo Express

Databases

[+ Create Database](#)

View	admin	Del
View	config	Del
View	local	Del

Server Status

Hostname	mongodb-stateful-set-1	MongoDB Version	7.0.5
Uptime	221 seconds	Node Version	18.19.0
Server Time	Mon, 22 Jan 2024 00:17:45 GMT	V8 Version	10.2.154.26-node.28

```
reetika@DESKTOP-17FQPRN: ~ X reetika@DESKTOP-17FQPRN: X reetika@DESKTOP-17FQPRN: X
reetika@DESKTOP-17FQPRN:~$ kubectl get pods
NAME                                READY    STATUS    RESTARTS    AGE
mongo-express-deployment-b88f6d45f-hnvth  1/1      Running   0            6m33s
mongodb-stateful-set-0                  1/1      Running   0            10m
mongodb-stateful-set-1                  1/1      Running   0            9m43s
nginx-deployment-584fbb974d-4ktcp        1/1      Running   2 (11m ago)  2d
nginx-deployment-584fbb974d-dfr8p        1/1      Running   2 (11m ago)  2d
nginx-deployment-584fbb974d-lrlpf        1/1      Running   2 (11m ago)  2d
nginx-m5pzz                             1/1      Running   2 (11m ago)  2d21h
note-deployment-74cc946cd8-2t56b         1/1      Running   0            10m
note-deployment-74cc946cd8-fzrh8         1/1      Running   0            10m
note-server-deployment-6fb5fcb67f-txvrh  1/1      Running   0            10m
note-server-deployment-6fb5fcb67f-wnnb4  1/1      Running   0            10m
web-0                                    0/1      Pending   0            2d21h
web-db44c7d4f-4x6nf                     1/1      Running   2 (11m ago)  2d21h
web-db44c7d4f-csflf                     1/1      Running   2 (11m ago)  2d21h
web-db44c7d4f-hpqpw                     1/1      Running   2 (11m ago)  2d21h
reetika@DESKTOP-17FQPRN:~$ kubectl delete pod note-deployment-74cc946cd8-fzrh8
pod "note-deployment-74cc946cd8-fzrh8" deleted
reetika@DESKTOP-17FQPRN:~$ kubectl get pods
NAME                                READY    STATUS    RESTARTS    AGE
mongo-express-deployment-b88f6d45f-hnvth  1/1      Running   0            7m8s
mongodb-stateful-set-0                  1/1      Running   0            11m
mongodb-stateful-set-1                  1/1      Running   0            10m
nginx-deployment-584fbb974d-4ktcp        1/1      Running   2 (11m ago)  2d
nginx-deployment-584fbb974d-dfr8p        1/1      Running   2 (11m ago)  2d
nginx-deployment-584fbb974d-lrlpf        1/1      Running   2 (11m ago)  2d
nginx-m5pzz                             1/1      Running   2 (11m ago)  2d21h
note-deployment-74cc946cd8-25gfq         1/1      Running   0            4s
note-deployment-74cc946cd8-2t56b         1/1      Running   0            10m
note-server-deployment-6fb5fcb67f-txvrh  1/1      Running   0            10m
note-server-deployment-6fb5fcb67f-wnnb4  1/1      Running   0            10m
web-0                                    0/1      Pending   0            2d21h
web-db44c7d4f-4x6nf                     1/1      Running   2 (11m ago)  2d21h
web-db44c7d4f-csflf                     1/1      Running   2 (11m ago)  2d21h
web-db44c7d4f-hpqpw                     1/1      Running   2 (11m ago)  2d21h
reetika@DESKTOP-17FQPRN:~$
```