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Lab 3: Screenshots

Part 1: Run a multi-node cluster using the commands above.

Part 2: Run all types of deployment yaml separately.

```
PS C:\Users\Mahammad Anis> minikube start
W0206 05:07:58.669393    26024 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\M
ahammad Anis\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
* minikube v1.32.0 on Microsoft Windows 11 Home Single Language 10.0.22621.3007 Build 22621.3007
* Using the docker driver based on existing profile
* Starting control plane node minikube in cluster minikube
* Pulling base image ...
* Updating the running docker "minikube" container ...
* Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...
* Verifying Kubernetes components...
  - Using image docker.io/kubernetesui/dashboard:v2.7.0
  - Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* 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
```

```
PS C:\Users\Mahammad Anis> kubectl apply -f replicaset.yaml
replicaset.apps/nginx created
PS C:\Users\Mahammad Anis> kubectl get pods
NAME            READY    STATUS     RESTARTS    AGE
nginx-7ntlx     1/1      Running    0           36s
nginx-pf2m5     1/1      Running    0           36s
nginx-rw7kj     1/1      Running    0           36s
PS C:\Users\Mahammad Anis> kubectl delete pod nginx-7ntlx
pod "nginx-7ntlx" deleted
PS C:\Users\Mahammad Anis> kubectl get pods
NAME            READY    STATUS     RESTARTS    AGE
nginx-pf2m5     1/1      Running    0           112s
nginx-rw7kj     1/1      Running    0           112s
nginx-z7vjz     1/1      Running    0           4s
PS C:\Users\Mahammad Anis> kubectl get replicasets
NAME     DESIRED    CURRENT    READY    AGE
nginx    3          3          3        2m3s
PS C:\Users\Mahammad Anis>
```

Deployment YAML with ReplicaSet:

- **kubectl get deployments:**

```
PS C:\Users\Mahammad Anis> kubectl apply -f deploy-replica.yaml
deployment.apps/nginx-deployment created
PS C:\Users\Mahammad Anis> kubectl get deployments
NAME                READY    UP-TO-DATE    AVAILABLE    AGE
nginx-deployment    3/3      1             3            15s
PS C:\Users\Mahammad Anis>
```

- **kubectl rollout status deployment nginx**

```
PS C:\Users\Mahammad Anis> kubectl rollout status deployment nginx-deployment
deployment "nginx-deployment" successfully rolled out
PS C:\Users\Mahammad Anis>
```

-Statefulsets yaml

```
PS C:\Users\Mahammad Anis> kubectl apply -f statefulsets.yaml
service/nginx created
statefulset.apps/web created
PS C:\Users\Mahammad Anis> kubectl get statefulsets
NAME    READY    AGE
web     0/3      11s
PS C:\Users\Mahammad Anis>
```
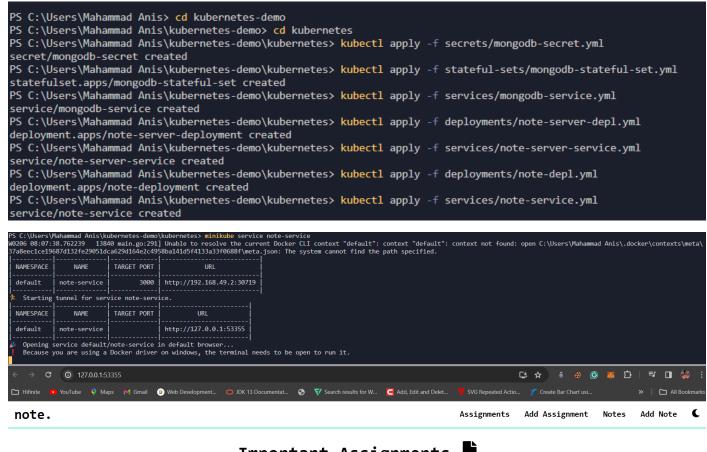
```
PS C:\Users\Mahammad Anis> kubectl apply -f daemonset.yaml
daemonset.apps/nginx created
PS C:\Users\Mahammad Anis> kubectl get pods
NAME                                    READY    STATUS     RESTARTS    AGE
nginx-bhf6g                             1/1      Running    0           8s
nginx-deployment-86dcfdf4c6-s89jr       1/1      Running    0           141m
nginx-deployment-86dcfdf4c6-tcm2g       1/1      Running    0           141m
nginx-deployment-86dcfdf4c6-zrlfc       1/1      Running    0           141m
web-0                                   0/1      Pending    0           9m19s
PS C:\Users\Mahammad Anis> kubectl get daemonsets
NAME    DESIRED    CURRENT    READY    UP-TO-DATE    AVAILABLE    NODE SELECTOR    AGE
nginx   1          1          1        1             1            <none>
 19s
```

```
PS C:\Users\Mahammad Anis> kubectl apply -f deployment-resource.yaml
deployment.apps/nginx-deployment configured
PS C:\Users\Mahammad Anis> kubectl get pods
NAME                                    READY    STATUS     RESTARTS    AGE
nginx-bhf6g                             1/1      Running    0           14m
nginx-deployment-6cc75b8775-4f4l2       1/1      Running    0           11m
nginx-deployment-6cc75b8775-cp7f5       1/1      Running    0           11m
nginx-deployment-6cc75b8775-glh8r       1/1      Running    0           11m
web-0                                   0/1      Pending    0           23m
PS C:\Users\Mahammad Anis> kubectl get deployments
NAME                READY    UP-TO-DATE    AVAILABLE    AGE
nginx-deployment    3/3      3             3            156m
PS C:\Users\Mahammad Anis>
```

Creating Deployment object with health checks.

```
PS C:\Users\Mahammad Anis> kubectl apply -f deploy-health.yaml
deployment.apps/nginx-deployment configured
PS C:\Users\Mahammad Anis> kubectl get pods
NAME                                    READY    STATUS     RESTARTS    AGE
nginx-bhf6g                             1/1      Running    0           18m
nginx-deployment-584fbb974d-jm9jc       1/1      Running    0           8s
nginx-deployment-584fbb974d-k6cd8       0/1      Running    0           3s
nginx-deployment-6cc75b8775-4f4l2       1/1      Running    0           14m
nginx-deployment-6cc75b8775-cp7f5       1/1      Running    0           14m
web-0                                   0/1      Pending    0           27m
PS C:\Users\Mahammad Anis> kubectl get deployments
NAME                READY    UP-TO-DATE    AVAILABLE    AGE
nginx-deployment    3/3      2             3            160m
PS C:\Users\Mahammad Anis>
```

Part 3. Run Full stack Application Deployment

```
PS C:\Users\Mahammad Anis> cd kubernetes-demo
PS C:\Users\Mahammad Anis\kubernetes-demo> cd kubernetes
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f secrets/mongodb-secret.yml
secret/mongodb-secret created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f stateful-sets/mongodb-stateful-set.yml
statefulset.apps/mongodb-stateful-set created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f services/mongodb-service.yml
service/mongodb-service created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f deployments/note-server-depl.yml
deployment.apps/note-server-deployment created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f services/note-server-service.yml
service/note-server-service created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f deployments/note-depl.yml
deployment.apps/note-deployment created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f services/note-service.yml
service/note-service created
```

```
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> minikube service note-service
W0206 08:07:38.762239   13840 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.docker\contexts\meta\
37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
|-----------|-------------|-------------|-------------------------|
| NAMESPACE |    NAME     | TARGET PORT |          URL            |
|-----------|-------------|-------------|-------------------------|
|  default  | note-service|     3000    | http://192.168.49.2:30719 |
|-----------|-------------|-------------|-------------------------|
🏃  Starting tunnel for service note-service.
|-----------|-------------|-------------|-------------------------|
| NAMESPACE |    NAME     | TARGET PORT |          URL            |
|-----------|-------------|-------------|-------------------------|
|  default  | note-service|             | http://127.0.0.1:53355  |
|-----------|-------------|-------------|-------------------------|
🎉  Opening service default/note-service in default browser...
❗  Because you are using a Docker driver on windows, the terminal needs to be open to run it.
```


note.   Assignments   Add Assignment   Notes   Add Note   ☾

<center>**Important Assignments** 📄</center>

```
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> minikube service mongo-express-service
W0206 08:12:56.222854    4584 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.doc
ker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
|-----------|----------------------|-------------|-----------------------|
| NAMESPACE |        NAME          | TARGET PORT |          URL          |
|-----------|----------------------|-------------|-----------------------|
|  default  | mongo-express-service|     8081    | http://192.168.49.2:32326 |
|-----------|----------------------|-------------|-----------------------|
🏃  Starting tunnel for service mongo-express-service.
|-----------|----------------------|-------------|-----------------------|
| NAMESPACE |        NAME          | TARGET PORT |          URL          |
|-----------|----------------------|-------------|-----------------------|
|  default  | mongo-express-service|             | http://127.0.0.1:54052  |
|-----------|----------------------|-------------|-----------------------|
🎉  Opening service default/mongo-express-service in default browser...
❗  Because you are using a Docker driver on windows, the terminal needs to be open to run it.
```


Sign in

http://127.0.0.1:54052

Username   root

Password   ••••••••

[Sign in]   [Cancel]

Part 4:Bring down note-depp pod

```
PS C:\Users\Mahammad Anis> kubectl delete pod note-server-deployment-6fb5fcb67f-fmmqt
pod "note-server-deployment-6fb5fcb67f-fmmqt" deleted
PS C:\Users\Mahammad Anis> kubectl get pods
NAME                                         READY   STATUS    RESTARTS   AGE
mongo-express-deployment-b88f6d45f-xnf8p     1/1     Running   0          21m
mongodb-stateful-set-0                       1/1     Running   0          28m
mongodb-stateful-set-1                       1/1     Running   0          27m
nginx-bhf6g                                  1/1     Running   0          54m
nginx-deployment-584fbb974d-gtjbv            1/1     Running   0          36m
nginx-deployment-584fbb974d-jm9jc            1/1     Running   0          36m
nginx-deployment-584fbb974d-k6cd8            1/1     Running   0          36m
note-deployment-74cc946cd8-7r9k8             1/1     Running   0          27m
note-deployment-74cc946cd8-g94qf             1/1     Running   0          27m
note-server-deployment-6fb5fcb67f-l84tj      1/1     Running   0          28m
note-server-deployment-6fb5fcb67f-xnfvp      1/1     Running   0          3m14s
web-0                                        0/1     Pending   0          63m
PS C:\Users\Mahammad Anis> kubectl delete pod note-server-deployment-6fb5fcb67f-fmmqt^C
PS C:\Users\Mahammad Anis> kubectl delete pod note-deployment-74cc946cd8-7r9k8
pod "note-deployment-74cc946cd8-7r9k8" deleted
PS C:\Users\Mahammad Anis> kubectl get pods
NAME                                         READY   STATUS    RESTARTS   AGE
mongo-express-deployment-b88f6d45f-xnf8p     1/1     Running   0          22m
mongodb-stateful-set-0                       1/1     Running   0          30m
mongodb-stateful-set-1                       1/1     Running   0          29m
nginx-bhf6g                                  1/1     Running   0          55m
nginx-deployment-584fbb974d-gtjbv            1/1     Running   0          37m
nginx-deployment-584fbb974d-jm9jc            1/1     Running   0          37m
nginx-deployment-584fbb974d-k6cd8            1/1     Running   0          37m
note-deployment-74cc946cd8-g94qf             1/1     Running   0          29m
note-deployment-74cc946cd8-kxmtb             1/1     Running   0          5s
note-server-deployment-6fb5fcb67f-l84tj      1/1     Running   0          29m
note-server-deployment-6fb5fcb67f-xnfvp      1/1     Running   0          4m32s
web-0                                        0/1     Pending   0          65m
PS C:\Users\Mahammad Anis>
```