



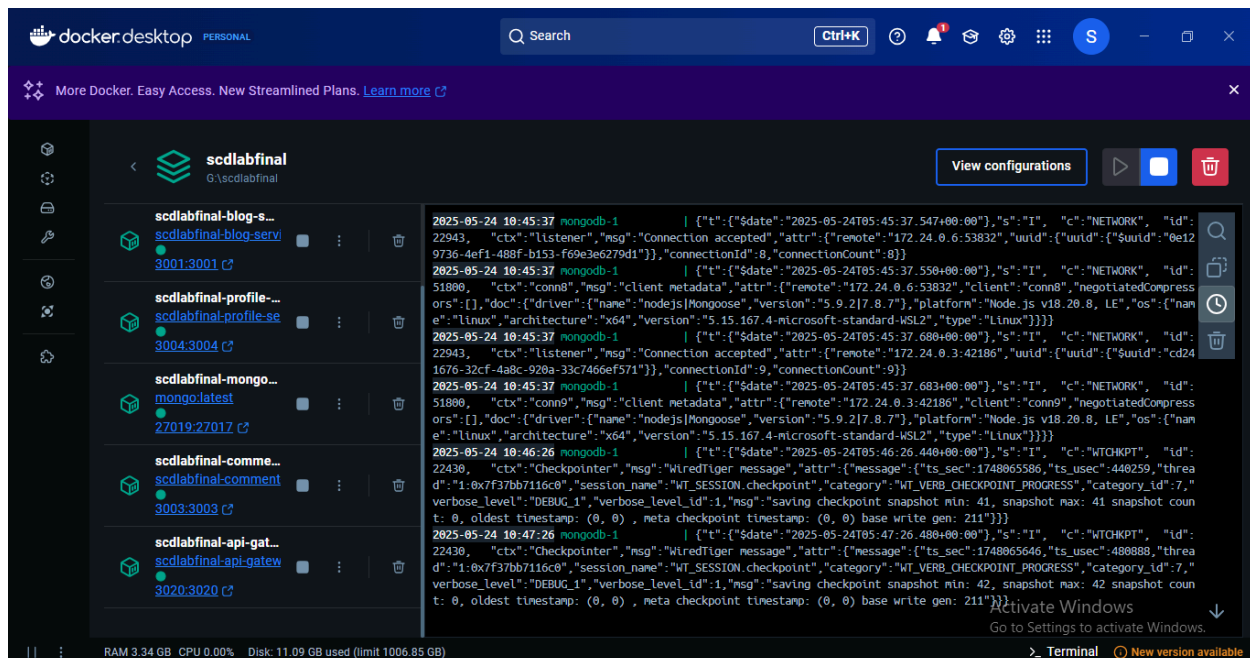
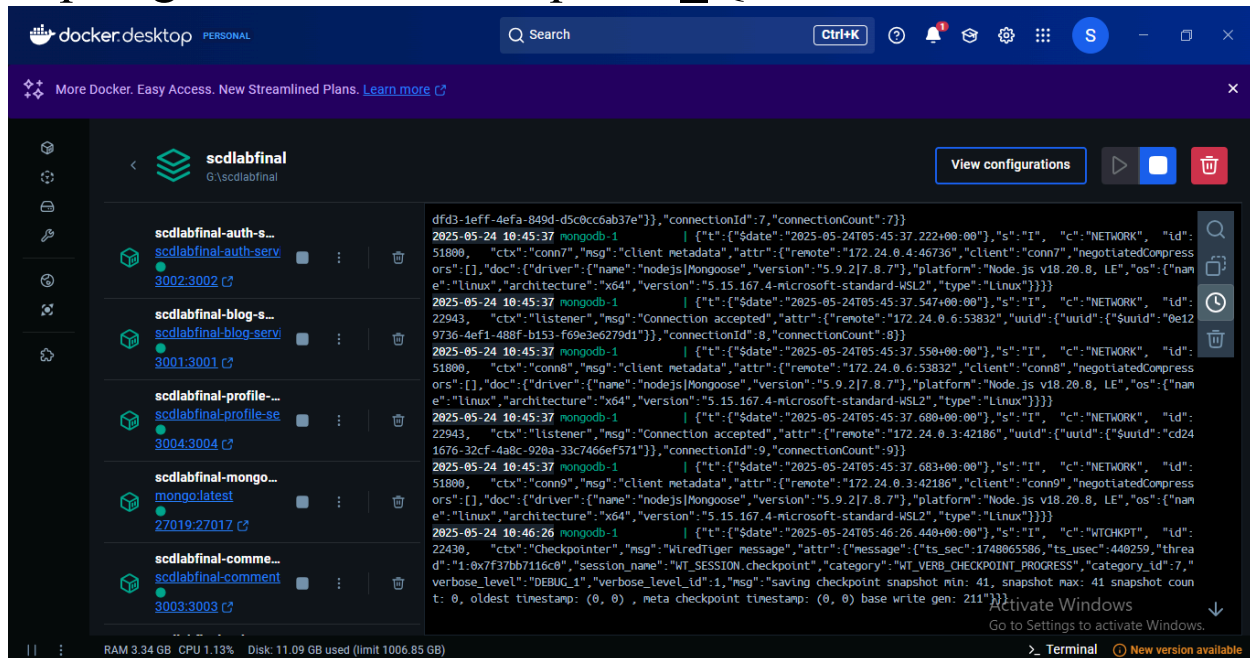
SCD

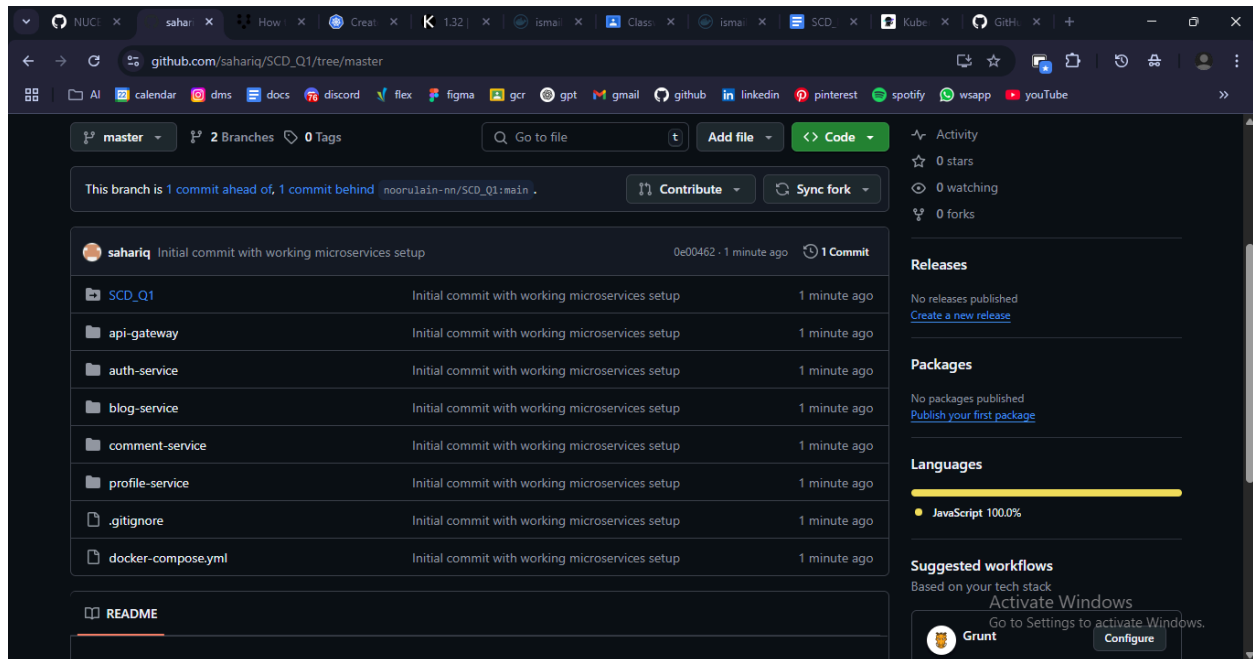
Final

Submitted by
Sahar Iqbal
BSE-G
22I-8803

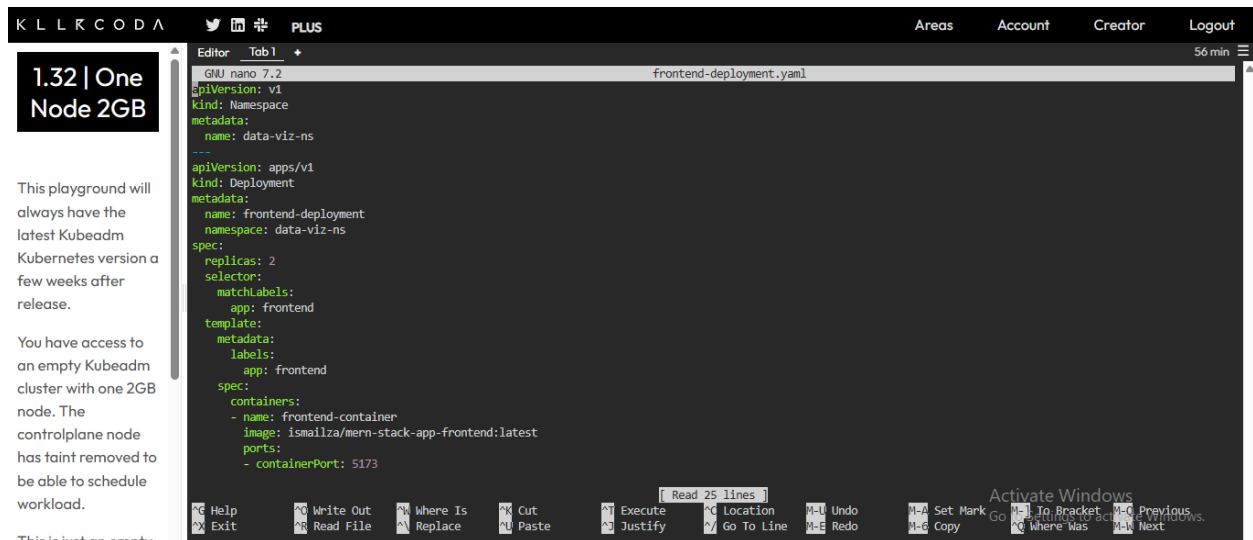
Question 1:




https://github.com/sahariq/SCD_Q1/tree/master





Question 2:



K L L R C O D A    PLUS Areas Account Creator Logout

1.32 | One Node 2GB

This playground will always have the latest Kubeadm Kubernetes version a few weeks after release.





















You have access to an empty Kubeadm cluster with one 2GB node. The controlplane node has taint removed to be able to schedule workload.

This is just an empty

Editor Tab1 + backend-deployment.yaml 56 min




GNU nano 7.2

apiVersion: apps/v1
kind: Deployment
metadata:
 name: backend-deployment
 namespace: data-viz-ns
spec:
 replicas: 2
 selector:
 matchLabels:
 app: backend
 template:
 metadata:
 labels:
 app: backend
 spec:
 containers:
 - name: backend-container
 image: ismaliza/mern-stack-app-backend:latest
 ports:
 - containerPort: 3000

 Help  Write Out  Where Is  Cut  Execute  Location  Undo  Set Mark  To Bracket  Previous
 Exit  Read File  Replace  Paste  Justify  Go To Line  Redo  Copy  Where Was  Next

Read 21 lines

Activate Windows
Go to Settings to activate Windows.

K L L R C O D A    PLUS Areas Account Creator Logout

1.32 | One Node 2GB

This playground will always have the latest Kubeadm Kubernetes version a few weeks after release.





















You have access to an empty Kubeadm cluster with one 2GB node. The controlplane node has taint removed to be able to schedule workload.

Editor Tab1 + mongodb-deployment.yaml 56 min

GNU nano 7.2




apiVersion: v1
kind: PersistentVolume
metadata:
 name: mongodb-pv
 namespace: data-viz-ns
spec:
 capacity:
 storage: 1Gi
 accessModes:
 - ReadWriteOnce
 hostPath:
 path: "/data/mongodb"

apiVersion: v1
kind: PersistentVolumeClaim
metadata:
 name: mongodb-pvc
 namespace: data-viz-ns
spec:
 accessModes:
 - ReadWriteOnce
 resources:
 requests:
 storage: 1Gi

 Help  Write Out  Where Is  Cut  Execute  Location  Undo  Set Mark  To Bracket  Previous
 Exit  Read File  Replace  Paste  Justify  Go To Line  Redo  Copy  Where Was  Next

Read 24 lines

Activate Windows
Go to Settings to activate Windows.

K L L R C O D A    PLUS Areas Account Creator Logout

1.32 | One Node 2GB

This playground will always have the latest Kubeadm Kubernetes version a few weeks after release.





















You have access to an empty Kubeadm cluster with one 2GB node. The controlplane node has taint removed to be able to schedule workload.

This is just an empty




Editor Tab1 + frontend-service.yaml * 50 min

GNU nano 7.2

apiVersion: v1
kind: Service
metadata:
 name: backend-service
 namespace: data-viz-ns
spec:
 type: NodePort
 selector:
 app: backend
 ports:
 - port: 3000
 targetPort: 3000
 nodePort: 30300

 Help  Write Out  Where Is  Cut  Execute  Location  Undo  Set Mark  To Bracket  Previous
 Exit  Read File  Replace  Paste  Justify  Go To Line  Redo  Copy  Where Was  Next

Activate Windows
Go to Settings to activate Windows.

K L L K C O D A    PLUS Areas Account Creator Logout

1.32 | One Node 2GB

This playground will always have the latest Kubeadm Kubernetes version a few weeks after release.




















You have access to an empty Kubeadm cluster with one 2GB node. The controlplane node has taint removed to be able to schedule workload.

This is just an empty




Editor Tab1 + GNU nano 7.2 backend-config.yaml * 50 min

apiVersion: v1
kind: ConfigMap
metadata:
 name: backend-config
 namespace: data-viz-ns
data:
 app_mode: production

apiVersion: v1
kind: Secret
metadata:
 name: backend-secret
 namespace: data-viz-ns
type: Opaque
data:
 db_user: YmRtaW4= # base64 for "admin"
 db_pass: c2NjcjM0 # base64 for "s3cr3t"

 Help
 Exit
 Write Out
 Read File
 Where Is
 Replace
 Cut
 Paste
 Execute
 Justify
 Location
 Go To Line
 Undo
 Redo
 Set Mark
 Go To Bracket
 Where Was
 Previous
 Next

Activate Windows
Go to Settings to activate Windows.

K L L K C O D A    PLUS Areas Account Creator Logout

1.32 | One Node 2GB




















This playground will always have the latest Kubeadm Kubernetes version a few weeks after release.

You have access to an empty Kubeadm cluster with one 2GB node. The controlplane node has taint removed to be able to schedule workload.




This is just an empty

Editor Tab1 + GNU nano 7.2 backend-deployment.yaml * 49 min

apiVersion: apps/v1
kind: Deployment
metadata:
 name: backend-deployment
 namespace: data-viz-ns
spec:
 replicas: 2
 selector:
 matchLabels:
 app: backend
 template:
 metadata:
 labels:
 app: backend
 spec:
 volumes:
 - name: shared-logs
 emptyDir: {}
 initContainers:
 - name: init-backend
 image: busybox
 command: ['sh', '-c', 'echo Initializing backend...; sleep 10']
 containers:
 - name: backend-container
 image: ismaliza/mern-stack-app-backend:latest
 ports:

 Help
 Exit
 Write Out
 Read File
 Where Is
 Replace
 Cut
 Paste
 Execute
 Justify
 Location
 Go To Line
 Undo
 Redo
 Set Mark
 Go To Bracket
 Where Was
 Previous
 Next

Activate Windows
Go to Settings to activate Windows.

K L L K C O D A    PLUS Areas Account Creator Logout

1.32 | One Node 2GB




















This playground will always have the latest Kubeadm Kubernetes version a few weeks after release.

You have access to an empty Kubeadm cluster with one 2GB node. The controlplane node has taint removed to be able to schedule workload.

This is just an empty

Editor Tab1 + GNU nano 7.2 backend-deployment.yaml * 49 min

- name: shared-logs
 mountPath: /var/log/shared
env:
 - name: APP_MODE
 valueFrom:
 configMapKeyRef:
 name: backend-config
 key: app_mode
 - name: DB_USER
 valueFrom:
 secretKeyRef:
 name: backend-secret
 key: db_user
 - name: DB_PASS
 valueFrom:
 secretKeyRef:
 name: backend-secret
 key: db_pass
 - name: sidecar-logger
 image: busybox
 command: ['sh', '-c', 'while true; do date >> /var/log/shared/app.log; sleep 5; done']
 volumeMounts:
 - name: shared-logs
 mountPath: /var/log/shared

 Help
 Exit
 Write Out
 Read File
 Where Is
 Replace
 Cut
 Paste
 Execute
 Justify
 Location
 Go To Line
 Undo
 Redo
 Set Mark
 Go To Bracket
 Where Was
 Previous
 Next

Activate Windows
Go to Settings to activate Windows.

```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: mongodb-pv
  namespace: data-viz-ns
spec:
  capacity:
    storage: 1Gi
  accessModes:
    - ReadWriteOnce
  hostPath:
    path: "/data/mongodb"
```

```
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: mongodb-pvc
  namespace: data-viz-ns
spec:
  accessModes:
    - ReadWriteOnce
  resources:
    requests:
      storage: 1Gi
```

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: mongodb-deployment
  namespace: data-viz-ns
spec:
  replicas: 1
  selector:
    matchLabels:
      app: mongodb
  template:
    metadata:
      labels:
        app: mongodb
    spec:
      containers:
        - name: mongodb
          image: mongo:latest
          ports:
            - containerPort: 27017
          volumeMounts:
            - name: mongodb-storage
              mountPath: /data/db
      volumes:
```

```
apiVersion: v1
kind: Service
metadata:
  name: frontend-service
  namespace: data-viz-ns
spec:
  type: NodePort
  selector:
    app: frontend
  ports:
    - port: 5173
      targetPort: 5173
      nodePort: 30173
```

```
apiVersion: v1
kind: Service
metadata:
  name: backend-service
  namespace: data-viz-ns
spec:
  type: NodePort
  selector:
    app: backend
  ports:
    - port: 3000
      targetPort: 3000
      nodePort: 30300
```

```
apiVersion: v1
kind: ConfigMap
metadata:
  name: backend-config
  namespace: data-viz-ns
data:
  app_mode: production
```

```
apiVersion: v1
kind: Secret
metadata:
  name: backend-secret
  namespace: data-viz-ns
type: Opaque
data:
  db_user: YWRtaW4=
  db_pass: czNjcjN0
```

```
controlplane:~$ kubectl get all -n data-viz-ns
```

NAME	READY	STATUS	RESTARTS	AGE
pod/backend-deployment-6b98454f75-68ckk	0/1	ImagePullBackOff	0	25m
pod/backend-deployment-6b98454f75-pb5rz	0/1	ImagePullBackOff	0	25m
pod/backend-deployment-6d97fd4c48-ccw4p	1/2	ImagePullBackOff	0	13m
pod/frontend-deployment-666d846958-9ctnq	1/1	Running	0	26m
pod/frontend-deployment-666d846958-lqn7r	1/1	Running	0	26m
pod/mongodb-deployment-5db7f6bb6f-2dp19	1/1	Running	0	4m6s

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
service/backend-service	NodePort	10.100.201.85	<none>	3000:30300/TCP	4m6s
service/frontend-service	NodePort	10.111.215.223	<none>	5173:30173/TCP	4m6s

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
deployment.apps/backend-deployment	0/2	1	0	25m
deployment.apps/frontend-deployment	2/2	2	2	26m
deployment.apps/mongodb-deployment	1/1	1	1	4m6s

NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/backend-deployment-6b98454f75	2	2	0	25m
replicaset.apps/backend-deployment-6d97fd4c48	1	1	0	13m
replicaset.apps/frontend-deployment-666d846958	2	2	2	26m
replicaset.apps/mongodb-deployment-5db7f6bb6f	1	1	1	4m6s

```
controlplane:~$
```

```
controlplane:~$ kubectl get pvc -n data-viz-ns
```

NAME	STATUS	VOLUME	CAPACITY	ACCESS MODES	STORAGECLASS	VOLUMEATTRIBUTESCLASS	AGE
mongodb-pvc	Bound	pvc-64a1dc7b-7fcb-43ff-905f-752ad286cf62	1Gi	RWO	local-path	<unset>	4m28s

```
controlplane:~$
```

```
controlplane:~$ kubectl get secret -n data-viz-ns
```

NAME	TYPE	DATA	AGE
backend-secret	Opaque	2	4m39s

```
controlplane:~$
```

```
controlplane:~$ kubectl get configmap -n data-viz-ns
```

NAME	DATA	AGE
backend-config	1	4m56s
kube-root-ca.crt	1	27m

```
controlplane:~$
```