

Q1 Ans

Vim postgres-configmap.yml

```
apiVersion: v1
kind: ConfigMap
metadata:
  name: postgres-config
  labels:
    app: postgres
data:
  POSTGRES_DB: postgresdb
  POSTGRES_USER: postgresadmin
  POSTGRES_PASSWORD: admin123
```

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl create -f postgres-configmap.yml
configmap/postgres-config created
```

vim postgres-storage.yml

```
kind: PersistentVolume
apiVersion: v1
metadata:
  name: postgres-pv-volume
  labels:
    type: local
    app: postgres
spec:
  storageClassName: manual
  capacity:
    storage: 5Gi
  accessModes:
    - ReadWriteMany
  hostPath:
    path: "/mnt/data"
```

```
---
kind: PersistentVolumeClaim
apiVersion: v1
metadata:
  name: postgres-pv-claim
  labels:
    app: postgres
spec:
  storageClassName: manual
  accessModes:
    - ReadWriteMany
  resources:
    requests:
      storage: 2Gi
```

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ vim postgres-storage.yml
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl create -f postgres-storage.yml
persistentvolume/postgres-pv-volume created
persistentvolumeclaim/postgres-pv-claim created
```

vim postgres-deployment.yml

```
apiVersion: apps/v1    #extensions/v1beta1
kind: Deployment
metadata:
  name: postgres
spec:
  replicas: 1
  selector:
    matchLabels:
      app: postgres
  template:
    metadata:
      labels:
        app: postgres
    spec:
      containers:
        - name: postgres
          image: postgres:10.4
          imagePullPolicy: "IfNotPresent"
          ports:
            - containerPort: 5432
          envFrom:
            - configMapRef:
                name: postgres-config
          volumeMounts:
            - mountPath: /var/lib/postgresql/data
              name: postgreddb
      volumes:
        - name: postgreddb
          persistentVolumeClaim:
            claimName: postgres-pv-claim
```

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ vim postgres-deployment.yml
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl create -f postgres-deployment.yml
deployment.apps/postgres created
```

vim postgres-service.yml

```
apiVersion: v1
kind: Service
metadata:
  name: postgres
  labels:
    app: postgres
spec:
  type: NodePort
  ports:
    - port: 5432
  selector:
    app: postgres
```

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ vim postgres-service.yml
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl create -f postgres-service.yml
service/postgres created
```

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl get svc
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	4d6h
postgres	NodePort	10.105.150.56	<none>	5432:30065/TCP	6m6s

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
mongo-deploy-554b9ff496-qzqjv	1/1	Running	1 (22m ago)	3d
nginx-deploy-cfd786575-xsfs5	1/1	Running	1 (22m ago)	3d1h
nodejs-deploy-75c7c86bc5-mddfh	1/1	Running	1 (22m ago)	3d1h
postgres-84ff4497db-8jdkk	1/1	Running	0	8m10s

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl get pv
```

NAME	CAPACITY	ACCESS MODES	RECLAIM POLICY	STATUS	CLAIM	STORAGECLASS	REASON	AGE
postgres-pv-volume	5Gi	RWX	Retain	Bound	default/postgres-pv-claim	manual		25m

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl get pvc
```

NAME	STATUS	VOLUME	CAPACITY	ACCESS MODES	STORAGECLASS	AGE
postgres-pv-claim	Bound	postgres-pv-volume	5Gi	RWX	manual	24m

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl cluster-info
```

Kubernetes control plane is running at <https://192.168.59.100:8443>
CoreDNS is running at <https://192.168.59.100:8443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy>

Q2)

kubectl create namespace internship

kubectl run psql-pod --image=postgres:10.4 --namespace=internship

kubectl get pod --namespace internship

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl get pod --namespace internship
```

NAME	READY	STATUS	RESTARTS	AGE
psql-pod	1/1	Running	0	36s

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl create namespace internship
```

namespace/internship created

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl run psql-pod --image=postgres:10.4 --namespace=internship
```

pod/psql-pod created

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl get pod
```

NAME	READY	STATUS	RESTARTS	AGE
mongo-deploy-554b9ff496-qzqjv	1/1	Running	3 (41m ago)	5d13h
nginx-deploy-cfd786575-xsfs5	1/1	Running	3 (41m ago)	5d14h
nodejs-deploy-75c7c86bc5-mddfh	1/1	Running	3 (41m ago)	5d13h
postgres-84ff4497db-bf4fm	1/1	Running	0	40m

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl get pod --namespace internship
```

NAME	READY	STATUS	RESTARTS	AGE
psql-pod	1/1	Running	0	36s

Q3.

```
kubectl exec -it psql-pod --namespace internship /bin/bash
```

```
psql -h postgres.default -U postgresadmin -p 5432 -d postgresdb
```

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ kubectl exec -it psql-pod --namespace internship /bin/bash
kubectl exec [POD] [COMMAND] is DEPRECATED and will be removed in a future version. Use kubectl exec [POD] -- [COMMAND] instead.
root@psql-pod:/# psql -h postgres.default -U postgresadmin --password -p 31790 postgresdb
Password for user postgresadmin:
psql: could not connect to server: Connection timed out
        Is the server running on host "postgres.default" (10.110.116.5) and accepting
        TCP/IP connections on port 31790?
root@psql-pod:/# ^C
root@psql-pod:/# psql -h postgres.default -U postgresadmin --password -p 5432 -d postgresdb
Password for user postgresadmin:
psql (10.4 (Debian 10.4-2.pgdg90+1))
Type "help" for help.

postgresdb=#
```

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ psql -h 192.168.59.100 -U postgresadmin --password -p 30065 postgresdb
Password:
psql (12.9 (Ubuntu 12.9-0ubuntu0.20.04.1), server 10.4 (Debian 10.4-2.pgdg90+1))
Type "help" for help.

postgresdb=# CREATE DATABASE internship;
CREATE DATABASE
postgresdb=#
```

Q4.

CREATE DATABASE internship;
(give password of postgres)

\l
(to see database)

\c internship
(use database internship)

```
saroj@saroj-Inspiron-3576:~/Downloads/LFAssignment/postgres-yml-file$ psql -h 192.168.59.100 -U postgresadmin --password -p 30065 postgresdb
Password:
psql (12.9 (Ubuntu 12.9-0ubuntu0.20.04.1), server 10.4 (Debian 10.4-2.pgdg90+1))
Type "help" for help.

postgresdb=# CREATE DATABASE internship;
CREATE DATABASE
postgresdb=# \c internship;
Password:
fe_sendauth: no password supplied
Previous connection kept
postgresdb=# \l

          List of databases
  Name      | Owner      | Encoding | Collate   | Ctype     | Access privileges
-----+-----+-----+-----+-----+-----
 internship | postgresadmin | UTF8     | en_US.utf8 | en_US.utf8 | 
 postgres  | postgres     | UTF8     | en_US.utf8 | en_US.utf8 | 
 postgresdb | postgres     | UTF8     | en_US.utf8 | en_US.utf8 | 
 template0 | postgres     | UTF8     | en_US.utf8 | en_US.utf8 | =c/postgres +
           |               |          |            |            | postgres=CTc/postgres
 template1 | postgres     | UTF8     | en_US.utf8 | en_US.utf8 | =c/postgres +
           |               |          |            |            | postgres=CTc/postgres
(5 rows)
```

```
internship=# CREATE TABLE DEPARTMENT(
internship(# ID INT PRIMARY KEY NOT NULL,
```

```
internship(# DEPT      CHAR(50) NOT NULL,  
internship(# EMP_ID    INT      NOT NULL  
internship(# );
```

\d (to list tables)

```
postgresdb=# \c internship;  
Password:  
psql (12.9 (Ubuntu 12.9-0ubuntu0.20.04.1), server 10.4 (Debian 10.4-2.pgdg90+1))  
You are now connected to database "internship" as user "postgresadmin".  
internship=# CREATE TABLE DEPARTMENT(  
internship(#      ID INT PRIMARY KEY      NOT NULL,  
internship(#      DEPT      CHAR(50) NOT NULL,  
internship(#      EMP_ID      INT      NOT NULL  
internship(# );  
CREATE TABLE  
internship=# \d  
              List of relations  
Schema |      Name      | Type |      Owner  
-----+-----+-----+-----  
public | department | table | postgresadmin  
(1 row)
```