Network Polices:

```
initialising Kubernetes... done

controlplane:~$ vi forntend.yaml
controlplane:~$ kubectl apply -f forntend.yaml
deployment.apps/frontend created
controlplane:~$ vi frontendsvc.yaml
controlplane:~$ kubectl apply -f frontendsvc.yaml
service/frontendsvc created
controlplane:~$ vi backend.yaml
controlplane:~$ kubectl apply -f backend.yaml
deployment.apps/backend created
controlplane:~$ vi backendsvc.yaml
controlplane:~$ vi sql.yaml
controlplane:~$ vi sqlsvc.yaml
controlplane:~$ kubectl apply -f backendsvc.yaml
service/backend created
controlplane:~$ kubectl apply -f sql.yaml
deployment.apps/mysql created
controlplane:~$ kubectl apply -f sqlsvc.yaml
service/mysql created
controlplane:~$ kubectl get pods
NAME                        READY   STATUS            RESTARTS   AGE
backend-77577ff4c6-2mdpr    1/1     Running           0          2m17s
backend-77577ff4c6-hwdpc    1/1     Running           0          2m17s
backend-77577ff4c6-q4dbm    1/1     Running           0          2m17s
frontend-c44bff498-5r5qb    1/1     Running           0          3m53s
frontend-c44bff498-rlcp4    1/1     Running           0          3m53s
mysql-6f67955fdd-cfrwt      0/1     ContainerCreating 0          16s
controlplane:~$ kubectl get svc
NAME          TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
backend       ClusterIP   10.96.153.59    <none>        80/TCP     38s
frontendsvc   ClusterIP   10.109.42.120   <none>        80/TCP     3m11s
kubernetes    ClusterIP   10.96.0.1       <none>        443/TCP    22d
mysql         ClusterIP   10.103.77.35    <none>        3306/TCP   15s
controlplane:~$ kubectl get pods
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controlplane:~$ kubectl get pods
NAME                        READY   STATUS    RESTARTS   AGE
backend-77577ff4c6-2mdpr    1/1     Running   0          2m41s
backend-77577ff4c6-hwdpc    1/1     Running   0          2m41s
backend-77577ff4c6-q4dbm    1/1     Running   0          2m41s
frontend-c44bff498-5r5qb    1/1     Running   0          4m17s
frontend-c44bff498-rlcp4    1/1     Running   0          4m17s
mysql-6f67955fdd-cfrwt      1/1     Running   0          40s
controlplane:~$ vi network.yaml
controlplane:~$ kubectl apply -f network.yaml
networkpolicy.networking.k8s.io/deny-frontend-access created
controlplane:~$ kubectl exec -it frontend-c44bff498-5r5qb -- bin/bash
root@frontend-c44bff498-5r5qb:/# telnet mysql:3306
bash: telnet: command not found
```

```
After this operation, 353 kB of additional disk space will be used.
Get:1 http://deb.debian.org/debian bookworm/main amd64 netbase all 6.4 [12.8 kB]
Get:2 http://deb.debian.org/debian bookworm/main amd64 inetutils-telnet amd64 2:2.4-2+deb12u1 [120 kB]
Get:3 http://deb.debian.org/debian bookworm/main amd64 telnet all 0.17+2.4-2+deb12u1 [41.1 kB]
Fetched 174 kB in 0s (1032 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package netbase.
(Reading database ... 7582 files and directories currently installed.)
Preparing to unpack .../archives/netbase_6.4_all.deb ...
Unpacking netbase (6.4) ...
Selecting previously unselected package inetutils-telnet.
Preparing to unpack .../inetutils-telnet_2%3a2.4-2+deb12u1_amd64.deb ...
Unpacking inetutils-telnet (2:2.4-2+deb12u1) ...
Selecting previously unselected package telnet.
Preparing to unpack .../telnet_0.17+2.4-2+deb12u1_all.deb ...
Unpacking telnet (0.17+2.4-2+deb12u1) ...
Setting up netbase (6.4) ...
Setting up inetutils-telnet (2:2.4-2+deb12u1) ...
update-alternatives: using /usr/bin/inetutils-telnet to provide /usr/bin/telnet (telnet) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/telnet.1.gz because associated file /usr/share/man/man1/inetutils-telnet.1.gz
(of link group telnet) doesn't exist
Setting up telnet (0.17+2.4-2+deb12u1) ...
root@backend-77577ff4c6-2mdpr:/# telnet mysql 3006
Trying 10.103.77.35...
telnet: Unable to connect to remote host: Connection timed out
root@backend-77577ff4c6-2mdpr:/# telnet mysql 3306
Trying 10.103.77.35...
Connected to mysql.
Escape character is '^]'.
J
8.0.4_,
S-caching_sha2_password2#08S01Got timeout reading communication packetsConnection closed by foreign host.
root@backend-77577ff4c6-2mdpr:/# exit
exit
```

```
controlplane:~$ kubectl exec -it frontend-5d8b78c6f4-bx9x4 -- bin/bash
root@frontend-5d8b78c6f4-bx9x4:/# apt update -y
Get:1 http://deb.debian.org/debian bookworm InRelease [151 kB]
Get:2 http://deb.debian.org/debian bookworm-updates InRelease [55.4 kB]
Get:3 http://deb.debian.org/debian-security bookworm-security InRelease [48.0 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 Packages [8792 kB]
Get:5 http://deb.debian.org/debian bookworm-updates/main amd64 Packages [512 B]
Get:6 http://deb.debian.org/debian-security bookworm-security/main amd64 Packages [254 kB]
Fetched 9301 kB in 3s (3484 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
1 package can be upgraded. Run 'apt list --upgradable' to see it.
root@frontend-5d8b78c6f4-bx9x4:/# apt install telnet
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  inetutils-telnet netbase
The following NEW packages will be installed:
  inetutils-telnet netbase telnet
0 upgraded, 3 newly installed, 0 to remove and 1 not upgraded.
Need to get 174 kB of archives.
After this operation, 353 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://deb.debian.org/debian bookworm/main amd64 netbase all 6.4 [12.8 kB]
Get:2 http://deb.debian.org/debian bookworm/main amd64 inetutils-telnet amd64 2:2.4-2+deb12u1 [120 kB]
Get:3 http://deb.debian.org/debian bookworm/main amd64 telnet all 0.17+2.4-2+deb12u1 [41.1 kB]
Fetched 174 kB in 0s (1087 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package netbase.
(Reading database ... 7582 files and directories currently installed.)
Preparing to unpack .../archives/netbase_6.4_all.deb ...
```

```
Unpacking inetutils-telnet (2:2.4-2+deb12u1) ...
Selecting previously unselected package telnet.
Preparing to unpack .../telnet_0.17+2.4-2+deb12u1_all.deb ...
Unpacking telnet (0.17+2.4-2+deb12u1) ...
Setting up netbase (6.4) ...
Setting up inetutils-telnet (2:2.4-2+deb12u1) ...
update-alternatives: using /usr/bin/inetutils-telnet to provide /usr/bin/telnet (telnet) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/telnet.1.gz because associated file /usr/share/man/man1/inetutils-telnet
(of link group telnet) doesn't exist
Setting up telnet (0.17+2.4-2+deb12u1) ...
root@frontend-5d8b78c6f4-bx9x4:/# telnet mysql 3306
Trying 10.103.77.35...
```

```
controlplane:~$ kubectl exec -it frontend-5d8b78c6f4-bx9x4 -- bin/bash
root@frontend-5d8b78c6f4-bx9x4:/# curl backend  80
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
```