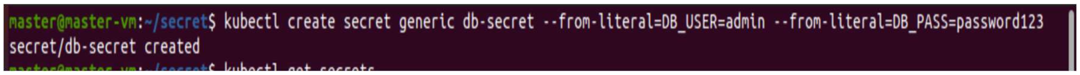
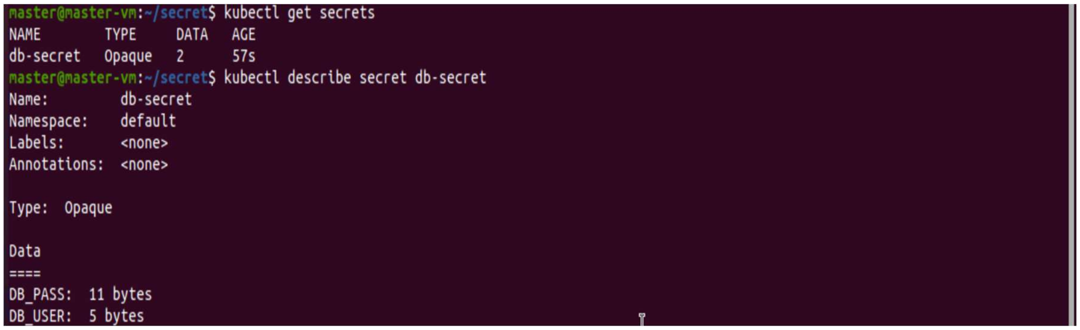
Exercise 5: Create and Use a Secret

1. **Create a Secret for database credentials:**



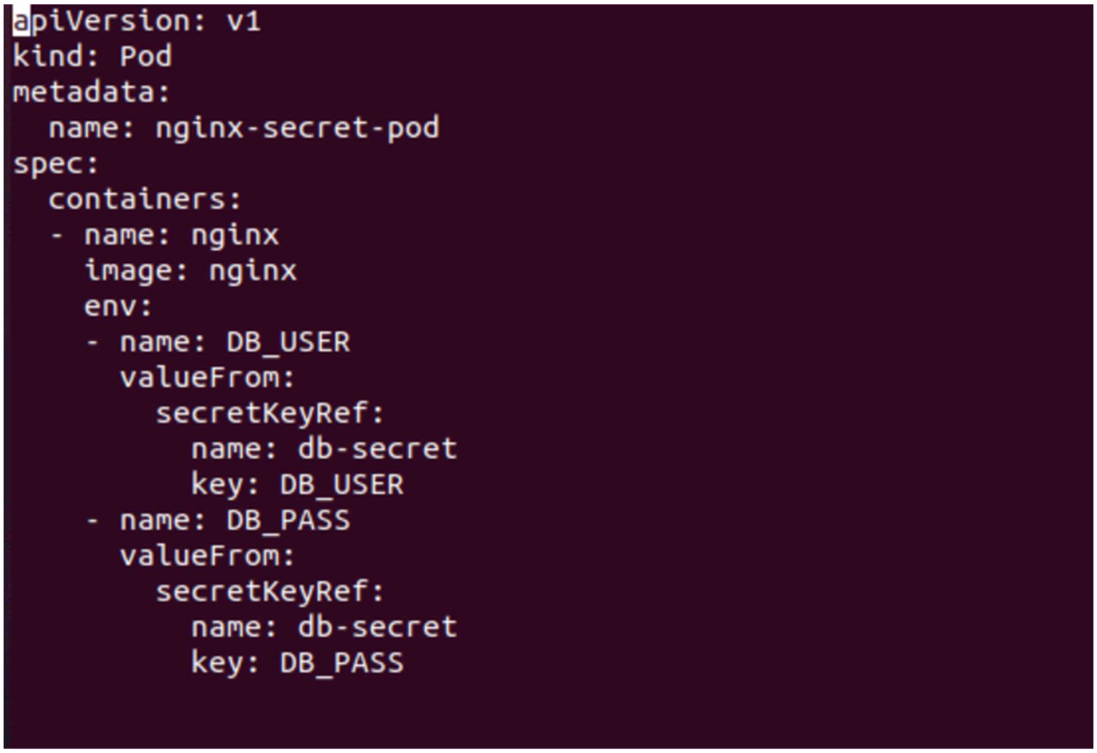
```
master@master-vm:~/secret$ kubectl create secret generic db-secret --from-literal=DB_USER=admin --from-literal=DB_PASS=password123
secret/db-secret created
master@master-vm:~/secret$ kubectl get secrets
```

2. **Verify the Secret:**



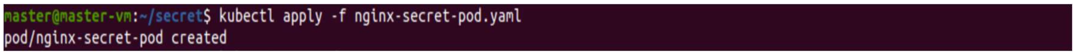
```
master@master-vm:~/secret$ kubectl get secrets
NAME        TYPE     DATA   AGE
db-secret   Opaque   2      57s
master@master-vm:~/secret$ kubectl describe secret db-secret
Name:         db-secret
Namespace:    default
Labels:       <none>
Annotations:  <none>

Type:  Opaque

Data
====
DB_PASS:  11 bytes
DB_USER:  5 bytes
```

3. **Create a Pod that uses the Secret (nginx-secret-pod.yaml):**



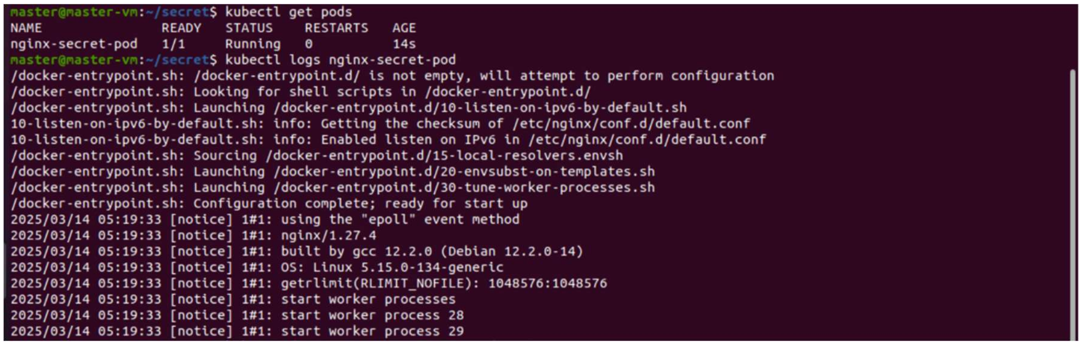
```
apiVersion: v1
kind: Pod
metadata:
  name: nginx-secret-pod
spec:
  containers:
  - name: nginx
    image: nginx
    env:
    - name: DB_USER
      valueFrom:
        secretKeyRef:
          name: db-secret
          key: DB_USER
    - name: DB_PASS
      valueFrom:
        secretKeyRef:
          name: db-secret
          key: DB_PASS
```

4. **Deploy the pod:**



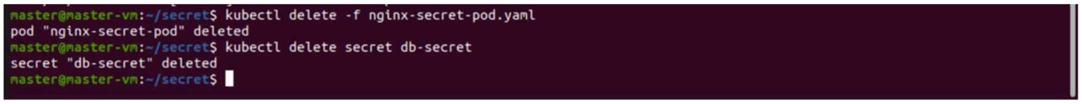
```
master@master-vm:~/secret$ kubectl apply -f nginx-secret-pod.yaml
pod/nginx-secret-pod created
```

5. **Check the pod and logs:**



```
master@master-vm:~/secret$ kubectl get pods
NAME               READY   STATUS    RESTARTS   AGE
nginx-secret-pod   1/1     Running   0          14s
master@master-vm:~/secret$ kubectl logs nginx-secret-pod
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2025/03/14 05:19:33 [notice] 1#1: using the "epoll" event method
2025/03/14 05:19:33 [notice] 1#1: nginx/1.27.4
2025/03/14 05:19:33 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2025/03/14 05:19:33 [notice] 1#1: OS: Linux 5.15.0-134-generic
2025/03/14 05:19:33 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2025/03/14 05:19:33 [notice] 1#1: start worker processes
2025/03/14 05:19:33 [notice] 1#1: start worker process 28
2025/03/14 05:19:33 [notice] 1#1: start worker process 29
```

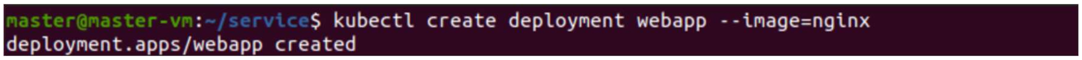
6. **Delete the pod and Secret:**



```
master@master-vm:~/secret$ kubectl delete -f nginx-secret-pod.yaml
pod "nginx-secret-pod" deleted
master@master-vm:~/secret$ kubectl delete secret db-secret
secret "db-secret" deleted
master@master-vm:~/secret$
```

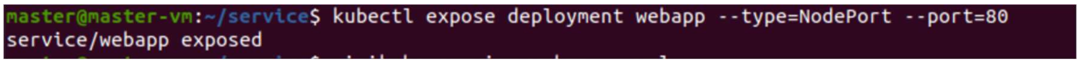
Exercise 6: Create and Expose a Service

1. **Create a deployment:**



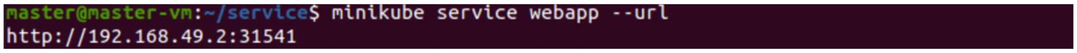
```
master@master-vm:~/service$ kubectl create deployment webapp --image=nginx
deployment.apps/webapp created
```

2. **Expose the deployment using a service:**



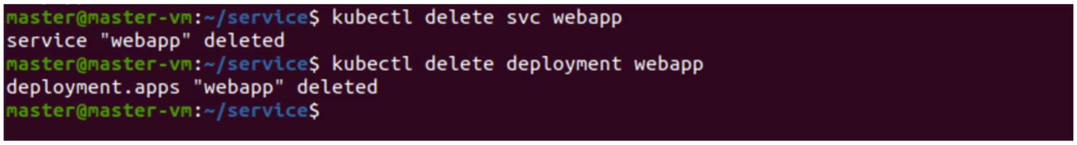
```
master@master-vm:~/service$ kubectl expose deployment webapp --type=NodePort --port=80
service/webapp exposed
```

3. **Access the service (Minikube users):**



```
master@master-vm:~/service$ minikube service webapp --url
http://192.168.49.2:31541
```

4. **Delete the service and deployment:**



```
master@master-vm:~/service$ kubectl delete svc webapp
service "webapp" deleted
master@master-vm:~/service$ kubectl delete deployment webapp
deployment.apps "webapp" deleted
master@master-vm:~/service$
```