

KUBERNETES ASSIGNMENT 3

Exercise 1: Create and Use a Secret

Step 1: Create a Secret for database credentials:

```
kubectl create secret generic db-secret --from-literal=DB_USER=admin --from-literal=DB_PASS=password123
```

Step 2: Verify the Secret:

```
kubectl get secrets
```

```
kubectl describe secret db-secret
```

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

Step 4: Deploy the pod:

```
kubectl apply -f nginx-secret-pod.yaml
```

Step 5: Check the pod and logs:

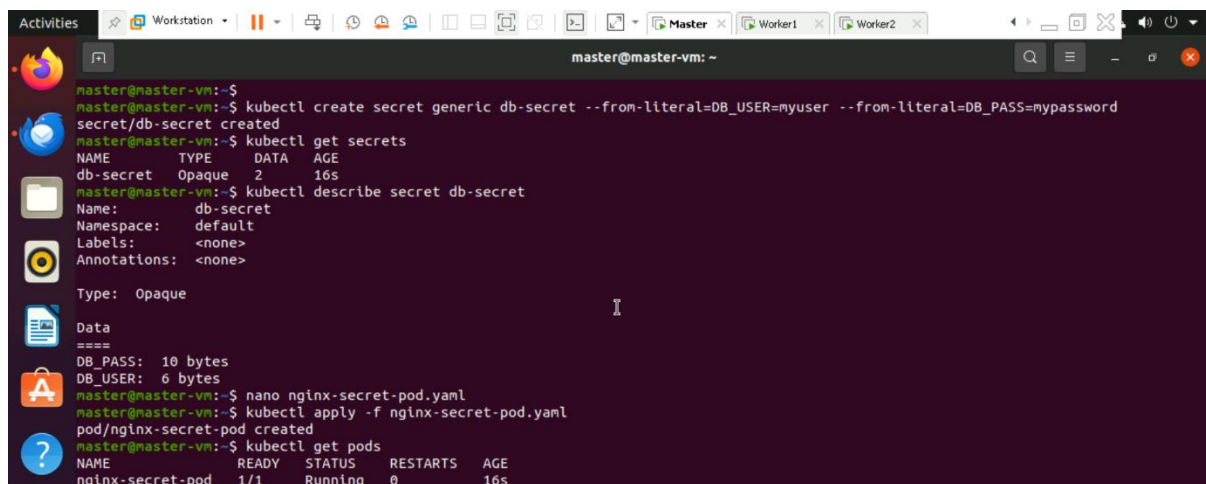
```
kubectl get pods
```

```
kubectl logs nginx-secret-pod
```

Step 6: Delete the pod and Secret:

```
kubectl delete -f nginx-secret-pod.yaml
```

```
kubectl delete secret db-secret
```



The screenshot shows a terminal window with the following commands and output:

```
master@master-vn:~$ kubectl create secret generic db-secret --from-literal=DB_USER=myuser --from-literal=DB_PASS=mypassword
secret/db-secret created
master@master-vn:~$ kubectl get secrets
NAME          TYPE      DATA   AGE
db-secret     Opaque    2        16s
master@master-vn:~$ kubectl describe secret db-secret
Name:         db-secret
Namespace:    default
Labels:       <none>
Annotations:  <none>

Type: Opaque

Data
====
DB_PASS: 10 bytes
DB_USER: 6 bytes
master@master-vn:~$ nano nginx-secret-pod.yaml
master@master-vn:~$ kubectl apply -f nginx-secret-pod.yaml
pod/nginx-secret-pod created
master@master-vn:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
nginx-secret-pod 1/1     Running   0           16s
```

```
master@master-vm:~$ 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
2025/03/13 12:11:52 [notice] 1#1: using the "epoll" event method
2025/03/13 12:11:52 [notice] 1#1: nginx/1.27.4
2025/03/13 12:11:52 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2025/03/13 12:11:52 [notice] 1#1: OS: Linux 5.15.0-134-generic
2025/03/13 12:11:52 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2025/03/13 12:11:52 [notice] 1#1: start worker processes
2025/03/13 12:11:52 [notice] 1#1: start worker process 29
2025/03/13 12:11:52 [notice] 1#1: start worker process 30
master@master-vm:~$ kubectl delete -f nginx-secret-pod.yaml
pod "nginx-secret-pod" deleted
master@master-vm:~$ kubectl delete secret db-secret
secret "db-secret" deleted
master@master-vm:~$
```

Exercise 2: Create and Expose a Service

Step 1: Create a deployment:

```
kubectl create deployment webapp --image=nginx
```

Step 2: Expose the deployment using a service:

```
kubectl expose deployment webapp --type=NodePort --port=80
```

Step 3: Get service details:

```
kubectl get svc webapp
```

Step 4: Access the service (Minikube users):

```
minikube service webapp --url
```

Step 5: Delete the service and deployment:

```
kubectl delete svc webapp
```

```
kubectl delete deployment webapp
```

```
master@master-vm:~$ kubectl create deployment webapp --image=nginx
deployment.apps/webapp created
master@master-vm:~$ kubectl expose deployment webapp --type=NodePort --port=80
service/webapp exposed
master@master-vm:~$ kubectl get svc webapp
NAME      TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
webapp    NodePort    10.99.159.21 <none>        80:30635/TCP 16s
master@master-vm:~$ minikube service webapp --url
http://192.168.49.2:30635
master@master-vm:~$ kubectl delete svc webapp
service "webapp" deleted
master@master-vm:~$ kubectl delete deployment webapp
deployment.apps "webapp" deleted
master@master-vm:~$
```