K8s Lab4

1.
```
[mosama@localhost terraform_lab2]$ kubectl get configmaps
NAME                 DATA    AGE
kube-root-ca.crt     1       4d
```

2.
```
[mosama@localhost terraform_lab2]$ kubectl create configmap webapp-config-map --from-literal=APP_COLOR=darkblue
configmap/webapp-config-map created
```

3.
```
apiVersion: v1
kind: Pod
metadata:
  name: webapp-color
spec:
  containers:
  - name: nginx-container
    image: nginx
    envFrom:
    - configMapRef:
        name: webapp-config-map
```

4.
```
[mosama@localhost ~]$ kubectl get secrets
No resources found in default namespace.
```

5. No secrets in the system

6.
```
[mosama@localhost ~]$ kubectl run db-pod --image=mysql:5.7
pod/db-pod created
[mosama@localhost ~]$ kubectl get pod db-pod
NAME      READY   STATUS             RESTARTS        AGE
db-pod    0/1     CrashLoopBackOff   7 (2m58s ago)   16m
```

7. This is because **Missing Required Environment Variables**: The MySQL container requires the `MYSQL_ROOT_PASSWORD` variable to be set. If this is missing, the container will fail to start.

8.
```
apiVersion : v1
kind : Secret
metadata:
    name : db-secret
data:
    MYSQL_DATABASE: c3FsMDEK
    MYSQL_USER: dXNlcjEK
    MYSQL_PASSWORD: cGFzc3dvcmQK
    MYSQL_ROOT_PASSWORD: cGFzc3dvcmQxMjMK
```

9.
```yaml
apiVersion: v1
kind: Pod
metadata:
  name: db-pod
spec:
  containers:
  - name: mysql-container
    image: mysql:5.7
    envFrom:
    - secretRef:
        name: db-secret
```

10.
```yaml
apiVersion: v1
kind: Pod
metadata:
  name: yellow
spec:
  containers:
  - name: lemon
    image: busybox
  - name: gold
    image: redis
```

11.
```yaml
apiVersion: v1
kind: Pod
metadata:
  name: red
spec:
  initContainers:
  - name: init-sleep
    image: busybox
    command: ["sh", "-c", "sleep 20"]
  containers:
  - name: redis
    image: redis
```

12.

```
apiVersion: v1
kind: Pod
metadata:
  name: print-envars-greeting
spec:
  containers:
  - name: print-env-container
    image: bash
    env:
    - name: GREETING
      value: "Welcome to"
    - name: COMPANY
      value: "DevOps"
    - name: GROUP
      value: "Industries"
    command: ["bash", "-c", "echo [\"$GREETING $COMPANY $GROUP\"]"]
~
```

```
[mosama@localhost ~]$ kubectl logs print-envars-greeting
[Welcome to DevOps Industries]
```

13. The default kubeconfig file is typically located at: ~/.kube/config

14. only 1 cluster
```
[mosama@localhost ~]$ kubectl config get-clusters
NAME
minikube
```

15. The user configured in the current context is minikube

```
- context:
    cluster: minikube
    extensions:
    - extension:
        last-update: Thu, 31 Oct 2024 20:30:33 EEST
        provider: minikube.sigs.k8s.io
        version: v1.34.0
      name: context_info
    namespace: default
    user: minikube
  name: minikube
current-context: minikube
```

16.
```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: pv-log
spec:
  capacity:
    storage: 100Mi
  accessModes:
    - ReadWriteMany
  hostPath:
    path: /pv/log
```

17.
```
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: claim-log-1
spec:
  accessModes:
    - ReadWriteMany
  resources:
    requests:
      storage: 50Mi
~
```

18.
```
apiVersion: v1
kind: Pod
metadata:
  name: webapp
spec:
  containers:
  - name: webapp-container
    image: nginx  # You can replace this with your preferred web application image
    volumeMounts:
    - mountPath: /usr/share/nginx/html  # Path inside the container where the volume will be mounted
      name: webapp-storage
  volumes:
  - name: webapp-storage
    persistentVolumeClaim:
      claimName: claim-log-1  # Reference to the PersistentVolumeClaim
~
```

```
[mosama@localhost ~]$ kubectl describe pvc claim-log
Name:           claim-log
Namespace:      default
StorageClass:
Status:         Bound
Volume:         pv-log
```