K8S LAB 1

1.
```
[mosama@localhost ~]$ kubectl get nodes
NAME       STATUS   ROLES           AGE   VERSION
minikube   Ready    control-plane   14h   v1.31.0
[mosama@localhost ~]$
```

2.
```
[mosama@localhost ~]$ kubectl run redis --image=redis
pod/redis created
[mosama@localhost ~]$ kubectl get pods
NAME    READY   STATUS              RESTARTS   AGE
redis   0/1     ContainerCreating   0          13s
[mosama@localhost ~]$ kubectl get pods
NAME    READY   STATUS    RESTARTS   AGE
redis   1/1     Running   0          117s
[mosama@localhost ~]$
```

3.
```
[mosama@localhost ~]$ kubectl apply -f nginx_pod.yaml
pod/nginx created
```

```
apiVersion: v1
kind: Pod
metadata:
  name: nginx
spec:
  containers:
  - image: nginx123
    name: nginx
~
```

4. it’s status is imagepullbackoff

```
[mosama@localhost ~]$ kubectl get pod nginx
NAME    READY   STATUS             RESTARTS   AGE
nginx   0/1     ImagePullBackOff   0          2m24s
```

5.
```
[mosama@localhost ~]$ kubectl apply -f nginx_pod.yaml
pod/nginx configured
[mosama@localhost ~]$ kubectl get pod nginx
NAME    READY   STATUS    RESTARTS   AGE
nginx   1/1     Running   0          5m37s
[mosama@localhost ~]$
```

```
apiVersion: v1
kind: Pod
metadata:
  name: nginx
spec:
  containers:
  - image: nginx
    name: nginx
~
```

6.
```
[mosama@localhost ~]$ kubectl get rs
No resources found in default namespace.
```

7.
```yaml
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: replica-set-1
spec:
  replicas: 3
  selector:
    matchLabels:
      app: replica-set-1
  template:
    metadata:
      labels:
        app: replica-set-1
    spec:
      containers:
      - image: busybox
        name: busybox
```

```
[mosama@localhost ~]$ kubectl apply -f replicaset.yaml
replicaset.apps/replica-set-1 created
[mosama@localhost ~]$ kubectl get rs
NAME            DESIRED   CURRENT   READY   AGE
replica-set-1   3         3         0       11m
```

8.
```
[mosama@localhost ~]$ kubectl scale replicaset replica-set-1 --replicas=5
replicaset.apps/replica-set-1 scaled
[mosama@localhost ~]$ kubectl get rs
NAME            DESIRED   CURRENT   READY   AGE
replica-set-1   5         5         0       39m
[mosama@localhost ~]$
```

9. 0 pods are ready

```
[mosama@localhost ~]$ kubectl get rs replica-set-1
NAME            DESIRED   CURRENT   READY   AGE
replica-set-1   5         5         0       43m
```

10.
```
[mosama@localhost ~]$ kubectl delete pod replica-set-1-d8q2t
pod "replica-set-1-d8q2t" deleted
[mosama@localhost ~]$ kubectl get pods
NAME                READY   STATUS             RESTARTS         AGE
nginx               1/1     Running            0                60m
redis               1/1     Running            0                73m
replica-set-1-8z5rq 0/1     CrashLoopBackOff   1 (10s ago)      15s
replica-set-1-hdgpz 0/1     CrashLoopBackOff   5 (2m42s ago)    6m28s
replica-set-1-sfhmf 0/1     CrashLoopBackOff   13 (3m4s ago)    45m
replica-set-1-sxkqg 0/1     CrashLoopBackOff   13 (2m52s ago)   45m
replica-set-1-v54dv 0/1     CrashLoopBackOff   6 (20s ago)      6m28s
```

There is still 5 Pods because replica-set controller monitors the replicas number of pods and ensures they are still 5 replicas even if you deleted any one

11 . Only 1 Replicaset and 0 Deployments

```
[mosama@localhost ~]$ kubectl get rs,deployment
NAME                              DESIRED   CURRENT   READY   AGE
replicaset.apps/replica-set-1     5         5         0       48m
```

12.

```
[mosama@localhost ~]$ kubectl create deployment deployment-1 --image=busybox --replicas=3
deployment.apps/deployment-1 created
[mosama@localhost ~]$
[mosama@localhost ~]$ kubectl get deployment
NAME           READY   UP-TO-DATE   AVAILABLE   AGE
deployment-1   0/3     3            0           19s
```

13. 2 repliacsets and 1 deployment

```
[mosama@localhost ~]$ kubectl get rs,deployment
NAME                                     DESIRED   CURRENT   READY   AGE
replicaset.apps/deployment-1-ff566d7fb   3         3         0       82s
replicaset.apps/replica-set-1            5         5         0       52m

NAME                           READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/deployment-1   0/3     3            0           82s
```

14. There is no pods ready from deployment-1

15. All the 3 pods are ready

```
[mosama@localhost ~]$ kubectl set image deployment/deployment-1 busybox=nginx
deployment.apps/deployment-1 image updated
[mosama@localhost ~]$ kubectl get deployment
NAME           READY   UP-TO-DATE   AVAILABLE   AGE
deployment-1   3/3     3            3           11m
```

16. it used rolling update strategy as method for updating

```
Normal  ScalingReplicaSet  112s   deployment-controller  Scaled down replica set deployment-1-ff566d7fb to 2 from 3
Normal  ScalingReplicaSet  112s   deployment-controller  Scaled up replica set deployment-1-c6cd7d9db to 1 from 0
Normal  ScalingReplicaSet  108s   deployment-controller  Scaled down replica set deployment-1-ff566d7fb to 1 from 2
Normal  ScalingReplicaSet  108s   deployment-controller  Scaled up replica set deployment-1-c6cd7d9db to 2 from 1
Normal  ScalingReplicaSet  103s   deployment-controller  Scaled down replica set deployment-1-ff566d7fb to 0 from 1
Normal  ScalingReplicaSet  103s   deployment-controller  Scaled up replica set deployment-1-c6cd7d9db to 3 from 2
```

17.

```
[mosama@localhost ~]$ kubectl rollout undo deployment/deployment-1
deployment.apps/deployment-1 rolled back
```

```
  Labels:  app=deployment-1
  Containers:
   busybox:
    Image:         busybox123
```

it returned to the old image busybox

18.

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: nginx-app
  name: nginx-deployment
spec:
  replicas: 3
  selector:
    matchLabels:
      app: nginx-app
      type: front-end
  template:
    metadata:
      labels:
        app: nginx-app
        type: front-end
    spec:
      containers:
      - image: nginx:latest
        name: nginx-container
```

```
[mosama@localhost ~]$ kubectl apply -f nginx-deployment.yaml
deployment.apps/nginx-deployment created
[mosama@localhost ~]$ kubectl get deployment nginx-deployment
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   3/3     3            3           68s
```