Step 1 - Creating a Deployment

Create a YAML File for a Deployment containing 5 replicas

vi deployment.yaml

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
  labels:
    app: nginx
spec:
  replicas: 5
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
      - name: nginx
        image: nginx:1.14.2
        ports:
        - containerPort: 80
```

```
[root@kubernetes-master:/home/ubuntu# vi deployment.yaml
[root@kubernetes-master:/home/ubuntu# kubectl create -f deployment.yaml
deployment.apps/nginx-deployment created
```

Validate the Deployment and NGINX version 1.14.2
kubectl get deployment

kubectl describe deployment

```
root@kubernetes-master:/home/ubuntu# vi deployment.yaml
root@kubernetes-master:/home/ubuntu# kubectl create -f deployment.yaml
deployment.apps/nginx-deployment created
root@kubernetes-master:/home/ubuntu# kubectl get deployments
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   5/5     5            5           9s
root@kubernetes-master:/home/ubuntu# kubectl describe deployments
Name:                   nginx-deployment
Namespace:              default
CreationTimestamp:      Sat, 11 Apr 2020 20:44:37 +0000
Labels:                 app=nginx
Annotations:            deployment.kubernetes.io/revision: 1
Selector:               app=nginx
Replicas:               5 desired | 5 updated | 5 total | 5 available | 0 unavailab
StrategyType:           RollingUpdate
MinReadySeconds:        0
RollingUpdateStrategy:  25% max unavailable, 25% max surge
Pod Template:
  Labels:  app=nginx
  Containers:
   nginx:
    Image:        nginx:1.14.2
    Port:         80/TCP
    Host Port:    0/TCP
    Environment:  <none>
    Mounts:       <none>
  Volumes:        <none>
Conditions:
  Type           Status   Reason
  Available      True     MinimumReplicasAvailable
```

Step 2 - Update a deployment with NGINX Image 1.16.1

kubectl --record deployment.apps/nginx-deployment set image deployment.v1.apps/nginx-deployment nginx=nginx:1.16.1

```
root@kubernetes-master:/home/ubuntu# kubectl --record deployment.apps/nginx-deployment set image deployment.v1.apps/nginx-deployment nginx=nginx:1.16.1
deployment.apps/nginx-deployment image updated
deployment.apps/nginx-deployment image updated
root@kubernetes-master:/home/ubuntu# kubectl get deployments
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   4/5     5            4           43s
root@kubernetes-master:/home/ubuntu# kubectl get deployments
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   5/5     5            5           44s
```

Validate the deployment

kubectl describe deployment

```
root@kubernetes-master:/home/ubuntu# kubectl describe deployments
Name:                   nginx-deployment
Namespace:              default
CreationTimestamp:      Sat, 11 Apr 2020 20:44:37 +0000
Labels:                 app=nginx
Annotations:            deployment.kubernetes.io/revision: 2
                        kubernetes.io/change-cause:
                          kubectl deployment.apps/nginx-deployment set image deployment.v1.apps/nginx-deployment nginx=nginx:1.16.1 --record=true
Selector:               app=nginx
Replicas:               5 desired | 5 updated | 5 total | 5 available | 0 unavailable
StrategyType:           RollingUpdate
MinReadySeconds:        0
RollingUpdateStrategy:  25% max unavailable, 25% max surge
Pod Template:
  Labels:   app=nginx
  Containers:
   nginx:
    Image:        nginx:1.16.1
    Port:         80/TCP
    Host Port:    0/TCP
    Environment:  <none>
    Mounts:       <none>
  Volumes:        <none>
Conditions:
  Type           Status   Reason
```

Step 3 - Rollback a Deployment

kubectl rollout undo deployment.v1.apps/nginx-deployment

```
root@kubernetes-master:/home/ubuntu# kubectl rollout undo deployment.v1.apps/nginx-deployment
deployment.apps/nginx-deployment rolled back
```

Validate version of NGINX Image

kubectl describe deployments

```
root@kubernetes-master:/home/ubuntu# kubectl describe deployments
Name:                   nginx-deployment
Namespace:              default
CreationTimestamp:      Sat, 11 Apr 2020 20:44:37 +0000
Labels:                 app=nginx
Annotations:            deployment.kubernetes.io/revision: 3
Selector:               app=nginx
Replicas:               5 desired | 5 updated | 5 total | 5 available | 0 unavailable
StrategyType:           RollingUpdate
MinReadySeconds:        0
RollingUpdateStrategy:  25% max unavailable, 25% max surge
Pod Template:
  Labels:  app=nginx
  Containers:
   nginx:
    Image:        nginx:1.14.2
    Port:         80/TCP
    Host Port:    0/TCP
    Environment:  <none>
    Mounts:       <none>
  Volumes:        <none>
```

Step 4 - Scale deployment from YAML File, change replica from 5 to 10

vi deployment.yaml

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
  labels:
    app: nginx
spec:
  replicas: 10
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
      - name: nginx
        image: nginx:1.14.2
        ports:
        - containerPort: 80
```

kubectl apply -f deployment.yaml

Valide running Pods

kubectl get pods -o wide

```
root@kubernetes-master:/home/ubuntu# kubectl get pods -o wide
NAME                                 READY   STATUS    RESTARTS   AGE    IP            NODE       NOMINATED NODE   READINESS GATES
nginx-deployment-6b474476c4-2dzsx    1/1     Running   0          93s    10.244.2.31   worker-2   <none>           <none>
nginx-deployment-6b474476c4-2x64g    1/1     Running   0          24s    10.244.2.32   worker-2   <none>           <none>
nginx-deployment-6b474476c4-64r6g    1/1     Running   0          24s    10.244.2.33   worker-2   <none>           <none>
nginx-deployment-6b474476c4-96t1f    1/1     Running   0          92s    10.244.3.35   worker-1   <none>           <none>
nginx-deployment-6b474476c4-gh8cr    1/1     Running   0          24s    10.244.2.34   worker-2   <none>           <none>
nginx-deployment-6b474476c4-jwsz7    1/1     Running   0          24s    10.244.3.39   worker-1   <none>           <none>
nginx-deployment-6b474476c4-lx29p    1/1     Running   0          24s    10.244.3.38   worker-1   <none>           <none>
nginx-deployment-6b474476c4-m47d6    1/1     Running   0          95s    10.244.3.33   worker-1   <none>           <none>
nginx-deployment-6b474476c4-r4s5g    1/1     Running   0          95s    10.244.3.34   worker-1   <none>           <none>
nginx-deployment-6b474476c4-rl2jr    1/1     Running   0          24s    10.244.2.35   worker-2   <none>           <none>
nginx-deployment-6b474476c4-rsh6m    1/1     Running   0          95s    10.244.2.30   worker-2   <none>           <none>
nginx-deployment-6b474476c4-smk4s    1/1     Running   0          24s    10.244.3.36   worker-1   <none>           <none>
nginx-deployment-6b474476c4-vlx5r    1/1     Running   0          24s    10.244.3.37   worker-1   <none>           <none>
nginx-deployment-6b474476c4-wll5j    1/1     Running   0          24s    10.244.3.40   worker-1   <none>           <none>
nginx-deployment-6b474476c4-xxj9t    1/1     Running   0          24s    10.244.2.36   worker-2   <none>           <none>
```

Step 5 - Scale deployment from Kubectl

kubectl scale deployment.v1.apps/nginx-deployment --replicas=15

Kubectl get deployments

```
root@kubernetes-master:/home/ubuntu# kubectl scale deployment.v1.apps/nginx-deployment --replicas=15
deployment.apps/nginx-deployment scaled
root@kubernetes-master:/home/ubuntu# kubectl get deployments
NAME               READY    UP-TO-DATE    AVAILABLE    AGE
nginx-deployment   15/15    15            15           19m
```

Validate running pods

Kubectl get pods -o wide

```
root@kubernetes-master:/home/ubuntu# kubectl get pods -o wide
NAME                               READY   STATUS    RESTARTS   AGE    IP            NODE       NOMINATED NODE   READINESS GATES
nginx-deployment-6b474476c4-2dzsx   1/1     Running   0          16m    10.244.2.31   worker-2   <none>           <none>
nginx-deployment-6b474476c4-2x64g   1/1     Running   0          15m    10.244.2.32   worker-2   <none>           <none>
nginx-deployment-6b474476c4-64r6g   1/1     Running   0          15m    10.244.2.33   worker-2   <none>           <none>
nginx-deployment-6b474476c4-96tlf   1/1     Running   0          16m    10.244.3.35   worker-1   <none>           <none>
nginx-deployment-6b474476c4-gh8cr   1/1     Running   0          15m    10.244.3.34   worker-2   <none>           <none>
nginx-deployment-6b474476c4-m47d6   1/1     Running   0          16m    10.244.3.33   worker-1   <none>           <none>
nginx-deployment-6b474476c4-mdpsc   1/1     Running   0          17s    10.244.3.42   worker-1   <none>           <none>
nginx-deployment-6b474476c4-r4s5g   1/1     Running   0          16m    10.244.3.34   worker-1   <none>           <none>
nginx-deployment-6b474476c4-rl2jr   1/1     Running   0          15m    10.244.2.35   worker-2   <none>           <none>
nginx-deployment-6b474476c4-rsh6m   1/1     Running   0          16m    10.244.2.30   worker-2   <none>           <none>
nginx-deployment-6b474476c4-swxcv   1/1     Running   0          17s    10.244.3.44   worker-1   <none>           <none>
nginx-deployment-6b474476c4-tbds5   1/1     Running   0          17s    10.244.3.45   worker-1   <none>           <none>
nginx-deployment-6b474476c4-vw4f4   1/1     Running   0          17s    10.244.3.41   worker-1   <none>           <none>
nginx-deployment-6b474476c4-xxj9t   1/1     Running   0          15m    10.244.2.36   worker-2   <none>           <none>
nginx-deployment-6b474476c4-z9mnz   1/1     Running   0          17s    10.244.3.43   worker-1   <none>           <none>
root@kubernetes-master:/home/ubuntu#
```

Step 6 - Delete Deployment

Kubectl delete deployment nginx-deployment

```
root@kubernetes-master:/home/ubuntu# kubectl delete deployment nginx-deployment
deployment.apps "nginx-deployment" deleted
root@kubernetes-master:/home/ubuntu#
```