Introduction

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minikube is a type of local Single-Node-Cluster

1) minikube start :- To Start the Cluster (Using Docker by-default if present)
2) minikube status :- To see status of cluster
3) minikube dashboard :- To open Dashboard
4) minikube delete :- To Remove/Delete the Cluster

1) minikube start --drive=<driverName> :- To Create Cluster using VirtualBox, etc.

Pods

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1) kubectl create deployment <deploymentName> --image=<registryName/imageName:version>
   kubectl create deployment my-nginx --image=nginx:latest (Using Official Image i.e. No Registry Name)

2) kubectl get deployments :- To See Deployments
3) kubectl get pods :- To See pods
4) kubectl describe pods :- Give more information about pods
5) kubectl logs <podName> :- To see logs of pod
   kubectl logs my-nginx

6) kubectl rollout status deployment <deploymentName> :- To See RollOut Status of Deployment
   kubectl rollout status deployment my-nginx

7) kubectl rollout undo deployment <deploymentName> :- Undo changes if points to incorrect image (not exist)
   kubectl rollout undo deployment my-nginx

8) kubectl delete deployment <deploymentName> :- To Delete Deployment
   kubectl delete deployment my-nginx

Note :- Kubernetes create pods using deployment Name

Service

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Container is Running inside pod
To Access from Outside to have to create Service

1) kubectl expose deployment serviceName--port=<containerPort> --type=<Type>
   containerPort = Port inside Container where image is Running
   Kubectl expose deployment my-nginx --port=80 --type=LoadBalancer

2) kubectl get services :- To See All Services

3) minikube service <serviceName> :- To Apply Service
   minikube service my-nginx

4) kubectl delete service <serviceName> :- To Delete Service
   kubectl delete service my-nginx

Project - 1

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1) Create Simple React-App
2) Create Image
3) Push to Docker Hub
   docker build -t joshitejas188/kubernate-1:01 .
   docker login
   docker push joshitejas188/kubernate-1:01

Deployment :-

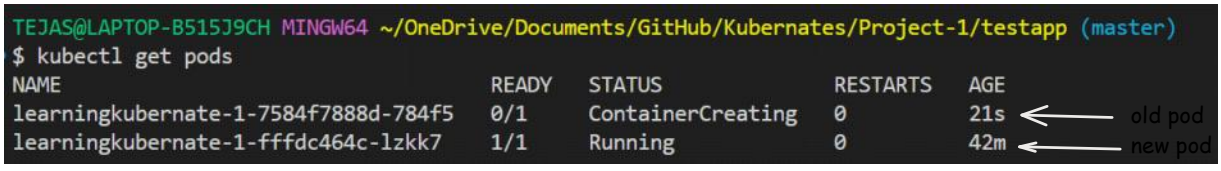
1) minikube status :- Check is Cluster Status is started
2) minikube start :- Start the Cluster
3) kubectl create deployment <deploymentName> --image=<registryName/imageName:version>
   kubectl create deployment learningkubernate-1 --image=joshitejas188/kubernate-1:01
4) kubectl get deployments :- To See Deployments
5) kubectl get pods :- To See pods

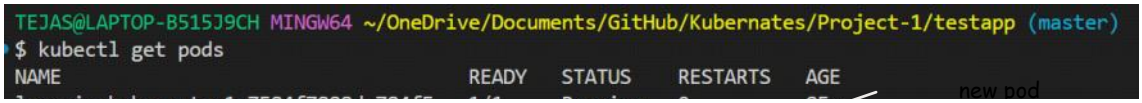
Exposing PORT using service :-

1) kubectl expose deployment serviceName--port=<containerPort> --type=<Type>
   containerPort = Port inside Container where image is Running
   Kubectl expose deployment learningkubernate-1 --port=3000 --type=LoadBalancer
2) kubectl get services :- To See All Services
3) minikube service <serviceName> :- To Apply Service
   minikube service learningkubernate-1

Update the Project :-

1) Change the Project Code
2) Create new image with different version from previous
3) Docker login
4) Push the image to Docker Hub
   docker build -t joshitejas188/kubernate-1:02 .
   docker login
   docker push joshitejas188/kubernate-1:02
5) kubectl get deployments
6) kubectl get pods
7) kubectl set image deployment <deploymentName> <containerName>=<registryName/imageName:version>
   kubectl set image deployment learningkubernate-1 kubernate-1=joshitejas188/kubernate-1:02
8) While new pod is creating, Kubernetes points to old image, once's new pod created old pod deleted





```
TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates/Project-1/testapp (master)
$ kubectl get pods
NAME                                   READY   STATUS    RESTARTS   AGE
learningkubernate-1-7584f7888d-784f5   1/1     Running   0          85s
```
new pod

Rollback in Kubernetes :-

1) use Previous image
2) kubectl set image deployment <deploymentName> <containerName>=<registryName/imageName:version>
   kubectl set image deployment learningkubernate-1 kubernate-1=joshitejas188/kubernate-1:01
3) kubectl set image deployment learningkubernate-1 kubernate-1=joshitejas188/kubernate-1:02
4) kubectl set image deployment learningkubernate-1 kubernate-1=joshitejas188/kubernate-1:01

Rollback in Kubernetes :-

1) If we use incorrect image name which is not present, we can rollback to previous image
2) kubectl set image deployment <deploymentName> <containerName>=<registryName/imageName:version>
   kubectl set image deployment learningkubernate-1 kubernate-1=joshitejas188/kubernate-1:07 <---- Not Present

```
TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates (master)
$ kubectl get pods
NAME                                   READY   STATUS    RESTARTS        AGE
learningkubernate-1-7584f7888d-wzxdf   1/1     Running   1 (8m27s ago)   118m

TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates (master)
$ kubectl set image deployment learningkubernate-1 kubernate-1=joshitejas188/kubernate-1:07
deployment.apps/learningkubernate-1 image updated

TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates (master)
$ kubectl get pods
NAME                                   READY   STATUS              RESTARTS        AGE
learningkubernate-1-66db98ff45-9q6h4   0/1     ContainerCreating   0               3s
learningkubernate-1-7584f7888d-wzxdf   1/1     Running             1 (8m48s ago)   118m
```

```
TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates (master)
$ kubectl get pods
NAME                                   READY   STATUS         RESTARTS      AGE
learningkubernate-1-66db98ff45-9q6h4   0/1     ErrImagePull   0             2m
learningkubernate-1-7584f7888d-wzxdf   1/1     Running        1 (10m ago)   120m
```

As new image not exist, Kubernetes points to previous image

3) kubectl get deployments :- To See Deployments
4) kubectl get pods :- To See pods
5) Kubectl rollout status deployment <deploymentName> :- To See Status of Deployment
   Kubectl rollout status deployment learningkubernate-1

```
TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates (master)
$ kubectl get deployments
NAME                 READY   UP-TO-DATE   AVAILABLE   AGE
learningkubernate-1  1/1     1            1           179m

TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates (master)
$ kubectl rollout status deployment learningkubernate-1
Waiting for deployment "learningkubernate-1" rollout to finish: 1 old replicas are pending termination...
```

```
TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates (master)
$ kubectl get pods
NAME                                 READY   STATUS             RESTARTS      AGE
learningkubernate-1-66db98ff45-9q6h4 0/1     ImagePullBackOff   0             8m29s
learningkubernate-1-7584f7888d-wzxdf 1/1     Running            1 (17m ago)   127m
```

6) kubectl rollout undo deployment <deploymentName> :- Undo changes if points to incorrect image (not exist)
kubectl rollout undo deployment learningkubernate-1 :- Rollback to point to previous image

```
TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates (master)
$ kubectl rollout undo deployment learningkubernate-1
deployment.apps/learningkubernate-1 rolled back

TEJAS@LAPTOP-B515J9CH MINGW64 ~/OneDrive/Documents/GitHub/Kubernates (master)
$ kubectl get pods
NAME                                 READY   STATUS    RESTARTS      AGE
learningkubernate-1-7584f7888d-wzxdf 1/1     Running   1 (20m ago)   130m
```