**Task Description:**

**Problem:**

To create and configure a simple CI/CD pipeline using Jenkins or any other open-source automation tool. You can use: <https://github.com/postmanlabs/httpbin>

**The pipeline should be able to:**

* Get triggered when any new commit/merge is done to the Version Control System.
* Source the code from the VCS.
* Create the docker image and should update it on the machine where the deployment is live.

**Solution:**

**Steps Performed:**

I have deployed Jenkins and Kubernetes over AWS Cloud.

**For creating Pipeline:**

* Forked <https://github.com/postmanlabs/httpbin> Repo.
* As our pipeline will have to get triggered when any new commit/merge is done to the Version Control System for this we have to add WebHook in Github repo.
* After adding webhooks we will be creating a Pipeline.
* We will be writing a Pipeline script.

GitHub Repo: <https://github.com/Uditanshu0110/httpbin.git>

Also, I have uploaded an Yaml file for launching the pods and for deployment.

For adding Webhooks we need to enter the public IP of the System where Jenkins is hosted in the github repo.

**Pipeline Script is described below.**

**node {**

**stage('Git Clone') {**

**git credentialsId: 'Github\_Cred', url: 'https://github.com/Uditanshu0110/httpbin.git'**

**}**

**stage('Docker Build') {**

**sh 'docker build . -t uditanshu/newimage'**

**}**

**stage('Docker Push') {**

**withCredentials([string(credentialsId: 'Docker\_Sec', variable: 'Docker\_Sec')]) {**

**sh 'docker login -u uditanshu -p ${Docker\_Sec}'**

**}**

**sh 'docker push uditanshu/newimage'**

**}**

**stage('Kubernetes Deploy') {**

**sh 'kubectl apply -f pod.yml'**

**}**

**}**

In this script we will be Cloning the GitHub repo to our Jenkins Workspace, Building Docker Image, Pushing it to Docker Hub, and Finally deploying it to Kubernetes.

**stage('Git Clone') {**

**git credentialsId: 'Github\_Cred', url: 'https://github.com/Uditanshu0110/httpbin.git'**

**}**

This block will clone the Github repo to Jenkins master. Here I have provided the link to the repo. And also added the Github user name and Github Password in Jenkins.

**stage('Docker Build') {**

**sh 'docker build . -t uditanshu/newimage'**

**}**

This block will build the docker image with the given tag name.

**stage('Docker Push') {**

**withCredentials([string(credentialsId: 'Docker\_Sec', variable: 'Docker\_Sec')]) {**

**sh 'docker login -u uditanshu -p ${Docker\_Sec}'**

**}**

**sh 'docker push uditanshu/newimage'**

**}**

This block will push the docker image in the docker hub account. Here I have added the docker password as a secret text in the Jenkins and used that variable after that pushed the created image in the docker hub account.

**stage('Kubernetes Deploy') {**

**sh 'kubectl apply -f pod.yml'**

**}**

This block will deploy the image in the Kubernetes cluster.

Pod.yml file used for Deployment and service.

**Components used.**

**I have used**

* AWS Cloud- For Setting up the Jenkins and Kubernetes Over the cloud.
* Jenkins.
* Docker.
* Git/Github.
* Kubernetes- For deploying.

**Jenkins URL -** <http://13.235.104.127:8080/>

**Username: admin**

**Password: redhat**

**The URI of the application hosted:**

As, I have hosted application over Kubernetes, So, by using Kubernetes Slave node Ip and port number of service we can see the application hosted on the Kubernetes.

**Current URL of Hosted application:**

<http://13.233.103.47:31604/>

**Github URL:**

[**https://github.com/Uditanshu0110/Cliff.ai.git**](https://github.com/Uditanshu0110/Cliff.ai.git)

**Some Images of tasks:**



