

DEVOPS PROJECT-2

```
May 1 5:24 PM 100%
dhivya@ubuntu2409: ~
dhivya@ubuntu2409:~$ terraform --version
Terraform v1.8.2
on linux_amd64
dhivya@ubuntu2409:~$
```

```
May 1 5:38 PM 100%
dhivya@ubuntu2409: ~
dhivya@ubuntu2409:~$ terraform --version
Terraform v1.8.2
on linux_amd64
dhivya@ubuntu2409:~$ vi infra.tf
dhivya@ubuntu2409:~$ terraform init

Initializing the backend...

Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v5.47.0...
- Installed hashicorp/aws v5.47.0 (signed by HashiCorp)

Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
dhivya@ubuntu2409:~$
```

```
May 1 5:43 PM
dhivya@ubuntu2409: ~
dhivya@ubuntu2409:~$ terraform plan
Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
+ create

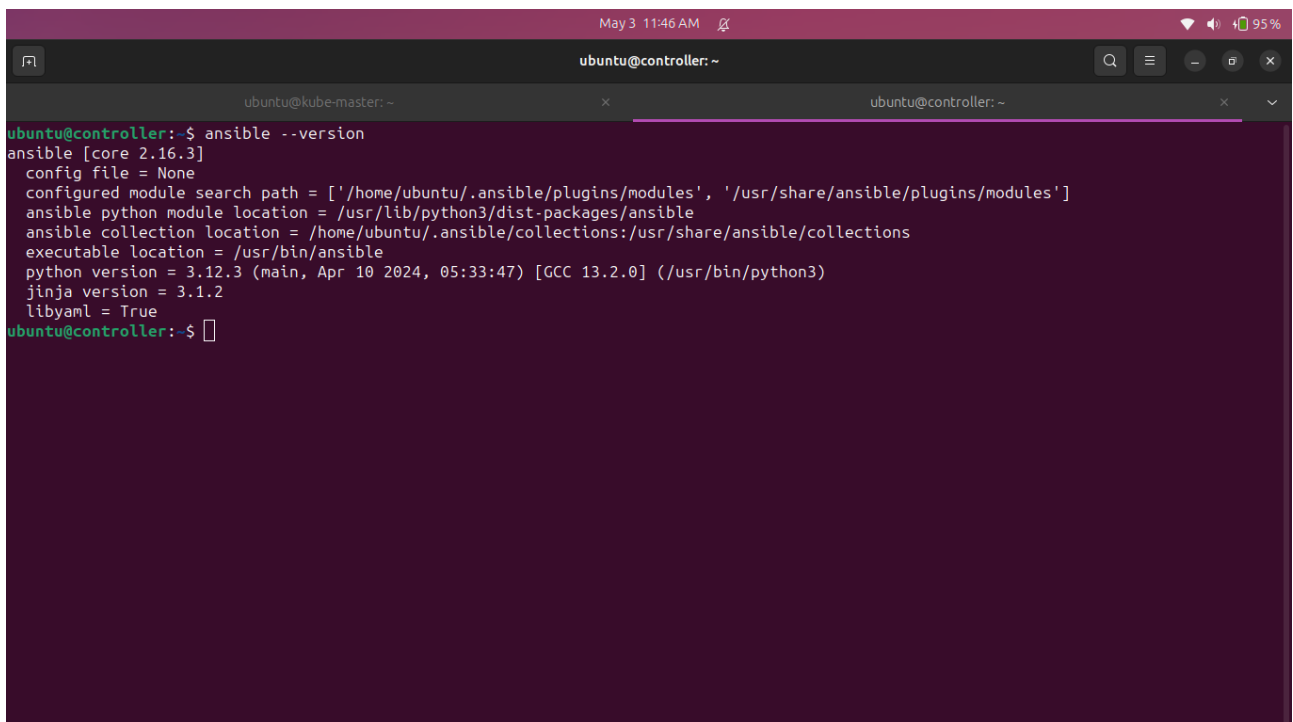
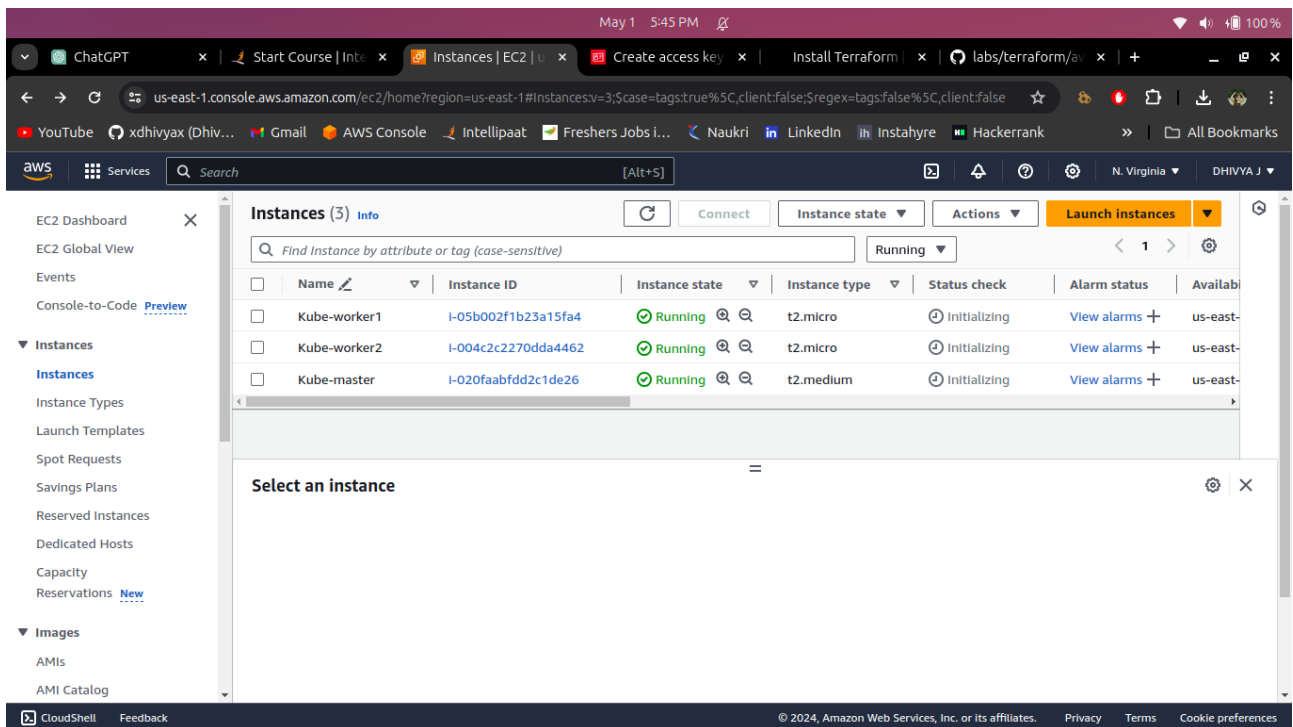
Terraform will perform the following actions:

# aws_instance.k1 will be created
+ resource "aws_instance" "k1" {
  + ami                  = "ami-04b70fa74e45c3917"
  + arn                  = (known after apply)
  + associate_public_ip_address = (known after apply)
  + availability_zone     = (known after apply)
  + cpu_core_count        = (known after apply)
  + cpu_threads_per_core  = (known after apply)
  + disable_api_stop      = (known after apply)
  + disable_api_termination = (known after apply)
  + ebs_optimized         = (known after apply)
  + get_password_data     = false
  + host_id               = (known after apply)
  + host_resource_group_arn = (known after apply)
  + iam_instance_profile  = (known after apply)
  + id                    = (known after apply)
  + instance_initiated_shutdown_behavior = (known after apply)
  + instance_lifecycle    = (known after apply)
  + instance_state        = (known after apply)
  + instance_type         = "t2.medium"
  + ipv6_address_count     = (known after apply)
  + ipv6_addresses        = (known after apply)
  + key_name              = (known after apply)
  + monitoring             = (known after apply)
  + outpost_arn           = (known after apply)
```

```
May 1 5:46 PM
dhivya@ubuntu2409: ~
dhivya@ubuntu2409:~$ terraform apply
Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
+ create

Terraform will perform the following actions:

# aws_instance.k1 will be created
+ resource "aws_instance" "k1" {
  + ami                  = "ami-04b70fa74e45c3917"
  + arn                  = (known after apply)
  + associate_public_ip_address = (known after apply)
  + availability_zone     = (known after apply)
  + cpu_core_count        = (known after apply)
  + cpu_threads_per_core  = (known after apply)
  + disable_api_stop      = (known after apply)
  + disable_api_termination = (known after apply)
  + ebs_optimized         = (known after apply)
  + get_password_data     = false
  + host_id               = (known after apply)
  + host_resource_group_arn = (known after apply)
  + iam_instance_profile  = (known after apply)
  + id                    = (known after apply)
  + instance_initiated_shutdown_behavior = (known after apply)
  + instance_lifecycle    = (known after apply)
  + instance_state        = (known after apply)
  + instance_type         = "t2.medium"
  + ipv6_address_count     = (known after apply)
  + ipv6_addresses        = (known after apply)
  + key_name              = (known after apply)
  + monitoring             = (known after apply)
  + outpost_arn           = (known after apply)
```



```
May 3 12:01 PM
ubuntu@controller: ~
ubuntu@controller: ~
ubuntu@kubernetes-master: ~
dhivya@ubuntu2409: ~

ubuntu@controller:~$ ansible-playbook -i hosts playbook.yaml

PLAY [Installation on localhost] *****

TASK [Gathering Facts] *****
ok: [localhost]

TASK [Install necessary software on localhost] *****
changed: [localhost]

PLAY [Installation on Kmaster] *****

TASK [Gathering Facts] *****
The authenticity of host '172.31.50.79 (172.31.50.79)' can't be established.
ED25519 key fingerprint is SHA256:Wnm/k77EuMwuNL+KeGZE9gvkqnxGxL015TFL4MJ2WEs.
This host key is known by the following other names/addresses:
  ~/.ssh/known_hosts:1: [hashed name]
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
ok: [172.31.50.79]

TASK [Install necessary software on Kmaster] *****
changed: [172.31.50.79]

PLAY RECAP *****
172.31.50.79      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
localhost        : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@controller:~$
```

```
May 3 12:01 PM
ubuntu@controller: ~
ubuntu@controller: ~
ubuntu@kubernetes-master: ~
dhivya@ubuntu2409: ~

ubuntu@controller:~$ jenkins --version
2.456

ubuntu@controller:~$ java --version
openjdk 11.0.23 2024-04-16
OpenJDK Runtime Environment (build 11.0.23+9-post-Ubuntu-1ubuntu1)
OpenJDK 64-Bit Server VM (build 11.0.23+9-post-Ubuntu-1ubuntu1, mixed mode, sharing)

ubuntu@controller:~$ docker -v
Docker version 24.0.7, build 24.0.7-0ubuntu4

ubuntu@controller:~$
```

```
May 3 12:02 PM 98%
ubuntu@kubernetes-master: ~
ubuntu@controller: ~ x ubuntu@kubernetes-master: ~ x dhivya@ubuntu2409: ~
ubuntu@kubernetes-master:~$ java --version
openjdk 11.0.23 2024-04-16
OpenJDK Runtime Environment (build 11.0.23+9-post-Ubuntu-1ubuntu1)
OpenJDK 64-Bit Server VM (build 11.0.23+9-post-Ubuntu-1ubuntu1, mixed mode, sharing)
ubuntu@kubernetes-master:~$ docker -v
Docker version 24.0.7, build 24.0.7-0ubuntu4
ubuntu@kubernetes-master:~$
```

```
May 3 1:09 PM 100%
ubuntu@kubernetes-master: ~
ubuntu@kubernetes-master: ~ x root@controller: ~ x ubuntu@worker-node2: ~ x ubuntu@worker-node1: ~
ubuntu@kubernetes-master:~$ kubectl get nodes
NAME          STATUS    ROLES    AGE   VERSION
kubernetes-master Ready    control-plane 12m   v1.29.4
worker-node1   Ready    <none>    109s  v1.29.4
worker-node2   Ready    <none>    2m3s  v1.29.4
ubuntu@kubernetes-master:~$
```

May 3 1:21 PM

Instance details | EC2 | u... x Start Course | Intellipaat x Nodes [Jenkins] x ChatGPT

Not secure 3.93.82.143:8080/computer/

YouTube x dhiviyax (Dhiv... x Gmail x AWS Console x Intellipaat x Freshers Jobs i... x Naukri x LinkedIn x Instahyre x Hackerrank x All Bookmarks

Jenkins

Search (CTRL+K) admin log out

Dashboard > Nodes >

Nodes

+ New Node Configure Monitors

Nodes

Clouds

Build Queue

No builds in the queue.

Build Executor Status

Built-In Node

1 Idle

2 Idle

Kmaster

1 Idle

S	Name ↓	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Built-In Node	Linux (amd64)	In sync	3.01 GiB	0 B	3.01 GiB	0ms
	Kmaster	Linux (amd64)	In sync	2.02 GiB	0 B	2.02 GiB	69ms
Data obtained		17 sec	17 sec	17 sec	17 sec	17 sec	17 sec

Icon: S M L Legend

REST API Jenkins 2.456

May 3 3:21 PM

dhivya@ubuntu2409: /tmp/website/project

ubuntu@kubernetes-master: ~ x ubuntu@controller: ~ x dhivya@ubuntu2409: ~/Dow... x dhivya@ubuntu2409: ~/Dow... x dhivya@ubuntu2409: /tmp/...

```
dhivya@ubuntu2409: /tmp/website/project$ ls
deploy.yaml Dockerfile images index.html svc.yaml
dhivya@ubuntu2409: /tmp/website/project$ git push origin master
warning: git-credential-manager-core was renamed to git-credential-manager
warning: see https://aka.ms/gcm/rename for more information
warning: git-credential-manager-core was renamed to git-credential-manager
warning: see https://aka.ms/gcm/rename for more information
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 4 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 788 bytes | 788.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/dhiviyax/Project-2.git
 883b439..073cd95 master -> master
dhivya@ubuntu2409: /tmp/website/project$
```

May 3 3:22 PM

Instances | EC | Start Course | xdhivya/Project-2 | labs/kubernetes | ChatGPT | Available plug | dhivya2409/p | +

github.com/xdhivya/Project-2

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xdhivya / Project-2

Type to search

<> Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Project-2 Public

Pin Unwatch 1 Fork 0 Star 0

master 1 Branch 0 Tags

Go to file Add file <> Code

xdhivya Project-files 073cd95 · 3 minutes ago 3 Commits		
images	final	5 years ago
Dockerfile	Project-files	3 minutes ago
deploy.yaml	Project-files	3 minutes ago
index.html	modified	5 years ago
svc.yaml	Project-files	3 minutes ago

README

About No description, website, or topics provided.

Activity

0 stars

1 watching

0 forks

Releases No releases published Create a new release

Packages No packages published Publish your first package

https://github.com/xdhivya/Project-2/branches

May 3 3:41 PM

Connect to Instan... Start Course | Inte... xdhivya/Project-... ChatGPT pipeline-job #2 C... dhivya2409/proje... | +

Not secure 3.93.82.143:8080/job/pipeline-job/2/console

YouTube xdhivya (Dhiv... Gmail AWS Console Intellipaat Freshers Jobs I... Naukri LinkedIn Instahyre Hackerrank >> | All Bookmarks

Jenkins

Search (CTRL+K)

admin log out

Dashboard > pipeline-job > #2

Status

Changes

Console Output

View as plain text

Edit Build Information

Delete build '#2'

Polling Log

Timings

Git Build Data

Pipeline Overview

Pipeline Console

Restart from Stage

Replay

Console Output

```
Started by GitHub push by xdhivya
[Pipeline] Start of Pipeline
[Pipeline] withCredentials
Masking supported pattern matches of $DOCKERHUB_CREDENTIALS or $DOCKERHUB_CREDENTIALS_PSW
[Pipeline] {
[Pipeline] stage
[Pipeline] { (git)
[Pipeline] node
Running on Kmaster in /home/ubuntu/agent/workspace/pipeline-job
[Pipeline] {
[Pipeline] git
The recommended git tool is: NONE
No credentials specified
Fetching changes from the remote Git repository
Checking out Revision 17ecd1e7040b3574694a832924eddd03b4c7b992 (refs/remotes/origin/master)
Commit message: "done"
> git rev-parse --resolve-git-dir /home/ubuntu/agent/workspace/pipeline-job/.git # timeout=10
> git config remote.origin.url https://github.com/xdhivya/Project-2.git # timeout=10
Fetching upstream changes from https://github.com/xdhivya/Project-2.git
> git --version # 'git version 2.43.0'
> git fetch --tags --force --progress -- https://github.com/xdhivya/Project-2.git +refs/heads/*:refs/remotes/origin/* # timeout=10
```

```
May 3 3:42 PM
ubuntu@kube-master: ~/agent/workspace/pipeline-job
dhivya@ubuntu2409: /tmp/website/project
ubuntu@kube-master:~/agent/workspace/pipeline-job$ kubectl get deployment
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
deployment    2/2     2             2           73s
ubuntu@kube-master:~/agent/workspace/pipeline-job$ kubectl get service
NAME          TYPE          CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
kubernetes    ClusterIP     10.96.0.1    <none>        443/TCP          165m
service       NodePort      10.100.120.45 <none>        80:30008/TCP     82s
ubuntu@kube-master:~/agent/workspace/pipeline-job$
```

May 3 3:44 PM

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:v=3;\$case=tags:true%5Cclient:false;\$regex=tags:false%5Cclient:false

Instances (1/4) Info

Find Instance by attribute or tag (case-sensitive) All states

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>	controller	I-0c40f38342fb884c8	Running	t2.small	2/2 checks passed	View alarms	us-east-1a
<input checked="" type="checkbox"/>	Kube-master	I-0406d6a6665a43b8d	Running	t2.medium	2/2 checks passed	View alarms	us-east-1a
<input type="checkbox"/>	Kube-worker1	I-053bd952c8fc88da8	Running	t2.micro	2/2 checks passed	View alarms	us-east-1a
<input type="checkbox"/>	Kube-worker2	I-0ff7e41b396ff44b3	Running	t2.micro	2/2 checks passed	View alarms	us-east-1a

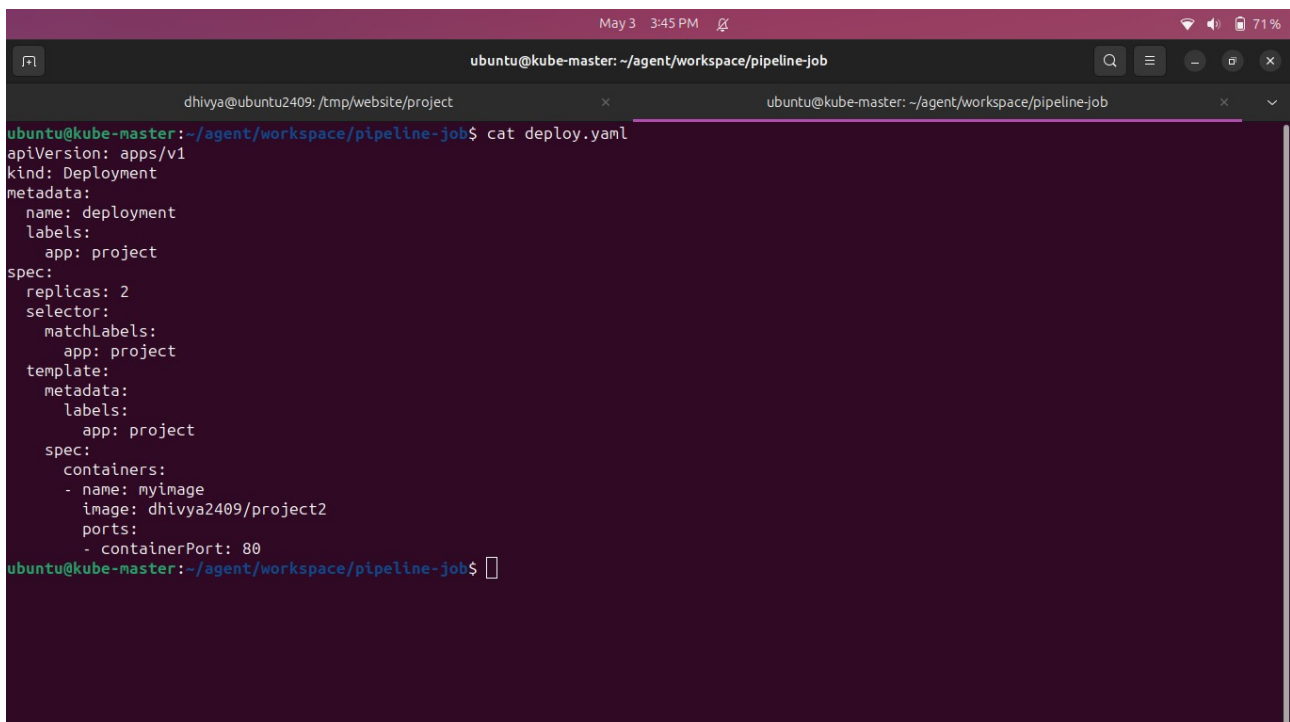
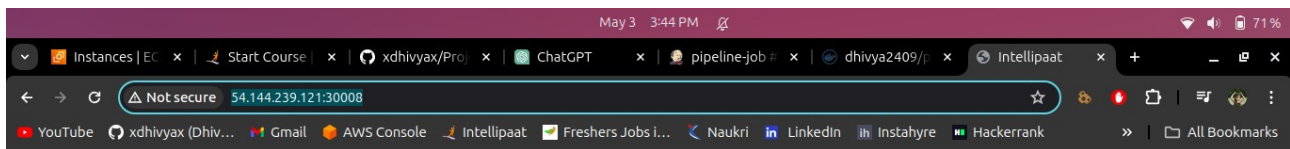
i-0406d6a6665a43b8d (Kube-master)

Details Status and alarms New Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID	Public IPv4 address	Private IPv4 addresses
I-0406d6a6665a43b8d (Kube-master)	54.144.239.121 open address	172.31.57.237
IPv6 address	Instance state	Public IPv4 DNS
-	Running	

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```
May 3 3:45 PM
ubuntu@kubernetes-master: ~/agent/workspace/pipeline-job
dhivya@ubuntu2409: /tmp/website/project
ubuntu@kubernetes-master: ~/agent/workspace/pipeline-job$ cat svc.yaml
apiVersion: v1
kind: Service
metadata:
  name: service
spec:
  type: NodePort
  ports:
    - targetPort: 80
      port: 80
      nodePort: 30008
  selector:
    app: project
ubuntu@kubernetes-master: ~/agent/workspace/pipeline-job$
```

```
May 3 3:46 PM
ubuntu@kubernetes-master: ~/agent/workspace/pipeline-job
dhivya@ubuntu2409: /tmp/website/project
ubuntu@kubernetes-master: ~/agent/workspace/pipeline-job$ cat Dockerfile
FROM ubuntu
RUN apt update
RUN apt install apache2 -y
ADD . /var/www/html
ENTRYPOINT apache2ctl -D FOREGROUND
ubuntu@kubernetes-master: ~/agent/workspace/pipeline-job$
```

```
May 3 3:47 PM 70%
ubuntu@controller: ~
dhivya@ubuntu2409: /tmp/website/project x ubuntu@kube-master: ~/agent/workspace/pipeline-job x ubuntu@controller: ~
ubuntu@controller:~$ cat playbook.yaml
- name: Installation on localhost
  hosts: localhost
  become: true
  tasks:
    - name: Install necessary software on localhost
      script: localhost-install.sh

- name: Installation on Kmaster
  hosts: Kmaster
  become: true
  tasks:
    - name: Install necessary software on Kmaster
      script: kube-install.sh
ubuntu@controller:~$
```

```
May 3 3:48 PM 70%
ubuntu@controller: ~
dhivya@ubuntu2409: /tmp/website/project x ubuntu@kube-master: ~/agent/workspace/pipeline-job x ubuntu@controller: ~
ubuntu@controller:~$ cat localhost-install.sh
sudo apt update
sudo apt install openjdk-11-jdk -y
sudo apt install docker.io -y
sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian/jenkins.io-2023.key
echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
  https://pkg.jenkins.io/debian binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null" > /dev/null
sudo apt-get update
sudo apt-get install jenkins -y
ubuntu@controller:~$ cat kube-install.sh
sudo apt update
sudo apt install openjdk-11-jdk -y
sudo apt install docker.io -y
sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian/jenkins.io-2023.key
echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
  https://pkg.jenkins.io/debian binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null" > /dev/null
sudo apt-get update
sudo apt-get install jenkins -y
ubuntu@controller:~$
```

```
dhivya@ubuntu2409: ~  
dhivya@ubuntu2409: ~$ cat infra.tf  
provider "aws"{  
  access_key = "AKIA5LMDQBUKOVVF70GL"  
  secret_key = "b4eILGCHWtxm/bq4jumGqgmFIJ+b1A9dw0Ra2Sac"  
  region = "us-east-1"  
}  
resource "aws_instance" "k1"{  
  instance_type = "t2.medium"  
  ami = "ami-04b70fa74e45c3917"  
  tags = {  
    Name = "Kube-master"  
  }  
}  
resource "aws_instance" "w1"{  
  instance_type = "t2.micro"  
  ami = "ami-04b70fa74e45c3917"  
  tags = {  
    Name = "Kube-worker1"  
  }  
}  
resource "aws_instance" "w2"{  
  instance_type = "t2.micro"  
  ami = "ami-04b70fa74e45c3917"  
  tags = {  
    Name = "Kube-worker2"  
  }  
}  
dhivya@ubuntu2409:~$
```

May 3 3:48 PM 69%

dhivya@ubuntu2409: ~

dhivya@ubuntu2409: ~

ubuntu@kubernetes-master: ~/agent/workspace/pipeline-job

ubuntu@controller: ~

dhivya@ubuntu2409: ~\$ cat infra.tf

```
provider "aws"{  
  access_key = "AKIA5LMDQBUKOVVF70GL"  
  secret_key = "b4eILGCHWtxm/bq4jumGqgmFIJ+b1A9dw0Ra2Sac"  
  region = "us-east-1"  
}  
resource "aws_instance" "k1"{  
  instance_type = "t2.medium"  
  ami = "ami-04b70fa74e45c3917"  
  tags = {  
    Name = "Kube-master"  
  }  
}  
resource "aws_instance" "w1"{  
  instance_type = "t2.micro"  
  ami = "ami-04b70fa74e45c3917"  
  tags = {  
    Name = "Kube-worker1"  
  }  
}  
resource "aws_instance" "w2"{  
  instance_type = "t2.micro"  
  ami = "ami-04b70fa74e45c3917"  
  tags = {  
    Name = "Kube-worker2"  
  }  
}  
dhivya@ubuntu2409:~$
```

May 3 3:49 PM 69%

Instances | EC2 | Start Course | xdhivya/Pro | ChatGPT | pipeline-job | dhivya2409/p | Intellipaat | +

Not secure 3.93.82.143:8080/job/pipeline-job/configure

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Dashboard > pipeline-job > Configuration

Configure

- General
- Advanced Project Options
- Pipeline

Script ?

```
1 pipeline{  
2   agent none  
3   environment{  
4     DOCKERHUB_CREDENTIALS=credentials('fc9fc161-d2cd-417b-bcc5-825d6dd34d90')  
5   }  
6   stages{  
7     stage('git'){  
8       agent{  
9         label 'Kmaster'  
10      }  
11      steps{  
12        git 'https://github.com/xdhivya/Project-2.git'  
13      }  
14    }  
15    stage('docker'){  
16      agent{  
17        label 'Kmaster'  
18      }  
19      steps{  
20        sh 'sudo docker build /home/ubuntu/agent/workspace/pipeline-job -t dhivya2409/project2'  
21        sh 'sudo echo $DOCKERHUB_CREDENTIALS_PSW | sudo docker login -u $DOCKERHUB_CREDENTIALS_USR --password-stdin'  
22        sh 'sudo docker push dhivya2409/project2'  
23      }  
24    }  
25    stage('deploy'){  
26      agent{  
27        label 'Kmaster'  
28      }  
29      steps{  
30        sh 'kubectl create -f deploy.yaml'  
31        sh 'kubectl create -f svc.yaml'  
32      }  
33    }  
34  }  
35 }  
36 }  
37 }  
38 }
```

Save Apply