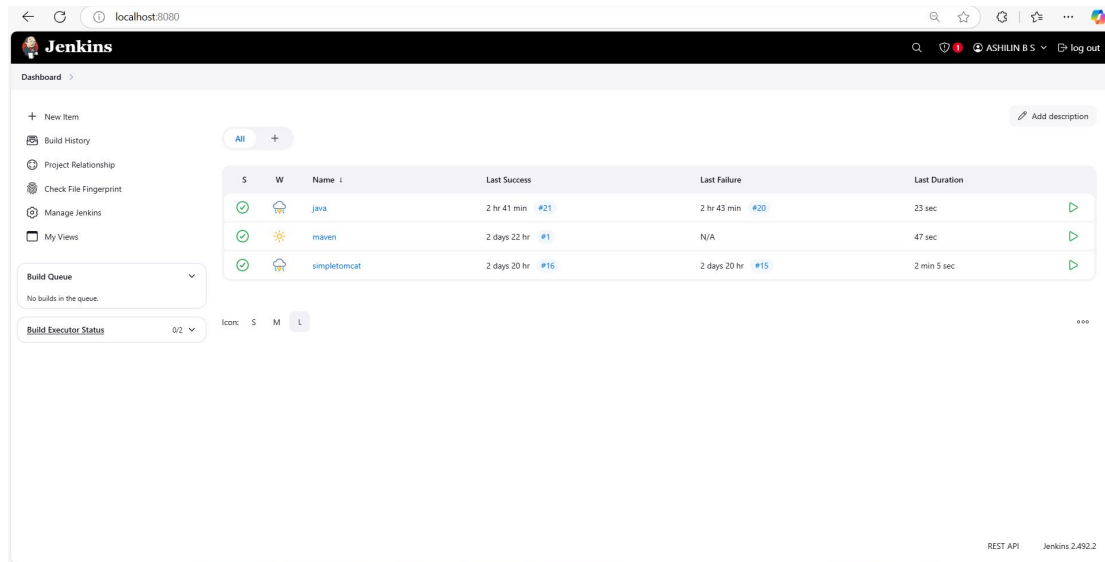


DAY 6:

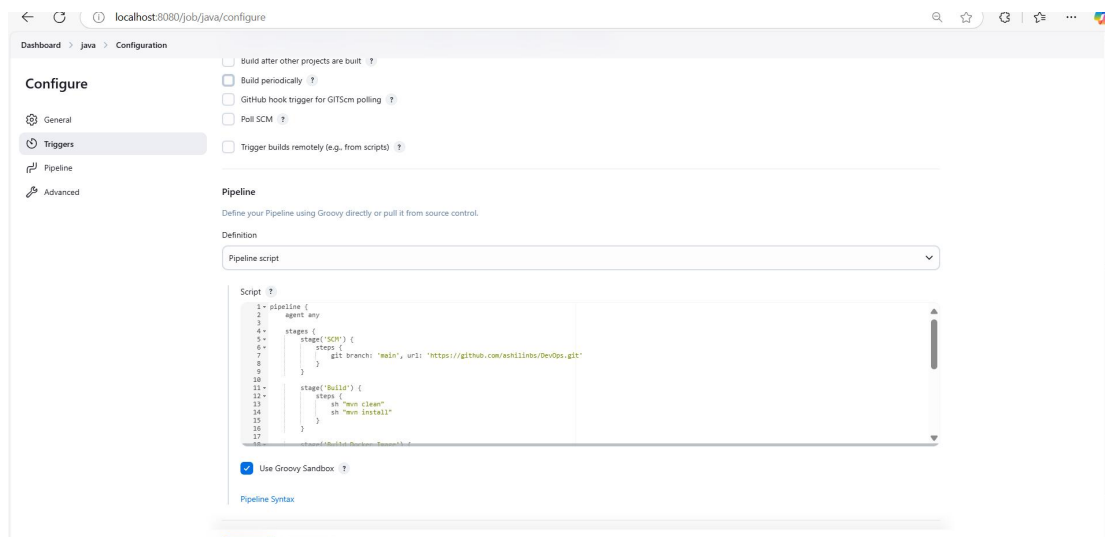
JENKINS:

Jenkins is an open-source automation server used for **Continuous Integration (CI)** and **Continuous Deployment (CD)**. It helps automate software development processes, including **building, testing, and deploying applications**.



JENKINS PIPELINE:

A **Jenkins Pipeline** is a set of automated steps that define how software is built, tested, and deployed. It is written as code in a **Jenkinsfile** and helps implement **Continuous Integration (CI)** and **Continuous Deployment (CD)**.



KUBERNETES DEPLOYMENT:

apiVersion: apps/v1

kind: Deployment

```

metadata:
  name: my-deploy
  labels:
    apptype: web-backend # Ensure this matches Service selector
spec:
  replicas: 4
  selector:
    matchLabels:
      apptype: web-backend # Ensure this matches Service selector
  strategy:
    type: RollingUpdate
  template:
    metadata:
      labels:
        apptype: web-backend # Ensure this matches Service selector
    spec:
      containers:
        - name: my-app
          image: ashilin20/app:latest
          ports:
            - containerPort: 5050
---
apiVersion: v1
kind: Service
metadata:
  name: my-service
  labels:
    apptype: web-backend # Make labels consistent
spec:
  type: NodePort
  ports:
    - targetPort: 8080
      port: 5050
      nodePort: 30001

```

PIPELINE SCRIPT:

```

pipeline {
  agent any

  stages {
    stage('SCM') {
      steps {
        git branch: 'main', url: 'https://github.com/ashilinbs/DevOps.git'
      }
    }

    stage('Build') {
      steps {

```

local host:8080/job/java/

ASHILIN B S
 log out

Dashboard > java >

Status

Changes

Build Now

Configure

Delete Pipeline

Full Stage View

Stages

Rename

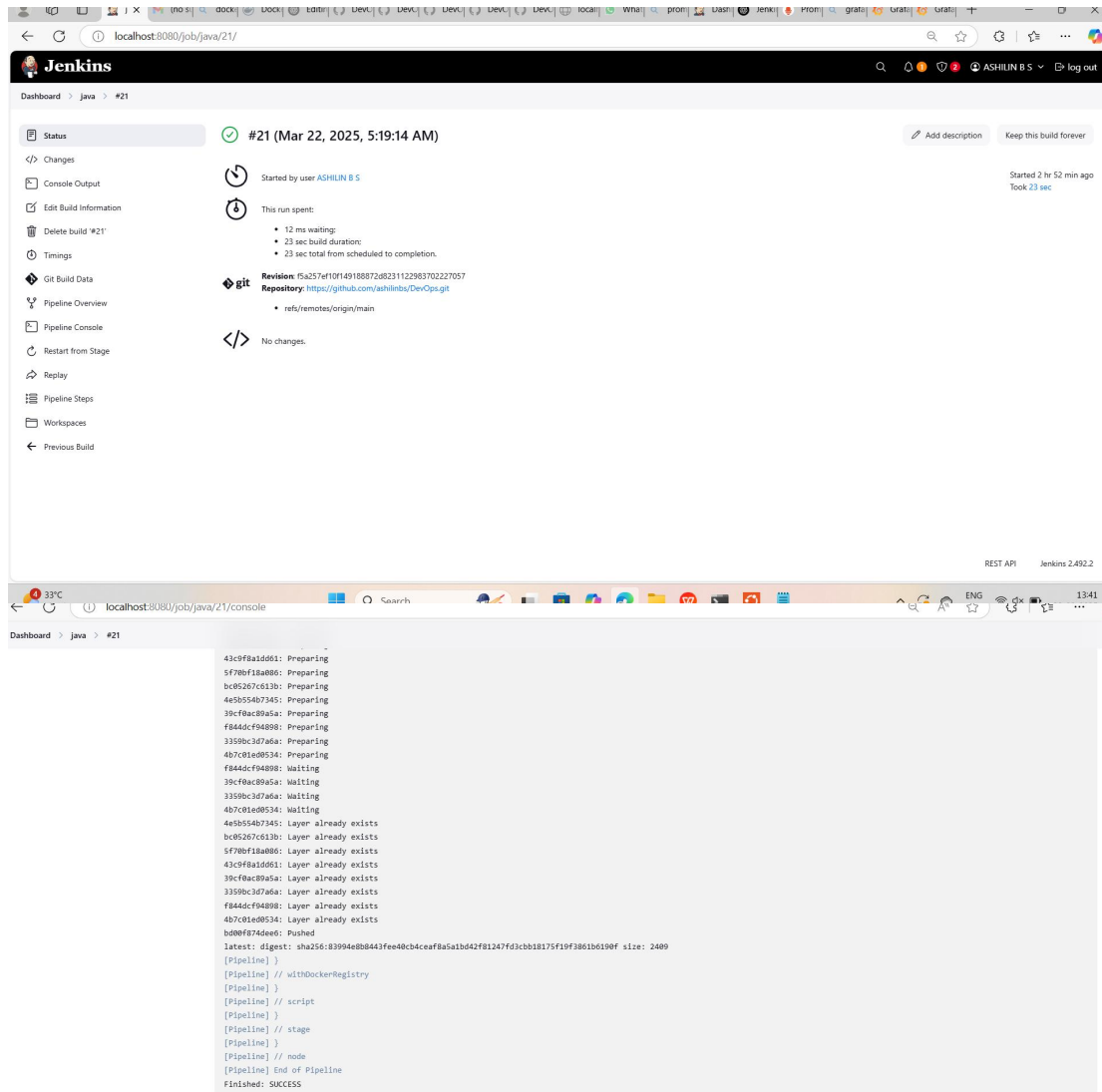
Pipeline Syntax

java

Add description

Stage View

	SCM	Build	Build Docker Image	Push to Docker Hub	Deploy App	Test
Average stage times: (all run times -23s)	3s	5s	7s	10s	862ms	100ms
#20 10:48 No Changes	790ms	4s	1s	15s		
#20 10:48 No Changes	1s	6s	2s	17s	999ms	222ms
#19 10:29 No Changes	812ms	4s	1s	15s	1s	457ms
#18 10:08 No Changes	1s	4s	2s	17s	1s	172ms
#17 10:02 No Changes	1s	4s	2s	15s	2s	182ms
#16 10:00 No Changes	1s	4s	625ms	243ms	108ms	78ms



MINIKUBE COMMANDS:

Start & Stop Minikube

sh

CopyEdit

```

minikube start          # Start Minikube cluster
minikube start --driver=docker # Start with Docker driver
minikube status         # Check cluster status
minikube stop           # Stop Minikube
minikube delete         # Delete the cluster

```

Configure Minikube

sh

CopyEdit

minikube config set memory 4096 # Set memory to 4GB

minikube config set cpus 2

OUTPUT:

```
Handling connection for 9000
Handling connection for 9000
^Z
[2]+  Stopped                  kubectrl port-forward svc/my-service 9000:5050
ashilin@ASHILIN:~$ kubectrl get pod
NAME                                READY    STATUS    RESTARTS   AGE
my-deploy-76895d9fdd-5fqz7         1/1      Running   0           7m45s
my-deploy-76895d9fdd-dxtwd         1/1      Running   0           7m45s
my-deploy-76895d9fdd-pcjqh         1/1      Running   0           7m45s
my-deploy-76895d9fdd-r9k2n         1/1      Running   0           7m45s
my-pod                              1/1      Running   0           8m58s
ashilin@ASHILIN:~$ kubectrl exec -it my-deploy-76895d9fdd-5fqz7 -- bin/bash/
OCI runtime exec failed: exec failed: unable to start container process: exec: "bin/bash/": stat bin/bash/: no such file or directory: unknown
command terminated with exit code 126
ashilin@ASHILIN:~$ kubectrl exec -it my-deploy-76895d9fdd-5fqz7 -- /bin/bash
root@my-deploy-76895d9fdd-5fqz7:/usr/local/tomcat# ls
bin               conf              filtered-KEYS     LICENSE          native-jni-lib   README.md         RUNNING.txt      upstream-KEYS    webapps.dist
BUILDING.txt     CONTRIBUTING.md  lib              logs            NOTICE          RELEASE-NOTES     README.md        RUNNING.txt      upstream-KEYS    webapps.dist
BUILDING.txt     CONTRIBUTING.md  lib              logs            NOTICE          RELEASE-NOTES     README.md        RUNNING.txt      upstream-KEYS    webapps.dist
root@my-deploy-76895d9fdd-5fqz7:/usr/local/tomcat# cd webapps
root@my-deploy-76895d9fdd-5fqz7:/usr/local/tomcat/webapps# ls
maven-web-app    maven-web-app.war
root@my-deploy-76895d9fdd-5fqz7:/usr/local/tomcat/webapps# exit
exit
ashilin@ASHILIN:~$ kubectrl port-forward svc/my-service 9000:5050
Unable to listen on port 9000: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:9000: bind: address already in use]
error: unable to listen on any of the requested ports: [[9000 8080]]
ashilin@ASHILIN:~$ kubectrl port-forward svc/my-service 9000:5050
Unable to listen on port 9000: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:9000: bind: address already in use]
error: unable to listen on any of the requested ports: [[9000 8080]]
ashilin@ASHILIN:~$ kubectrl port-forward svc/my-service 7000:5050
Forwarding from 127.0.0.1:7000 -> 8080
Forwarding from [::1]:7000 -> 8080
Handling connection for 7000
Handling connection for 7000
Handling connection for 7000

Error from server (NotFound): error when replacing "deploy.yml": deployments.apps "my-deploy" not found
ashilin@ASHILIN:~$ sudo nano deploy.yml
ashilin@ASHILIN:~$ kubectrl get pod
No resources found in default namespace.
ashilin@ASHILIN:~$ kubectrl run my-pod -- image=ashilin20/app -- port=80
error: required flag(s) "image" not set
ashilin@ASHILIN:~$ kubectrl run my-pod -- image=ashilin20/app -- port=80
error: required flag(s) "image" not set
ashilin@ASHILIN:~$ kubectrl run my-pod --image=ashilin20/app --port=80
pod/my-pod created
ashilin@ASHILIN:~$ kubectrl get pod
NAME    READY    STATUS    RESTARTS   AGE
my-pod  1/1      Running   0           12s
ashilin@ASHILIN:~$ kubectrl apply -f deploy.yml
deployment.apps/my-deploy created
Warning: resource services/my-service is missing the kubectrl.kubernetes.io/last-applied-configuration annotation which is required by kubectrl apply. kubectrl
apply should only be used on resources created declaratively by either kubectrl create --save-config or kubectrl apply. The missing annotation will be patched
automatically.
service/my-service configured
ashilin@ASHILIN:~$ minikube service my-service
|-----|
| NAMESPACE | NAME   | TARGET PORT | URL                               |
|-----|
| default   | my-service | 5050         | http://192.168.49.2:30001       |
|-----|
* Starting tunnel for service my-service.
docker@127.0.0.1's password: |-----|
| NAMESPACE | NAME   | TARGET PORT | URL                               |
|-----|
| default   | my-service |             | http://127.0.0.1:33881         |
|-----|
🔗 Opening service default/my-service in default browser...
🔗 http://127.0.0.1:33881
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.

[1]+  Stopped                  minikube service my-service
ashilin@ASHILIN:~$ kubectrl port-forward svc/my-service 9000:5050
Forwarding from 127.0.0.1:9000 -> 8080
Forwarding from [::1]:9000 -> 8080
```

```
localhost/7000/maven-web-app/
Hello World!

Handling connection for 9000
^Z
[2]+  Stopped                  kubectll port-forward svc/my-service 9000:5050
ashilin@ASHILIN:~$ kubectl get pod
NAME                                READY    STATUS    RESTARTS   AGE
my-deploy-76895d9fdd-5fqz7         1/1      Running   0           7m45s
my-deploy-76895d9fdd-dxtw4         1/1      Running   0           7m45s
my-deploy-76895d9fdd-pcjgh         1/1      Running   0           7m45s
my-deploy-76895d9fdd-r9k2n         1/1      Running   0           7m45s
my-pod                              1/1      Running   0           8m58s
ashilin@ASHILIN:~$ kubectl exec -it my-deploy-76895d9fdd-5fqz7 -- bin/bash/
OCI runtime exec failed: exec failed: unable to start container process: exec: "bin/bash/": stat bin/bash/: no such file or directory: unknown
command terminated with exit code 126
ashilin@ASHILIN:~$ kubectl exec -it my-deploy-76895d9fdd-5fqz7 -- /bin/bash
root@my-deploy-76895d9fdd-5fqz7:/usr/local/tomcat# ls
bin                conf               filtered-KEYS      LICENSE            native-jni-lib    README.md          RUNNING.txt        upstream-KEYS      webapps.dist
BUILDING.txt       CONTRIBUTING.md    lib               logs              NOTICE           RELEASE-NOTES      temp              webapps           work
root@my-deploy-76895d9fdd-5fqz7:/usr/local/tomcat# cd webapps
root@my-deploy-76895d9fdd-5fqz7:/usr/local/tomcat/webapps# ls
maven-web-app  maven-web-app.war
root@my-deploy-76895d9fdd-5fqz7:/usr/local/tomcat/webapps# exit
exit
ashilin@ASHILIN:~$ kubectl port-forward svc/my-service 9000:5050
Unable to listen on port 9000: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:9000: bind: address already in use unable to create listener: Error listen tcp6 [::]:9000: bind: address already in use]
error: unable to listen on any of the requested ports: [{9000 8080}]
ashilin@ASHILIN:~$ kubectl port-forward svc/my-service 9000:5050
Unable to listen on port 9000: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:9000: bind: address already in use unable to create listener: Error listen tcp6 [::]:9000: bind: address already in use]
```