

Task 2

Automating CI/CD Pipeline with Jenkins

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Roll No: 22CSR196

Step 1: Installation of Docker:

Code:

```
sudo apt install docker.io
docker --version
sudo systemctl start docker
sudo systemctl enable docker
sudo systemctl status docker
```

```
root@LAPTOP-6V70H2B0:~# apt install docker.io
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
docker.io is already the newest version (26.1.3-0ubuntu1~24.04.1).
The following packages were automatically installed and are no longer required:
  libdrm-intel1 libpciaccess0 libsensors-config libsensors5
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
root@LAPTOP-6V70H2B0:~# docker --version
Docker version 26.1.3, build 26.1.3-0ubuntu1~24.04.1
root@LAPTOP-6V70H2B0:~# sudo systemctl start docker
root@LAPTOP-6V70H2B0:~# sudo systemctl enable docker
root@LAPTOP-6V70H2B0:~# sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
   Active: active (running) since Thu 2025-03-20 06:44:32 UTC; 1h 32min ago
     TriggeredBy: ● docker.socket
   Docs: https://docs.docker.com
   Main PID: 9561 (dockerd)
    Tasks: 30
   Memory: 62.0M ()
   CGroup: /system.slice/docker.service
           └─ 9561 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock
              10253 /usr/bin/docker-proxy -proto tcp -host-ip 0.0.0.0 -host-port 70 -container-ip 172.17.0.2>
              10261 /usr/bin/docker-proxy -proto tcp -host-ip :: -host-port 70 -container-ip 172.17.0.2 -con>

Mar 20 06:44:32 LAPTOP-6V70H2B0 dockerd[9561]: time="2025-03-20T06:44:32.185097971Z" level=warning msg="WARNI>
Mar 20 06:44:32 LAPTOP-6V70H2B0 dockerd[9561]: time="2025-03-20T06:44:32.185409232Z" level=warning msg="WARNI>
Mar 20 06:44:32 LAPTOP-6V70H2B0 dockerd[9561]: time="2025-03-20T06:44:32.185440810Z" level=warning msg="WARNI>
Mar 20 06:44:32 LAPTOP-6V70H2B0 dockerd[9561]: time="2025-03-20T06:44:32.185455418Z" level=warning msg="WARNI>
Mar 20 06:44:32 LAPTOP-6V70H2B0 dockerd[9561]: time="2025-03-20T06:44:32.185498240Z" level=info msg="Docker d>
Mar 20 06:44:32 LAPTOP-6V70H2B0 dockerd[9561]: time="2025-03-20T06:44:32.185845402Z" level=info msg="Daemon h>
Mar 20 06:44:32 LAPTOP-6V70H2B0 dockerd[9561]: time="2025-03-20T06:44:32.379205869Z" level=info msg="API list>
Mar 20 06:44:32 LAPTOP-6V70H2B0 systemd[1]: Started docker.service - Docker Application Container Engine.
Mar 20 06:45:16 LAPTOP-6V70H2B0 dockerd[9561]: time="2025-03-20T06:45:16.405475078Z" level=info msg="Layer sh>
Mar 20 06:45:16 LAPTOP-6V70H2B0 dockerd[9561]: time="2025-03-20T06:45:16.550116575Z" level=info msg="Layer sh>
lines 1-23/23 (END)...skipping...
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
```

Step 2: Fork a copy of a GitHub repo which contains the necessary files which will result in the clone of that repo in our own repository.

sindhukavitha / capstone

Type to search

<> Code

Pull requests

Actions

Projects

Wiki

Security 1

Insights

Settings

capstone (Public)

forked from AranganathanPrakash/capstone

Pin

Watch 0

Fork 0

Star 0

main 1 Branch 0 Tags

Go to file

Add file

<> Code

About

This branch is 5 commits ahead of AranganathanPrakash/capstone:main

Contribute

Sync fork

sindhukavitha Update deploy.sh b8db1cf · 11 hours ago 38 Commits

build	Add files via upload	last year
Dockerfile	Create Dockerfile	10 months ago
Jenkinsfile	Create Jenkinsfile	10 months ago
build.sh	Update build.sh	yesterday
deploy.sh	Update deploy.sh	11 hours ago
docker-compose.yml	Update docker-compose.yml	yesterday

README

No description, website, or topics provided.

Activity

0 stars

0 watching

0 forks

Releases

No releases published

Create a new release

Packages

No packages published

Publish your first package

Languages

HTML 64.2%

Shell 19.9%

Step 3: Then change the token and repo name of the docker Hub in the deploy.sh file which is in our repository.

sindhukavitha / capstone

Code Pull requests Actions Projects Wiki Security Insights Settings

Files

main

Go to file

- build
- Dockerfile
- Jenkinsfile
- build.sh
- deploy.sh
- docker-compose.yml

capstone / deploy.sh

sindhukavitha Update deploy.sh 5m7678 · 1 hour ago History

Code Blame 8 lines (7 loc) · 236 Bytes

```
1 #!/bin/bash
2 echo hi123
3 sh 'chmod +x build.sh'
4 sh './build.sh'
5 docker login -u sindhukavikumar -p dckr_pat_uHrhP1cd2je_5EsSoothHCN9G-PU
6 docker tag test1 sindhukavikumar/task2
7 docker push sindhukavikumar/task2
8
```

Step 4: Then copy the GitHub link of the repository and go to Jenkins.

The screenshot shows the GitHub interface for a repository named 'capstone' by user 'sindhukavitha'. The repository is a fork of 'AranganathanPrakash/capstone'. The 'Code' button is clicked, opening a dropdown menu with options to clone the repository. The 'HTTPS' option is selected, showing the URL 'https://github.com/sindhukavitha/capstone.git'. The repository has 1 branch and 0 tags. The file list shows 'build', 'Dockerfile', 'Jenkinsfile', 'build.sh', 'deploy.sh', and 'docker-compose.yml'. The right sidebar shows 'About', 'Releases', 'Packages', and 'Languages' sections.

Repository: **capstone** (Public)
forked from [AranganathanPrakash/capstone](#)

Buttons: Pin, Watch (0), Fork (0), Star (0)

Navigation: <> Code, Pull requests, Actions, Projects, Wiki, Security (1), Insights, Settings

Branches: main (1 Branch), Tags (0 Tags)

Search: Go to file

Buttons: Add file, <> Code

Message: This branch is 5 commits ahead of AranganathanPrakash/capstone:main

Commit: **sindhukavitha** Update deploy.sh

File	Commit Message	Time
build	Add files via upload	
Dockerfile	Create Dockerfile	
Jenkinsfile	Create Jenkinsfile	
build.sh	Update build.sh	
deploy.sh	Update deploy.sh	11 hours ago
docker-compose.yml	Update docker-compose.yml	yesterday

Buttons: Open with GitHub Desktop, Download ZIP

Sections: About, Releases, Packages, Languages

Step 5: In Jenkins, create a new item (Job) with a type pipeline and add the copied GitHub url to it with the correct branch and Jenkinsfile.

Dashboard > dockerpipeline > Configuration

Pipeline

Define your Pipeline using Groovy directly or pull it from source control.

Definition

Pipeline script from SCM

SCM ?

Git

Repositories ?

Repository URL ?

https://github.com/sindhukavitha/capstone.git

Credentials ?

- none -

+ Add

Advanced

Add Repository

Branches to build ?

Save

Apply

Step 6: After Creating the job, build it and it will give the console output and the docker image will be created.

Dashboard > dockerpipe > #8

Status

Changes

Console Output

Edit Build Information

Delete build '#8'

Timings

Git Build Data

Pipeline Overview

Pipeline Console

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Pipeline Steps

Workspaces

Previous Build

Console Output

Download

Copy

View as plain text

Started by user Sindhu k

Obtained Jenkinsfile from git <https://github.com/sindhukavitha/capstone.git>

[Pipeline] Start of Pipeline

[Pipeline] node

Running on Jenkins in /var/lib/jenkins/workspace/dockerpipe

[Pipeline] {

[Pipeline] stage

[Pipeline] { (Declarative: Checkout SCM)

[Pipeline] checkout

Selected Git installation does not exist. Using Default

The recommended git tool is: NONE

No credentials specified

> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/dockerpipe/.git # timeout=10

Fetching changes from the remote Git repository

> git config remote.origin.url <https://github.com/sindhukavitha/capstone.git> # timeout=10

Fetching upstream changes from <https://github.com/sindhukavitha/capstone.git>

> git --version # timeout=10

> git --version # 'git version 2.17.1'

> git fetch --tags --progress -- <https://github.com/sindhukavitha/capstone.git> +refs/heads/*:refs/remotes/origin/* # timeout=10

> git rev-parse refs/remotes/origin/main^{commit} # timeout=10

Checking out Revision b8db1cf99c3c4c6e64483a5c5beb19a65ee90db9 (refs/remotes/origin/main)

> git config core.sparsecheckout # timeout=10

> git checkout -f b8db1cf99c3c4c6e64483a5c5beb19a65ee90db9 # timeout=10

Commit message: "Update deploy.sh"

> git rev-list --no-walk b8db1cf99c3c4c6e64483a5c5beb19a65ee90db9 # timeout=10

Dashboard > dockerpipe > #8

ad2f08e39a9d: Preparing

135f786ad046: Preparing

1287fbecdfcc: Preparing

ad2f08e39a9d: Waiting

135f786ad046: Waiting

1287fbecdfcc: Waiting

d26dc06ef910: Layer already exists

aa82c57cd9fe: Layer already exists

d98dcc720ae0: Layer already exists

d49733bd80d7: Layer already exists

03d9365bc5dc: Layer already exists

135f786ad046: Layer already exists

ad2f08e39a9d: Layer already exists

1287fbecdfcc: Layer already exists

latest: digest: sha256:77c56aa14a9e4057a7db3cdee956d5ad25a0e65840ef2044ea33f757243a7b72 size: 1988

Starting dockerpipe_react-capstone_1 ...

Starting dockerpipe_react-capstone_1

[1A[2K

Starting dockerpipe_react-capstone_1 ... [32mdone[0m

[1B

[Pipeline] }

[Pipeline] // stage

[Pipeline] }

[Pipeline] // withEnv

[Pipeline] }

[Pipeline] // node

[Pipeline] End of Pipeline

Finished: SUCCESS

REST API

Jenkins 2.402.2

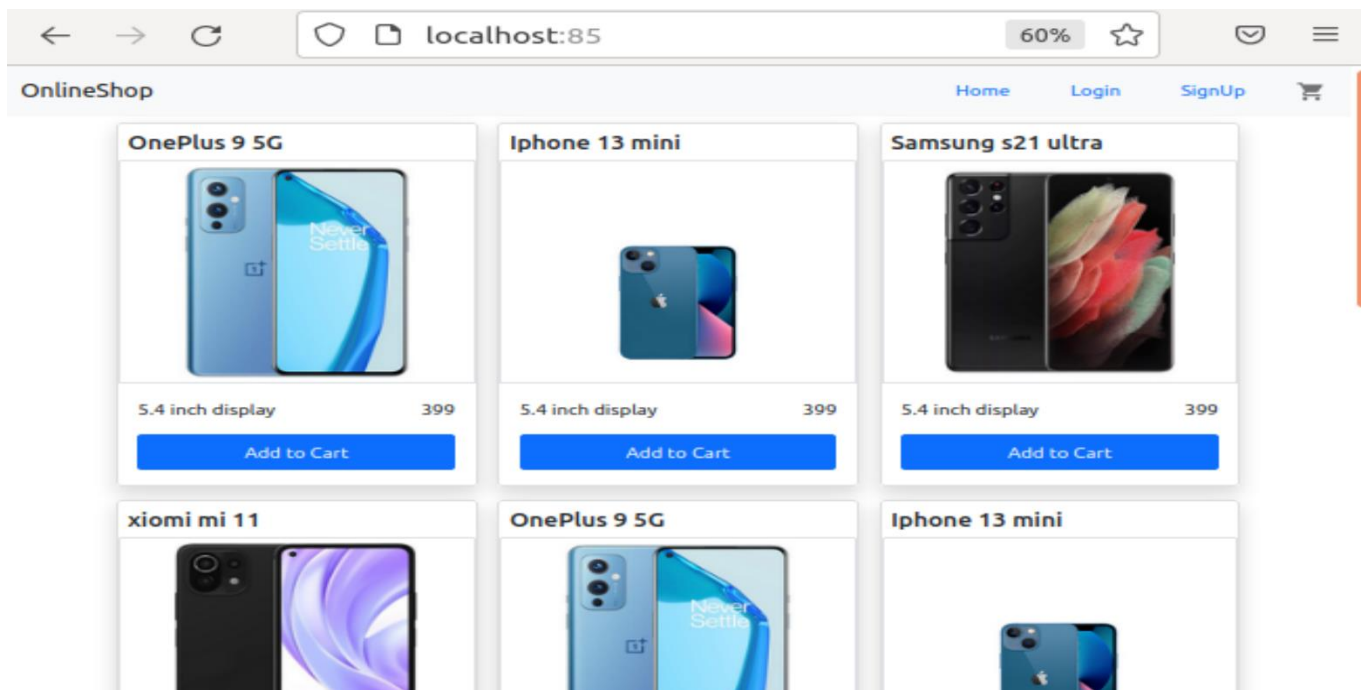
Step 7: Now Build this docker image in the terminal with desired port number to it.

Code:

```
docker images
```

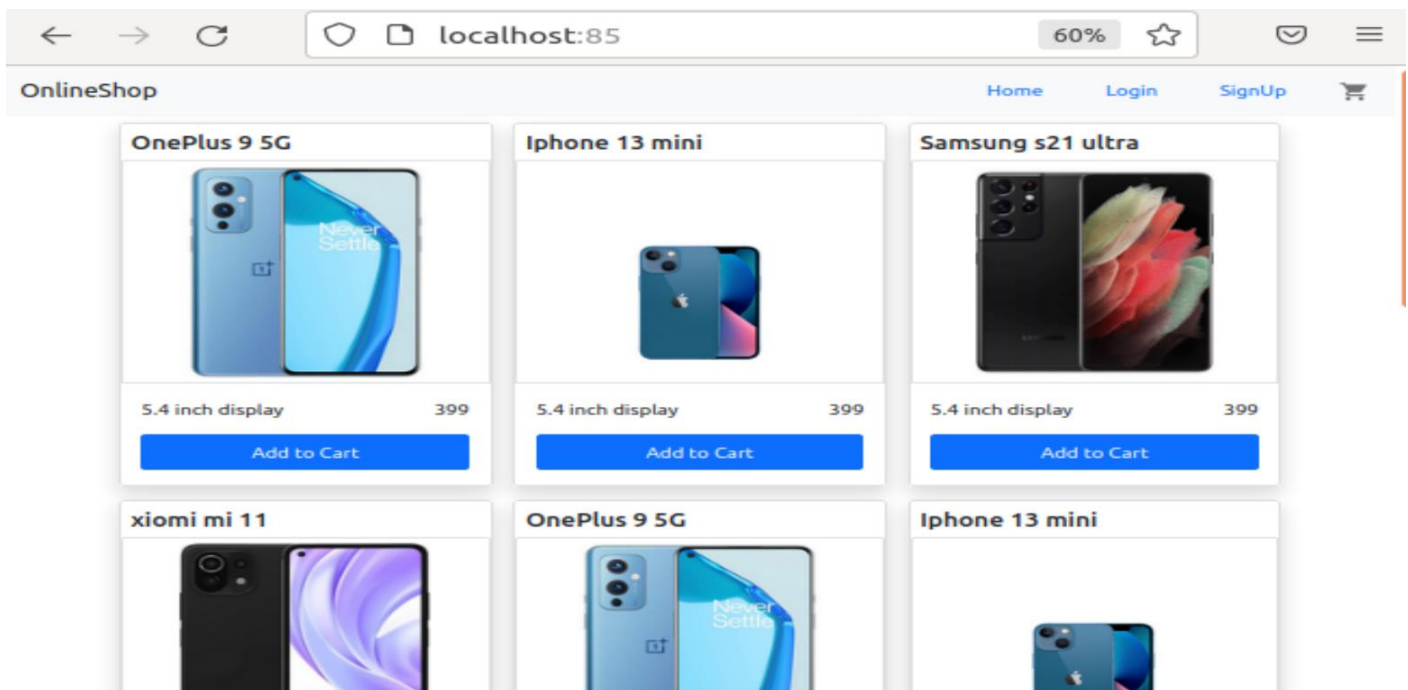
```
docker run -itd -p 81:80 test .
```

Step 8: Go to the Browser and search for localhost:<PORT_NUMBER> and the respective application will be hosted.



Step 9: But, Instead of running the image by manually , we can also write the command for running in a file called docker-compose.yml
Code:

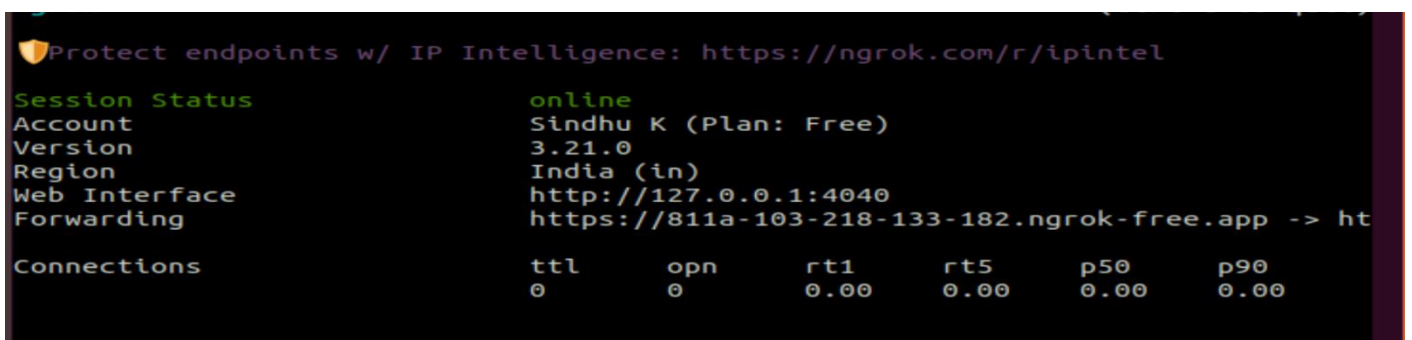
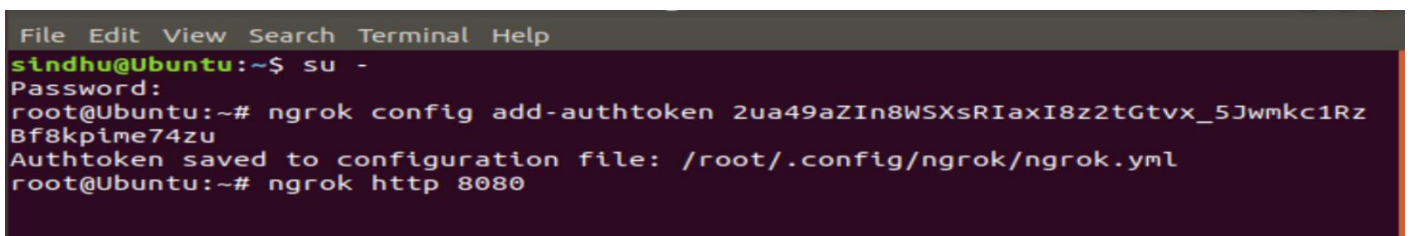
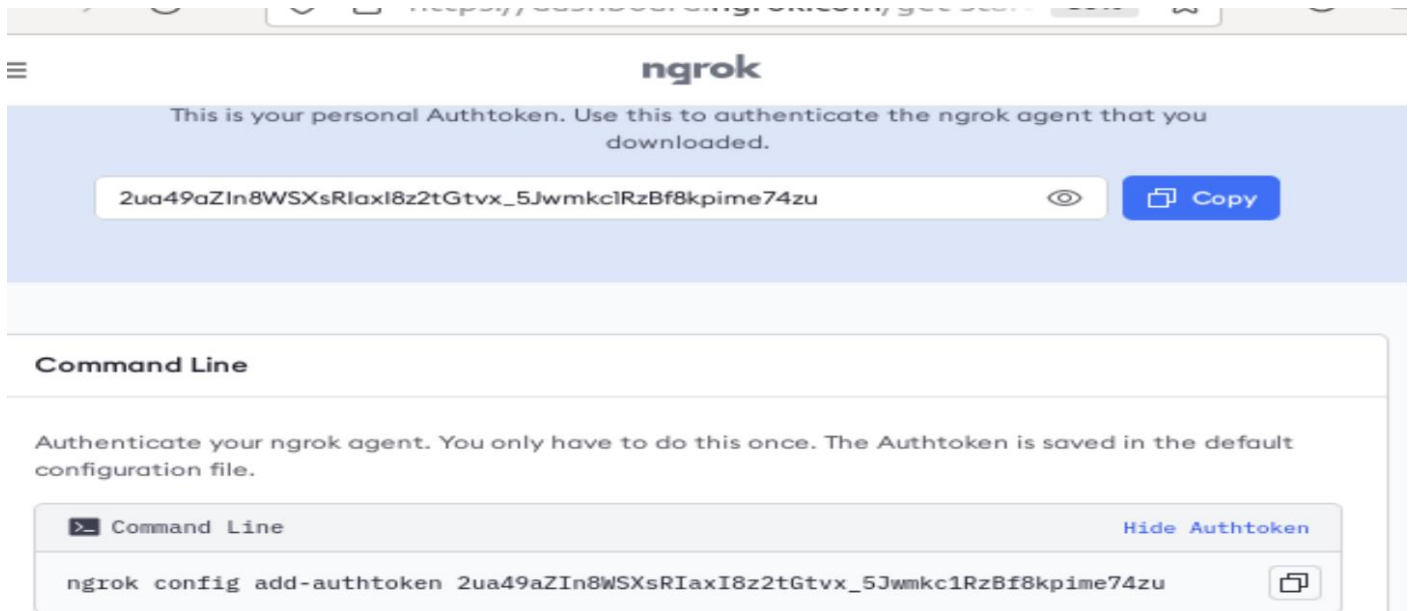
```
version: '3'
services:
  react-capstone:
    image:"test1"
    ports:
      - "85:80"
```

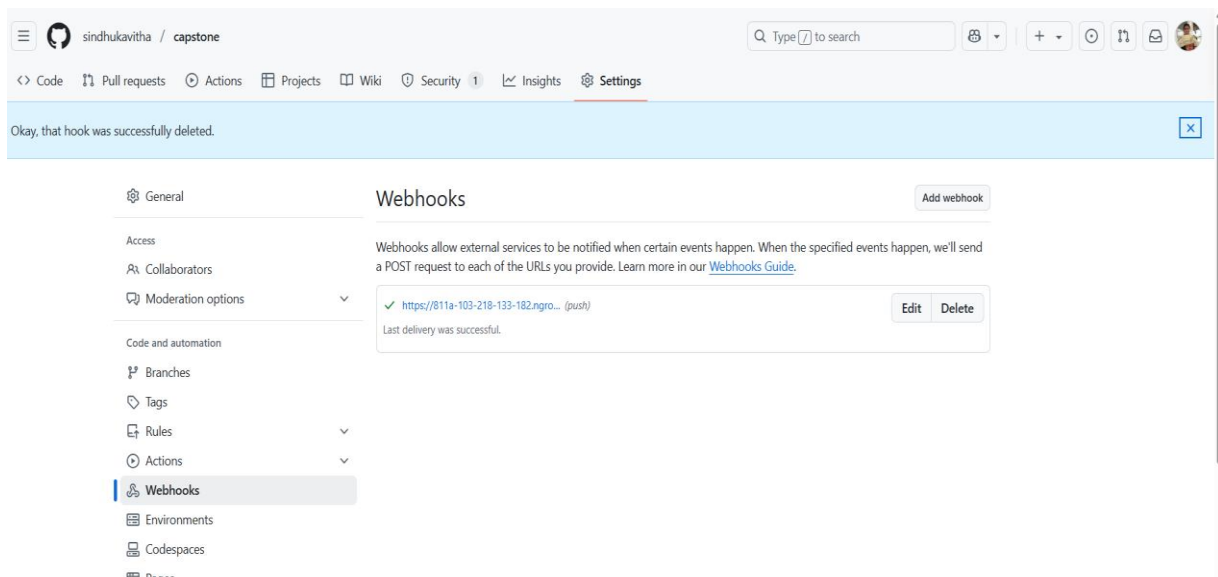


By Creating this, we no need to run the image by manually. (It will automatically run)

Step 9: Adding Webhook to it which is available in GitHub for automatic build of the project.

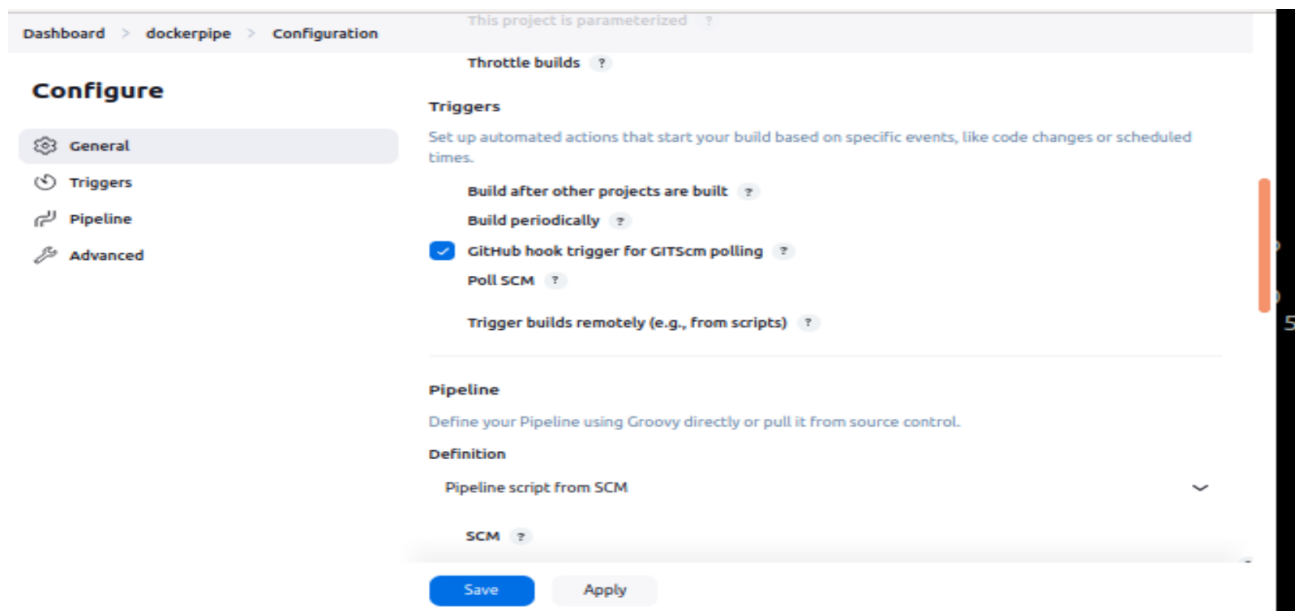
Installing ngrok and with these command to get the Webhook Link.



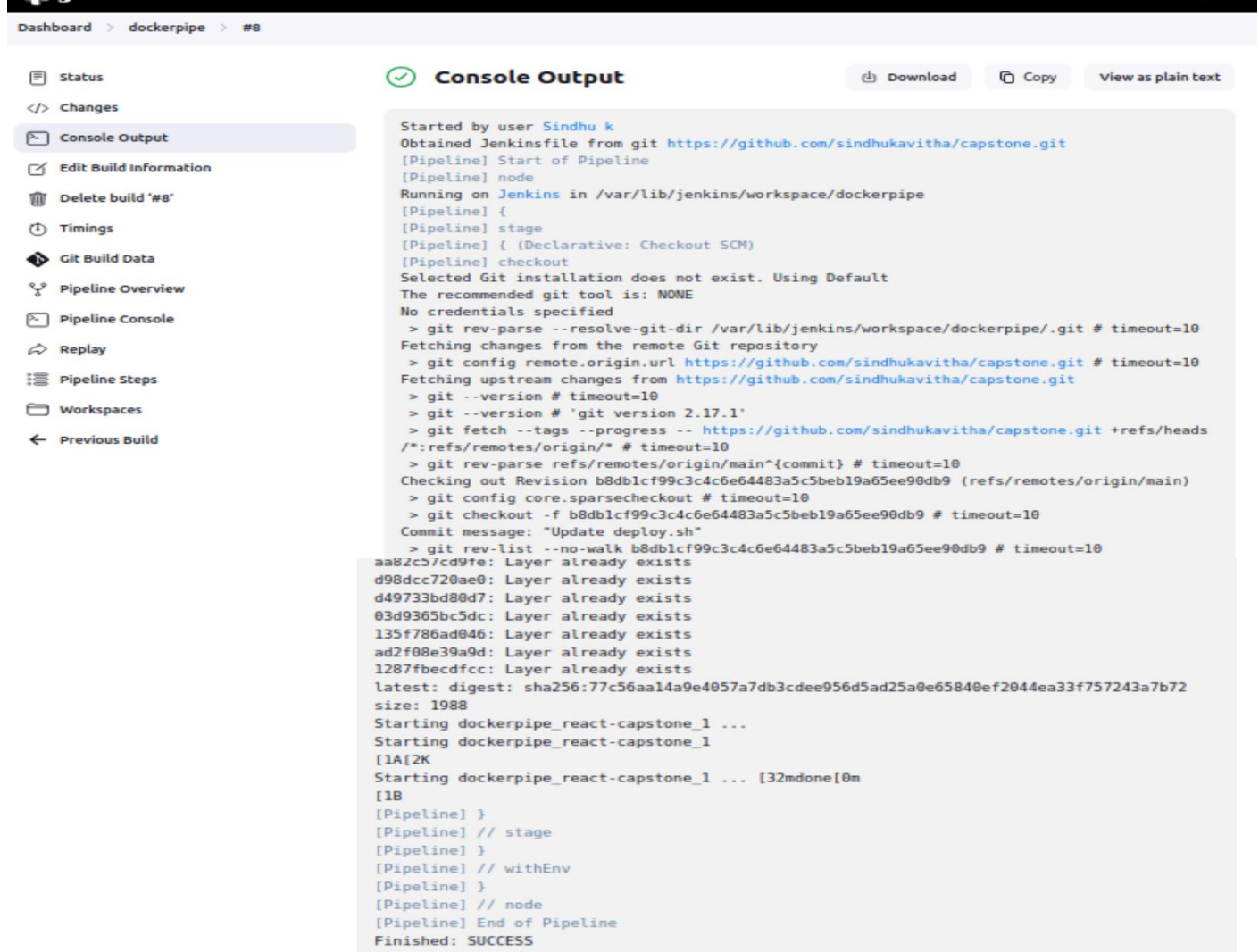
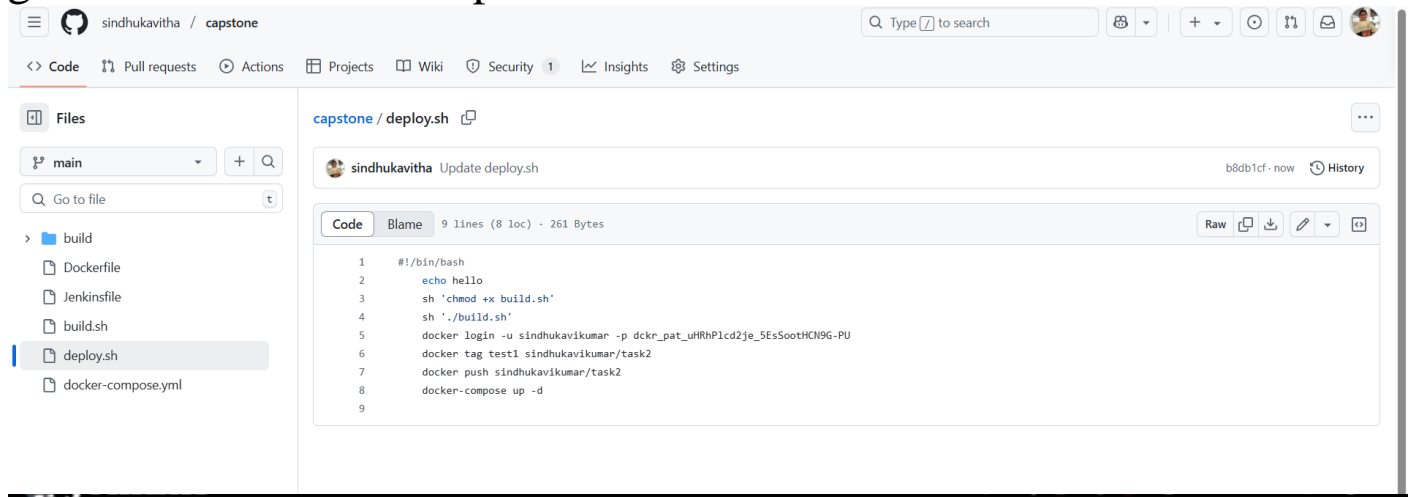


Step 11: Tick the checkbox of GitHub hook trigger for GITScm polling in Jenkins.

Screenshot:



Step 12: Modify any code and commit the changes, then build it to generate the console output.



Dashboard > dockerpipe > #8

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Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/sindhukavitha/capstone.git # timeout=10
Fetching upstream changes from https://github.com/sindhukavitha/capstone.git
> git --version # timeout=10
> git --version # 'git version 2.17.1'
> git fetch --tags --progress -- https://github.com/sindhukavitha/capstone.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/main^{commit} # timeout=10
Checking out Revision b8db1cf99c3c4c6e64483a5c5beb19a65ee90db9 (refs/remotes/origin/main)
> git config core.sparsecheckout # timeout=10
> git checkout -f b8db1cf99c3c4c6e64483a5c5beb19a65ee90db9 # timeout=10
Commit message: "Update deploy.sh"
> git rev-list --no-walk b8db1cf99c3c4c6e64483a5c5beb19a65ee90db9 # timeout=10
aa82cc5cd97e: Layer already exists
d98dcc720ae0: Layer already exists
d49733bd80d7: Layer already exists
03d9365bc5dc: Layer already exists
135f786ad046: Layer already exists
ad2f08e39a9d: Layer already exists
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size: 1988
Starting dockerpipe_react-capstone_1 ...
Starting dockerpipe_react-capstone_1
[1A[2K
Starting dockerpipe_react-capstone_1 ... [32mdone[0m
[1B
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```