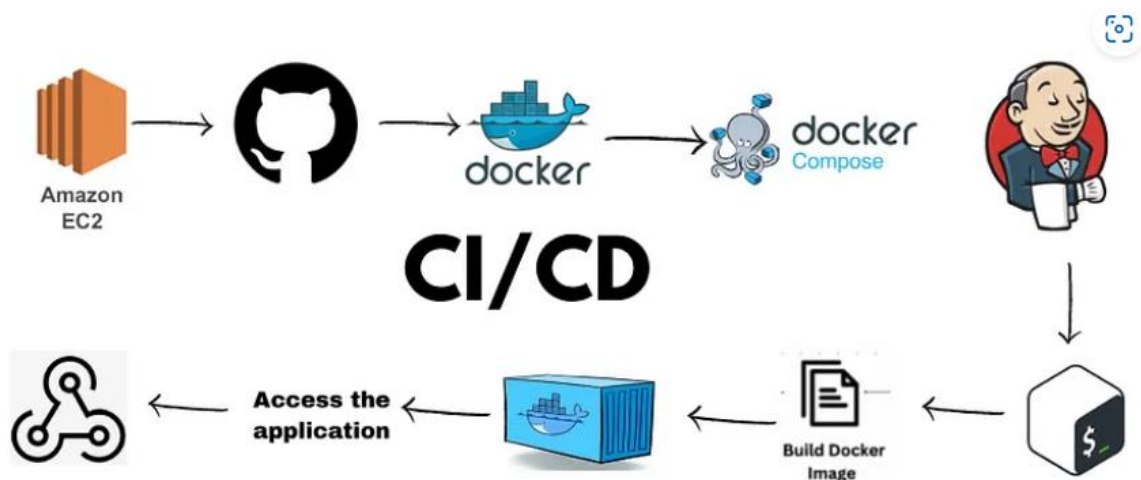


End-to-End CI/CD Project with Jenkins and GitHub Integration

Tools and technologies used:

- Created an Ubuntu AWS-EC2 instance on AWS
- Installed Jenkins and Docker on the Ubuntu EC2 instance
- Set up an SSH key for seamless integration between Jenkins and GitHub
- Leveraged GitHub Webhook to automatically trigger the Jenkins pipeline on any code changes
- Jenkins autonomously fetched the Dockerfile from GitHub, built the image, and ran the container
- The image was then pushed to DockerHub, making it ready for Kubernetes
- Embraced Minikube for deploying the application using the Deployment kind, ensuring high availability with a Replicaset of 3 pods for automatic pod healing
- ✨ This project taught me the power of automation, CI/CD, and containerization. It's amazing to see how these technologies come together to streamline development and deployment processes. Special thanks to Shubham Lodhe for the collaboration!



Browser address bar: <https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Instances:instanceState=running>

Import favorites | Microsoft Certificati... | New Tab | MADE EASY ONLIN... | NextStep- Tata Con... | Exam 120-1033-22... | What is ChatGPT an...

aws Services Search [Alt+S]

Instances (1) Info

Find instance by attribute or tag (case-sensitive)

Instance state = running X Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IP
JenkinsMaster	i-07a3e4589b4389356	Running	t2.micro	2/2 checks passed	No alarms	ap-south-1a	ec2-13-235-238-71.ap-...	13.235.2...

Browser address bar: 13.235.238.71:8080/login?from=%2F

Not secure | 13.235.238.71:8080/login?from=%2F

Import favorites | Microsoft Certificati... | New Tab | MADE EASY ONLIN... | NextStep- Tata Con... | Exam 120-1033-22... | What is ChatGPT an...

Sign in to Jenkins

Username

Admin

Password

.....

☒ Keep me signed in

Sign in

Browser address bar: 13.235.238.71:8080/job/todo-node-app/lastSuccessfulBuild/

Not secure | 13.235.238.71:8080/job/todo-node-app/lastSuccessfulBuild/

Import favorites | Microsoft Certificati... | New Tab | MADE EASY ONLIN... | NextStep- Tata Con... | Exam 120-1033-22... | What is ChatGPT an...

Jenkins

Search (CTRL+K)

Dashboard > todo-node-app > #16

Status

Changes

Console Output

Edit Build Information

Delete build '#16'

Polling Log

Git Build Data

Previous Build

Next Build

Build #16 (Sep 15, 2023, 6:30:10 PM)

Keep th

Add description

Started 7

Took 37 s

Changes

1. Update test.js (commit: e489bcd) (details / githubweb)

Started by GitHub push by Mayuri-Chikne

Revision: e489bcd14ecc57e2711c02e217102066b1151ebe

Repository: <https://github.com/Mayuri-Chikne/node-todo-cicd.git>

- refs/remotes/origin/master

Dashboard > todo-node-app > Configuration

Configure

General

Source Code Management

Build Triggers

Build Environment

Build Steps

Post-build Actions

Build Steps

Execute shell ?

Command

See [the list of available environment variables](#)

```
docker build . -t node-app-todo
docker run -d --name node-app-container123 -p 8000:8000 node-app-todo
```

Advanced ▾

Add build step ▾

Post-build Actions

Add post-build action ▾

Save Apply

https://github.com/Mayuri-Chikne/node-todo-cicd/settings/hooks

Import favorites Microsoft Certificati... New Tab MADE EASY ONLIN... NextStep- Tata Con... Exam 120-1033-22... What is ChatGPT an...

Mayuri-Chikne / node-todo-cicd

Code Pull requests Actions Projects Wiki Security Insights Settings

General

Access

Collaborators

Moderation options ▾

Code and automation

Branches

Tags

Rules ▾

Actions ▾

Webhooks

Environments

Codespaces

Pages

Security

Code security and analysis

Webhooks

Add webhook


Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our [Webhooks Guide](#).

✓ http://13.233.179.195:8080/github-... (push)




Edit Delete

← ↻ ⚠ Not secure | 13.235.238.71:8080/job/todo-node-app/16/console




Import favorites Microsoft Certificati... New Tab MADE EASY ONLIN... NextStep- Tata Con... Exam 120-1033-22... What is ChatGPT an...








 **Jenkins**

Search (CTRL+K) ?

   **Mayuri Chikne** ▾

Dashboard > todo-node-app > #16 > Console Output

-  Status
-  Changes
-  Console Output

 View as plain text
-  Edit Build Information
-  Delete build '#16'
-  Polling Log
-  Git Build Data
-  Previous Build
-  Next Build



Console Output

```
Started by GitHub push by Mayuri-Chikne
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/todo-node-app
The recommended git tool is: NONE
using credential Jenkins-project
> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/todo-node-app/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/Mayuri-Chikne/node-todo-cicd.git # timeout=10
Fetching upstream changes from https://github.com/Mayuri-Chikne/node-todo-cicd.git
> git --version # timeout=10
> git --version # 'git version 2.34.1'
using GIT_SSH to set credentials To intergate jenkins with github
Verifying host key using known hosts file
You're using 'Known hosts file' strategy to verify ssh host keys, but your known_hosts file does not exist, please go to 'Manage Jenkins' -> 'Security' -> 'Git Host Key Verification Configuration' and configure host key verification.
> git fetch --tags --force --progress -- https://github.com/Mayuri-Chikne/node-todo-cicd.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision e489bcd14ecc57e2711c02e217102066b1151ebe (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
```

Dashboard > todo-node-app > #16 > Console Output

```
+ docker run --rm --name node-app-container123 -p 8000:8000 node-app-todo123
executes before every test
  ✓ Is returning 6 when multiplying 2 * 3
Test2
executes before every test
  ✓ Is returning 4 when adding 2 + 3
executes before every test
  ✓ Is returning 8 when multiplying 2 * 4
This part executes once after all tests

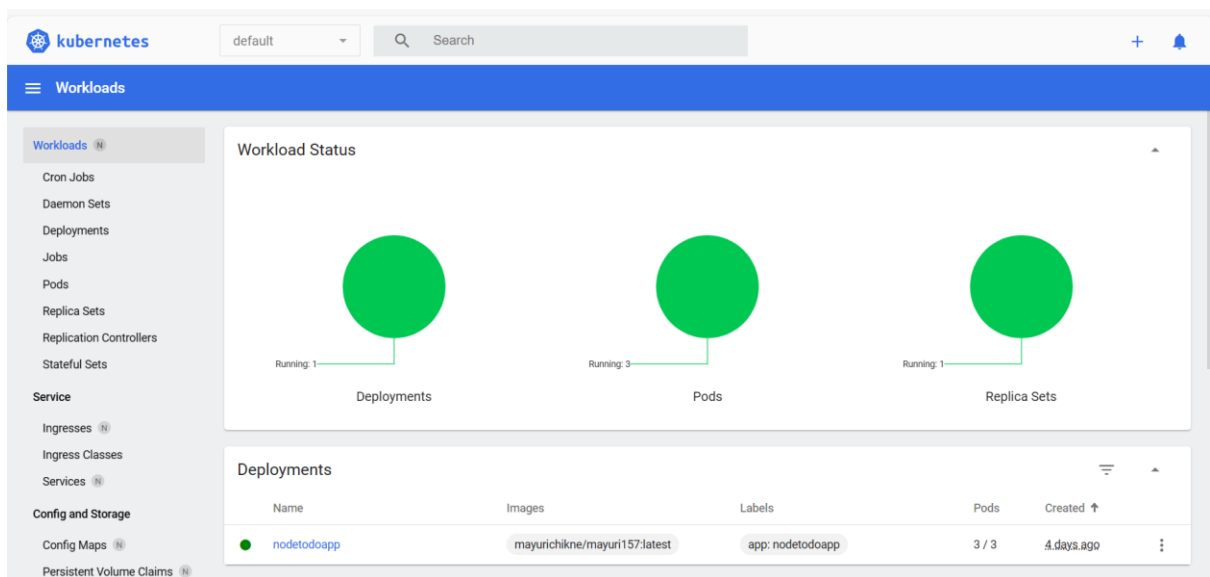
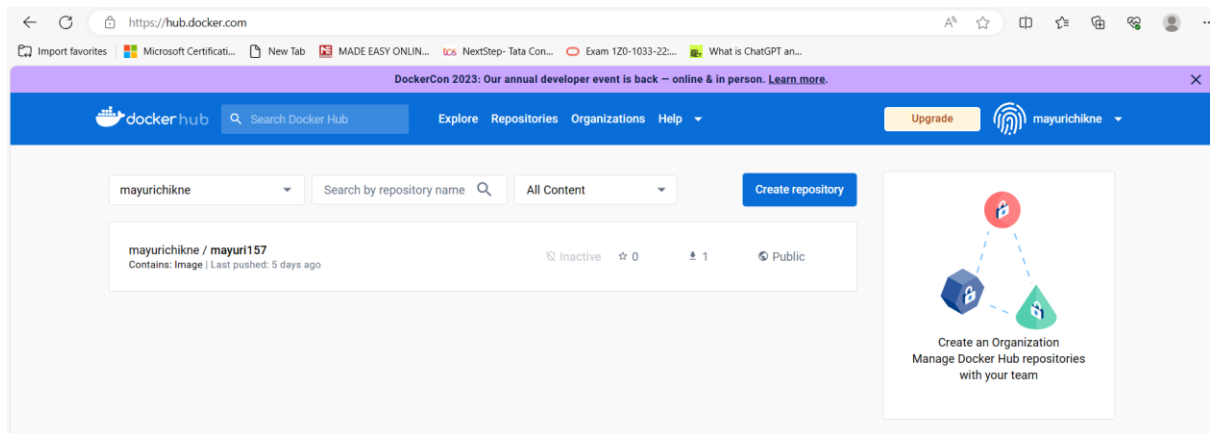
4 passing (12ms)

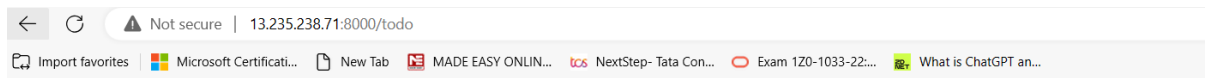
Removing intermediate container 7ab943d4193a
----> bb0ae8507192
Step 6/7 : EXPOSE 8000
----> Running in a86186925cc8
Removing intermediate container a86186925cc8
----> f62896f99d31
Step 7/7 : CMD ["node","app.js"]
----> Running in 945540f534f8
Removing intermediate container 945540f534f8
----> 585a8f614f6e
Successfully built 585a8f614f6e
Successfully tagged node-app-todo123:latest
+ docker run -d --name node-app-container123 -p 8000:8000 node-app-todo123
541c3eb018767beaf261328151dc3b6301911d34b0d792cdf7e2275161de30eb
Finished: SUCCESS
```

```
ubuntu@ip-172-31-35-246:~$ docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
f5990cdc2b5a   585a8f614f6e   "node app.js"           25 minutes ago Up 25 minutes 0.0.0.0:8000->8000/tcp, :::8000->8000/tcp   node-app-container123
d3458c280b6a   585a8f614f6e   "node app.js"           54 minutes ago Exited (137) 42 minutes ago                node-todo-app
a7f3d3d41dd3   3bd02ca2ad72   "node app.js"           7 days ago    Created                               node-app-container1

ubuntu@ip-172-31-35-246:~$ cd /var/lib/jenkins/workspace/todo-node-app
ubuntu@ip-172-31-35-246:/var/lib/jenkins/workspace/todo-node-app$ ls
Dockerfile  Jenkinsfile  README.md  app.js  docker-compose.yaml  node_modules  package-lock.json  package.json  sonar-project.properties  test.js  views
ubuntu@ip-172-31-35-246:/var/lib/jenkins/workspace/todo-node-app$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
node-app-todo123   latest   585a8f614f6e   7 days ago    124MB
node-app-todo1    latest   b9e157b72110   7 days ago    124MB
<none>           <none>   eb4700af9b6b   7 days ago    124MB
node-app-todo    latest   e48dd5bcb1c0   7 days ago    124MB
<none>           <none>   1678e381c0f5   7 days ago    124MB
<none>           <none>   3bd02ca2ad72   7 days ago    124MB
<none>           <none>   54e8e68083ed   7 days ago    124MB
<none>           <none>   0dcab67fc7be   7 days ago    124MB
node-app         latest   b2a1e50b9e8a   8 days ago    124MB
mayurichikne/mayuri157   latest   b2a1e50b9e8a   8 days ago    124MB
node             12.2.0-alpine   f391dabf9dce   4 years ago    77.7MB

ubuntu@ip-172-31-35-246:/var/lib/jenkins/workspace/todo-node-app$ cd /var/lib/jenkins/workspace/todo-node-app
ubuntu@ip-172-31-35-246:/var/lib/jenkins/workspace/todo-node-app$ ls
Dockerfile  Jenkinsfile  README.md  app.js  docker-compose.yaml  node_modules  package-lock.json  package.json  sonar-project.properties  test.js  views
ubuntu@ip-172-31-35-246:/var/lib/jenkins/workspace/todo-node-app$ docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
f5990cdc2b5a   585a8f614f6e   "node app.js"           26 minutes ago Up 26 minutes 0.0.0.0:8000->8000/tcp, :::8000->8000/tcp   node-app-container123
d3458c280b6a   585a8f614f6e   "node app.js"           55 minutes ago Exited (137) 44 minutes ago                node-todo-app
```





Awsome,its Working . Welcome to Nodejs Application.

- X \ 4
- X \ 56

What shoud I do?

All commands which I executed on EC2 Instance->

- 1 whoamai
- 2 whoami
- 3 sudo apt update
- 4 sudo apt install openjdk-11-jre
- 5 java -version
- 6 curl -fsSL https://pkg.jenkins.io/debian/jenkins.io.key | sudo tee \ /usr/share/keyrings/jenkins-keyring.asc > /dev/null
- 7 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
- 8 sudo apt-get update
- 9 sudo apt-get install jenkins
- 10 curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo tee /usr/share/keyrings/jenkins-keyring.asc > /dev/null
- 11 echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] https://pkg.jenkins.io/debian-stable binary/ | sudo tee /etc/apt/sources.list.d/jenkins.list > /dev/null
- 12 sudo apt update
- 13 sudo apt install jenkins -y
- 14 sudo systemctl enable jenkins
- 15 sudo systemctl start jenkins
- 16 sudo systemctl status jenkins
- 17 sudo cat /var/lib/jenkins/secrets/initialAdminPasswords

```
18 sudo cat /var/lib/jenkins/secrets/initialAdminPassword
19 ssh keygen
20 ssh-keygen
21 cd .ssh
22 ls
23 cat id_rsa
24 ssh-keygen
25 ls
26 cat id_rsa
27 cat id_rsa.pub
28 cat /var/lib/jenkins/workspace/todo-node-app
29 ls
30 cd /var/lib/jenkins/workspace/todo-node-app
31 ls
32 sudo apt install nodejs
33 sudo apt install
34 sudo apt install npm
35 history
36 npm install
37 node app.js
38 node --version
39 npm
40 sudo npm install
41 node app.js
42 sudo apt install docker.io
43 cd /var/lib/jenkins/workspace/todo-node-app
44 ls
45 vim Dockerfile
46 cd /var/lib/jenkins/workspace/todo-node-app
47 ls
48 sudo chmod 700 Dockerfile
```

```
49 sudo docker build . -t node-app
50 docker run -d --name node-todo-app -p 8000:8000 todo-node-app
51 sudo docker run -d --name node-todo-app -p 8000:8000 todo-node-app
52 sudo docker run -d --name node-todo-app -p 8000:8000 node-app
53 docker kill
54 sudo usermod -a -G docker $USER
55 sudo systemctl restart jenkins
56 cd /var/lib/jenkins/workspace/todo-node-app/
57 ls
58 sudo chmod 777 Dockerfile
59 sudo usermod -aG docker $USER
60 reboot
61 sudo systemctl restart jenkins
62 sudo systemctl status jenkins
63 cd /var/lib/jenkins/workspace/todo-node-app/
64 ls
65 $ sudo groupadd docker
66 sudo groupadd docker
67 sudo usermod -aG docker $USER
68 sudo reboot
69 docker kill
70 docker ps
71 docker kill
72 docker ps
73 docker rm node-app-container
74 exit
75 docker images
76 docker tag b2a1e50b9e8a mayurichikne/mayuri157:latest
77 docker push mayurichikne/mayuri157:latest
78 docker login -u mayurichikne
79 docker push mayurichikne/mayuri157:latest
```


80 docker ps

81 docker ps -a

82 history