

# Capstone-Project

## Application:

Clone the below mentioned repo and deploy the application. (Run the application in port 80 [HTTP])

## Checking Git version:

```
⌚ nandhakumar@DESKTOP-PJ13089: ~/C:drive
nandhakumar@DESKTOP-PJ13089:~/C:drive$ git --version
git version 2.34.1
nandhakumar@DESKTOP-PJ13089:~/C:drive$
```

## Cloning the repository:

```
⌚ nandhakumar@DESKTOP-PJ13089: ~/C:drive
nandhakumar@DESKTOP-PJ13089:~/C:drive$ git clone https://github.com/sriram-R-krishnan/devops-build
Cloning into 'devops-build'...
remote: Enumerating objects: 21, done.
remote: Counting objects: 100% (21/21), done.
remote: Compressing objects: 100% (19/19), done.
remote: Total 21 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (21/21), 720.09 KiB | 671.00 KiB/s, done.
nandhakumar@DESKTOP-PJ13089:~/C:drive$
```

```
⌚ nandhakumar@DESKTOP-PJ13089: ~/C:drive/devops-build/build
nandhakumar@DESKTOP-PJ13089:~/C:drive$ ls
devops-build
nandhakumar@DESKTOP-PJ13089:~/C:drive$ cd devops-build/build/
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build/build$ ls
_redirects asset-manifest.json favicon.ico index.html logo192.png logo512.png manifest.json robots.txt static
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build/build$
```

## Checking Docker & Docker-compose version:

```
⌚ nandhakumar@DESKTOP-PJ13089: ~/C:drive
nandhakumar@DESKTOP-PJ13089:~/C:drive$ docker --version
Docker version 24.0.5, build 24.0.5-0ubuntu1~22.04.1
nandhakumar@DESKTOP-PJ13089:~/C:drive$ docker-compose --version
docker-compose version 1.29.2, build unknown
nandhakumar@DESKTOP-PJ13089:~/C:drive$
```

## Creating Dockerfile, Dockerignore file:

```
)nandhakumar@DESKTOP-PJ13089: ~/C:drive/devops-build
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ ls
build
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ touch Dockerfile
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ ls
Dockerfile build
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$
```

```
)nandhakumar@DESKTOP-PJ13089: ~/C:drive/devops-build
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ nano Dockerfile
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ cat Dockerfile
FROM nginx:alpine
COPY build /usr/share/nginx/html
EXPOSE 80
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$
```

```
)nandhakumar@DESKTOP-PJ13089: ~/C:drive/devops-build
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ touch .dockerignore
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ ll
total 24
drwxr-xr-x 4 nandhakumar nandhakumar 4096 Mar  5 18:37 .
drwxr-xr-x 3 nandhakumar nandhakumar 4096 Mar  5 18:09 ..
-rw-r--r-- 1 nandhakumar nandhakumar    0 Mar  5 18:37 .dockerignore
drwxr-xr-x 8 nandhakumar nandhakumar 4096 Mar  5 18:09 .git/
-rw-r--r-- 1 nandhakumar nandhakumar   61 Mar  5 18:19 Dockerfile
drwxr-xr-x 3 nandhakumar nandhakumar 4096 Mar  5 18:09 build/
```

## Creating build.sh file:

```
)nandhakumar@DESKTOP-PJ13089: ~/C:drive/devops-build
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ touch build.sh
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ ls
Dockerfile build build.sh
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ nano build.sh
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ cat build.sh
#!/bin/bash

sudo docker build -t react:app .
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$
```

## Building docker image using build.sh file:

```
[+] Building 3.3s (7/7) FINISHED
   => [internal] load build definition from Dockerfile
   => [internal] load context: 3MB
   => [internal] load Dockerfile: /library/nginx/alpine
   => [internal] load context: 34B
   => [internal] load build context
   => [internal] load build stage: 34B
   => [internal] load build stage: 34B
   => [internal] FFROM docker.io/library/nginx:alpine@sha256:6a2f0b26e454a6d84e4207a251f4da2d1955dc030f782a51e315e9c7baf9
   => [internal] CACHED [7/7] COPY build /var/share/nginx/html
   => exporting to image
   => writing manifest
   => writing manifest sha256:2ed00ea51b0411e123333a03266556237580f24096d793dc46a20f7770fc
   => naming to docker.io/library/reactapp
sandhukumar@DESKTOP-PI13089:~/C:/drive/devops-builds$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
react app 246000a1b65 5 days ago 45.2B
sandhukumar@DESKTOP-PI13089:~/C:/drive/devops-builds$
```

## Creating Docker-compose file:

```
nandhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build
nandhakumar@DESKTOP-PJ13089:~/C:/drive/devops-build$ touch docker-compose.yml
nandhakumar@DESKTOP-PJ13089:~/C:/drive/devops-build$ nano docker-compose.yml
nandhakumar@DESKTOP-PJ13089:~/C:/drive/devops-build$ ls
Dockerfile build build.sh docker-compose.yml
nandhakumar@DESKTOP-PJ13089:~/C:/drive/devops-build$ cat docker-compose.yml
version: '3'
services:
  web:
    image: react:app
    container_name: test
    ports:
      - '80:80'
nandhakumar@DESKTOP-PJ13089:~/C:/drive/devops-build$
```

## Creating deploy.sh file: (just to run the image)

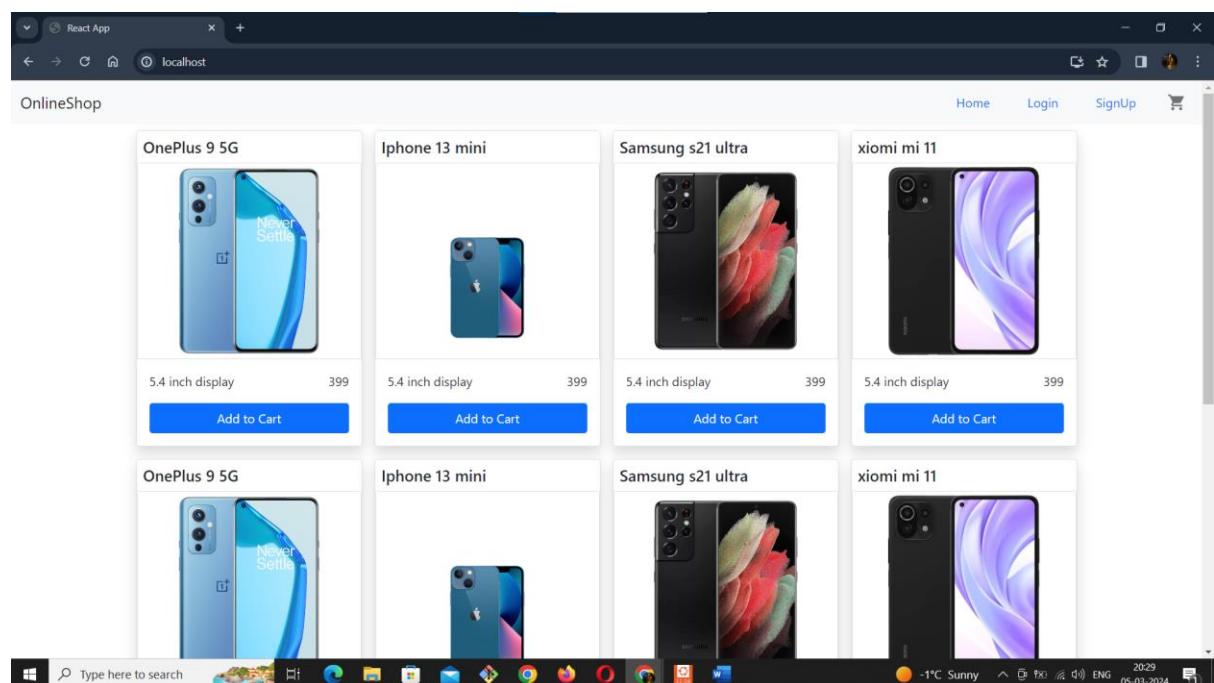
```
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ touch deploy.sh
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ nano deploy.sh
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ ls
Dockerfile  build  build.sh  deploy.sh  docker-compose.yml
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$ cat deploy.sh
#!/bin/bash

docker-compose up -d
nandhakumar@DESKTOP-PJ13089:~/C:drive/devops-build$
```

## Deploying docker image using deploy.sh in :

```
nandhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ sh deploy.sh
Creating network "devops-build_default" with the default driver
Creating test ... done
nandhakumar@DESKTOP-PJ13089:~/C:/drive/devops-build$
```

## Running Application in port 80: (<http://localhost:80>)



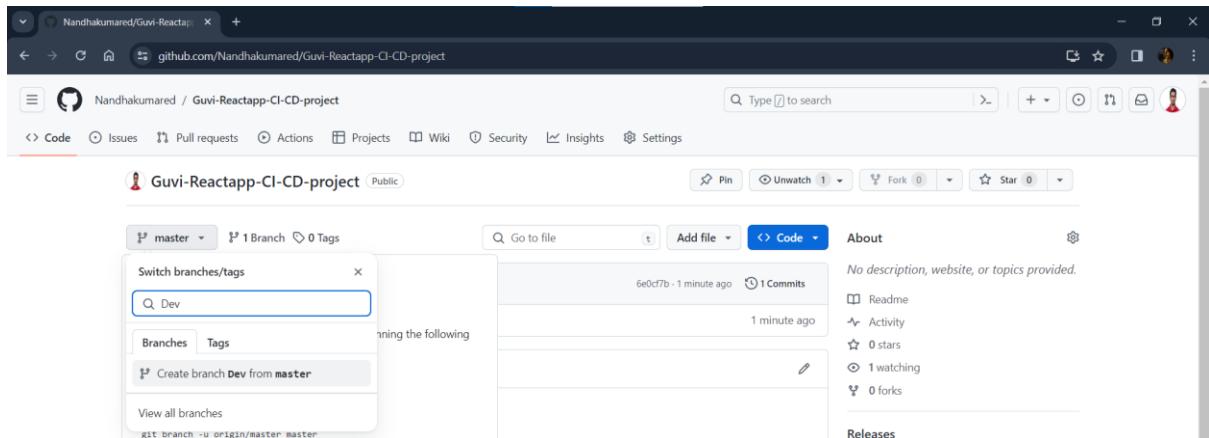
## Creating Git Repository:

The image shows two screenshots of the GitHub interface. The top screenshot is titled 'Create a new repository' and shows the configuration for a new repository named 'Guvi-Reactapp-CI-CD-project'. It is set to be public and initialized with a README file. The bottom screenshot shows the repository's main page, 'Guvi-Reactapp-CI-CD-project', which has one commit and one README file.

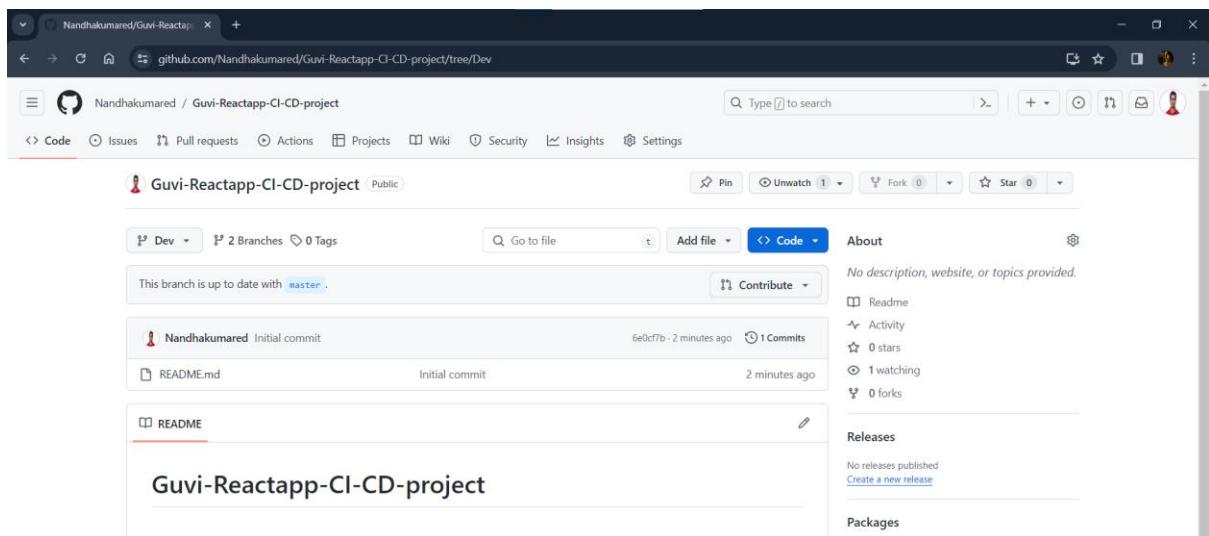
## Renaming main to master:

The image shows the GitHub repository settings page for 'Guvi-Reactapp-CI-CD-project'. A modal dialog box is open, titled 'Rename this branch', with the input field 'Rename main to:' containing 'master'. The 'Rename branch' button is visible at the bottom of the dialog.

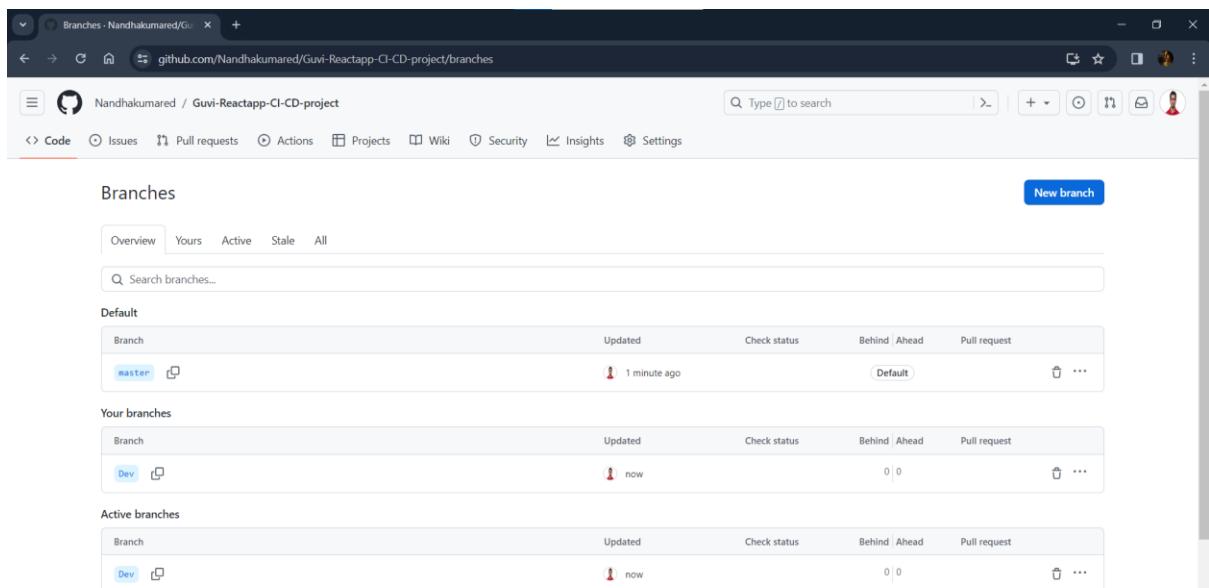
## Creating New branch Dev:



The screenshot shows the GitHub repository page for 'Guvi-Reactapp-CI-CD-project'. In the top-left dropdown, 'master' is selected. A modal window titled 'Switch branches/tags' is open, showing a list of branches. The 'Create branch Dev from master' button is highlighted with a blue border. The main repository area shows a single commit from '6e0cf7b' made one minute ago.



The screenshot shows the GitHub repository page for 'Guvi-Reactapp-CI-CD-project' with the 'Dev' branch selected. The top-left dropdown shows 'Dev'. The repository details on the right indicate that the 'Dev' branch is up-to-date with 'master'. The commit history shows an 'Initial commit' from 'Nandhakumared' made two minutes ago. The README file content is displayed below the commit history.

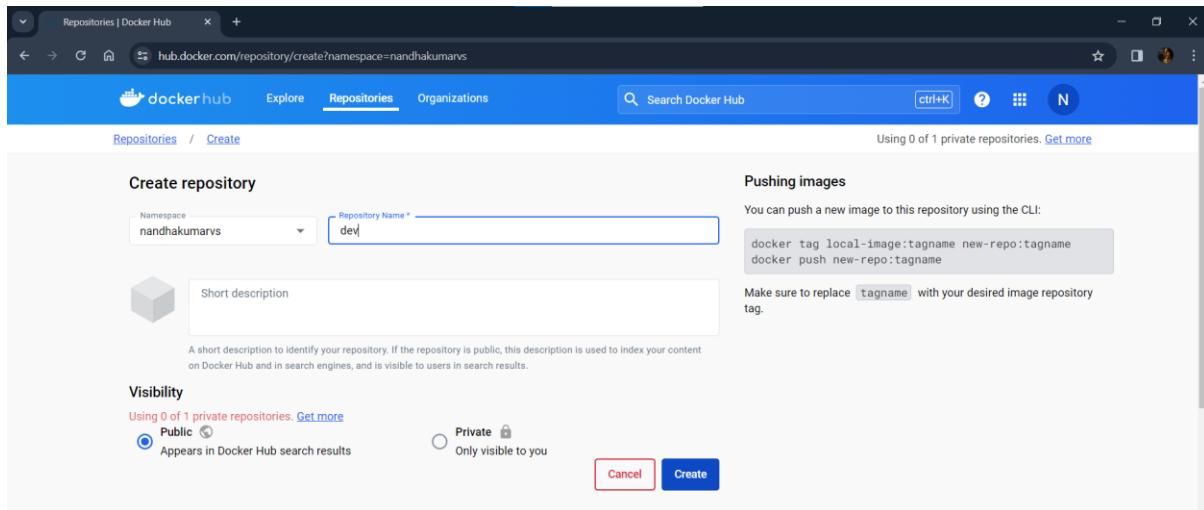


The screenshot shows the GitHub 'Branches' page for the repository. The top-left dropdown shows 'Branches'. The 'Default' section lists the 'master' branch. The 'Your branches' section lists the 'Dev' branch. The 'Active branches' section also lists the 'Dev' branch. A 'New branch' button is visible in the top right of the branches section.



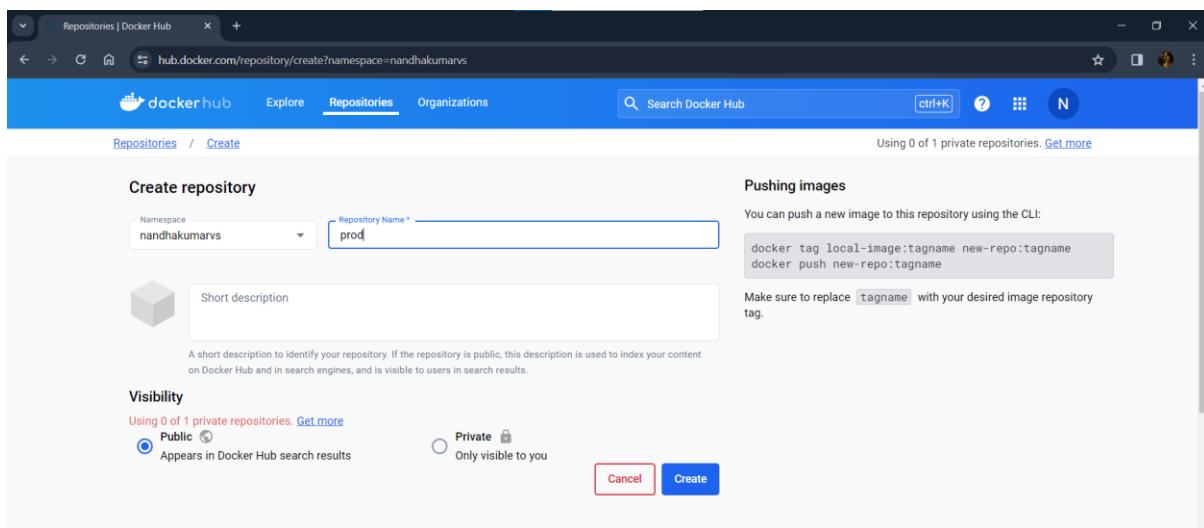
# Creating Two Repositories Docker Hub:

## Public Repo – Dev:

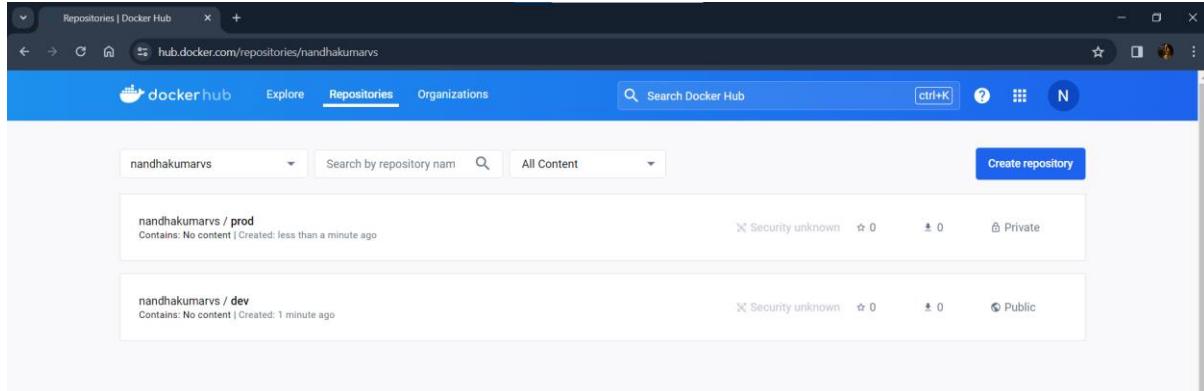


The screenshot shows the Docker Hub 'Create repository' interface. The 'Namespace' dropdown is set to 'nandhakumarvs' and the 'Repository Name' input field is set to 'dev'. The 'Visibility' section shows 'Public' is selected. The 'Create' button is highlighted with a red border.

## Private Repo – prod:



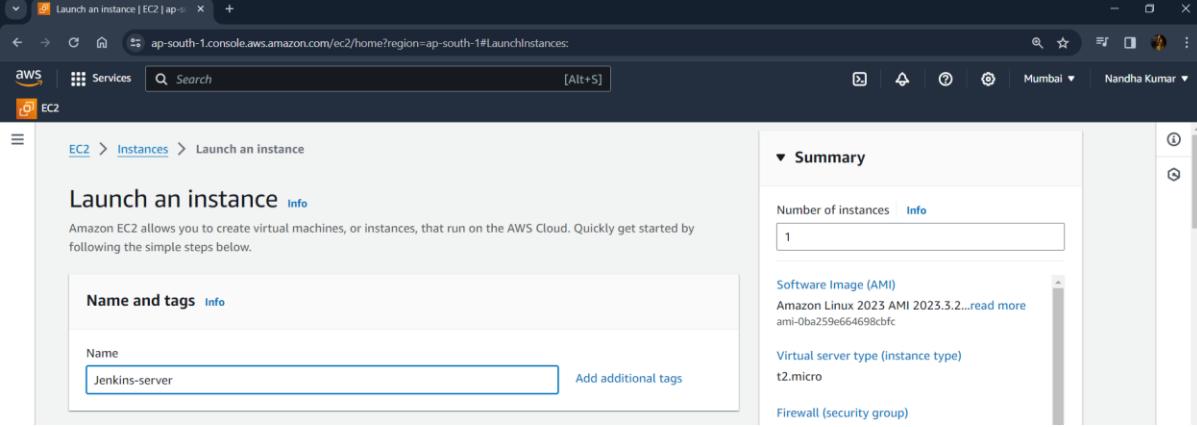
The screenshot shows the Docker Hub 'Create repository' interface. The 'Namespace' dropdown is set to 'nandhakumarvs' and the 'Repository Name' input field is set to 'prod'. The 'Visibility' section shows 'Private' is selected. The 'Create' button is highlighted with a red border.



The screenshot shows the Docker Hub 'Repositories' page. The search bar shows 'nandhakumarvs'. Two repositories are listed: 'nandhakumarvs / prod' and 'nandhakumarvs / dev'. Both repositories are marked as 'Private'. The 'Create repository' button is visible in the top right corner of the search bar area.

# Jenkins Installation and Configuration process:

## Creating AWS EC2 for Jenkins server:



Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

**Name and tags [Info](#)**

Name  Add additional tags

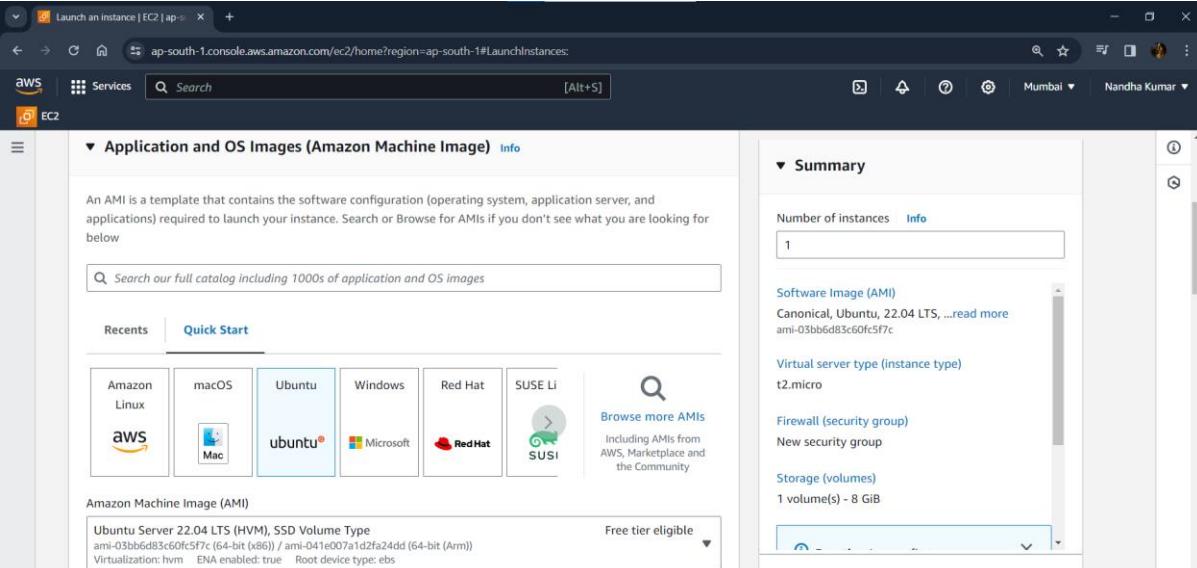
**Summary**

Number of instances [Info](#)  
1

Software Image (AMI)  
Amazon Linux 2023 AMI 2023.3.2... [read more](#)  
ami-0ba259e664698cbfc

Virtual server type (instance type)  
t2.micro

Firewall (security group)

**Application and OS Images (Amazon Machine Image) [Info](#)**

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Search our full catalog including 1000s of application and OS images

Recents [Quick Start](#)

Amazon Linux  macOS  Ubuntu  Windows  Red Hat  SUSE Linux 

**Summary**

Number of instances [Info](#)  
1

Software Image (AMI)  
Canonical, Ubuntu, 22.04 LTS, ... [read more](#)  
ami-03bb6d83c60fc5f7c

Virtual server type (instance type)  
t2.micro

Firewall (security group)  
New security group

Storage (volumes)  
1 volume(s) - 8 GiB

Launch an instance | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

Services Search [Alt+S]

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**Instance type** [Info](#) [Get advice](#)

Instance type: t2.micro

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Linux base pricing: 0.0124 USD per Hour

On-Demand Windows base pricing: 0.017 USD per Hour

On-Demand RHEL base pricing: 0.0724 USD per Hour

On-Demand SUSE base pricing: 0.0124 USD per Hour

Free tier eligible

All generations [Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

**Key pair (login)** [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required: Jenkins-key

[Create new key pair](#)

**Summary**

Number of instances: 1

Software Image (AMI): Canonical, Ubuntu, 22.04 LTS, [...read more](#) ami-03bb6d83c60fc5f7c

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

[Launch instance](#)

[Review commands](#)

Launch an instance | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

Services Search [Alt+S]

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**Network settings** [Info](#)

VPC - required [Info](#): vpc-0f0cd786568948abc (default)

Subnet [Info](#): No preference

Auto-assign public IP [Info](#): Enable

Firewall (security groups) [Info](#): A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

[Create security group](#) [Select existing security group](#)

Security group name - required: launch-wizard-13

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and \_-~/.@#=;&|!\$^

Description - required [Info](#)

**Summary**

Number of instances: 1

Software Image (AMI): Canonical, Ubuntu, 22.04 LTS, [...read more](#) ami-03bb6d83c60fc5f7c

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

[Launch instance](#)

Launch an instance | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

Services Search [Alt+S]

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**Network settings** [Info](#)

Network [Info](#): vpc-0f0cd786568948abc

Subnet [Info](#): No preference (Default subnet in any availability zone)

Auto-assign public IP [Info](#): Enable

Firewall (security groups) [Info](#): A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

[Create security group](#) [Select existing security group](#)

We'll create a new security group called 'launch-wizard-13' with the following rules:

Allow SSH traffic from Anywhere 0.0.0.0/0

Allow HTTPS traffic from the internet To set up an endpoint, for example when creating a web server

Allow HTTP traffic from the internet To set up an endpoint, for example when creating a web server

**Summary**

Number of instances: 1

Software Image (AMI): Canonical, Ubuntu, 22.04 LTS, [...read more](#) ami-03bb6d83c60fc5f7c

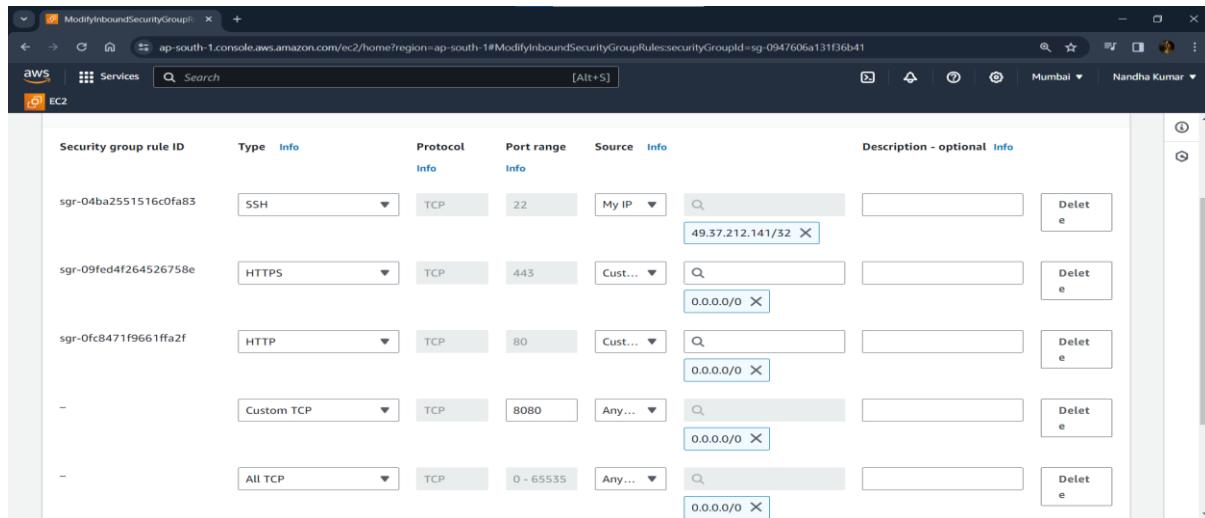
Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

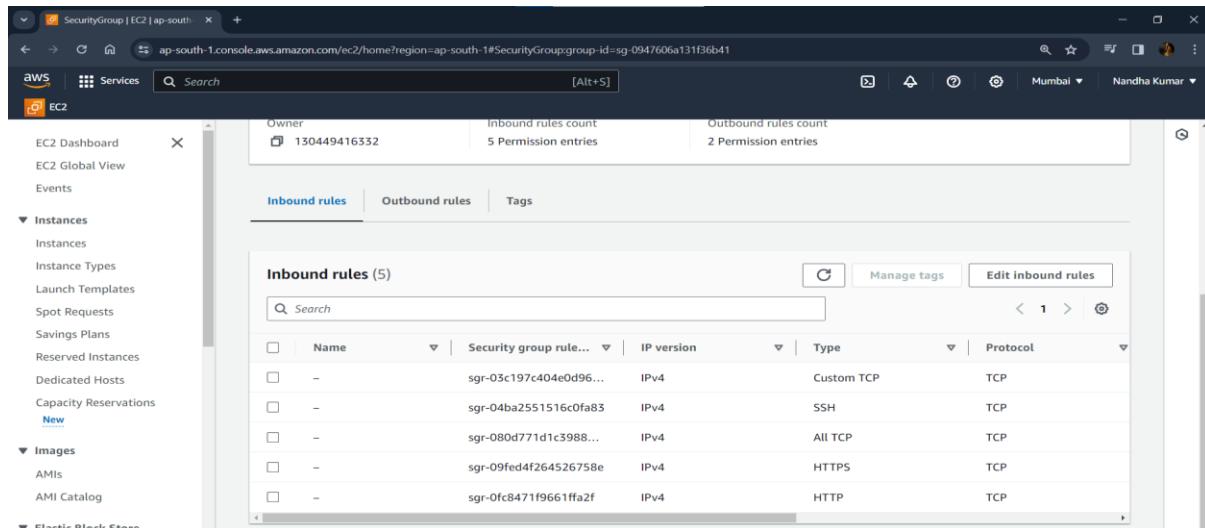
[Launch instance](#)

## Editing inbound rules:



The screenshot shows the 'ModifyInboundSecurityGroupRules' interface in the AWS EC2 console. It lists five inbound security group rules:

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-04ba2551516c0fa83	SSH	TCP	22	My IP 49.37.212.141/32	
sgr-09fed4f264526758e	HTTPS	TCP	443	Custom 0.0.0.0/0	
sgr-0fc8471f9661ffa2f	HTTP	TCP	80	Custom 0.0.0.0/0	
-	Custom TCP	TCP	8080	Any... 0.0.0.0/0	
-	All TCP	TCP	0 - 65535	Any... 0.0.0.0/0	

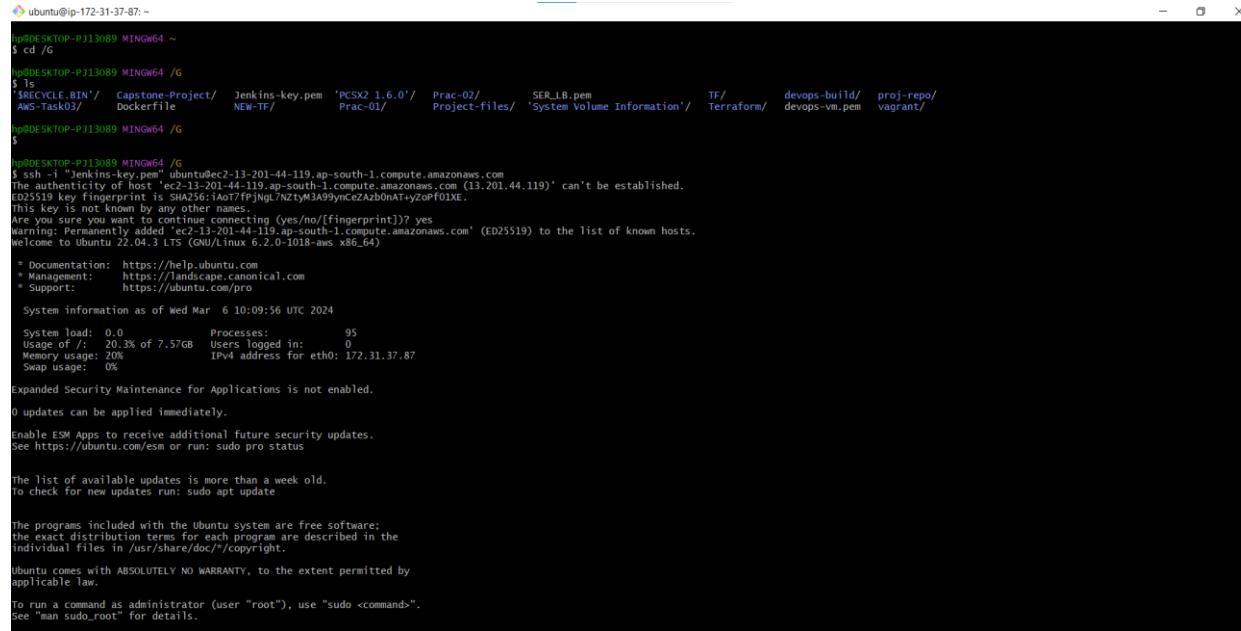
The screenshot shows the 'SecurityGroup | EC2' interface in the AWS EC2 console. It displays the inbound rules for a specific security group:

Owner	Inbound rules count	Outbound rules count
130449416332	5 Permission entries	2 Permission entries

The 'Inbound rules' tab is selected, showing the following rules:

Inbound rules (5)						
	Name	Security group rule...	IP version	Type	Protocol	
<input type="checkbox"/>	-	sgr-05c197c404e0d96...	IPv4	Custom TCP	TCP	<a href="#">Edit</a>
<input type="checkbox"/>	-	sgr-04ba2551516c0fa83	IPv4	SSH	TCP	<a href="#">Edit</a>
<input type="checkbox"/>	-	sgr-080d771d1c3988...	IPv4	All TCP	TCP	<a href="#">Edit</a>
<input type="checkbox"/>	-	sgr-09fed4f264526758e	IPv4	HTTPS	TCP	<a href="#">Edit</a>
<input type="checkbox"/>	-	sgr-0fc8471f9661ffa2f	IPv4	HTTP	TCP	<a href="#">Edit</a>

## Connecting to instance via SSH:

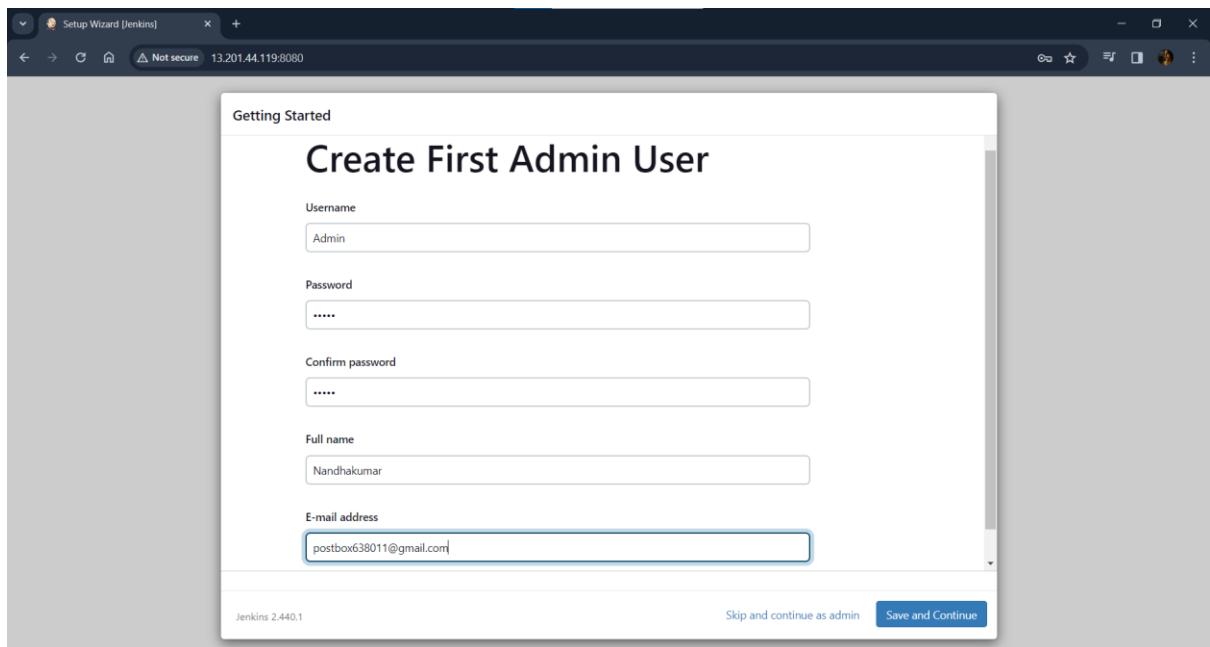
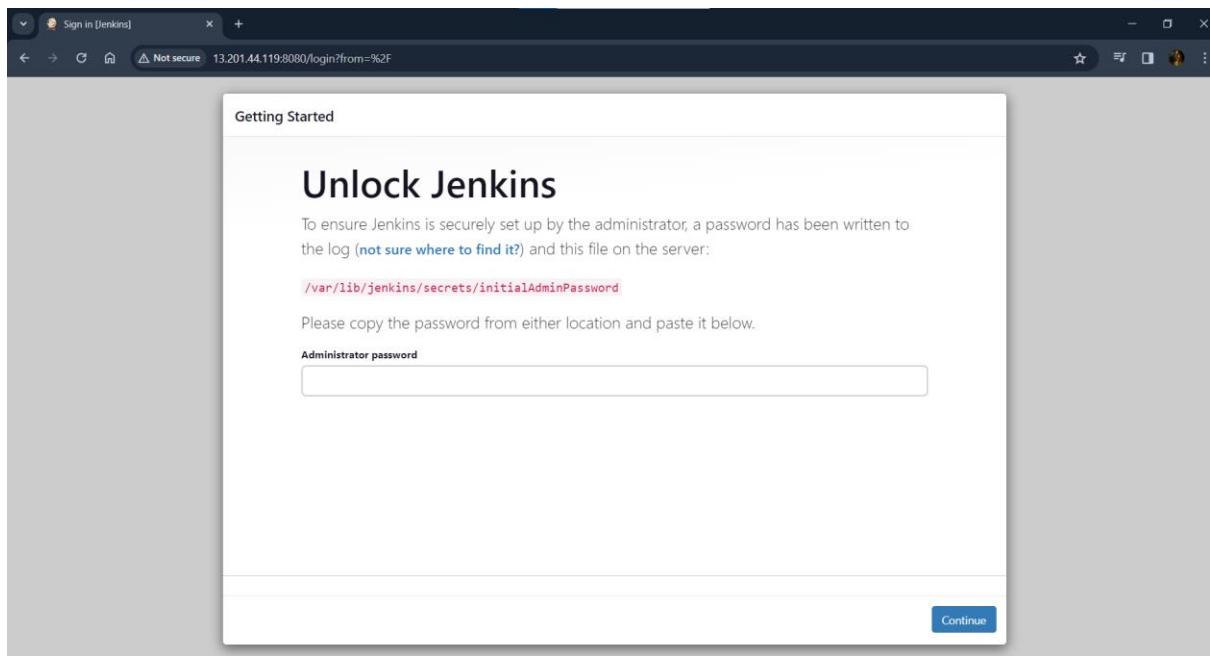


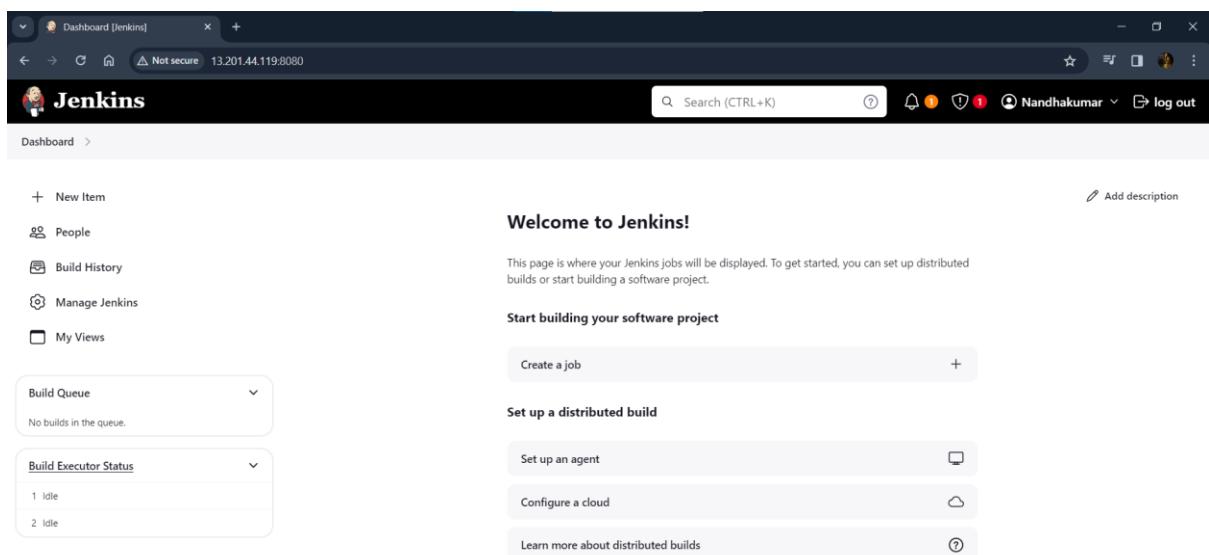
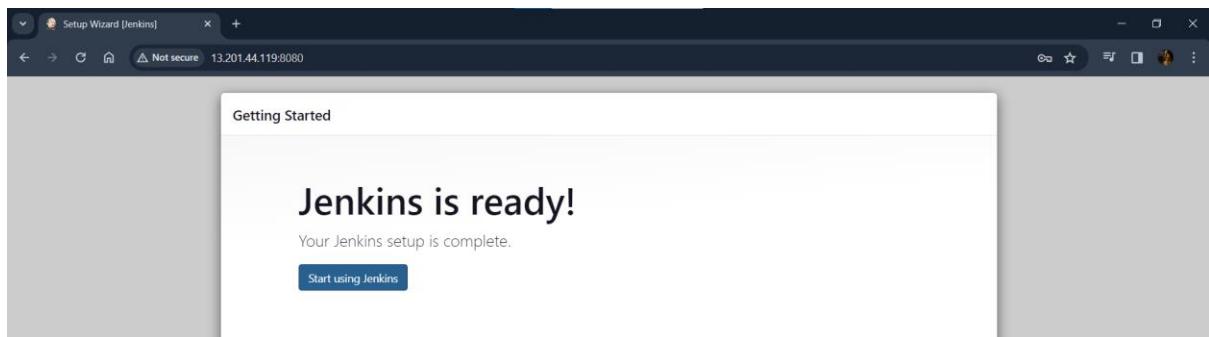
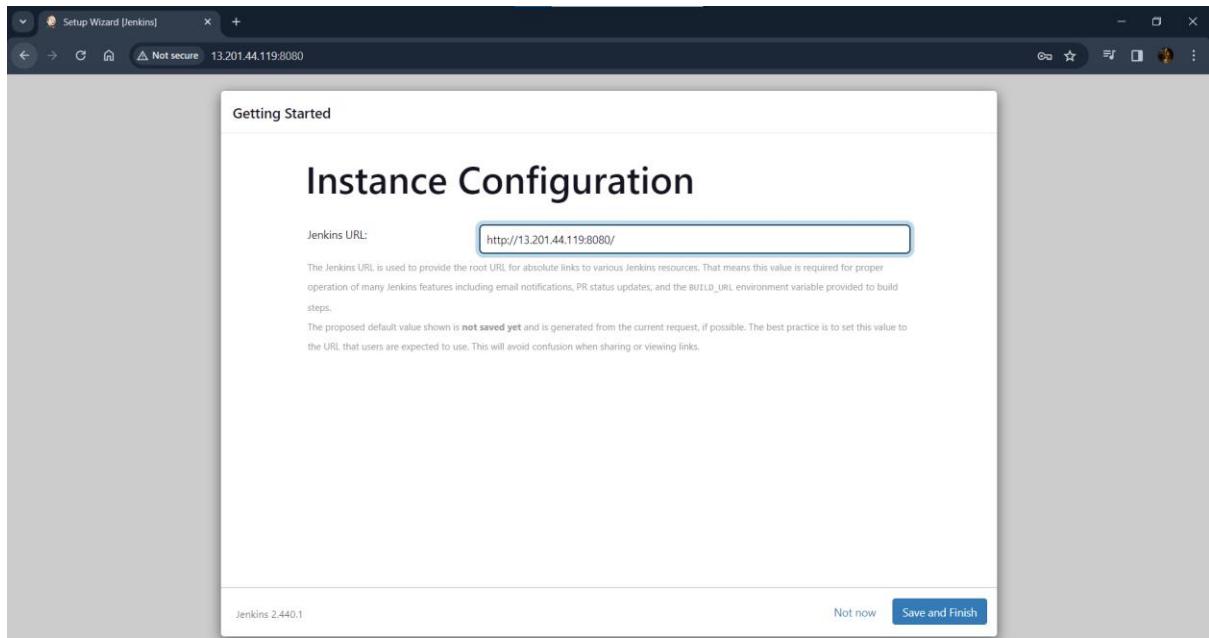
```
ubuntu@ip-172-31-37-87:~  
$ cd /G  
$ ls  
$RECYCLE.BIN/ Capstone-Project/ Jenkins-key.pem 'PCSX2 1.6.0'/' Prac-02/ Prac-01/ SER_LB.pem  
Ans-Task03/ Dockerfile NEW-TF/ Project-Files/ 'System Volume Information'/' TF/ Terraform/ devops-build/ proj-repo/  
$  
$ ssh -l "Jenkins-key.pem" ubuntu@ec2-13-201-44-119.ap-south-1.compute.amazonaws.com  
The authenticity of host 'ec2-13-201-44-119.ap-south-1.compute.amazonaws.com (13.201.44.119)' can't be established.  
ED25519 key fingerprint is SHA256:1a07FPJnGl7NztyM3a99yncEzAzb0nAT+yZoPf01Xe.  
This key is not known by any other names.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added 'ec2-13-201-44-119.ap-south-1.compute.amazonaws.com' (ED25519) to the list of known hosts.  
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.2.0-1018-aws x86_64)  
* Documentation: https://help.ubuntu.com  
* Management: https://landscape.canonical.com  
* Support: https://ubuntu.com/pro  
System information as of Wed Mar 6 10:09:56 UTC 2024  
System load: 0.0 Processes: 95  
Usage of /: 20.3% of 7.57GB Users Logged in: 0  
Memory usage: 20% IPv4 address for eth0: 172.31.37.87  
Swap usage: 0%  
Expanded Security Maintenance for Applications is not enabled.  
0 updates can be applied immediately.  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
The programs included with the Ubuntu system are free software.  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/*copyright.  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.
```

## Installing Jenkins:



```
ubuntu@ip-172-31-37-87:~  
ubuntu@ip-172-31-37-87:~$ jenkins --version  
2.440.1  
ubuntu@ip-172-31-37-87:~$ |  
  
ubuntu@ip-172-31-37-87:~  
ubuntu@ip-172-31-37-87:~$ jenkins --version  
2.440.1  
ubuntu@ip-172-31-37-87:~$ history  
1 sudo apt-get update  
2 sudo apt-get upgrade -y  
3 sudo apt-get install openjdk-11-jdk  
4 curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee /usr/share/keyrings/jenkins-keyring.asc > /dev/null  
5 sudo 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  
6 sudo apt-get update  
7 sudo apt-get install jenkins  
8 sudo systemctl start jenkins  
9 sudo systemctl status jenkins  
10 sudo systemctl enable jenkins  
11 jenkins -v  
12 jenkins --version  
13 jenkins -v  
14 jenkins --version  
15 history  
ubuntu@ip-172-31-37-87:~$
```





## Installing Docker & Docker-compose:

```
ubuntu@ip-172-31-37-87:~$ docker --version
Docker version 24.0.5, build 24.0.5-0ubuntu1~22.04.1
ubuntu@ip-172-31-37-87:~$ docker --version
Docker version 24.0.5, build 24.0.5-0ubuntu1~22.04.1
ubuntu@ip-172-31-37-87:~$ |
```

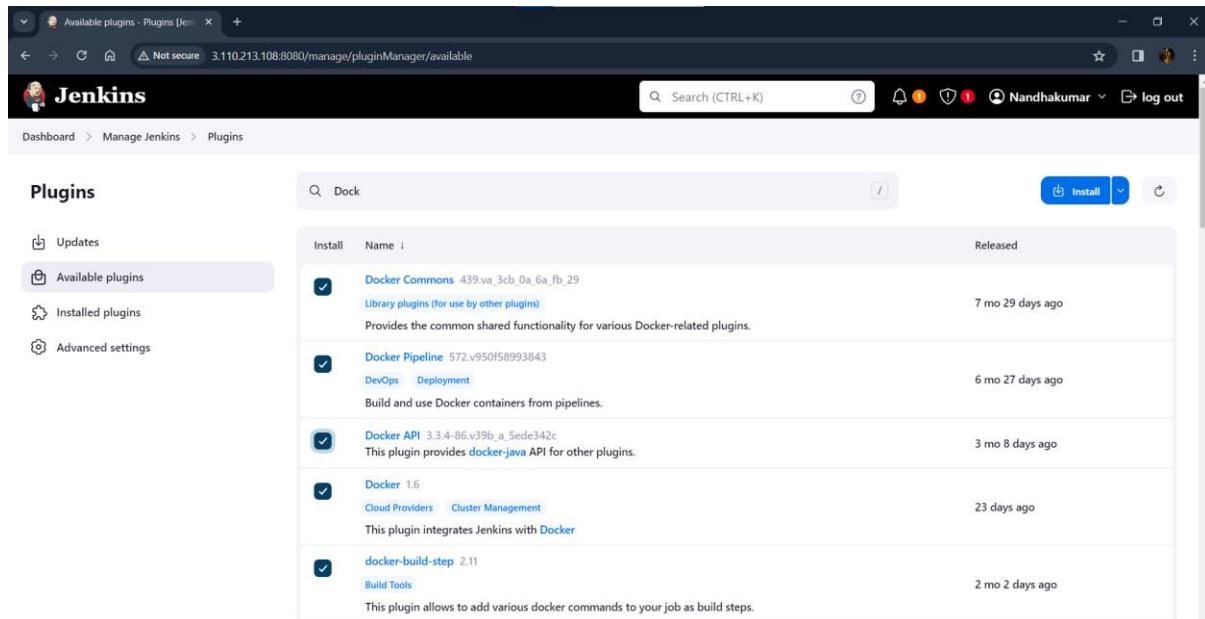
```
ubuntu@ip-172-31-37-87:~$ 
14 jenkins --version
15 history
16 sudo apt-get install docker.io -y
17 sudo apt-get install docker-compose -y
18 clear
19 cat /var/lib/jenkins/secrets/initialAdminPassword
20 sudo cat /var/lib/jenkins/secrets/initialAdminPassword
21 docker -v
22 docker-compose -v
23 docker -v
24 history
ubuntu@ip-172-31-37-87:~$ 
ubuntu@ip-172-31-37-87:~$
```

## Adding user & Jenkins to docker group:

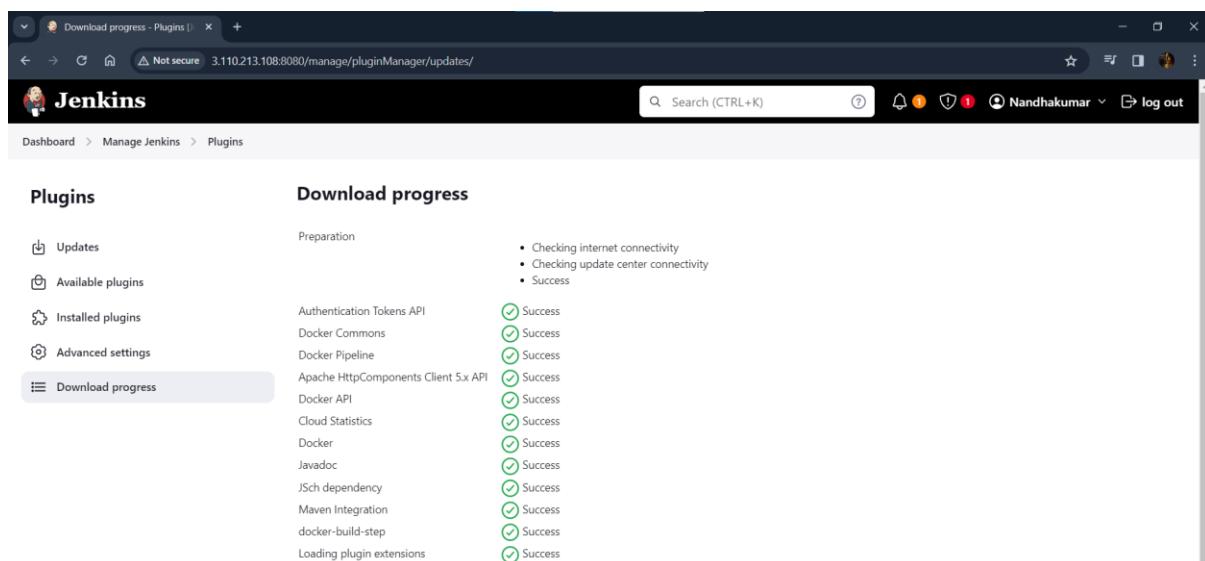
```
ubuntu@ip-172-31-37-87:~$ 
ubuntu@ip-172-31-37-87:~$ sudo usermod -aG docker ubuntu
ubuntu@ip-172-31-37-87:~$ sudo usermod -aG docker jenkins
ubuntu@ip-172-31-37-87:~$ cat /etc/group
group group-
```

```
ubuntu:x:1000:
jenkins:x:122:
docker:x:123:ubuntu,jenkins
ubuntu@ip-172-31-37-87:~$ |
```

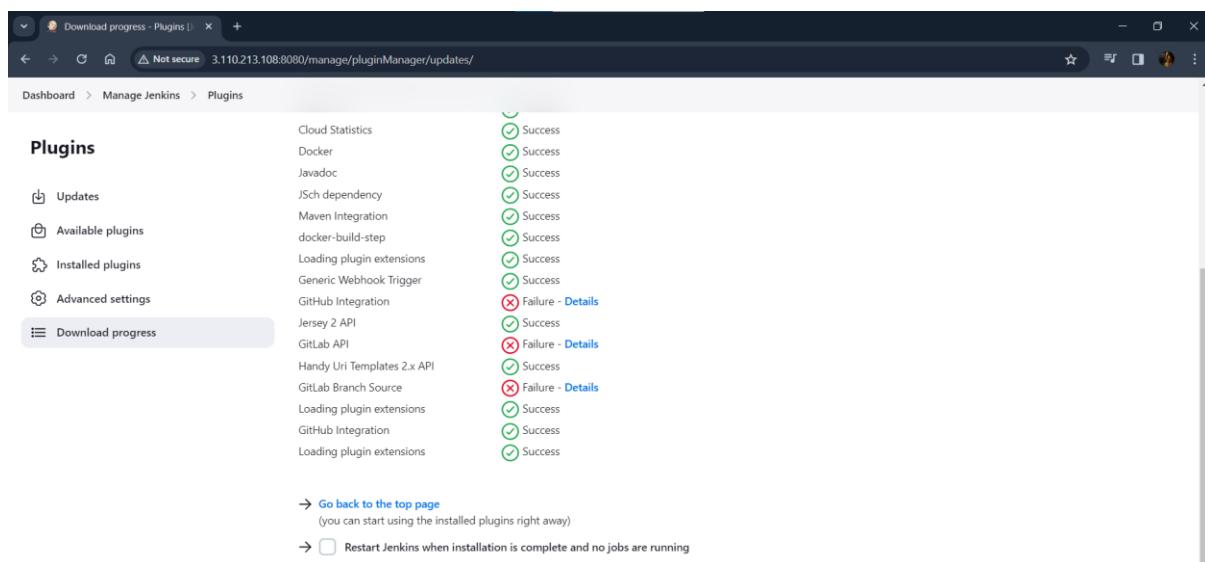
## Installing required Docker & Git Plugins:



Install	Name	Released
<input checked="" type="checkbox"/>	Docker Commons 439.va_3cb_0a_6a_fb_29	7 mo 29 days ago
<input checked="" type="checkbox"/>	Docker Pipeline 572.v950f58993843	6 mo 27 days ago
<input checked="" type="checkbox"/>	Docker API 3.3.4-86.v39b_a_5ede342c	3 mo 8 days ago
<input checked="" type="checkbox"/>	Docker 1.6	23 days ago
<input checked="" type="checkbox"/>	docker-build-step 2.11	2 mo 2 days ago



Preparation	
Authentication Tokens API	Success
Docker Commons	Success
Docker Pipeline	Success
Apache HttpComponents Client 5.x API	Success
Docker API	Success
Cloud Statistics	Success
Docker	Success
Javadoc	Success
JSch dependency	Success
Maven Integration	Success
docker-build-step	Success
Loading plugin extensions	Success

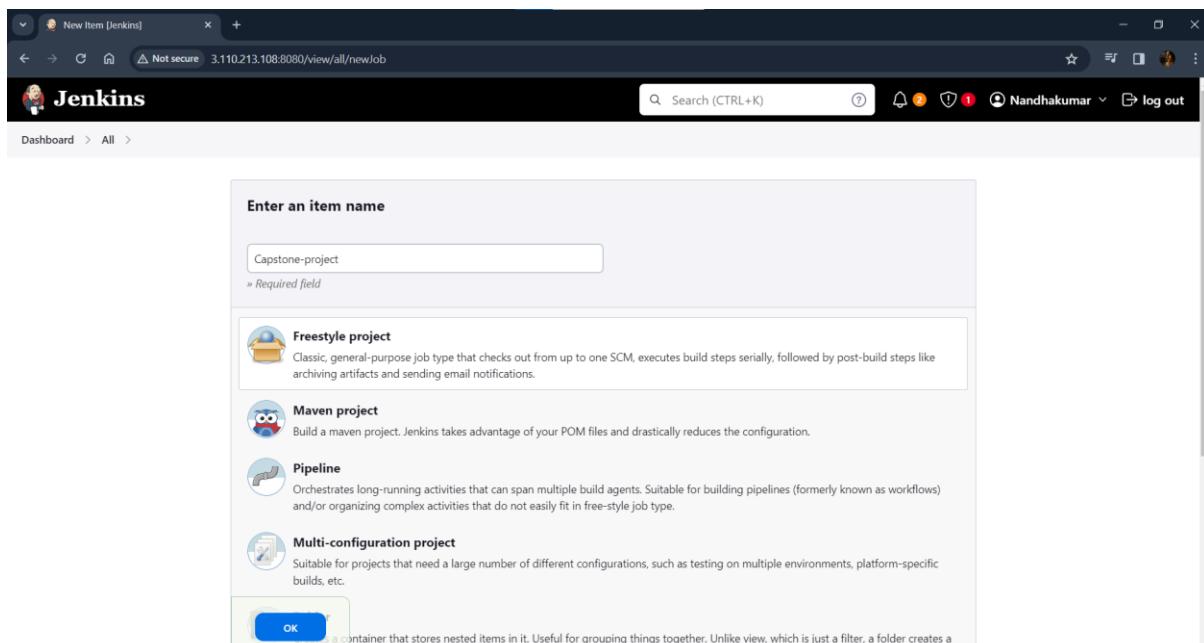


Cloud Statistics	Success
Docker	Success
Javadoc	Success
JSch dependency	Success
Maven Integration	Success
docker-build-step	Success
Loading plugin extensions	Success
Generic Webhook Trigger	Success
GitHub Integration	Failure - Details
Jersey 2 API	Success
GitLab API	Failure - Details
Handy Uri Templates 2.x API	Success
GitLab Branch Source	Failure - Details
Loading plugin extensions	Success
GitHub Integration	Success
Loading plugin extensions	Success

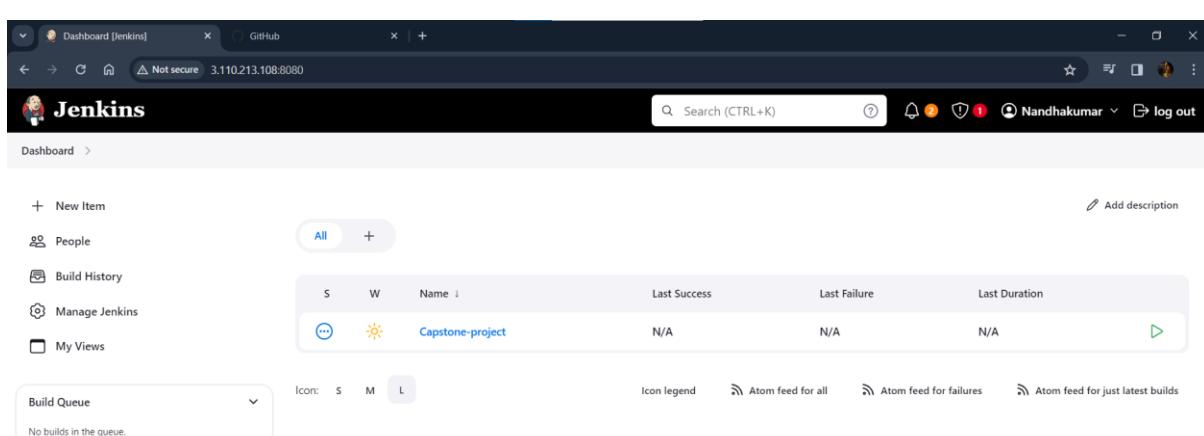
→ [Go back to the top page](#)  
(you can start using the installed plugins right away)

→  Restart Jenkins when installation is complete and no jobs are running

## Creating Free Style project:

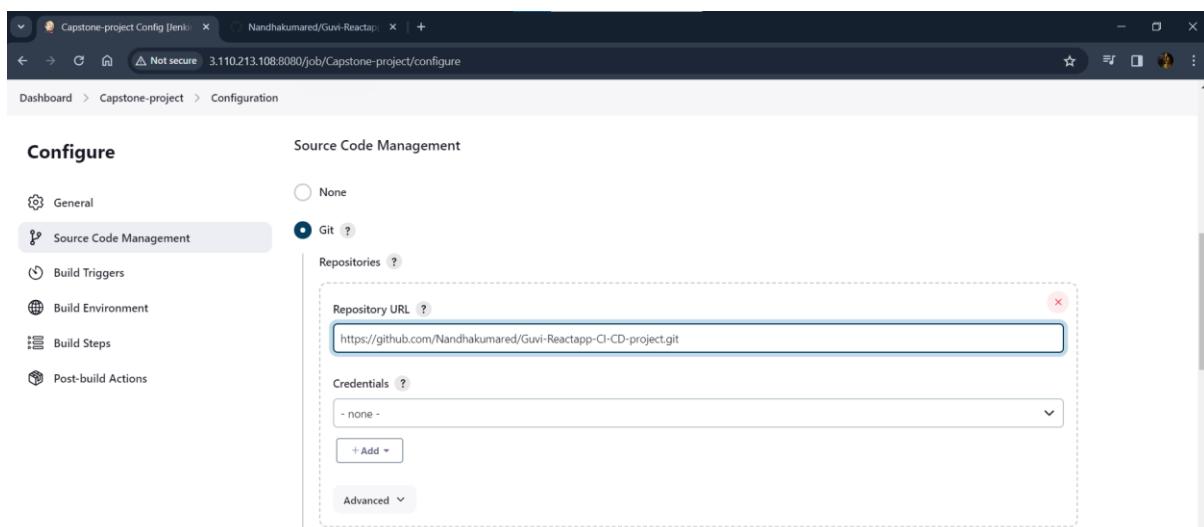


The screenshot shows the Jenkins 'New Item' creation dialog. The 'Item name' field contains 'Capstone-project'. Below it, a 'Freestyle project' is selected, described as a 'Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.' Other options like 'Maven project', 'Pipeline', and 'Multi-configuration project' are also listed. An 'OK' button is at the bottom.



The screenshot shows the Jenkins dashboard. The 'Capstone-project' job is listed in the 'All' view. It has a status of 'N/A' for both 'Last Success' and 'Last Failure', and 'N/A' for 'Last Duration'. The 'Icon' dropdown shows 'S' (Stable). The 'Icon legend' indicates 'S' for Stable, 'W' for Warning, and 'L' for Failed. There are links for 'Atom feed for all', 'Atom feed for failures', and 'Atom feed for just latest builds'.

## Configuring project:



The screenshot shows the 'Capstone-project' configuration page. Under 'Source Code Management', 'Git' is selected. The 'Repository URL' is set to 'https://github.com/Nandhakumared/Guvi-Reactapp-Cl-CD-project.git'. The 'Credentials' dropdown is set to '- none -'. There is an 'Advanced' section at the bottom.

Capstone-project Config [Jen... x Branches - Nandhakumared/Gu... x | +

Not secure 3.110.213.108:8080/job/Capstone-project/configure

Dashboard > Capstone-project > Configuration

## Configure

- General
- Source Code Management
- Build Triggers**
- Build Environment
- Build Steps
- Post-build Actions

**Branches to build** ?

Branch Specifier (blank for 'any') ?

\*\*

Add Branch

Repository browser ?

(Auto)

Additional Behaviours

Add

Capstone-project Config [Jen... x Branches - Nandhakumared/Gu... x | +

Not secure 3.110.213.108:8080/job/Capstone-project/configure

Dashboard > Capstone-project > Configuration

## Configure

- General
- Source Code Management
- Build Triggers**
- Build Environment
- Build Steps
- Post-build Actions

**Build Triggers**

- Trigger builds remotely (e.g., from scripts) ?
- Build after other projects are built ?
- Build periodically ?
- Generic Webhook Trigger ?
- GitHub Branches
- GitHub Pull Requests ?
- GitHub hook trigger for GITScm polling ?
- Poll SCM ?

**Build Environment**

- Delete workspace before build starts
- Use secret text(s) or file(s) ?
- Add timestamps to the Console Output
- Inspect build log for published build scans
- Terminate a build if it's stuck

Save Apply

Dashboard > Capstone-Project > Configuration

## Configure

- General
- Source Code Management
- Build Triggers
- Build Environment**
- Build Steps
- Post-build Actions

**Execute shell** ?

Command

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

```
#!/bin/bash

git clone -b Dev https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git

cd /var/lib/jenkins/workspace/Demo/

ls -l Dockerfile

sh build.sh

docker tag react:app nandhakumarvs/dev:dev

docker login -u nandhakumarvs -p dckr_pat_v36pJwkiimVAOHG0zpKFhJbm-Pg
docker push nandhakumarvs/dev:dev

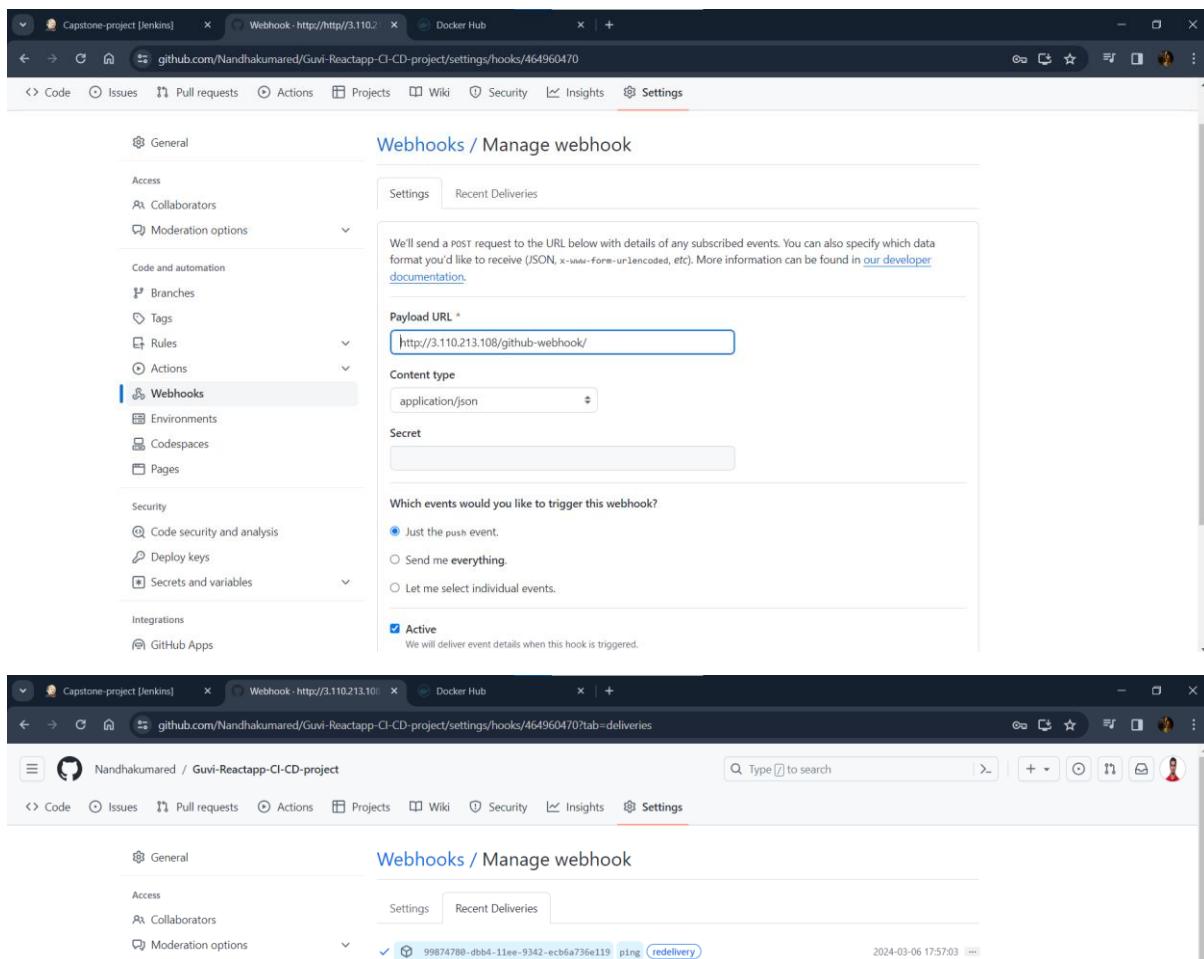
if [ "$GIT_BRANCH" == "origin/master" ]; then

    docker tag react:app nandhakumarvs/prod:latest

    docker push nandhakumarvs/prod:latest
fi
```

Save Apply

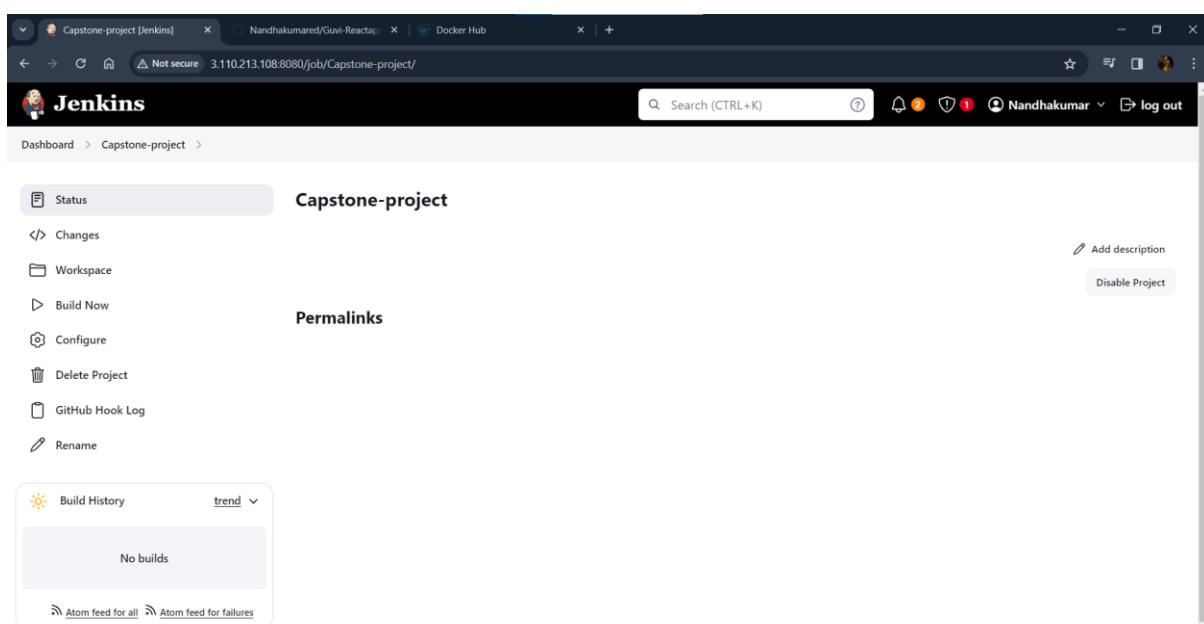
## Adding Webhook in Github repository:



The screenshot shows the 'Webhooks / Manage webhook' page in a GitHub repository. The 'Payload URL' field is set to 'http://3.110.213.108/github-webhook/'. The 'Content type' is set to 'application/json'. The 'Secret' field is empty. Under 'Which events would you like to trigger this webhook?', the radio button 'Just the push event' is selected. The checkbox 'Active' is checked. The page header shows the repository name 'Capstone-project [Jenkins]' and the URL 'github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project/settings/hooks/464960470?tab=deliveries'.

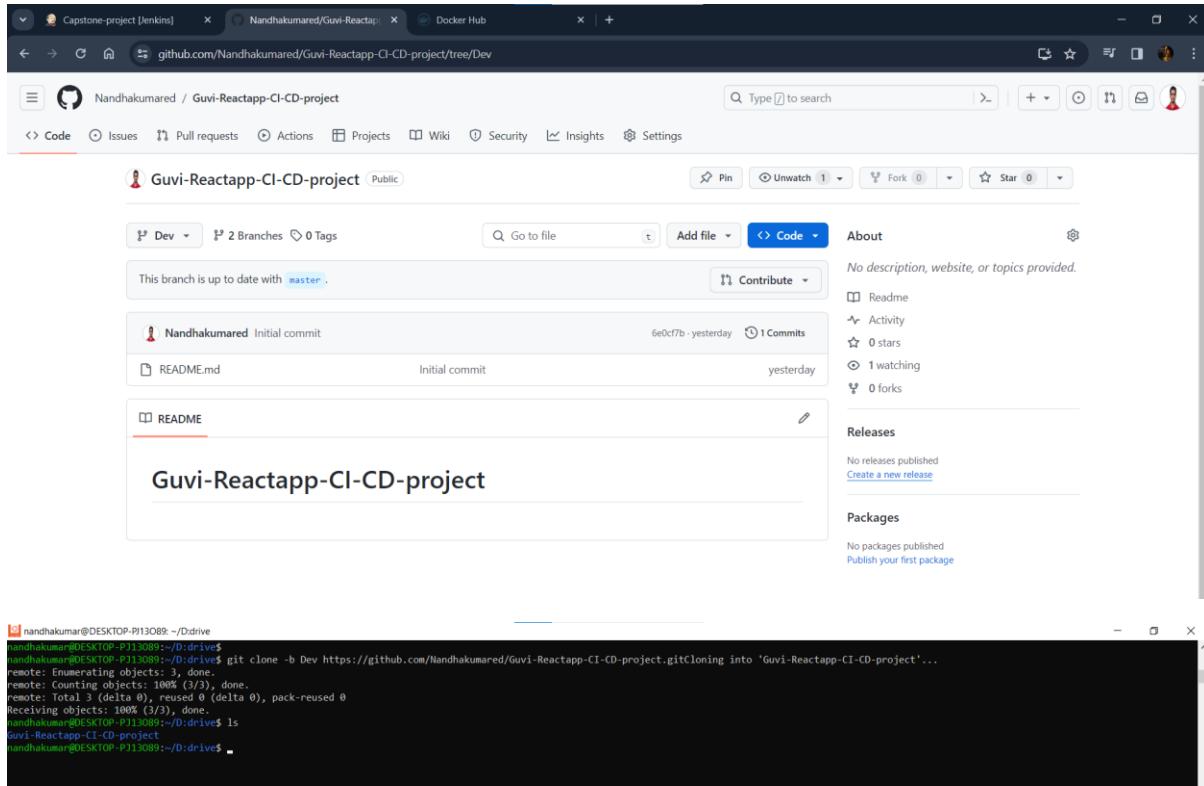
## Running Build by push the codes to Dev branch in GitHub:

Currently no build operations:

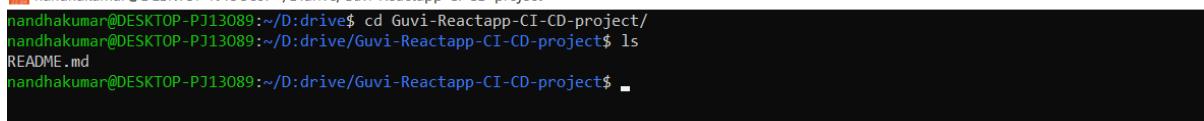


The screenshot shows the Jenkins 'Capstone-project' dashboard. The left sidebar includes options like 'Status', 'Changes', 'Workspace', 'Build Now', 'Configure', 'Delete Project', 'GitHub Hook Log', and 'Rename'. The main area displays the 'Build History' section, which shows 'No builds'. There are links for 'Atom feed for all' and 'Atom feed for failures'. The top right of the dashboard shows the user 'Nandhakumar' and a 'log out' button.

## Cloning Empty Dev Branch:



```
nandhakumar@DESKTOP-PJ13089: ~/D:/drive
nandhakumar@DESKTOP-PJ13089: ~/D:/drive$ git clone -b Dev https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git
Cloning into 'Guvi-Reactapp-CI-CD-project'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100%, 3 (delta 0), done.
receiving objects: 100% (3/3), done.
nandhakumar@DESKTOP-PJ13089: ~/D:/drive$ ls
Guvi-Reactapp-CI-CD-project
nandhakumar@DESKTOP-PJ13089: ~/D:/drive$
```

```
handhakumar@DESKTOP-PJ13089: ~/D:/drive/Guvi-Reactapp-CI-CD-project
handhakumar@DESKTOP-PJ13089: ~/D:/drive$ cd Guvi-Reactapp-CI-CD-project/
handhakumar@DESKTOP-PJ13089: ~/D:/drive/Guvi-Reactapp-CI-CD-project$ ls
README.md
handhakumar@DESKTOP-PJ13089: ~/D:/drive/Guvi-Reactapp-CI-CD-project$
```

## Moving file to local git repo (Dev branch):



```
nandhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ ls
Dockerfile build build.sh deploy.sh docker-compose.yml
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ cp Dockerfile /home/nandhakumar/D:/drive/Guvi-Reactapp-CI-CD-project/
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ cp build.sh /home/nandhakumar/D:/drive/Guvi-Reactapp-CI-CD-project/
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ cp d.sh /home/nandhakumar/D:/drive/Guvi-Reactapp-CI-CD-project/
cp: cannot stat 'd.sh': No such file or directory
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ cp d.sh /home/nandhakumar/D:/drive/Guvi-Reactapp-CI-CD-project/
deploy.sh docker-compose.yml
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ cp deploy.sh /home/nandhakumar/D:/drive/Guvi-Reactapp-CI-CD-project/
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ cp docker-compose.yml /home/nandhakumar/D:/drive/Guvi-Reactapp-CI-CD-project/
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ cp build /home/nandhakumar/D:/drive/Guvi-Reactapp-CI-CD-project/
cp: -r not specified; omitting directory 'build'
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ cp -r build /home/nandhakumar/D:/drive/Guvi-Reactapp-CI-CD-project/
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$ cp -r .dockerignore /home/nandhakumar/D:/drive/Guvi-Reactapp-CI-CD-project/
handhakumar@DESKTOP-PJ13089: ~/C:/drive/devops-build$
```

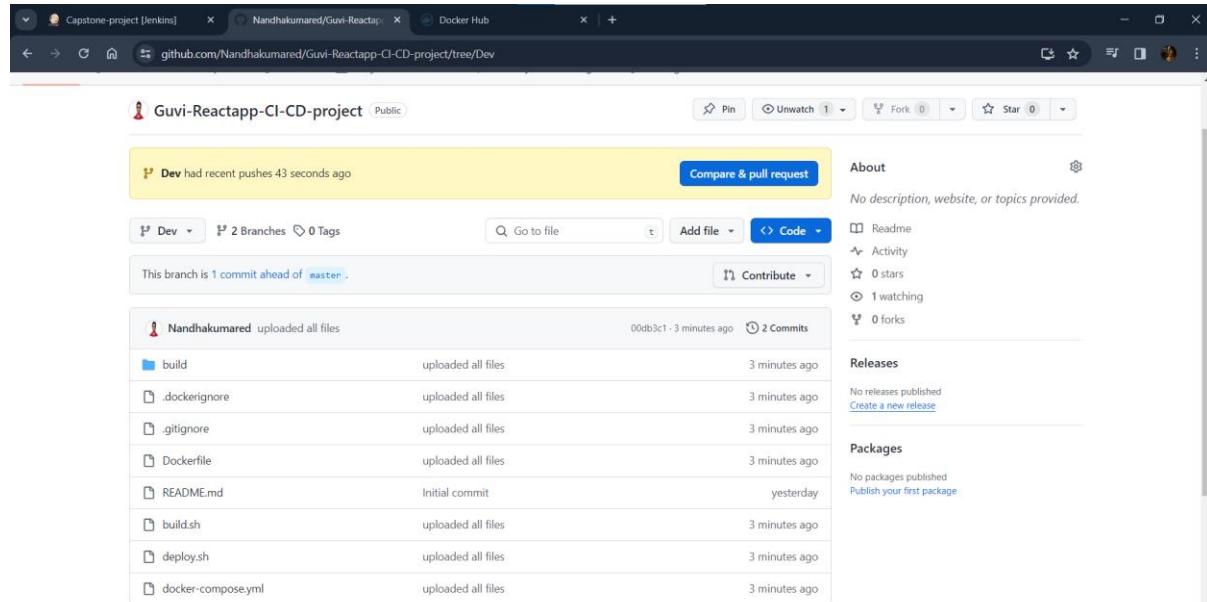
## Creating .gitignore file git repo:

```
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$ cd D:/drive/
handhakumar@DESKTOP-P113089:~/D:/drive$ cd Guvi-Reactapp-CI-CD-project/
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$ ls
Dockerfile README.md build.sh deploy.sh docker-compose.yml
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$ ll
total 36
drwxr-xr-x 4 nandhakumar nandhakumar 4096 Mar 6 18:22 .
drwxr-xr-x 3 nandhakumar nandhakumar 4096 Mar 6 18:18 ..
-rw-r--r-- 1 nandhakumar nandhakumar 0 Mar 6 18:22 .dockerignore
drwxr-xr-x 8 nandhakumar nandhakumar 4096 Mar 6 18:18 .git/
-rw-r--r-- 1 nandhakumar nandhakumar 61 Mar 6 18:21 Dockerfile
-rw-r--r-- 1 nandhakumar nandhakumar 29 Mar 6 18:18 README.md
drwxr-xr-x 3 nandhakumar nandhakumar 4096 Mar 6 18:22 build/
-rw-r--r-- 1 nandhakumar nandhakumar 46 Mar 6 18:21 build.sh
-rw-r--r-- 1 nandhakumar nandhakumar 34 Mar 6 18:21 deploy.sh
-rw-r--r-- 1 nandhakumar nandhakumar 108 Mar 6 18:22 docker-compose.yml
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$ touch .gitignore
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$ ll
total 36
drwxr-xr-x 4 nandhakumar nandhakumar 4096 Mar 6 18:25 .
drwxr-xr-x 3 nandhakumar nandhakumar 4096 Mar 6 18:18 ..
-rw-r--r-- 1 nandhakumar nandhakumar 0 Mar 6 18:22 .dockerignore
drwxr-xr-x 8 nandhakumar nandhakumar 4096 Mar 6 18:25 .git/
-rw-r--r-- 1 nandhakumar nandhakumar 0 Mar 6 18:25 .gitignore
-rw-r--r-- 1 nandhakumar nandhakumar 61 Mar 6 18:21 Dockerfile
-rw-r--r-- 1 nandhakumar nandhakumar 29 Mar 6 18:18 README.md
drwxr-xr-x 3 nandhakumar nandhakumar 4096 Mar 6 18:22 build/
-rw-r--r-- 1 nandhakumar nandhakumar 46 Mar 6 18:21 build.sh
-rw-r--r-- 1 nandhakumar nandhakumar 34 Mar 6 18:21 deploy.sh
-rw-r--r-- 1 nandhakumar nandhakumar 108 Mar 6 18:22 docker-compose.yml
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$
```

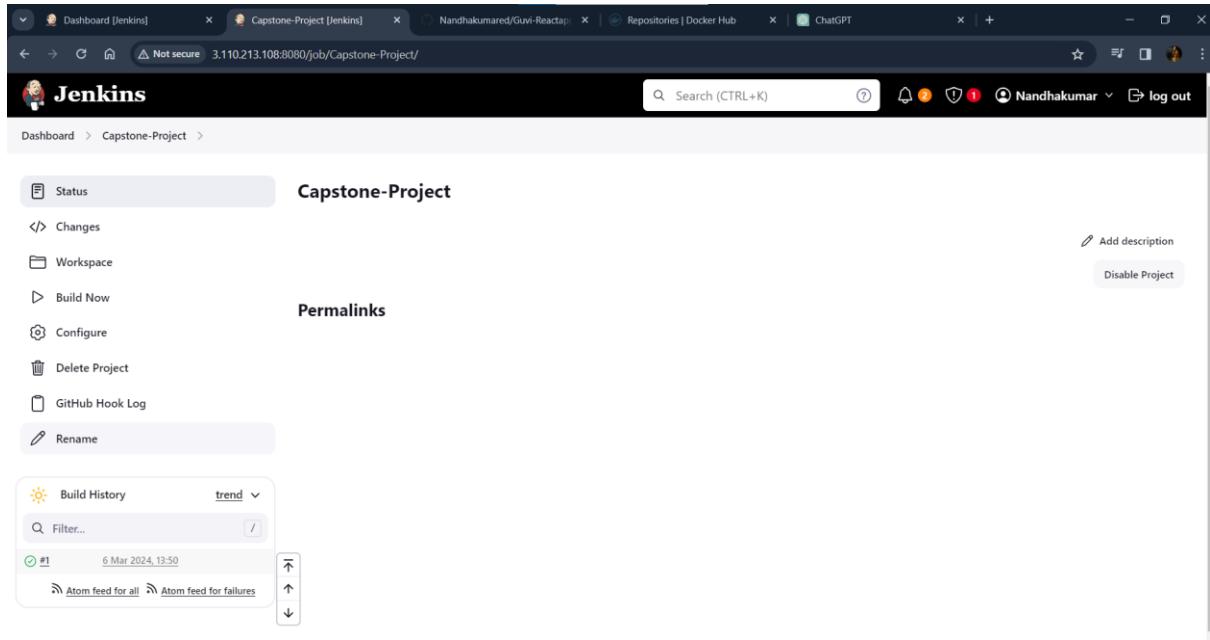
## Pushing files to Dev branch:

```
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$ git add .
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$ git commit -m "uploaded all files"
[Dev 00db3c1] uploaded all files
21 files changed, 192 insertions(+)
 create mode 100644 .dockerignore
 create mode 100644 .gitignore
 create mode 100644 Dockerfile
 create mode 100644 index.html
 create mode 100644 build/_redirects
 create mode 100644 build/assets/manifest.json
 create mode 100644 build/favicon.ico
 create mode 100644 build/index.html
 create mode 100644 build/logo192.png
 create mode 100644 build/logo512.png
 create mode 100644 build/manifest.json
 create mode 100644 build/robots.txt
 create mode 100644 build/static/css/main.f1c41c5.css
 create mode 100644 build/static/css/main.f1c41c5.css.map
 create mode 100644 build/static/js/87.2f5360e2.chunk.js
 create mode 100644 build/static/js/87.2f5360e2.chunk.js.map
 create mode 100644 build/static/js/main.f1c48542.js
 create mode 100644 build/static/js/main.f1c48542.js.map
 create mode 100644 deploy.sh
 create mode 100644 docker-compose.yml

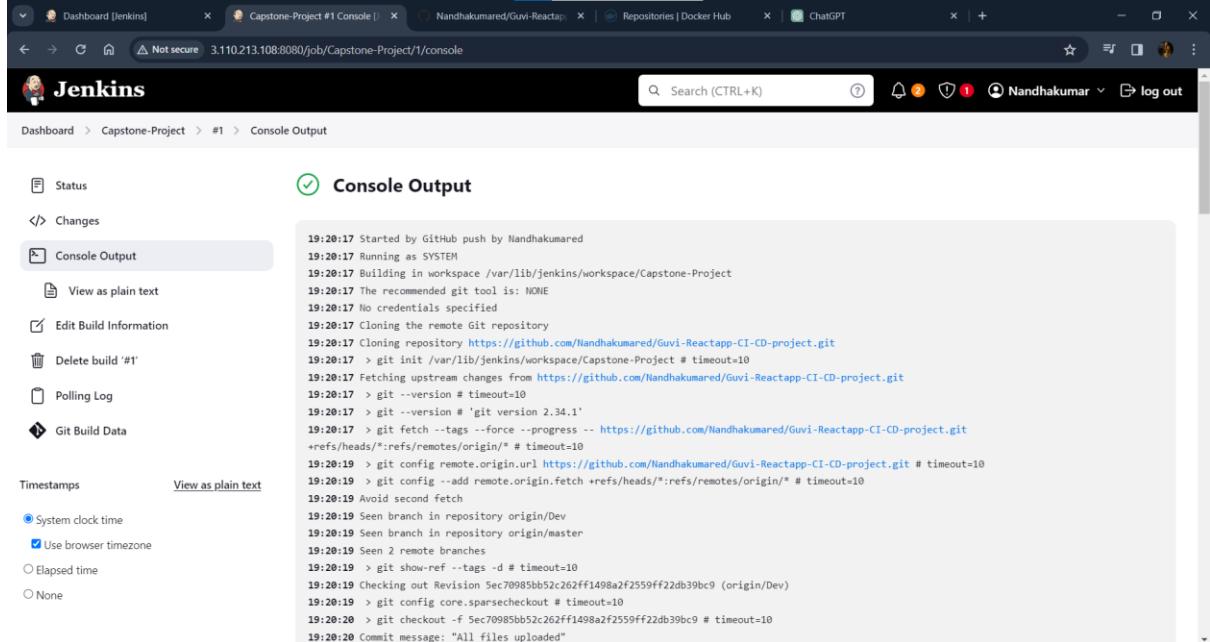
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$ git push origin -u Dev
Username for 'https://github.com': Nandhakumared
Password for 'https://Nandhakumared@github.com':
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Delta compression using up to 8 threads
Compressing objects: 100% (22/22), done.
Writing objects: 100% (26/26), 720.20 KiB | 4.36 MiB/s, done.
Total 26 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git
   6e6cf7b..00db3c1 Dev -> Dev
Branch 'Dev' set up to track remote branch 'Dev' from 'origin'.
handhakumar@DESKTOP-P113089:~/D:/drive/Guvi-Reactapp-CI-CD-project$
```



## Automatically build started when code pushed to Dev branch in Github Repo:



The screenshot shows the Jenkins dashboard for the 'Capstone-Project'. The 'Status' tab is selected. On the left, a sidebar lists project actions: Changes, Workspace, Build Now, Configure, Delete Project, GitHub Hook Log, and Rename. On the right, there are buttons for 'Add description' and 'Disable Project'. The 'Permalinks' section shows a single build entry: '#1 6 Mar 2024, 13:50'. Below it are links for 'Atom feed for all' and 'Atom feed for failures'. Navigation links at the bottom include 'Dashboard' and 'Capstone-Project'.



The screenshot shows the Jenkins console output for build '#1'. The 'Console Output' tab is selected. The left sidebar includes 'Status', 'Changes', 'Console Output' (which is selected), 'View as plain text', 'Edit Build Information', 'Delete build #1', 'Polling Log', and 'Git Build Data'. Under 'Timestamps', 'System clock time' is selected. The main area displays the build log:

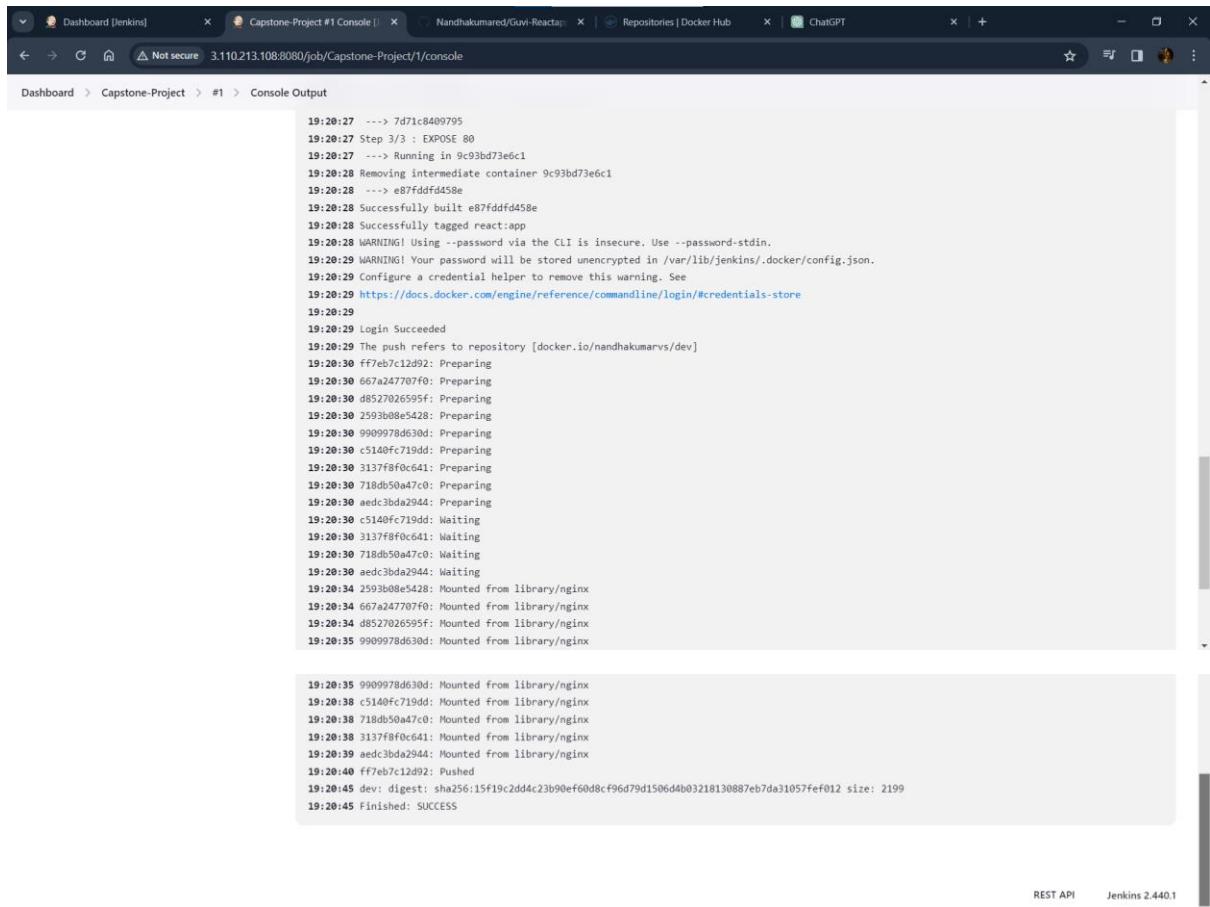
```
19:20:17 Started by GitHub push by Nandhakumared
19:20:17 Running as SYSTEM
19:20:17 Building in workspace /var/lib/jenkins/workspace/Capstone-Project
19:20:17 The recommended git tool is: NONE
19:20:17 No credentials specified
19:20:17 Cloning the remote Git repository
19:20:17 Cloning repository https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git
19:20:17 > git init /var/lib/jenkins/workspace/Capstone-Project # timeout=10
19:20:17 Fetching upstream changes from https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git
19:20:17 > git --version # timeout=10
19:20:17 > git --version # 'git' version 2.34.1'
19:20:17 > git fetch --tags --force --progress -- https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git
+refs/heads/*:refs/remotes/origin/*
19:20:19 > git config remote.origin.url https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git # timeout=10
19:20:19 > git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
19:20:19 Avoid second fetch
19:20:19 Seen branch in repository origin/Dev
19:20:19 Seen branch in repository origin/master
19:20:19 Seen 2 remote branches
19:20:19 > git show-ref -tags -d # timeout=10
19:20:19 Checking out Revision 5e70985bb52c262ff1498a2f2559ff22db39bc9 (origin/Dev)
19:20:19 > git config core.sparsecheckout # timeout=10
19:20:20 > git checkout -f 5e70985bb52c262ff1498a2f2559ff22db39bc9 # timeout=10
19:20:20 Commit message: "All files uploaded"
```

```
Dashboard > Capstone-Project > #1 > Console Output

19:28:20 First time build. Skipping changelog.
19:28:20 [Capstone-Project] $ /bin/bash /tmp/jenkins17872860180249815135.sh
19:28:20 Cloning into 'Guvi-Reactapp-CI-CD-project'...
19:28:21 /tmp/jenkins17872860180249815135.sh: line 7: cd: /var/lib/jenkins/workspace/Demo/: No such file or directory
19:28:21 total 28
19:28:21 -rw-r--r-- 1 jenkins jenkins 61 Mar 6 13:50 Dockerfile
19:28:21 drwxr-xr-x 4 jenkins jenkins 4096 Mar 6 13:50 Guvi-Reactapp-CI-CD-project
19:28:21 -rw-r--r-- 1 jenkins jenkins 29 Mar 6 13:50 README.md
19:28:21 drwxr-xr-x 3 jenkins jenkins 4096 Mar 6 13:50 build
19:28:21 -rwxr-xr-x 1 jenkins jenkins 41 Mar 6 13:50 build.sh
19:28:21 -rw-r--r-- 1 jenkins jenkins 34 Mar 6 13:50 deploy.sh
19:28:21 -rwxr--r-- 1 jenkins jenkins 108 Mar 6 13:50 docker-compose.yml
19:28:21 -rw-r--r-- 1 jenkins jenkins 61 Mar 6 13:50 Dockerfile
19:28:21 DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
19:28:21           Install the buildx component to build images with BuildKit:
19:28:21           https://docs.docker.com/go/buildx/
19:28:21
19:28:21 Sending build context to Docker daemon 7.034MB

19:28:21 Step 1/3 : FROM nginx:alpine
19:28:24 alpine: Pulling from library/nginx
19:28:24 619be1103602: Pulling fs layer
19:28:24 018690956ed0d: Pulling fs layer
19:28:24 c3ea3344e711: Pulling fs layer
19:28:24 c7059f310278: Pulling fs layer
19:28:24 a101c9a82b88: Pulling fs layer
19:28:24 d6a456492aaa: Pulling fs layer
19:28:24 e1c681003a03: Pulling fs layer
19:28:24 a85ccdc8c07bd: Pulling fs layer
19:28:24 c7059f310278: Waiting
19:28:24 a101c9a82b88: Waiting
```

```
19:20:24 d6a456492aaa: Waiting
19:20:24 e1c681003a03: Waiting
19:20:24 a85cccd8c07bd: Waiting
19:20:25 {3ea3344e711: Verifying Checksum
19:20:25 {3ea3344e711: Download complete
19:20:25 018b90b5eddd: Verifying Checksum
19:20:25 018b90b5eddd: Download complete
19:20:25 619be1103602: Verifying Checksum
19:20:25 619be1103602: Download complete
19:20:25 619be1103602: Pull complete
19:20:26 018b90b5eddd: Pull complete
19:20:26 {3ea3344e711: Pull complete
19:20:26 {7059f310278: Verifying Checksum
19:20:26 {7059f310278: Download complete
19:20:26 C7059f310278: Pull complete
19:20:26 a101c9a82b88: Verifying Checksum
19:20:26 a101c9a82b88: Download complete
19:20:26 a101c9a82b88: Pull complete
19:20:26 d6a456492aaa: Verifying Checksum
19:20:26 d6a456492aaa: Download complete
19:20:26 d6a456492aaa: Pull complete
19:20:26 e1c681003a03: Verifying Checksum
19:20:26 e1c681003a03: Download complete
19:20:26 e1c681003a03: Pull complete
19:20:27 a85cccd8c07bd: Verifying Checksum
19:20:27 a85cccd8c07bd: Download complete
19:20:27 a85cccd8c07bd: Pull complete
19:20:27 Digest: sha256:6a2f8b28e454adea0dec207a251fdd4a2df03ddc930f782af51e315ebc76e9a9
19:20:27 Status: Downloaded newer image for nginx:alpine
19:20:27 ---> 6913ed9ec8d0
19:20:27 Step 1/3 : COPY build /usr/share/nginx/html
```



```

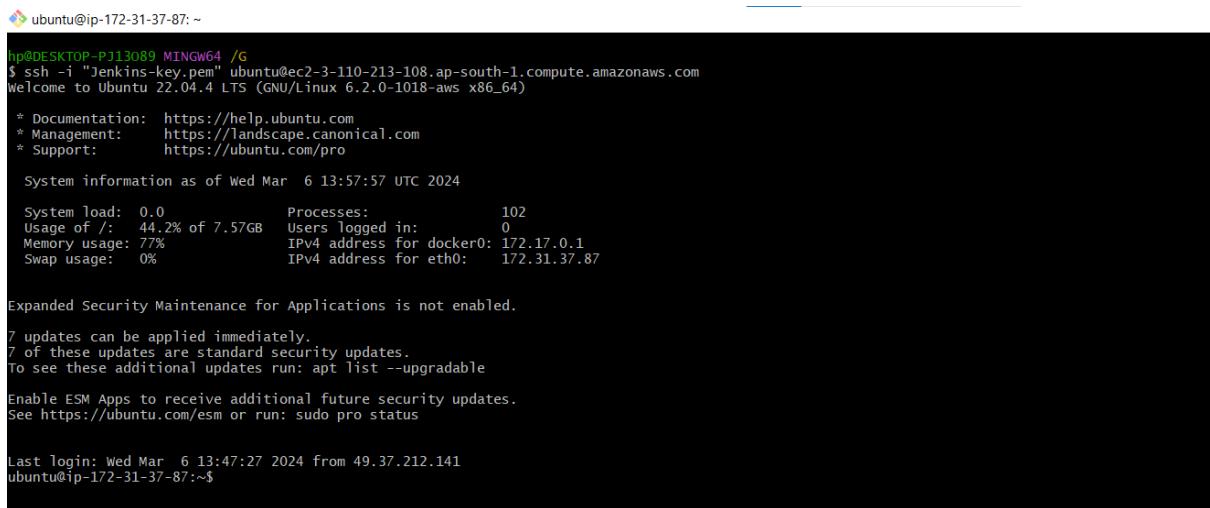
19:20:27 ---> 7d71c8409795
19:20:27 Step 3/3 : EXPOSE 80
19:20:27 --> Running in 9c93bd73e6c1
19:20:28 Removing intermediate container 9c93bd73e6c1
19:20:28 --> e87ffdf4d58e
19:20:28 Successfully built e87ffdf4d58e
19:20:28 Successfully tagged react:app
19:20:28 WARNING! Using --password via the CLI is insecure. Use --password-stdin.
19:20:29 WARNING! Your password will be stored unencrypted in /var/lib/jenkins/.docker/config.json.
19:20:29 Configure a credential helper to remove this warning. See
19:20:29 https://docs.docker.com/engine/reference/commandline/login/#credentials-store
19:20:29
19:20:29 Login Succeeded
19:20:29 The push refers to repository [docker.io/nandakumarvs/dev]
19:20:30 ff7eb7c712d92: Preparing
19:20:30 667a247707f0: Preparing
19:20:30 d8527026595f: Preparing
19:20:30 2593b08e5428: Preparing
19:20:30 9909978d630d: Preparing
19:20:30 c5140fc719dd: Preparing
19:20:30 3137f8f0c0c41: Preparing
19:20:30 718db50a47c0: Preparing
19:20:30 aedc3bda2944: Preparing
19:20:30 2593b08e5428: Mounted from library/nginx
19:20:34 667a247707f0: Mounted from library/nginx
19:20:34 d8527026595f: Mounted from library/nginx
19:20:35 9909978d630d: Mounted from library/nginx

19:20:35 9909978d630d: Mounted from library/nginx
19:20:38 c5140fc719dd: Mounted from library/nginx
19:20:38 718db50a47c0: Mounted from library/nginx
19:20:38 3137f8f0c0c41: Mounted from library/nginx
19:20:39 aedc3bda2944: Mounted from library/nginx
19:20:40 ff7eb7c712d92: Pushed
19:20:45 dev: digest: sha256:15f19c2dd4c23b90ef60d8cf96d79d1506d4b03218130887eb7da31057fef012 size: 2199
19:20:45 Finished: SUCCESS

```

REST API Jenkins 2.440.1

## Login to Jenkins-Server to check Docker image is build and pushed to dockerhub public repo(dev):



```

ubuntu@ip-172-31-37-87: ~
hp@DESKTOP-PJ13089 MINGW64 /G
$ ssh -i "Jenkins-key.pem" ubuntu@ec2-3-110-213-108.ap-south-1.compute.amazonaws.com
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.2.0-1018-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

 System information as of Wed Mar  6 13:57:57 UTC 2024

 System load: 0.0          Processes:          102
 Usage of /: 44.2% of 7.57GB  Users logged in: 0
 Memory usage: 77%          IPv4 address for docker0: 172.17.0.1
 Swap usage:  0%          IPv4 address for eth0: 172.31.37.87

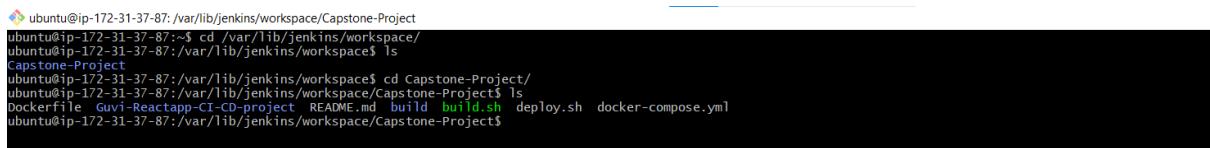
Expanded Security Maintenance for Applications is not enabled.

7 updates can be applied immediately.
7 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Wed Mar  6 13:47:27 2024 from 49.37.212.141
ubuntu@ip-172-31-37-87: ~$
```

## Moving to Jenkins workspace:



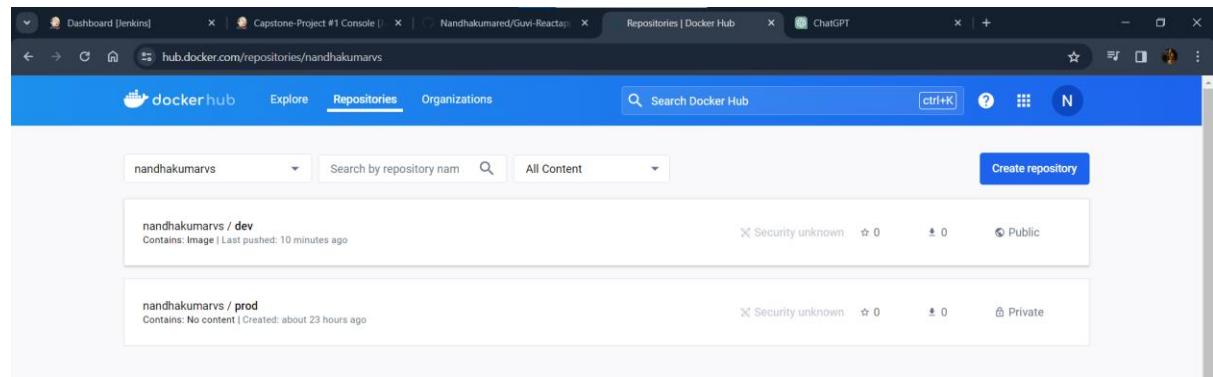
```

ubuntu@ip-172-31-37-87: /var/lib/jenkins/workspace/Capstone-Project
ubuntu@ip-172-31-37-87: ~$ cd /var/lib/jenkins/workspace/
ubuntu@ip-172-31-37-87: /var/lib/jenkins/workspace $ ls
Capstone-Project
ubuntu@ip-172-31-37-87: /var/lib/jenkins/workspace/Capstone-Project $ ls
Dockerfile Gui-Reactapp-CI-CD-project README.md build build.sh deploy.sh docker-compose.yml
ubuntu@ip-172-31-37-87: /var/lib/jenkins/workspace/Capstone-Project $
```

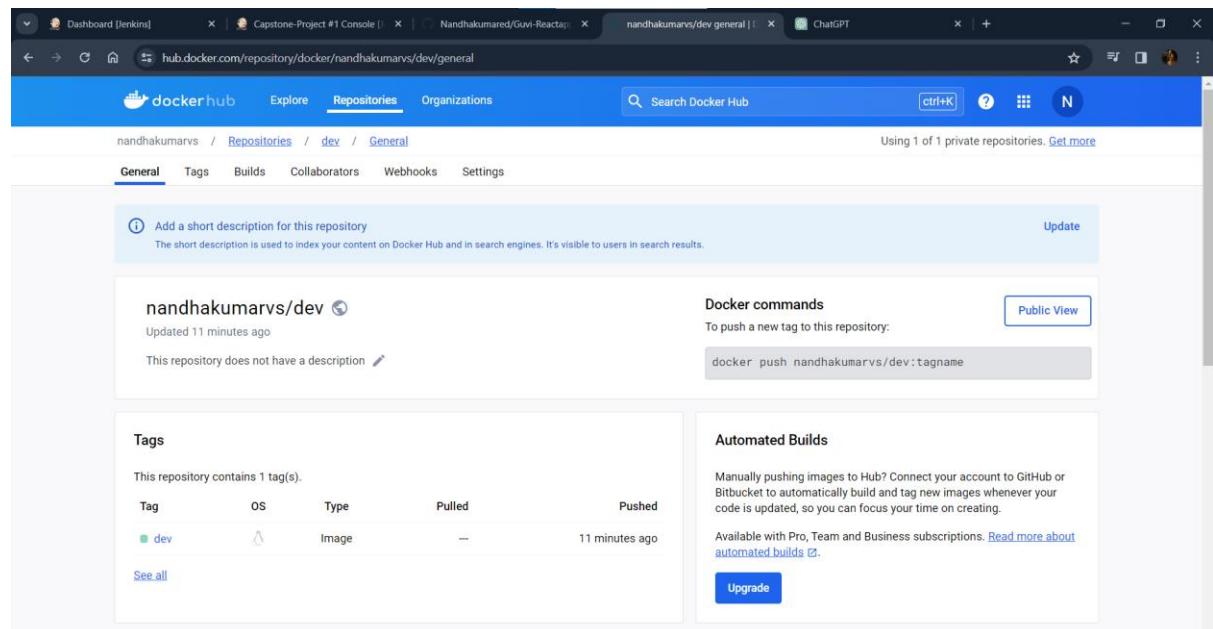
## Checking Docker image is build and tagged with docker hub repo name:

```
ubuntu@ip-172-31-37-87: /var/lib/jenkins/workspace/Capstone-Project
ubuntu@ip-172-31-37-87: /var/lib/jenkins/workspace/Capstone-Project$ docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
react          app      e87fddfd458e  9 minutes ago  45.2MB
nandhakumarvs/dev  dev      e87fddfd458e  9 minutes ago  45.2MB
nginx          alpine   6913ed9ec8d0  2 weeks ago   42.6MB
ubuntu@ip-172-31-37-87: /var/lib/jenkins/workspace/Capstone-Project$
```

## Checking Docker image is pushed to dockerhub public repo(dev):



The screenshot shows the Docker Hub interface. The user is viewing the 'dev' repository under the 'nandhakumarvs' organization. The repository page displays two images: 'nandhakumarvs / dev' and 'nandhakumarvs / prod'. Both images are marked as 'Public'. The 'dev' image was last pushed 10 minutes ago, while the 'prod' image was last pushed about 23 hours ago. The Docker Hub interface includes a search bar, a 'Create repository' button, and navigation links for 'Explore', 'Repositories', and 'Organizations'.



The screenshot shows the Docker Hub interface for the 'nandhakumarvs/dev' repository. The 'General' tab is selected. The page includes a note to 'Add a short description for this repository', the repository name 'nandhakumarvs/dev', and a 'Docker commands' section with a 'Public View' button and a command line for pushing a tag. The 'Tags' section shows one tag: 'dev'. The 'Automated Builds' section is available with Pro, Team and Business subscriptions. The Docker Hub interface includes a search bar, a 'Create repository' button, and navigation links for 'Explore', 'Repositories', and 'Organizations'.

## Merging Dev branch to master branch in Github:

The image consists of three vertically stacked screenshots of a web browser displaying the GitHub interface for merging branches.

**Screenshot 1: Initiating the Pull Request**

The first screenshot shows the GitHub repository page for "Guvi-Reactapp-Cl-CD-project". A pull request is being created from the "Dev" branch to the "master" branch. The "Able to merge" button is highlighted, indicating that the merge can be performed automatically. The pull request title is "bdev".

**Screenshot 2: Reviewing the Pull Request**

The second screenshot shows the pull request details page. It displays the commit history, showing two commits from "Nandhakumared" on March 6, 2024. The commits are "All files uploaded" and "All files uploaded". The pull request has 21 files changed and 1 contributor. The "Create pull request" button is visible.

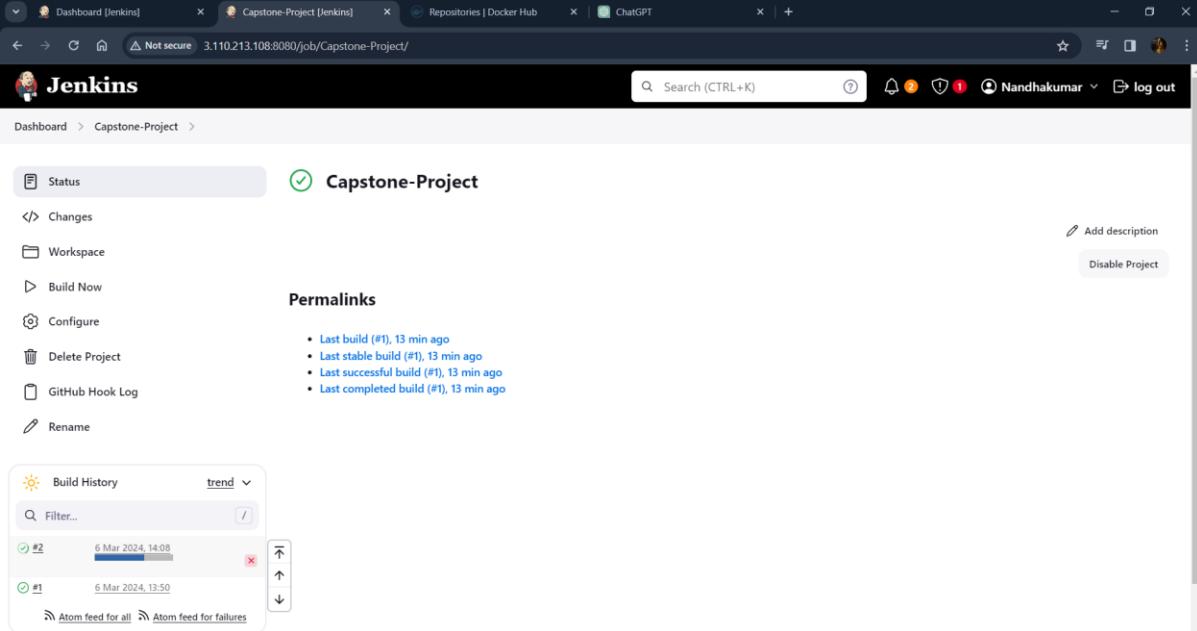
**Screenshot 3: Finalizing the Pull Request**

The third screenshot shows the final step of the pull request process. The "Merge pull request" button is highlighted in blue. The page also includes a note about requiring approval from specific reviewers and continuous integration setup.

A screenshot of a GitHub pull request merge dialog. The dialog shows a message from 'Nandhakumared' wanting to merge 2 commits into the 'master' branch from the 'Dev' branch. The 'Merge pull request #1 from Nandhakumared/Dev' button is highlighted in orange. The 'Confirm merge' button is at the bottom left, and 'Cancel' is at the bottom right. The GitHub interface shows the pull request details: 'Projects' (None yet), 'Milestone' (No milestone), 'Development' (Successfully merging this pull request may close these issues), and 'Notifications' (Customize, Unsubscribe). A comment section is also visible.

A screenshot showing a Jenkins dashboard on the left and a GitHub pull request detail page on the right. The Jenkins dashboard shows a 'Status' card with 'Changes' and 'Build Now' options, and a 'Build History' section with a pending build (#2). The GitHub pull request detail page for 'Dev #1' shows it has been merged. The pull request details include: 'Conversation' (0), 'Commits' (2), 'Checks' (0), 'Files changed' (21), and a 'Revert' button. The GitHub interface shows the pull request details: 'Reviewers' (No reviews), 'Assignees' (No one, assign yourself), 'Labels' (None yet), 'Projects' (None yet), 'Milestone' (No milestone), 'Development' (Successfully merging this pull request may close these issues), and 'Notifications' (Customize).

## Automatically build starts after merging Dev branch to master branch in GitHub:



The screenshot shows the Jenkins Capstone-Project dashboard. The build history section displays two builds: #2 (6 Mar 2024, 14:08) and #1 (6 Mar 2024, 13:50). Build #2 is marked as successful. The 'Console Output' section for build #2 shows the command-line logs for the build process, including the merge of the Dev branch into the master branch.

```
19:38:12 Started by GitHub push by Nandhakumared
19:38:12 Running as SYSTEM
19:38:12 Building in workspace /var/lib/jenkins/workspace/Capstone-Project
19:38:12 The recommended git tool is: NONE
19:38:12 No credentials specified
19:38:12 > git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/Capstone-Project/.git # timeout=10
19:38:12 Fetching changes from the remote Git repository
19:38:12 > git config remote.origin.url https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git # timeout=10
19:38:12 Fetching upstream changes from https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git
19:38:12 > git --version # timeout=10
19:38:12 > git --version # 'git' version 2.34.1'
19:38:12 > git fetch --tags --force --progress -- https://github.com/Nandhakumared/Guvi-Reactapp-CI-CD-project.git
+refs/heads/*:refs/remotes/origin/* # timeout=10
19:38:13 Seen branch in repository origin/Dev
19:38:13 Seen branch in repository origin/master
19:38:13 Seen 2 remote branches
19:38:13 > git show-ref -d # timeout=10
19:38:13 Checking out Revision b900a3aba794aba8b63a521dd3614c1013dc4e4d4 (origin/master)
19:38:13 > git config core.sparsecheckout # timeout=10
19:38:13 > git checkout -f b900a3aba794aba8b63a521dd3614c1013dc4e4d4 # timeout=10
19:38:13 Commit message: "Merge pull request #1 from Nandhakumared/Dev"
19:38:13 First time build. Skipping changelog.
19:38:13 [Capstone-Project] $ /bin/bash /tmp/jenkins8061658574675174993.sh
19:38:13 fatal: destination path 'Guvi-Reactapp-CI-CD-project' already exists and is not an empty directory.
```

```
Dashboard > Capstone-Project > #2 > Console Output
19:38:13 /tmp/jenkins806158574675174993.sh: line 7: cd: /var/lib/jenkins/workspace/Demo/: No such file or directory
19:38:13 total 28
19:38:13 -rw-r--r-- 1 jenkins jenkins 61 Mar 6 13:50 Dockerfile
19:38:13 drwxr-xr-x 4 jenkins jenkins 4096 Mar 6 13:50 Gui-Reactapp-CI-CD-project
19:38:13 -rw-r--r-- 1 jenkins jenkins 29 Mar 6 13:50 README.md
19:38:13 drwxr-xr-x 3 jenkins jenkins 4096 Mar 6 13:50 build
19:38:13 -rw-r--r-- 1 jenkins jenkins 41 Mar 6 13:50 build.sh
19:38:13 -rw-r--r-- 1 jenkins jenkins 34 Mar 6 13:50 deploy.sh
19:38:13 -rw-r--r-- 1 jenkins jenkins 108 Mar 6 13:50 docker-compose.yml
19:38:13 -rw-r--r-- 1 jenkins jenkins 61 Mar 6 13:50 Dockerfile
19:38:13 DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
19:38:13     Install the buildx component to build images with BuildKit:
19:38:13     https://docs.docker.com/go/buildx/
19:38:13
19:38:13 Sending build context to Docker daemon 7.036MB

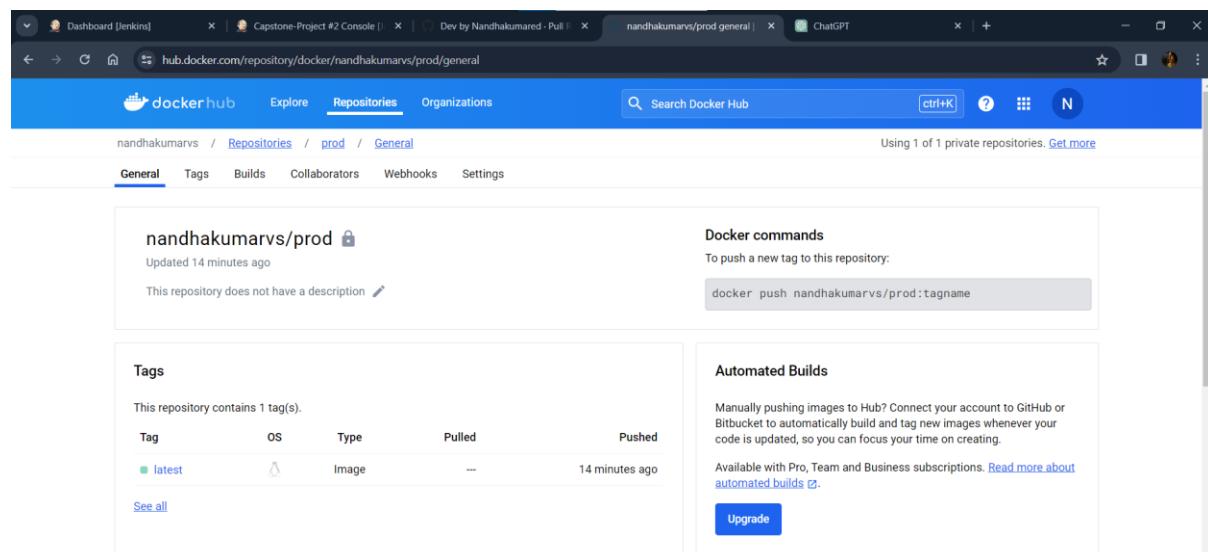
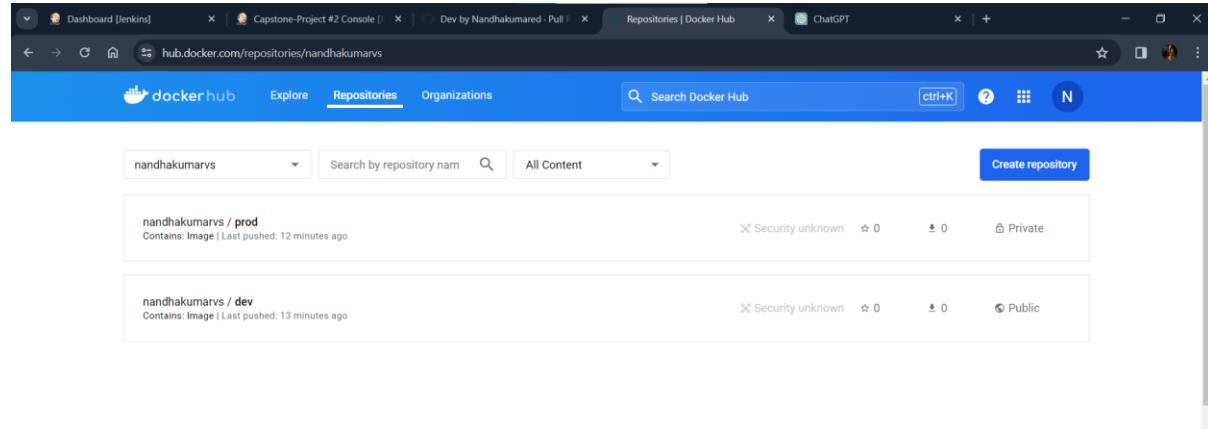
19:38:13 Step 1/3 : FROM nginx:alpine
19:38:13    --> 6913ed9ec8d0
19:38:13 Step 2/3 : COPY build /usr/share/nginx/html
19:38:13    --> Using cache
19:38:13    --> 7d71c8409795
19:38:13 Step 3/3 : EXPOSE 80
19:38:13    --> Using cache
19:38:13    --> e87ffdd458e
19:38:13 Successfully built e87ffdd458e
19:38:13 Successfully tagged react:app
19:38:13 WARNING! Using --password via the CLI is insecure. Use --password-stdin.
19:38:15 WARNING! Your password will be stored unencrypted in /var/lib/jenkins/.docker/config.json.
19:38:15 Configure a credential helper to remove this warning. See
19:38:15 https://docs.docker.com/engine/reference/commandline/login/#credentials-store
19:38:15
```

```
Dashboard > Capstone-Project > #2 > Console Output
19:38:15 Login Succeeded
19:38:15 The push refers to repository [docker.io/nandhakumarvs/dev]
19:38:16 ffe7b7c12d92: Preparing
19:38:16 667a247707f0: Preparing
19:38:16 d8527026595f: Preparing
19:38:16 2593080e5428: Preparing
19:38:16 9909978d630d: Preparing
19:38:16 c5140fc719dd: Preparing
19:38:16 3137f8f0c641: Preparing
19:38:16 718d50a47c0: Preparing
19:38:16 aedc3bd2a2944: Preparing
19:38:16 c5140fc719dd: Waiting
19:38:16 3137f8f0c641: Waiting
19:38:16 718d50a47c0: Waiting
19:38:16 aedc3bd2a2944: Waiting
19:38:17 667a247707f0: Layer already exists
19:38:17 d8527026595f: Layer already exists
19:38:17 ffe7b7c12d92: Layer already exists
19:38:17 2593080e5428: Layer already exists
19:38:17 9909978d630d: Layer already exists
19:38:17 718d50a47c0: Layer already exists
19:38:18 3137f8f0c641: Layer already exists
19:38:18 aedc3bd2a2944: Layer already exists
19:38:18 c5140fc719dd: Layer already exists
19:38:20 dev: digest: sha256:15f19c2dd4c23b90ef60d8cf96d79d1506d4b03218130887eb7da31057fef012 size: 2199
19:38:20 The push refers to repository [docker.io/nandhakumarvs/prod]
```

```
Dashboard > Capstone-Project > #2 > Console Output
19:38:20 The push refers to repository [docker.io/nandhakumarvs/prod]
19:38:20 ffe7b7c12d92: Preparing
19:38:20 667a247707f0: Preparing
19:38:20 d8527026595f: Preparing
19:38:20 2593080e5428: Preparing
19:38:20 9909978d630d: Preparing
19:38:20 c5140fc719dd: Preparing
19:38:20 3137f8f0c641: Preparing
19:38:20 718d50a47c0: Preparing
19:38:20 aedc3bd2a2944: Preparing
19:38:20 c5140fc719dd: Waiting
19:38:20 3137f8f0c641: Waiting
19:38:20 718d50a47c0: Waiting
19:38:20 aedc3bd2a2944: Waiting
19:38:26 2593080e5428: Mounted from nandhakumarvs/dev
19:38:26 d8527026595f: Mounted from nandhakumarvs/dev
19:38:26 9909978d630d: Mounted from nandhakumarvs/dev
19:38:26 667a247707f0: Mounted from nandhakumarvs/dev
19:38:26 ffe7b7c12d92: Mounted from nandhakumarvs/dev
19:38:29 718d50a47c0: Mounted from nandhakumarvs/dev
19:38:29 c5140fc719dd: Mounted from nandhakumarvs/dev
19:38:29 3137f8f0c641: Mounted from nandhakumarvs/dev
19:38:30 aedc3bd2a2944: Mounted from nandhakumarvs/dev
19:38:35 latest: digest: sha256:15f19c2dd4c23b90ef60d8cf96d79d1506d4b03218130887eb7da31057fef012 size: 2199
19:38:35 Finished: SUCCESS
```

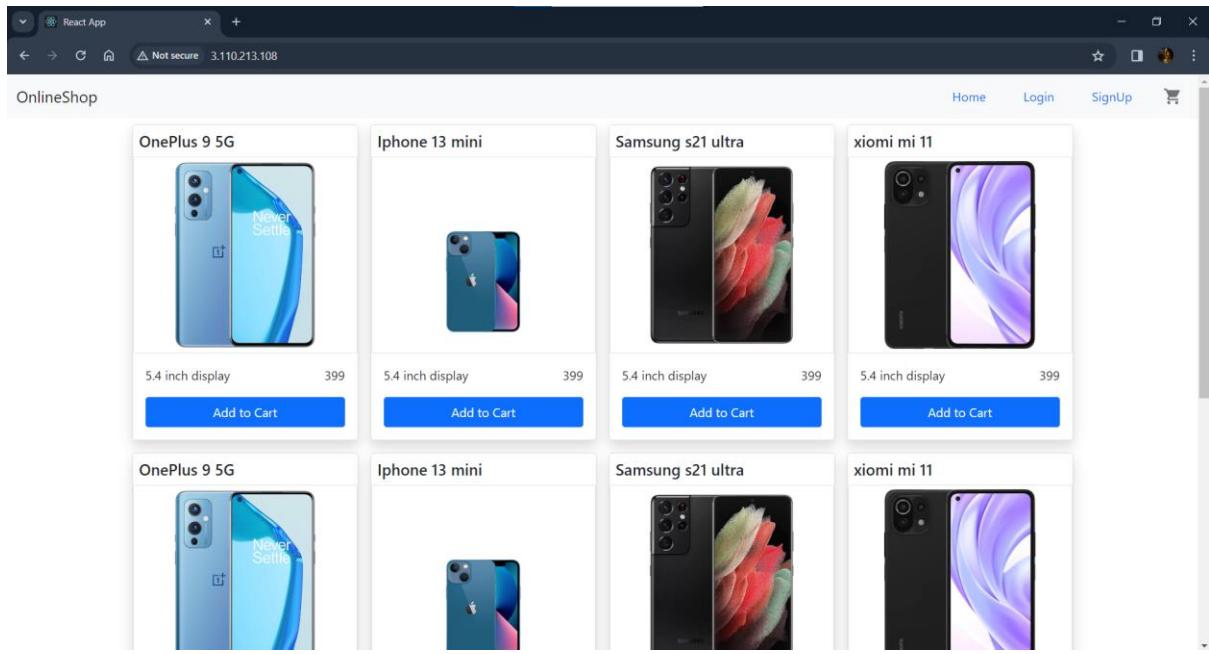
## Checking docker image is tagged and push to Docker hub private repo(prod):

```
ubuntu@ip-172-31-37-87:~/var/lib/jenkins/workspace/Capstone-Project
ubuntu@ip-172-31-37-87:~$ cd /var/lib/jenkins/workspace/Capstone-Project/
ubuntu@ip-172-31-37-87:/var/lib/jenkins/workspace/Capstone-Project$ ls
Dockerfile Guvi-Reactapp-CI-CD-project README.md build build.sh deploy.sh docker-compose.yml
ubuntu@ip-172-31-37-87:/var/lib/jenkins/workspace/Capstone-Project$ docker images
REPOSITORY          TAG      IMAGE ID      CREATED        SIZE
react              app      e87fddfd458e   27 minutes ago  45.2MB
nandhakumarvs/dev  dev      e87fddfd458e   27 minutes ago  45.2MB
nandhakumarvs/prod latest   e87fddfd458e   27 minutes ago  45.2MB
nginx              alpine   6913ed9ec8d0   2 weeks ago   42.6MB
ubuntu@ip-172-31-37-87:/var/lib/jenkins/workspace/Capstone-Project$
```



## Running docker image in Jenkins-server using deploy.sh:

```
ubuntu@ip-172-31-37-87:~/var/lib/jenkins/workspace/Capstone-Project
ubuntu@ip-172-31-37-87:~$ cd /var/lib/jenkins/workspace/Capstone-Project/
ubuntu@ip-172-31-37-87:/var/lib/jenkins/workspace/Capstone-Project$ sh deploy.sh
Creating network "capstone-project_default" with the default driver
Creating test ... done
ubuntu@ip-172-31-37-87:/var/lib/jenkins/workspace/Capstone-Project$
```



## Launching AWS t2.micro instance: (Deploy-EC2)

**Launch an instance** Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

**Name and tags** Info

Name  Add additional tags

**Summary**

Number of instances Info

Software Image (AMI)  
Amazon Linux 2023.3.2... read more  
ami-0ba259e664698cbfc

Virtual server type (instance type)  
t2.micro

Firewall (security group)

**Application and OS Images (Amazon Machine Image)** Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Search our full catalog including 1000s of application and OS images

Recents Quick Start

Amazon Linux aws macOS Ubuntu Windows Red Hat SUSE Li SUSI Browse more AMIs

**Summary**

Number of instances Info

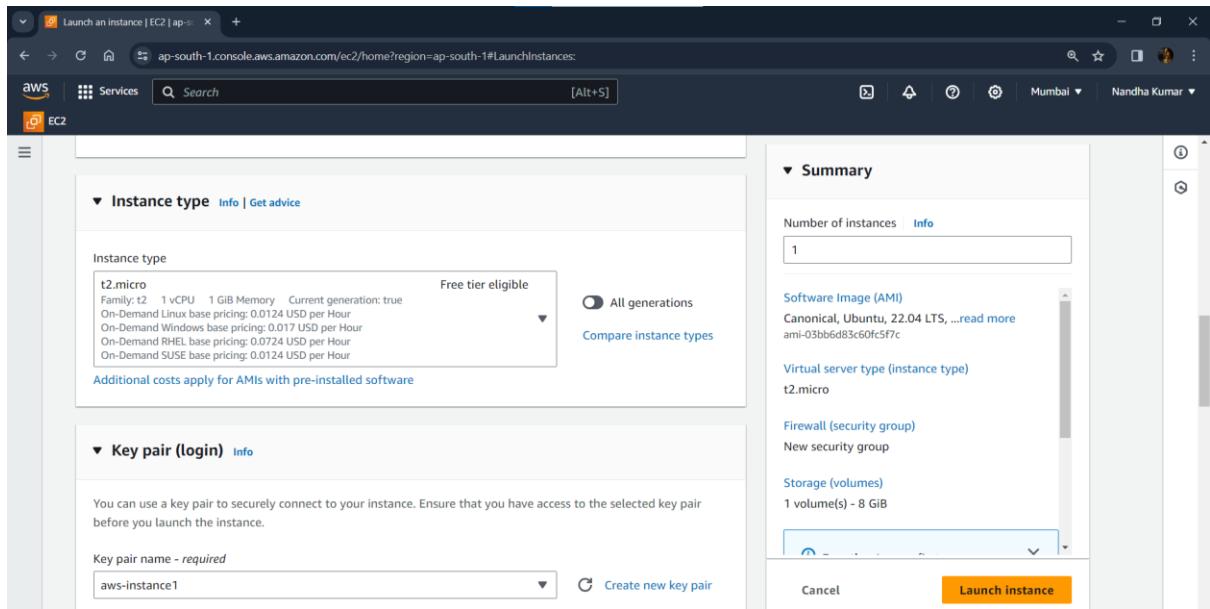
Software Image (AMI)  
Canonical, Ubuntu, 22.04 LTS, ... read more  
ami-03bb6d83c60fc5f7c

Virtual server type (instance type)  
t2.micro

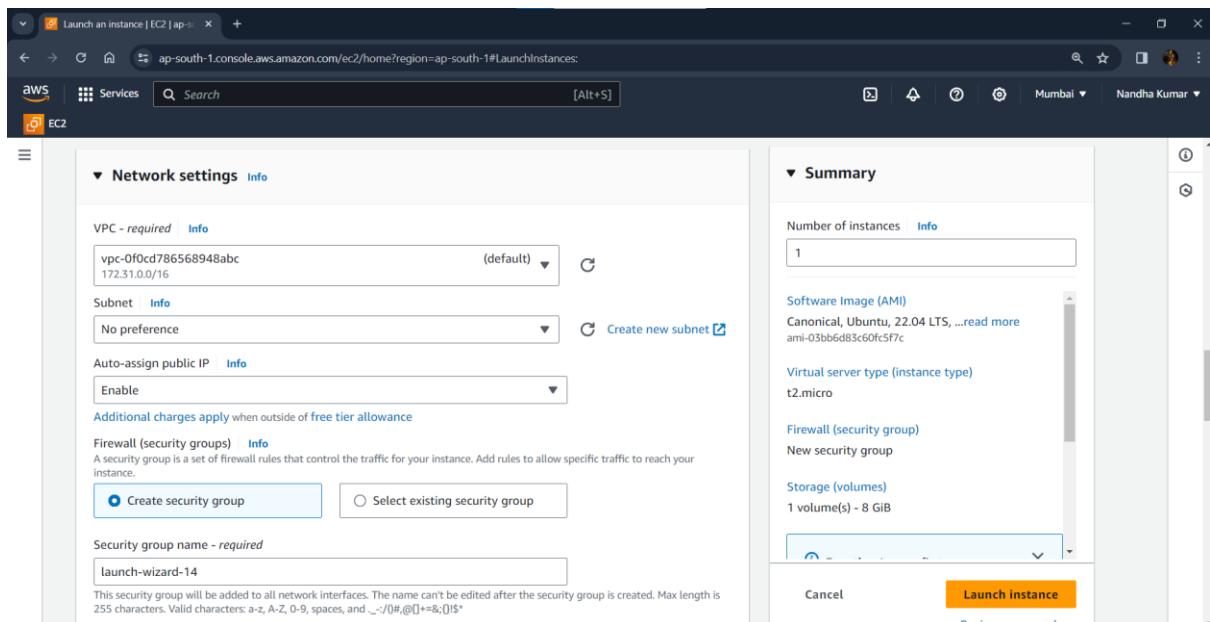
Firewall (security group)  
New security group

Storage (volumes)  
1 volume(s) - 8 GiB

Cancel Launch instance



## Configuring Security Group:



Launch an instance | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

EC2 Services Search [Alt+S]

Mumbai Nandha Kumar

Summary

Number of instances: 1

Software Image (AMI): Canonical, Ubuntu, 22.04 LTS, ... (ami-03bb6d83c60fc5f7c)

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Inbound Security Group Rules

Security group rule 1 (TCP, 22, 49.37.208.253/32)

Type: ssh, Protocol: TCP, Port range: 22, Source type: My IP, Name: 49.37.208.253/32

Security group rule 2 (TCP, 443, 0.0.0.0/0)

Type: HTTPS, Protocol: TCP, Port range: 443, Source type: Anywhere, Name: 49.37.208.253/32

Launch an instance | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

EC2 Services Search [Alt+S]

Mumbai Nandha Kumar

Summary

Number of instances: 1

Software Image (AMI): Canonical, Ubuntu, 22.04 LTS, ... (ami-03bb6d83c60fc5f7c)

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Inbound Security Group Rules

Security group rule 3 (TCP, 80, 0.0.0.0/0)

Type: HTTP, Protocol: TCP, Port range: 80, Source type: Anywhere, Name: 0.0.0.0/0

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Add security group rule

Launch an instance | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

EC2 Services Search [Alt+S]

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EC2 > Instances > Launch an instance

Success

Successfully initiated launch of instance (i-09223d6fde41b7b31)

Launch log

Instances | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Instances:

EC2 Services Search [Alt+S]

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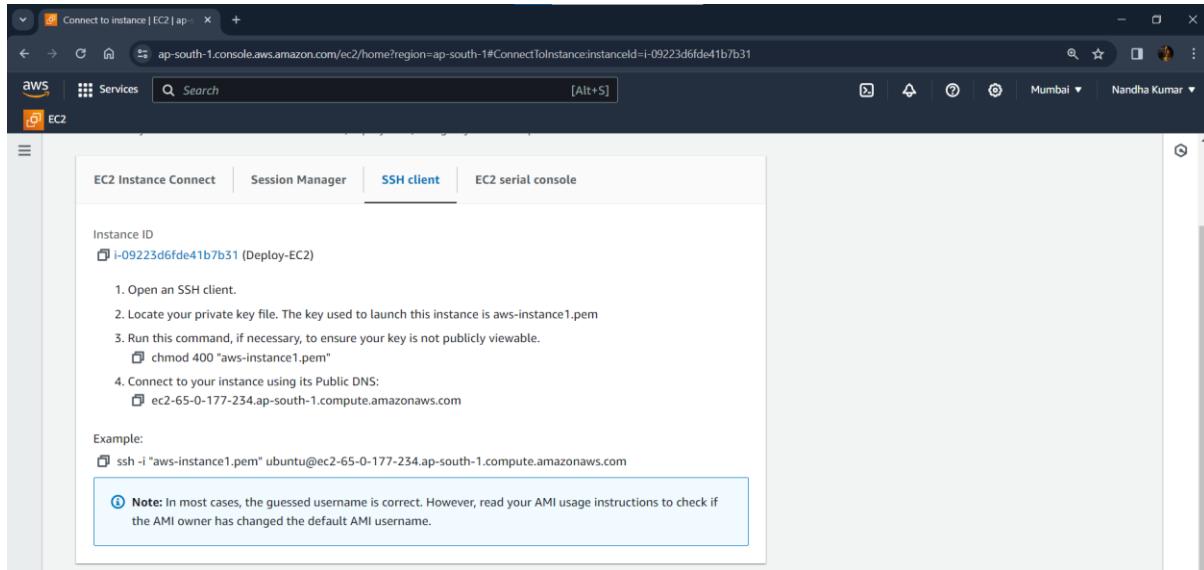
EC2 Dashboard EC2 Global View Events Instances Instances Instance Types

Instances (3) info

Find Instance by attribute or tag (case-sensitive)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
Jenkins-server	i-001e7b60537777c42	Stopped	t2.micro	-	<a href="#">View alarms</a>
Deploy-EC2	i-09223d6fde41b7b31	Running	t2.micro	Initializing	<a href="#">View alarms</a>

## Connecting this EC2 using SSH:



```
ubuntu@ip-172-31-12-95: ~

ip@DESKTOP-PJ13089 MINGW64 /F
$ ssh -i "aws-instance1.pem" ubuntu@ec2-65-0-177-234.ap-south-1.compute.amazonaws.com
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.2.0-1018-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:   https://landscape.canonical.com
 * Support:      https://ubuntu.com/pro

System information as of Thu Mar  7 20:55:46 UTC 2024

System load: 0.025390625  Processes:          101
Usage of /: 20.3% of 7.57GB   Users logged in: 0
Memory usage: 21%           IPv4 address for eth0: 172.31.12.95
Swap usage: 0%               IPv6 address for eth0: fe80::417:1ff:fe31:1295%eth0

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

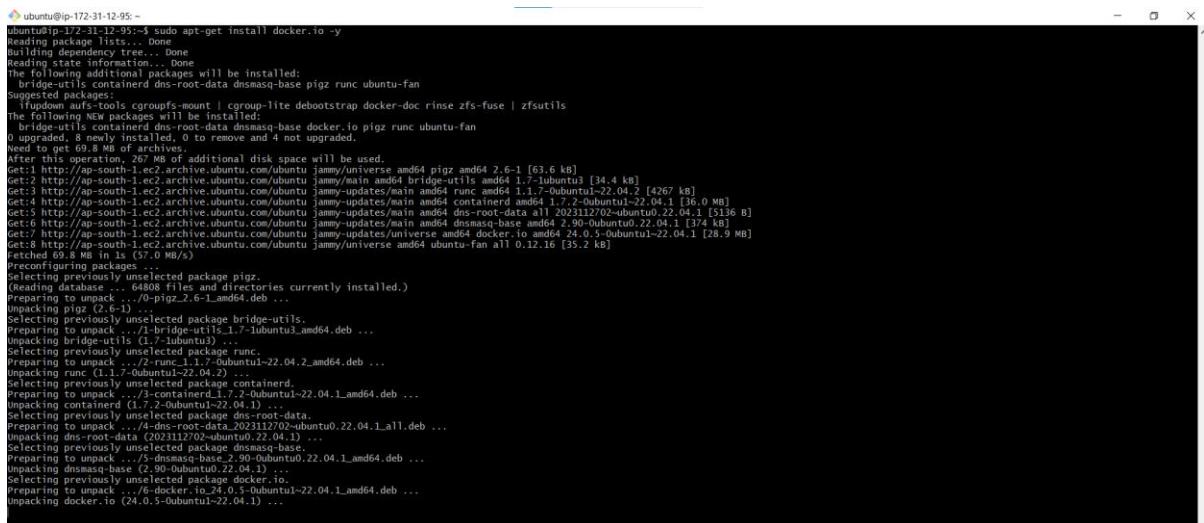
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-12-95:~$ |
```

## Installing Docker in EC2 instance:



```
ubuntu@ip-172-31-12-95: ~
ubuntu@ip-172-31-12-95:~$ docker --version
Docker version 24.0.5, build 24.0.5-0ubuntu1~22.04.1
ubuntu@ip-172-31-12-95:~$
```

## Adding user in Docker group:

```
ubuntu@ip-172-31-12-95: ~
ubuntu@ip-172-31-12-95:~$ sudo usermod -aG docker ubuntu
ubuntu@ip-172-31-12-95:~$
```

```
rwupa@terriresh:~$ cat /etc/group
admin:x:118:
netdev:x:119:ubuntu
lxd:x:120:ubuntu
_chrony:x:121:
ubuntu:x:1000:
docker:x:122:ubuntu
ubuntu@ip-172-31-12-95:~$ |
```

## Creating Deploy.sh to Pull Image from Dockerhub and deploying the created application:

```
ubuntu@ip-172-31-12-95: ~/Docker
ubuntu@ip-172-31-12-95:~/Docker$ nano Deploy.sh
ubuntu@ip-172-31-12-95:~/Docker$ cat Deploy.sh
#!/bin/bash

docker pull nandhakumarvs/dev:dev

docker images

docker run -d -p 80:80 --name app nandhakumarvs/dev:dev
ubuntu@ip-172-31-12-95:~/Docker$
```

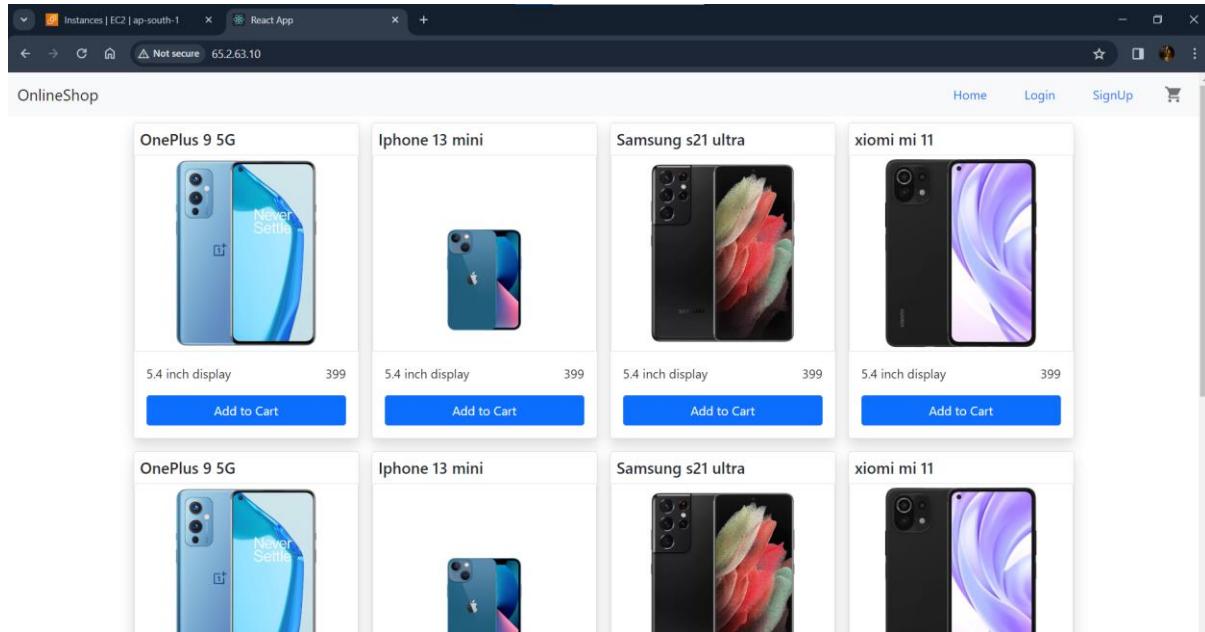
## Executing the Deploy.sh file to deploy the created application:

```
ubuntu@ip-172-31-12-95: ~/Docker
ubuntu@ip-172-31-12-95:~$ cd Docker/
ubuntu@ip-172-31-12-95:~/Docker$ sh Deploy.sh
dev: Pulling from nandhakumarvs/dev
619be1103602: Pull complete
018b9065ed0d: Pull complete
c3ea3344e711: Pull complete
c7059f310278: Pull complete
a101c9a82b88: Pull complete
d6a456492aaa: Pull complete
e1c681003a03: Pull complete
a85cc8c07bd: Pull complete
46f0f33bd458: Pull complete
Digest: sha256:15f19c2dd4c23b90ef60d8cf96d79d1506d4b03218130887eb7da31057fef012
Status: Downloaded newer image for nandhakumarvs/dev:dev
docker.io/nandhakumarvs/dev:dev
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
nandhakumarvs/dev  dev      e87fddfd458e  31 hours ago  45.2MB
84c11d1389613f75065bd0727798c4741d1d194e5d7b6da3d066df2d69416cea
ubuntu@ip-172-31-12-95:~/Docker$
```

**NOTE: Unfortunatly the above launched EC2 instance got destroyed. So, I created another EC2 instance with same configurations.**

Deployed locally: <http://13.235.67.104/>

Checking in localhost using EC2 public IP:



## Monitoring Set-UP:

Installing Grafana in EC2 using script file:

```
ubuntu@ip-172-31-3-242:~  
ubuntu@ip-172-31-3-242:~$ ls  
Deploy.sh monitoring  
ubuntu@ip-172-31-3-242:~$ sudo nano grafana_script.sh  
ubuntu@ip-172-31-3-242:~$ cat grafana_script.sh  
#!/bin/bash  
  
sudo apt update  
sudo apt install -y software-properties-common  
sudo add-apt-repository "deb https://packages.grafana.com/oss/deb stable main"  
www 1 - q https://packages.grafana.com/gpg.key | sudo apt-key add -  
sudo apt update  
sudo apt-get install grafana  
sudo systemctl start grafana-server  
sudo systemctl enable grafana-server  
ubuntu@ip-172-31-3-242:~$ sh grafana_script.sh  
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease  
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]  
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease  
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]  
Fetched 229 kB in 1s (273 kB/s)  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
0 packages can be upgraded. Run 'apt list --upgradable' to see them.  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
software-properties-common is already the newest version (0.99.22.9).  
software-properties-common set to manually installed.  
0 upgraded, 0 newly installed, 0 to remove and 6 not upgraded.  
Importing 'deb https://packages.grafana.com/oss/deb stable main'  
Description  
Archive for codename: stable components: main  
Importing 'https://packages.grafana.com/oss/deb'  
Adding repository  
Press [ENTER] to continue or Ctrl-C to cancel.  
Adding deb entry to /etc/apt/sources.list.d/archive-uri-https_packages_grafana_com_oss_deb-jammy.list  
Adding distribution entry to /etc/apt/sources.list.d/archive-uri-https_packages_grafana_com_oss_deb-jammy.list  
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease  
Hit:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease  
Hit:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease  
Get:4 https://packages.grafana.com/oss/deb stable InRelease [598 kB]  
Hit:5 https://security.ubuntu.com/ubuntu jammy-security InRelease  
Get:6 https://packages.grafana.com/oss/deb stable InRelease  
Err:4 https://packages.grafana.com/oss/deb stable InRelease  
  The following signatures couldn't be verified because the public key is not available: NO_PUBKEY 963FA27710458545  
Reading package lists... Done  
Get:7 https://packages.grafana.com/oss/deb stable InRelease: The following signatures couldn't be verified because the public key is not available: NO_PUBKEY 963FA27710458545  
E: The repository 'https://packages.grafana.com/oss/deb stable InRelease' is not signed.  
N: Updating from such a repository can't be done securely, and is therefore disabled by default.  
N: See apt-secure(8) manpage for repository creation and user configuration details.  
warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).  
OK  
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease  
Hit:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease  
Hit:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease  
Get:4 https://packages.grafana.com/oss/deb stable InRelease [598 kB]  
Hit:5 https://security.ubuntu.com/ubuntu jammy-security InRelease  
Get:6 https://packages.grafana.com/oss/deb stable/main amd64 Packages [214 kB]
```

```

ubuntu@ip-172-31-3-242:~ Building dependency tree... Done
Reading package lists... Done
0 packages are upgradeable.
6 packages can be upgraded. Run 'apt list --upgradable' to see them.
W: https://packages.grafana.com/oss/deb/dists/stable/InRelease: Key is stored in legacy trusted.gpg keyring (/etc/apt/trusted.gpg), see the DEPRECATION section in apt-key(8) for details.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  musl
The following NEW packages will be installed:
  grafana
0 upgraded, 2 newly installed, 0 to remove and 6 not upgraded.
Need to get 115 MB of archives.
After this operation, 423 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get: 1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 musl amd64 1.2.2-4 [407 kB]
Get: 2 https://packages.grafana.com/oss/deb/stable/main amd64 grafana amd64 10.4.0 [114 MB]
Fetched 115 MB in 12s (9697 kB/s)
Reading 11651 files and directories currently installed.
Preparing to unpack .../grafana_10.4.0_amd64.deb ...
Unpacking grafana (10.4.0) ...
Setting up musl:amd64 (1.2.2-4) ...
Preparing to unpack .../grafana_10.4.0_amd64.deb ...
Unpacking grafana (10.4.0) ...
Setting up musl:amd64 (1.2.2-4) ...
Preparing to unpack .../grafana_10.4.0_amd64.deb ...
Adding user 'grafana' (UID 116) ...
Adding new user 'grafana' (UID 116) with group 'grafana' ...
Not creating home directory '/usr/share/grafana'.
## You can start grafana-server by executing
sudo /bin/systemctl start grafana-server
processes...
## You can stop grafana-server by executing
sudo /bin/systemctl stop grafana-server
processes...
## You can enable grafana-server to start automatically using systemctl
sudo /bin/systemctl enable grafana-server
processes...
## You can disable grafana-server to start automatically using systemctl
sudo /bin/systemctl disable grafana-server
processes...
Scanning processes...
Scanning candidates...
Scanning linux images...
Running kernel seems to be up-to-date.

Restarting services...
systemctl reenable-selinux.service
service restarts being deferred:
/etc/init.d/restart/restart.d/dbus.service
systemctl restart network-dispatcher.service
systemctl restart unattended-upgrades.service

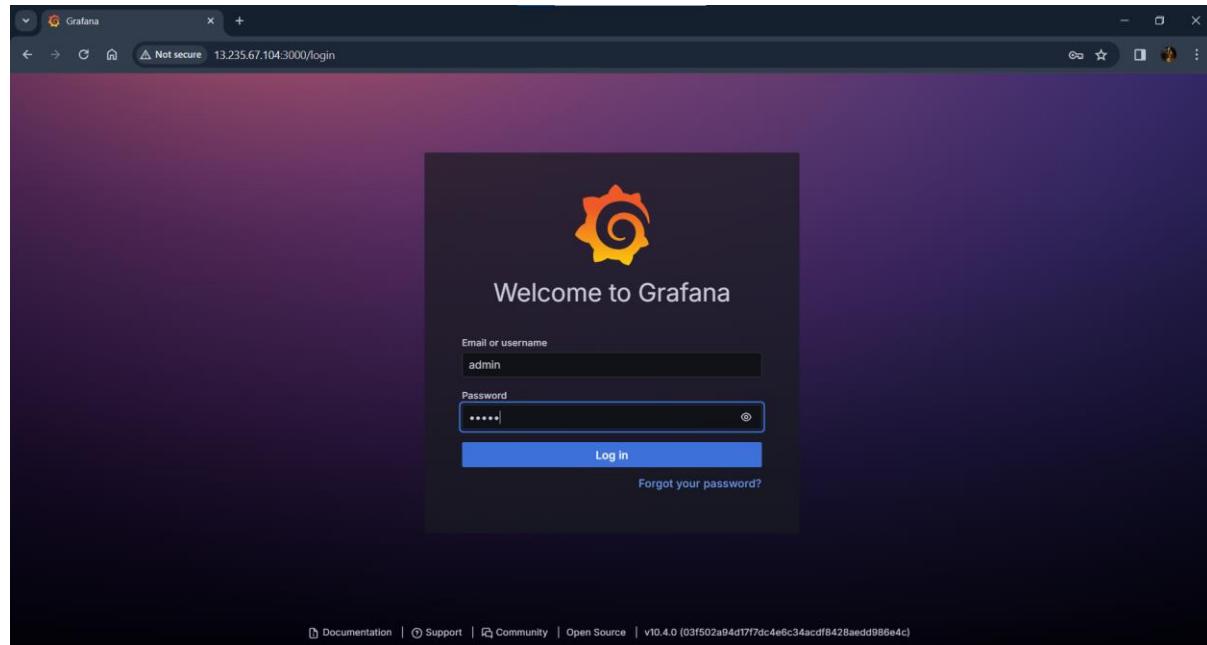
No containers need to be restarted.

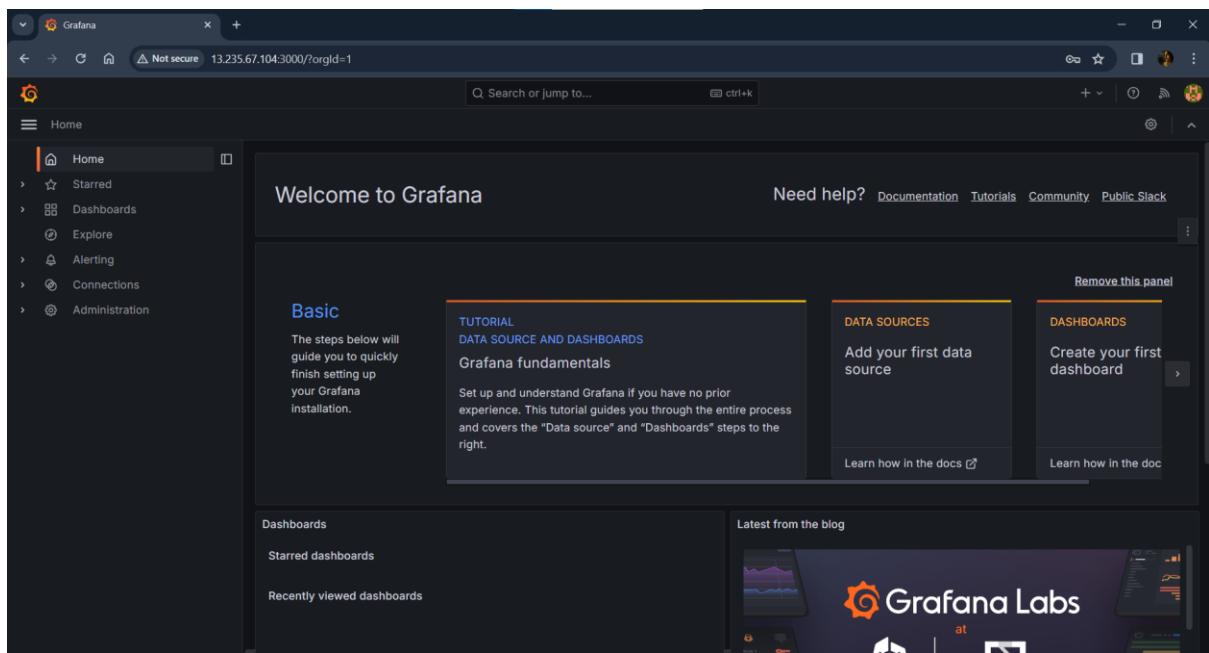
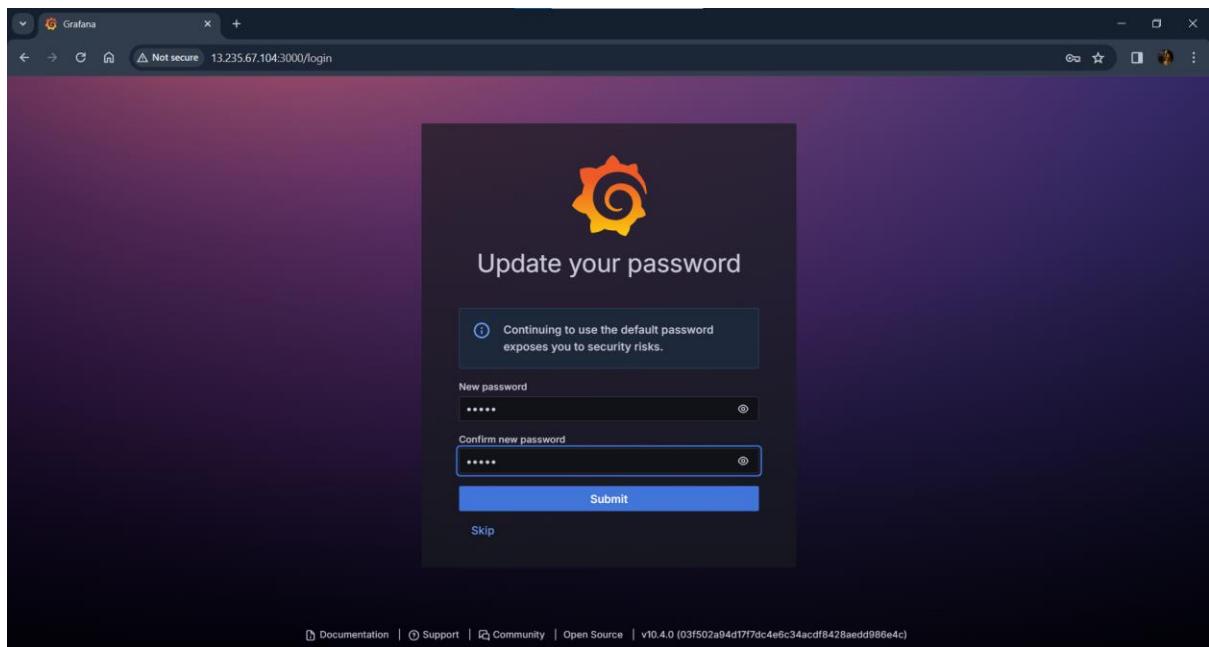
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
Synchronizing state of grafana-server.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable grafana-server
Created symlink /lib/systemd/system/multi-user.target.wants/grafana-server.service → /lib/systemd/system/grafana-server.service.
ubuntu@ip-172-31-3-242:~$ ]

```

## Launching Grafana in browser unsing EC2 public ID: (<http://13.235.67.104:3000/>)

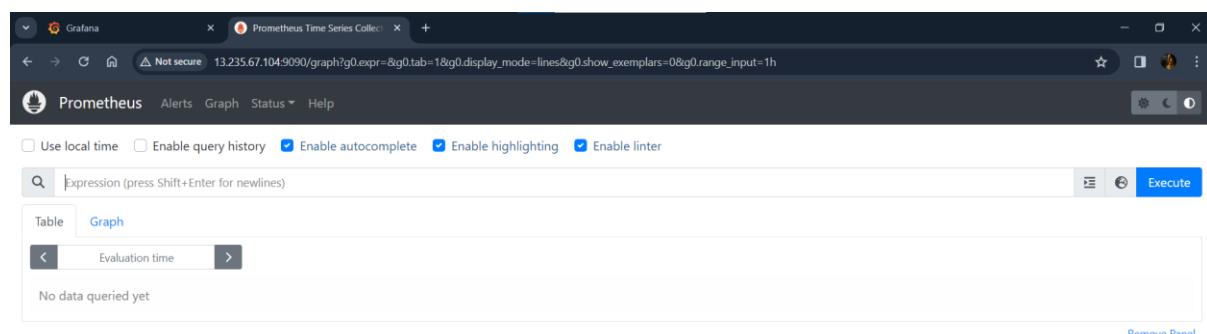




## Installing Prometheus:

## Running Prometheus:

```
ubuntu@ip-172-31-3-242:~/prometheus-2.51.0-rc.0.linux-amd64$ cd prometheus-2.51.0-rc.0.linux-amd64/
ubuntu@ip-172-31-3-242:~/prometheus-2.51.0-rc.0.linux-amd64$ ./prometheus --config.file=prometheus.yml
ts=2024-03-17T15:14:24.947Z caller=main.go:573 level=info msg="No time or size retention was set so using the default time retention" duration=15d
ts=2024-03-17T15:14:24.947Z caller=main.go:617 level=info msg="Starting Prometheus Server" mode=server version="(version:2.51.0-rc.0, branch:HEAD, revision:8d53e7ba90e0a6707d88a0573ee21e88a786f6fb)" host="ip-172-31-3-242" commit="8d53e7ba90e0a6707d88a0573ee21e88a786f6fb" build_context="{"go":go1.22.1, "platform":linux/amd64, "user":root@cf664437660, "date":20240311-15:08:59, "tags":netgo, "builtInAssets":stringlabels}"
ts=2024-03-17T15:14:24.947Z caller=main.go:622 level=info msg="Starting host details" host="ip-172-31-3-242" host_ip="22.0.1.1" host_label="ip-172-31-3-242" host_name="ip-172-31-3-242 (none)" host_port="9090" host_version="22.04.1-Ubuntu SMP Thu Feb 15 15:27:06 UTC 2024 x86_64 ip-172-31-3-242 (none)"
ts=2024-03-17T15:14:24.947Z caller=main.go:624 level=info msg="Starting metrics" host="ip-172-31-3-242" host_ip="22.0.1.1" host_label="ip-172-31-3-242" host_name="ip-172-31-3-242 (none)" host_port="9090" host_version="22.04.1-Ubuntu SMP Thu Feb 15 15:27:06 UTC 2024 x86_64 ip-172-31-3-242 (none)" metrics="{"path":"/metrics", "port":9090, "proto":104, "version":567}
ts=2024-03-17T15:14:24.947Z caller=main.go:625 level=info msg="VM limits: (Soft=unlimited, Hard=unlimited)"
ts=2024-03-17T15:14:24.957Z caller=web.go:568 level=info component=web msg="Start listening for connections" address=0.0.0.0:9090
ts=2024-03-17T15:14:24.962Z caller=main.go:1129 level=info msg="Starting TSDB" db="tsdb" db_label="tsdb"
ts=2024-03-17T15:14:24.972Z caller=main.go:606 level=info component=tsdb msg="Relaying on-disk memory mappable chunks if any"
ts=2024-03-17T15:14:24.972Z caller=main.go:698 level=info component=tsdb msg="Relaying on-disk memory mappable chunks replay completed" duration=3.974us
ts=2024-03-17T15:14:24.972Z caller=head.go:706 level=info component=tsdb msg="Relaying WAL, this may take a while"
ts=2024-03-17T15:14:24.972Z caller=head.go:706 level=info component=tsdb msg="Relaying WAL, this may take a while"
ts=2024-03-17T15:14:24.972Z caller=tsdb_config.go:313 level=info component=web msg="Listening on address=:[]:9090"
ts=2024-03-17T15:14:24.980Z caller=tsdb_config.go:313 level=info component=web msg="TLS is disabled" http=false address=[:]:9090
ts=2024-03-17T15:14:24.981Z caller=tsdb.go:778 level=info component=tsdb msg="WB segment loaded" segment=0 maxsegment=0
ts=2024-03-17T15:14:24.981Z caller=head.go:833 level=info component=tsdb msg="WB replay completed" checkpoint_replay.duration=40.996us wal_replay.duration=2.794686ms wbl_replay.duration=733ms total_replay.duration=2.95937ms
ts=2024-03-17T15:14:24.984Z caller=main.go:1150 level=info msg="EXT4_SUPER_MAGIC"
ts=2024-03-17T15:14:24.984Z caller=main.go:1150 level=info msg="TSDB started"
ts=2024-03-17T15:14:24.984Z caller=main.go:1335 level=info msg="Starting configuration file" filename=prometheus.yml
ts=2024-03-17T15:14:24.990Z caller=main.go:1372 level=info msg="Completed loading of configuration file" filename=prometheus.yml totalDuration=5.904849ms db_storage=1.672us remote_storage=1.816us web_handler=86
Bns query_engine=1.315us scrape=3.958ms scrape_sd=21.81us notify=30.87us notify_sd=58.053us rules=2.528us tracing=7.091us
ts=2024-03-17T15:14:24.990Z caller=main.go:1114 level=info msg="Server is ready to receive web requests."
ts=2024-03-17T15:14:24.990Z caller=manager.go:163 level=info component="rule manager" msg="Starting rule manager..."
```

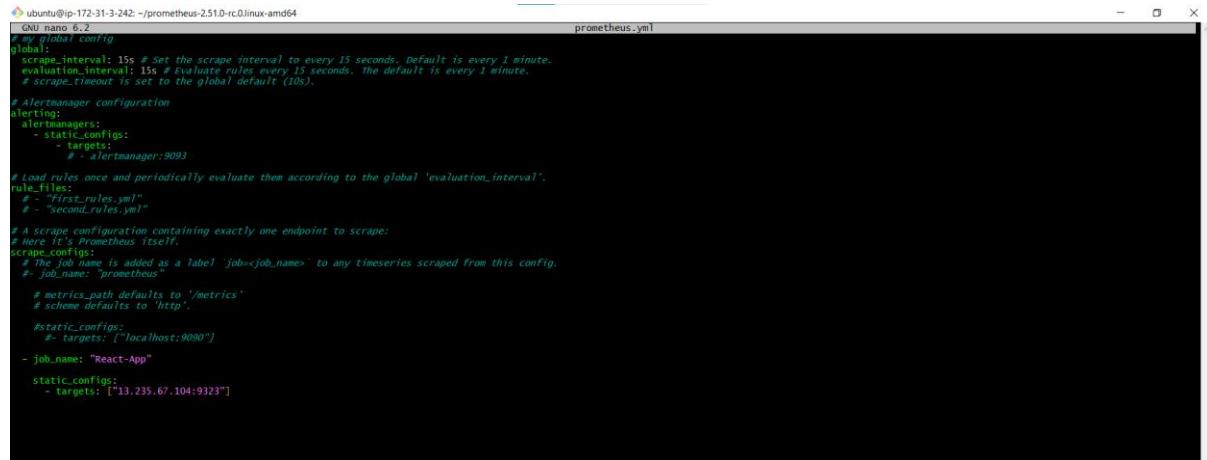


## Setting up daemon.json file: (to collect metrics from docker)

```
ubuntu@ip-172-31-3-242: /etc/docker
ubuntu@ip-172-31-3-242:~$ cd /etc/docker/
ubuntu@ip-172-31-3-242:/etc/docker$ sudo nano daemon.json
ubuntu@ip-172-31-3-242:/etc/docker$ cat daemon.json
{
  "metrics-addr" : "0.0.0.0:9323",
  "experimental": true
}
ubuntu@ip-172-31-3-242:/etc/docker$ |
```

⇒ After `daemon.json` set-up, restarted docker

## Configuring prometheus.yml file: (Adding target)

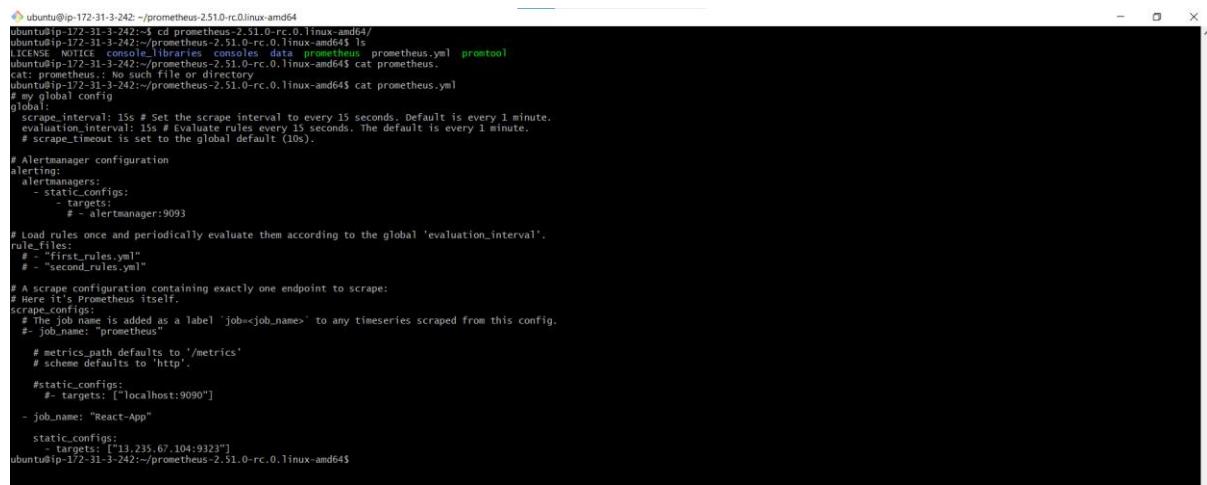


```
ubuntu@ip-172-31-3-242: ~/prometheus-2.51.0-rc.0.linux-amd64$ nano 6.2
# global configuration
global:
  scrape_interval: 15s # Set the scrape interval to every 15 seconds. Default is every 1 minute.
  evaluation_interval: 15s # Evaluate rules every 15 seconds. The default is every 1 minute.
  # scrape_timeout is set to the global default (10s).

# Alertmanager configuration
alerting:
  alertmanagers:
    - static_configs:
      - targets:
        - alertmanager:9093

# Load rules once and periodically evaluate them according to the global 'evaluation_interval'.
rule_files:
  - "first_rules.yml"
  - "second_rules.yml"

# A scrape configuration containing exactly one endpoint to scrape.
# Here it's Prometheus itself.
scrape_configs:
  # The job name is added as a label 'job=<job_name>' to any timeseries scraped from this config.
  #- job_name: "prometheus"
    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.
    static_configs:
      - targets: ["localhost:9090"]
  - job_name: "React-App"
    static_configs:
      - targets: ["13.235.67.104:9323"]
```



```
ubuntu@ip-172-31-3-242: ~/prometheus-2.51.0-rc.0.linux-amd64$ cat prometheus.yml
# global configuration
global:
  scrape_interval: 15s # Set the scrape interval to every 15 seconds. Default is every 1 minute.
  evaluation_interval: 15s # Evaluate rules every 15 seconds. The default is every 1 minute.
  # scrape_timeout is set to the global default (10s).

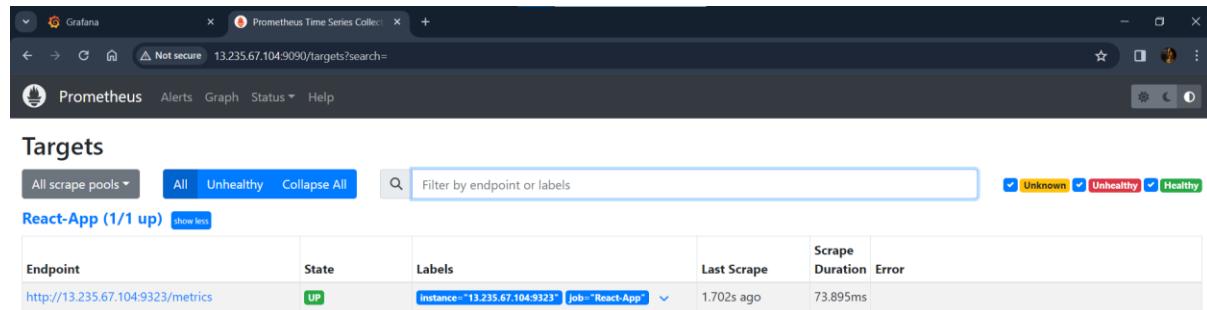
# Alertmanager configuration
alerting:
  alertmanagers:
    - static_configs:
      - targets:
        - alertmanager:9093

# Load rules once and periodically evaluate them according to the global 'evaluation_interval'.
rule_files:
  - "first_rules.yml"
  - "second_rules.yml"

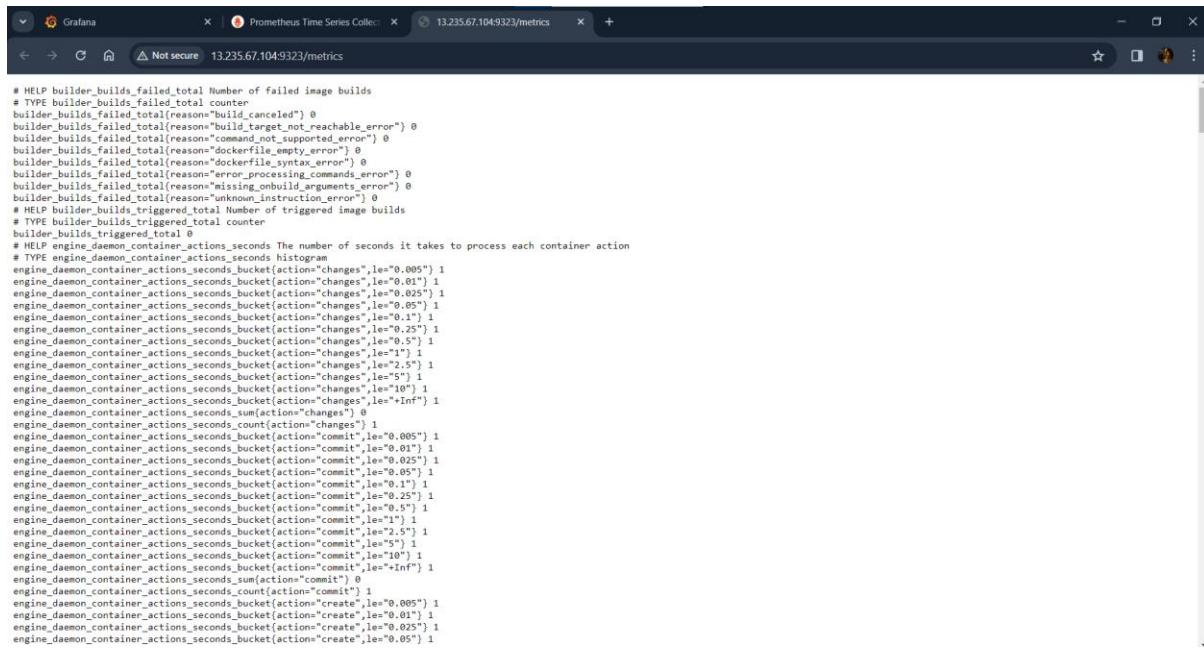
# A scrape configuration containing exactly one endpoint to scrape.
# Here it's Prometheus itself.
scrape_configs:
  # The job name is added as a label 'job=<job_name>' to any timeseries scraped from this config.
  #- job_name: "prometheus"
    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.
    static_configs:
      - targets: ["localhost:9090"]
  - job_name: "React-App"
    static_configs:
      - targets: ["13.235.67.104:9323"]
ubuntu@ip-172-31-3-242: ~/prometheus-2.51.0-rc.0.linux-amd64$ cat prometheus.yml
```

⇒ After adding target, Prometheus was restarted

## Checking Prometheus console:



Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://13.235.67.104:9323/metrics	UP	instance="13.235.67.104:9323" job="React-App"	1.702s ago	73.895ms	



```

# HELP builder_builds_failed_total Number of failed image builds
# TYPE builder_builds_failed_total counter
builder_builds_failed_total[reason="build_canceled"] 0
builder_builds_failed_total[reason="build_target_not_reachable_error"] 0
builder_builds_failed_total[reason="build_unsupported_error"] 0
builder_builds_failed_total[reason="dockerfile_error"] 0
builder_builds_failed_total[reason="dockerfile_syntax_error"] 0
builder_builds_failed_total[reason="error_processing_commands_error"] 0
builder_builds_failed_total[reason="missing_onbuild_arguments_error"] 0
builder_builds_failed_total[reason="unknown_instruction_error"] 0
# HELP builder_builds_triggered_total Number of triggered image builds
# TYPE builder_builds_triggered_total counter
builder_builds_triggered_total 0
# HELP engine_daemon_container_actions_seconds The number of seconds it takes to process each container action
# TYPE engine_daemon_container_actions_seconds histogram
engine_daemon_container_actions_seconds_bucket{action="changes",le="0.005"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="0.01"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="0.025"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="0.05"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="0.1"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="0.25"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="0.5"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="1"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="2.5"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="10"} 1
engine_daemon_container_actions_seconds_bucket{action="changes",le="+Inf"} 1
engine_daemon_container_actions_seconds_sum{action="changes"} 0
engine_daemon_container_actions_seconds_count{action="changes"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="0.005"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="0.01"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="0.025"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="0.05"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="0.1"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="0.25"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="0.5"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="1"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="2.5"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="10"} 1
engine_daemon_container_actions_seconds_bucket{action="commit",le="+Inf"} 1
engine_daemon_container_actions_seconds_sum{action="commit"} 0
engine_daemon_container_actions_seconds_count{action="commit"} 1
engine_daemon_container_actions_seconds_bucket{action="create",le="0.005"} 1
engine_daemon_container_actions_seconds_bucket{action="create",le="0.01"} 1
engine_daemon_container_actions_seconds_bucket{action="create",le="0.025"} 1
engine_daemon_container_actions_seconds_bucket{action="create",le="0.05"} 1

```

⇒ Docker metrics are collecting successfully

## Running docker image:



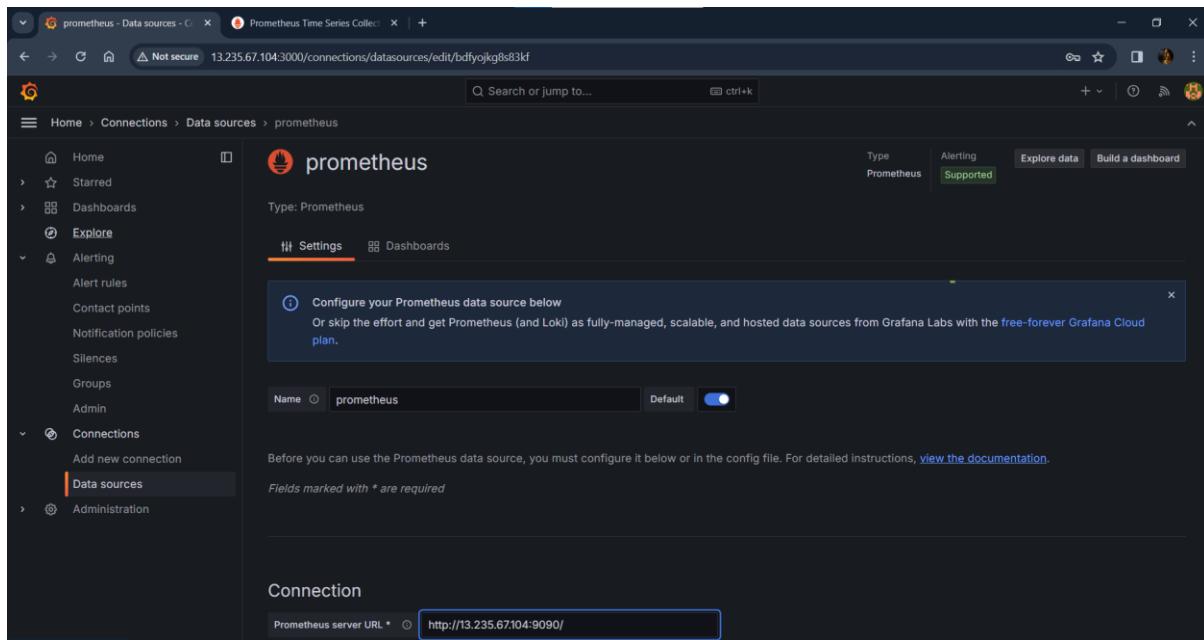
```

ubuntu@ip-172-31-3-242:~$ docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
f22a5137e677 nandhakumars/dev:dev "/docker-entrypoint..." 6 days ago Exited (0) 2 days ago
ubuntu@ip-172-31-3-242:~$ docker start app
app
ubuntu@ip-172-31-3-242:~$ 

```

## Setting Alert in Grafana:

### Adding new Data Source



prometheus - Data sources - C 13.235.67.104:3000/connections/datasources/edit/bdfyqkg8s3kf

Search or jump to... ctrl+k

Type: Prometheus Alerting Supported Explore data Build a dashboard

**Settings** Dashboards

Configure your Prometheus data source below  
Or skip the effort and get Prometheus (and Loki) as fully-managed, scalable, and hosted data sources from Grafana Labs with the [free-forever Grafana Cloud plan](#).

Name  Default

Before you can use the Prometheus data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#).

Fields marked with \* are required

**Connection**

Prometheus server URL \*

Cache level: Low  
Incremental querying (beta): Off  
Disable recording rules (beta): Off

Custom query parameters: Example: max\_source\_resolution=5m&timeout=10s  
HTTP method: POST

Exemplars: + Add

Success message: Successfully queried the Prometheus API. Next, you can start to visualize data by building a dashboard, or by querying data in the Explore view.

Delete Save & test

## Setting metric to collect: (Collects only stopped containers)

Outline: prometheus

Metric: engine\_daemon\_container\_states\_containers Label filters: state = stopped

Operations: engine\_daemon\_container\_states\_containers(state="stopped")

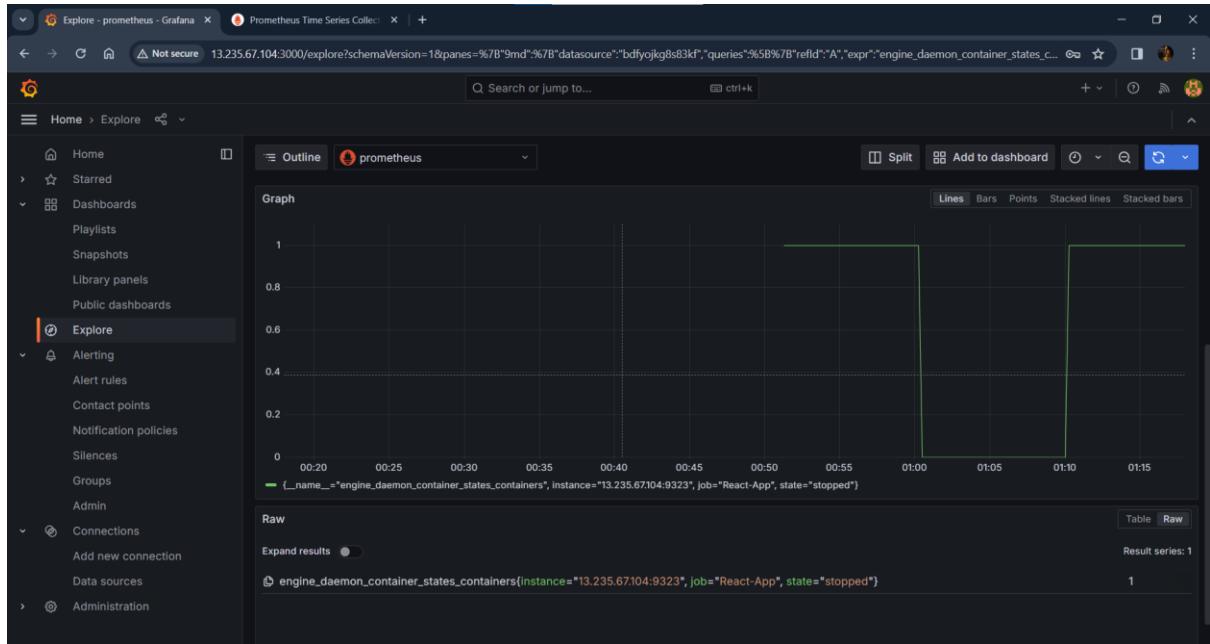
Options: Legend: Auto Format: Time series Step: auto Type: Both Exemplars: false

No data

## Stopping docker container: (React-App)

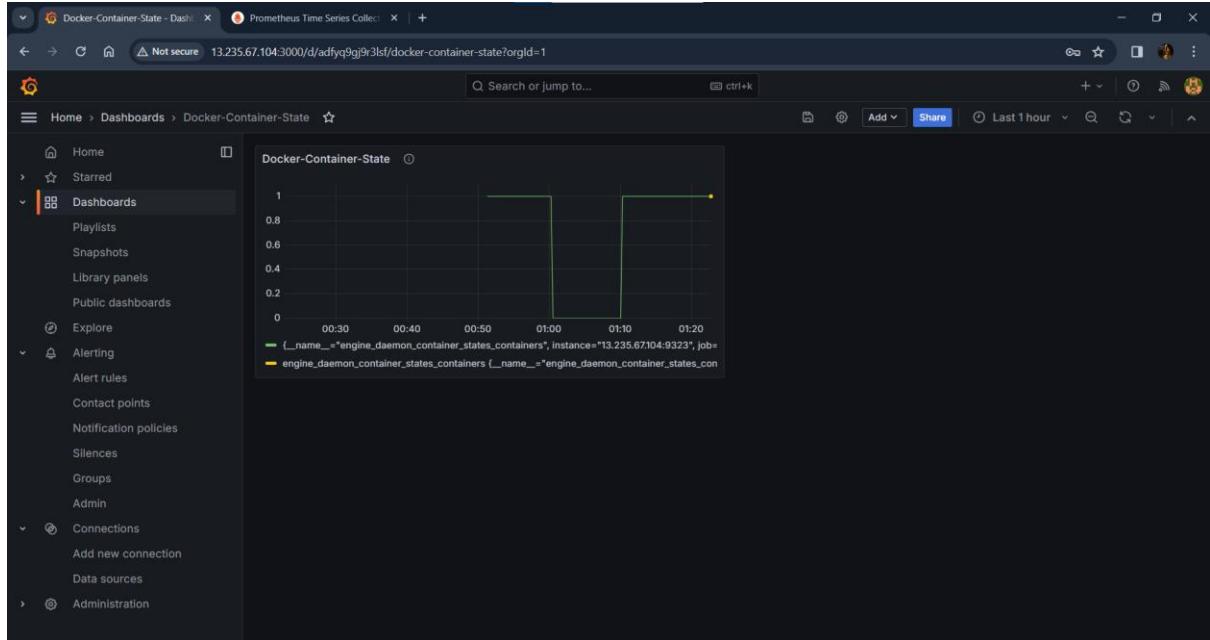
```
ubuntu@ip-172-31-3-242:~  
ubuntu@ip-172-31-3-242:~$ docker stop app  
app  
ubuntu@ip-172-31-3-242:~$ docker ps  
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES  
ubuntu@ip-172-31-3-242:~$
```

## Checking Grafana Console:

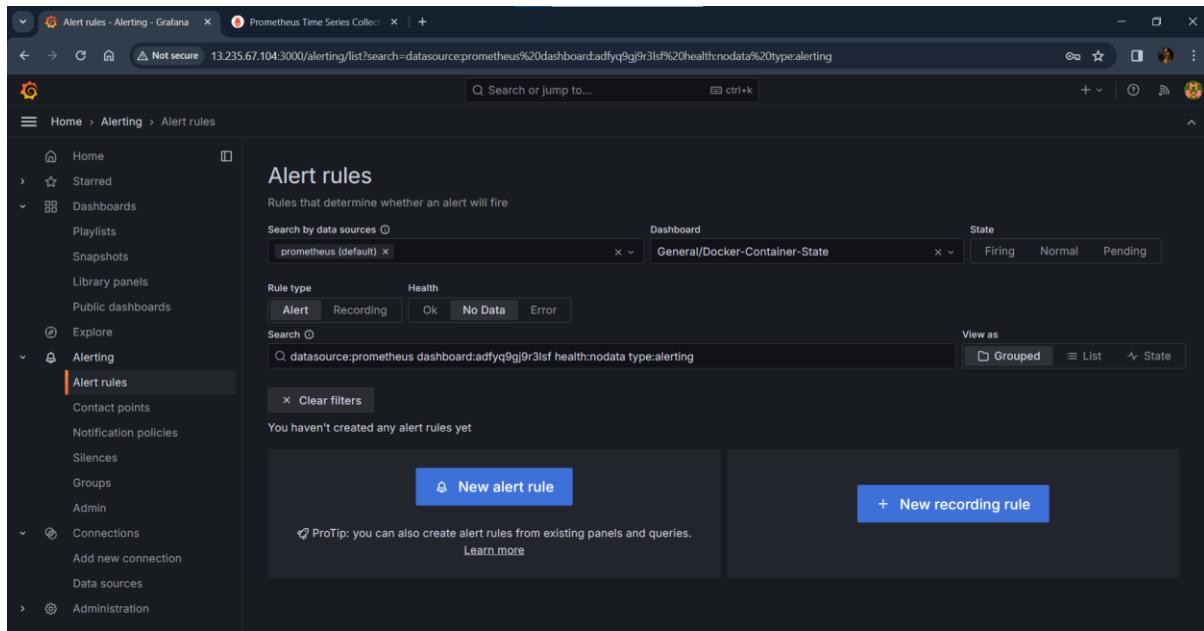


⇒ Successfully collected metrics from docker and displaying stopped containers

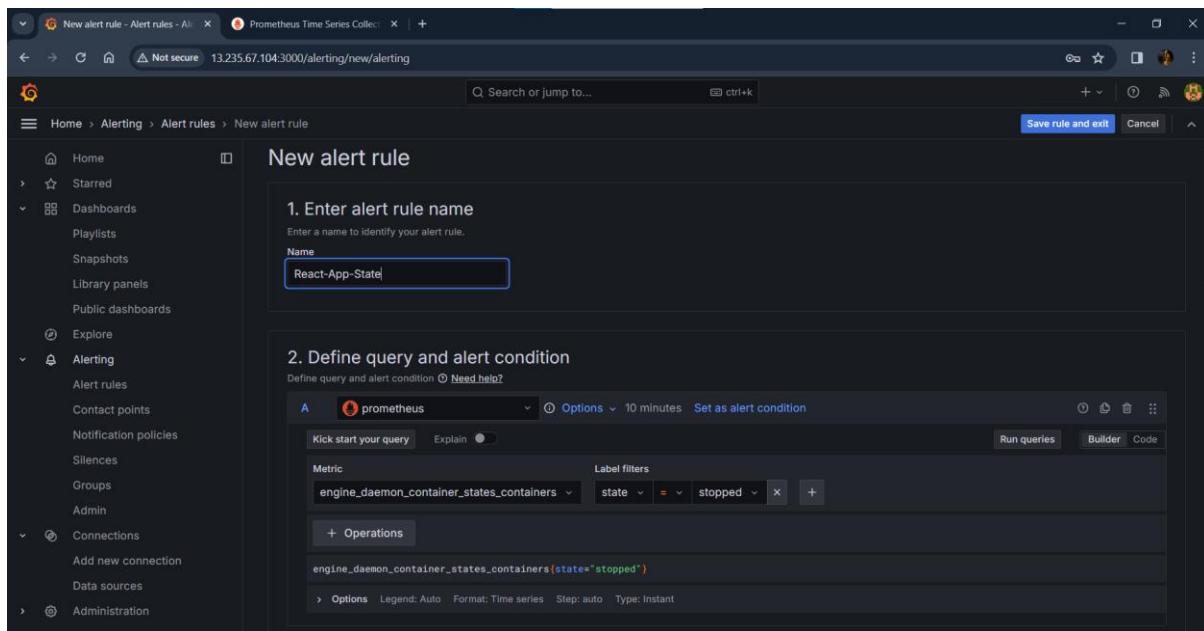
## Adding to Dashboard:



## Setting Alert rules: [To fire if docker container(React-App) is stopped]



The screenshot shows the Grafana Alerting interface. The left sidebar is open, showing the 'Alerting' section with 'Alert rules' selected. The main area is titled 'Alert rules' and contains a sub-section titled 'Health'. It shows a search bar with the query 'datasource:prometheus dashboard:adfyq9gj93lsf health:nodata type:alerting'. Below the search bar are buttons for 'Rule type' (Alert, Recording, Ok, No Data, Error) and 'State' (Firing, Normal, Pending). A 'View as' dropdown is set to 'Grouped'. A message at the bottom left says 'You haven't created any alert rules yet'. Two large blue buttons are present: 'New alert rule' and '+ New recording rule'. A 'ProTip' message states: 'you can also create alert rules from existing panels and queries.' with a 'Learn more' link.



The screenshot shows the 'New alert rule' configuration page. The left sidebar is open, showing the 'Alerting' section with 'Alert rules' selected. The main area is titled 'New alert rule'. Step 1, 'Enter alert rule name', has a 'Name' input field containing 'React-App-State'. Step 2, 'Define query and alert condition', shows a Prometheus query builder. The query is: `engine_daemon_container_states_containers(state="stopped")`. The builder includes 'Metric' (engine\_daemon\_container\_states\_containers), 'Label filters' (state = stopped), and an 'Operations' section. Buttons for 'Save rule and exit' and 'Cancel' are at the top right.

New alert rule - Alert rules - All | Prometheus Time Series Collector | +

Not secure 13.235.67.104:3000/alerting/new/alerting

Home > Alerting > Alert rules > New alert rule

Add query

Rule type: **Grafana-managed** Data source-managed

Based on the selected data sources this alert rule will be Grafana-managed.

Expressions

Manipulate data returned from queries with math and other operations.

**B Reduce** Set as alert condition

Takes one or more time series returned from a query or an expression and turns each series into a single number.

Input: A Function: Last Mode: Strict

**C Threshold** Alert condition

Takes one or more time series returned from a query or an expression and checks if any of the series match the threshold condition.

Input: B IS ABOVE 0 Custom recovery threshold

Add expression | Preview

Save rule and exit | Cancel

Home | Starred | Dashboards | Playlists | Snapshots | Library panels | Public dashboards | Explore | Alerting | Alert rules | Contact points | Notification policies | Silences | Groups | Admin | Connections | Add new connection | Data sources

New alert rule - Alert rules - All | Prometheus Time Series Collector | +

Not secure 13.235.67.104:3000/alerting/new/alerting

Home > Alerting > Alert rules > New alert rule

3. Set evaluation behavior

Define how the alert rule is evaluated. [Need help?](#)

Folder: Docker-Container-state or + New folder

Evaluation group: Container-state-Evaluation or + New evaluation group

All rules in the selected group are evaluated every 10s.

Pending period: 1m

Configure no data and error handling

Save rule and exit | Cancel

Home | Starred | Dashboards | Playlists | Snapshots | Library panels | Public dashboards | Explore | Alerting | Alert rules | Contact points | Notification policies | Silences | Groups | Admin

New alert rule - Alert rules - All | Prometheus Time Series Collector | +

Not secure 13.235.67.104:3000/alerting/new/alerting

Home > Alerting > Alert rules > New alert rule

Add label

Alert instance routing preview: When you have your folder selected and your query and labels are configured, click "Preview routing" to see the results here.

Preview routing

5. Add annotations

Add more context in your notification messages. [Need help?](#)

Summary (optional): Short summary of what happened and why.

Your docker container is stopped.

Description (optional): Description of what the alert rule does.

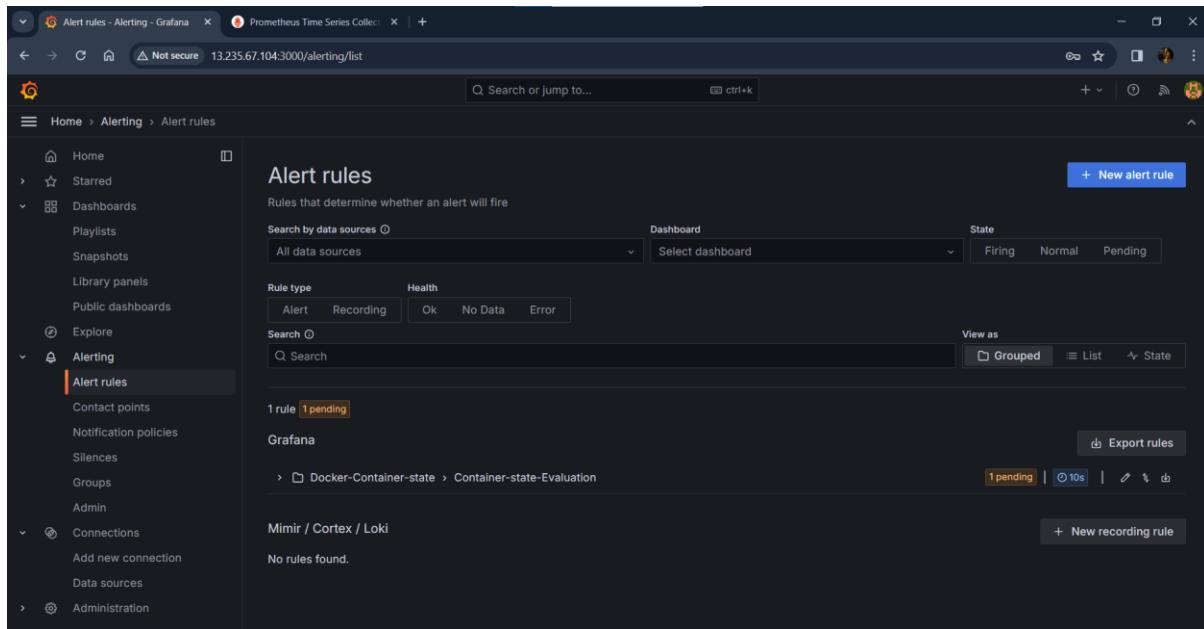
Enter a description...

Runbook URL (optional): Webpage where you keep your runbook for the alert.

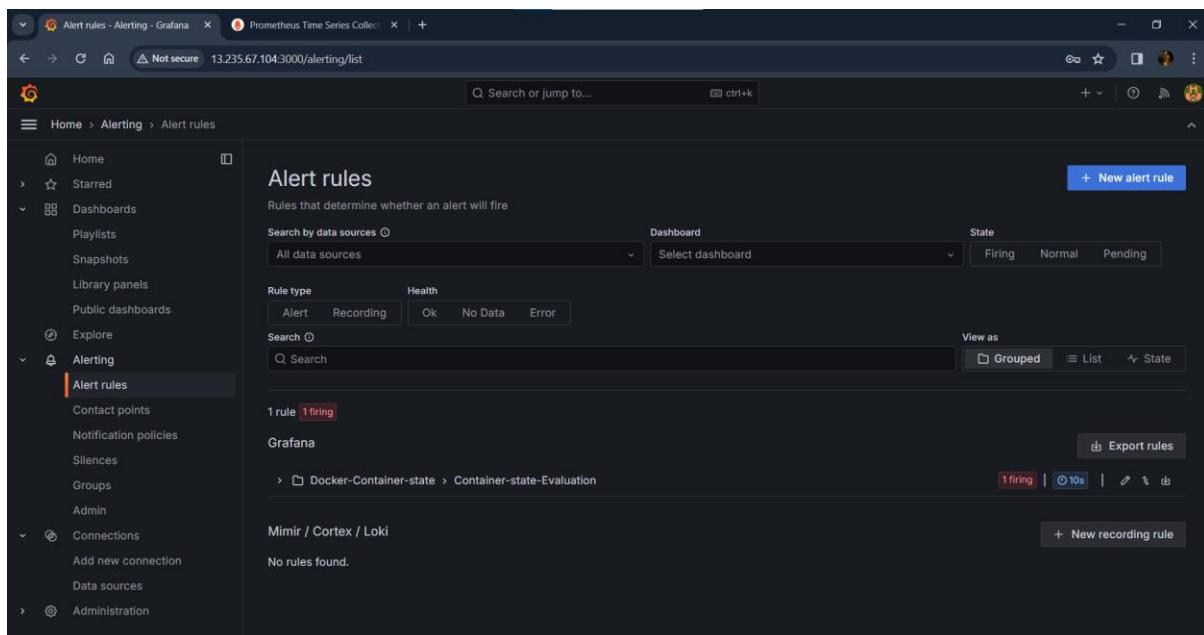
https://

+ Add custom annotation | Link dashboard and panel

Home | Starred | Dashboards | Playlists | Snapshots | Library panels | Public dashboards | Explore | Alerting | Alert rules | Contact points | Notification policies | Silences | Groups | Admin | Connections | Add new connection | Data sources | Administration



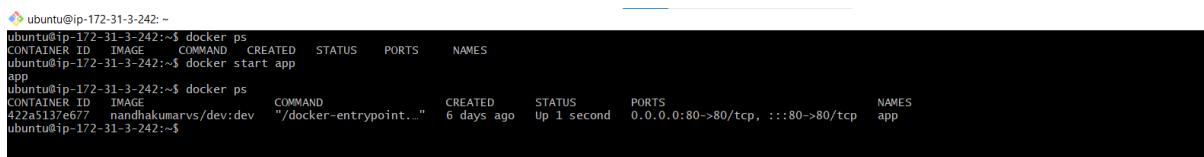
The screenshot shows the Grafana Alerting interface. The left sidebar is open, showing the 'Alerting' section selected. The main panel is titled 'Alert rules' and displays a single pending rule. The rule is for 'Docker-Container-state' under 'Container-state-Evaluation' in the 'Grafana' data source. The status bar at the bottom shows '1 pending' rules.



The screenshot shows the Grafana Alerting interface. The left sidebar is open, showing the 'Alerting' section selected. The main panel is titled 'Alert rules' and displays a single firing rule. The rule is for 'Docker-Container-state' under 'Container-state-Evaluation' in the 'Grafana' data source. The status bar at the bottom shows '1 firing' rules.

⇒ Successfully firing alert for stopped container.

## Starting Docker Container: (React-App)



```
ubuntu@ip-172-31-3-242:~$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
ubuntu@ip-172-31-3-242:~$ docker start app
app
ubuntu@ip-172-31-3-242:~$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
422a5137e677 nandhakumarvs/dev:dev "/docker-entrypoint..." 6 days ago Up 1 second 0.0.0.0:80->80/tcp, :::80->80/tcp app
```

The screenshot shows the Grafana Alerting interface. The left sidebar is collapsed, and the main area is titled 'Alert rules'. A single alert rule is listed, which is currently in a 'Normal' state. The rule is named 'React-App-State' and is associated with the 'Docker-Container-state' dashboard. The summary for this rule is 'Your docker container is stopped.' The next evaluation is scheduled 'in a few seconds'. The alert is grouped under 'Docker-Container-state > Container-state-Evaluation'.

⇒ Now, Successfully showing result as normal for running containers.

## Notification Alert Set-UP: (Email notification)

### Configuring grafana.ini file: (Setting up SMTP data)

```
ubuntu@ip-172-31-3-242: /etc/grafana
ubuntu@ip-172-31-3-242:~$ cd /etc/grafana/
ubuntu@ip-172-31-3-242:/etc/grafana$ ls
grafana.ini  ldap.toml  provisioning
ubuntu@ip-172-31-3-242:/etc/grafana$
```

### Uncommenting SMTP configurations:

```
#####
[smtp]
;enabled = false
;host = localhost:25
;user =
# If the password contains # or ; you have to wrap it with triple quotes. Ex """#password;"""
;password =
;cert_file =
;key_file =
;skip_verify = false
;from_address = admin@grafana.localhost
;from_name = Grafana
# EHLO identity in SMTP dialog (defaults to instance_name)
;ehlo_identity = dashboard.example.com
# SMTP startTLS policy (defaults to 'OpportunisticStartTLS')
;startTLS_policy = NoStartTLS
# Enable trace propagation in e-mail headers, using the 'traceparent', 'tracestate' and (optionally) 'baggage' fields (defaults to false)
;enable_tracing = false

[smtp.static_headers]
# Include custom static headers in all outgoing emails
;Foo-Header = bar
;Foo = bar

[emails]
;welcome_email_on_sign_up = false
;templates_pattern = emails/*.html, emails/*.txt
;content_types = text/html
#####
Logging #####

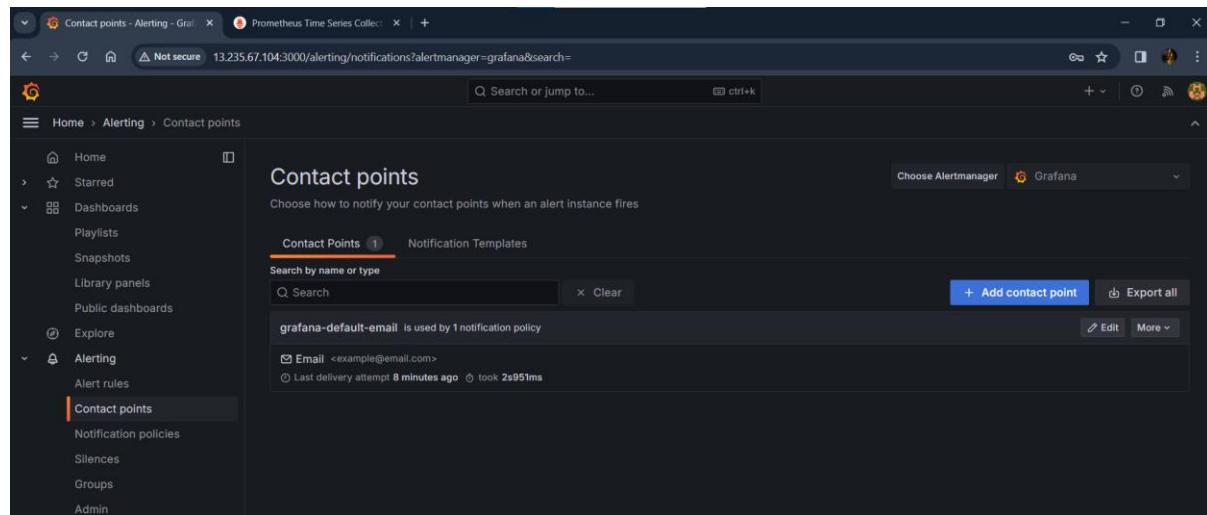
```

## Modified SMTP part:

```
#####
# SMTP / Emailing #####
[smtp]
enabled = true
host = smtp.gmail.com:587
user = postbox638010@gmail.com
# If the password contains # or ; you have to wrap it with triple quotes. Ex """#password;"""
password = iah ipxv wuke
;cert_file =
;key_file =
;skip_verify = false
from_address = postbox638010@gmail.com
from_name = Grafana
# EHLO identity in SMTP dialog (defaults to instance_name)
;ehlo_identity = dashboard.example.com
# SMTP startTLS policy (defaults to 'OpportunisticStartTLS')
;startTLS_policy = NoStartTLS
# Enable trace propagation in e-mail headers, using the 'traceparent', 'tracestate' and (optionally) 'baggage' fields (defaults to false)
;enable_tracing = false
```

⇒ After configuration restarted grafana

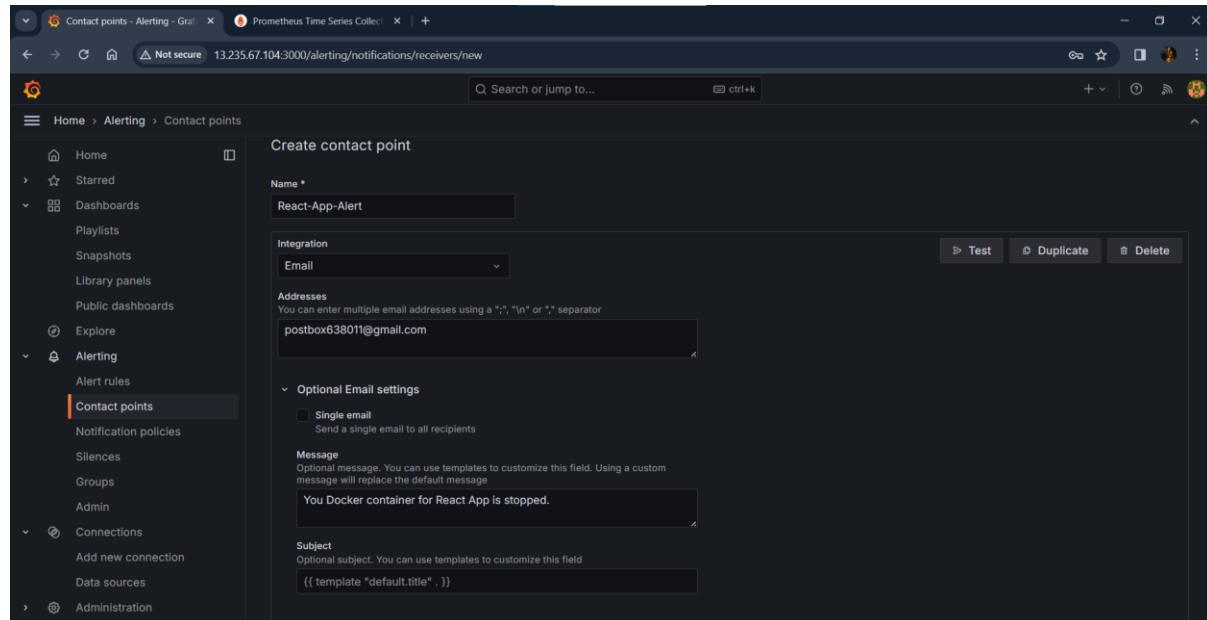
## Adding New Contact Point:



The screenshot shows the Grafana interface for managing contact points. The left sidebar is open, showing the 'Alerting' section with 'Contact points' selected. The main content area is titled 'Contact points' and displays a single contact point entry:

- grafana-default-email** is used by 1 notification policy
- Email** <example@email.com>
- Last delivery attempt 8 minutes ago (took 2s951ms)

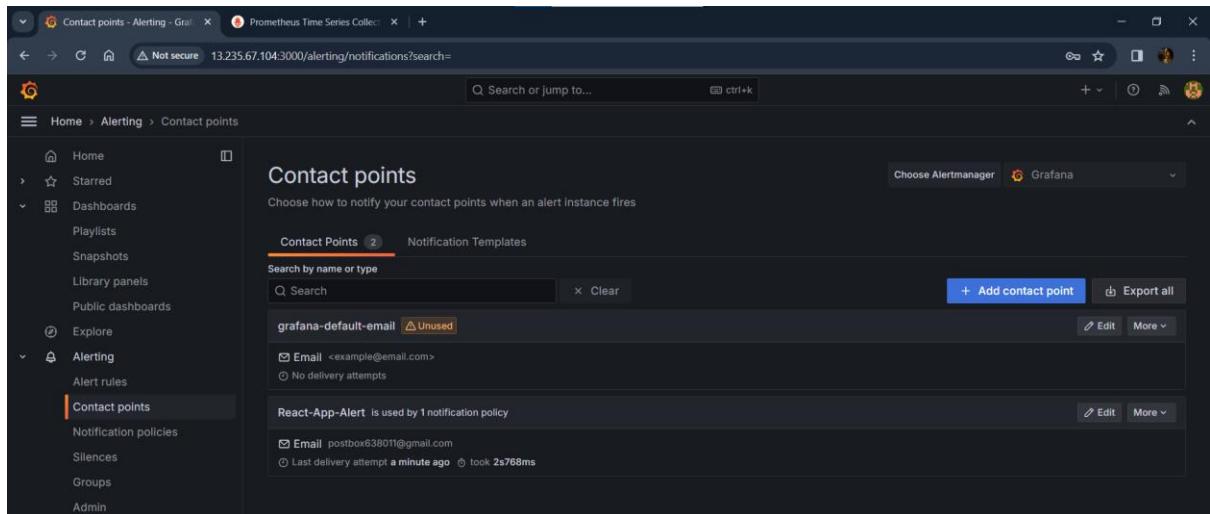
At the bottom right of the list, there are 'Edit' and 'More' buttons. A blue button labeled '+ Add contact point' is located at the top right of the list area.



The screenshot shows the 'Create contact point' page. The left sidebar is open, showing the 'Alerting' section with 'Contact points' selected. The main content area is titled 'Create contact point' and contains the following fields:

- Name \***: React-App-Alert
- Integration**: Email
- Addresses**: postbox638010@gmail.com
- Optional Email settings**:
  - Single email**: Send a single email to all recipients
  - Message**: You Docker container for React App is stopped.
  - Subject**: {{ template "default.title" .}}

At the top right of the page, there are 'Test', 'Duplicate', and 'Delete' buttons. At the bottom right, there is a 'Create' button.



Contact points

Choose how to notify your contact points when an alert instance fires

Contact Points 2      Notification Templates

Search by name or type

grafana-default-email Unused

Email <example@email.com>  
No delivery attempts

React-App-Alert is used by 1 notification policy

Email postbox638011@gmail.com  
Last delivery attempt a minute ago took 2s768ms

+ Add contact point    Export all

Choose Alertmanager    Grafana

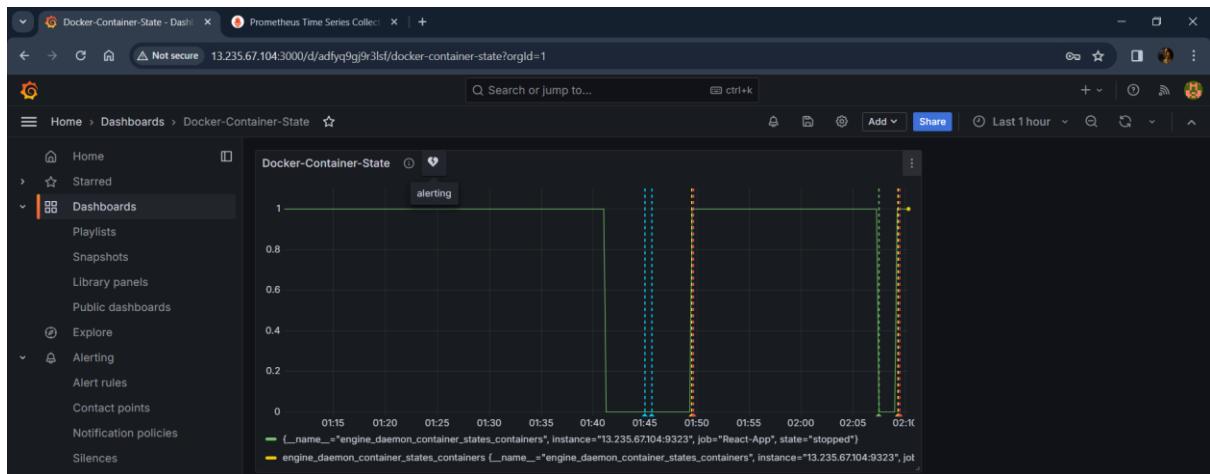
Home Alerting Contact points

⇒ Successfully added contact point

## Stopping Docker Container: (React-App)

```
ubuntu@ip-172-31-3-242:~$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
422a5137e677 nandhakumars/dev:dev "/docker-entrypoint..." 6 days ago Up About a minute 0.0.0.0:80->80/tcp, :::80->80/tcp app
ubuntu@ip-172-31-3-242:~$ docker stop app
ubuntu@ip-172-31-3-242:~$ |
```

## Checking Grafana Dashboard:



Docker-Container-State

alerting

1

0.8

0.6

0.4

0.2

0

01:15 01:20 01:25 01:30 01:35 01:40 01:45 01:50 01:55 02:00 02:05 02:10

green line: (\_name\_="engine\_daemon\_container\_states\_containers", instance="13.235.67.104:9323", job="React-App", state="stopped")

yellow line: engine\_daemon\_container\_states\_containers (\_name\_="engine\_daemon\_container\_states\_containers", instance="13.235.67.104:9323", job="React-App", state="running")

Home Dashboards

The screenshot shows the Grafana Alerting interface at the URL [13.235.67.104:3000/alerting/list](http://13.235.67.104:3000/alerting/list). The left sidebar is open, showing 'Alert rules' is selected. The main area displays a single alert rule named 'React-App-State' under the 'Docker-Container-state' dashboard. The alert is currently 'Firing' for 6 minutes. The alert summary states: 'Your docker container is stopped.' The 'Actions' column shows a button to 'More' options.

⇒ Successfully firing alert for stopped container.

## Checking Email notification: (GMAIL)

The first screenshot shows the Gmail inbox with several notifications. One from 'Grafana' with the subject '[FIRING:1] React-App-State Docker-Container-state (13.235.67.104:9323 React-App stopped)' is highlighted. The second screenshot shows the details of this email, which contains a Grafana alert card with the message: 'You Docker container for React App is stopped.'

⇒ Successfully alert notification received to mail for stopped container (React-App)

⇒ Resolved notification also sent as mail

Deployed locally: <http://13.235.67.104/>

Hosted react-application using Netlify:

<https://nandhakumart-guvi-capstone-project.netlify.app/>