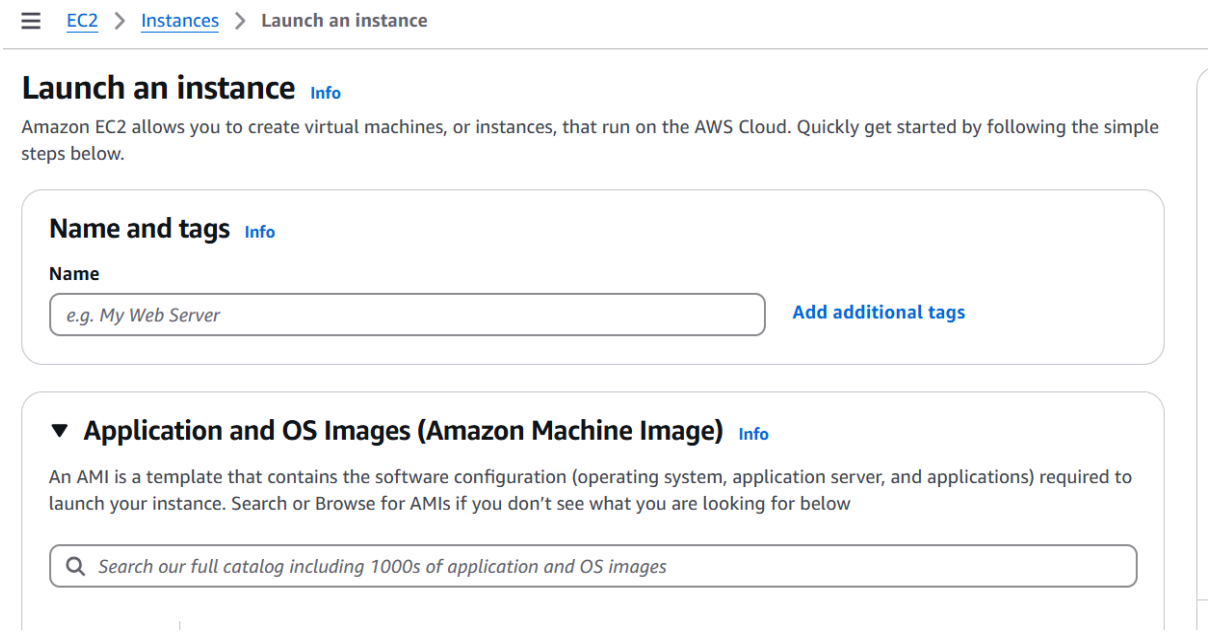
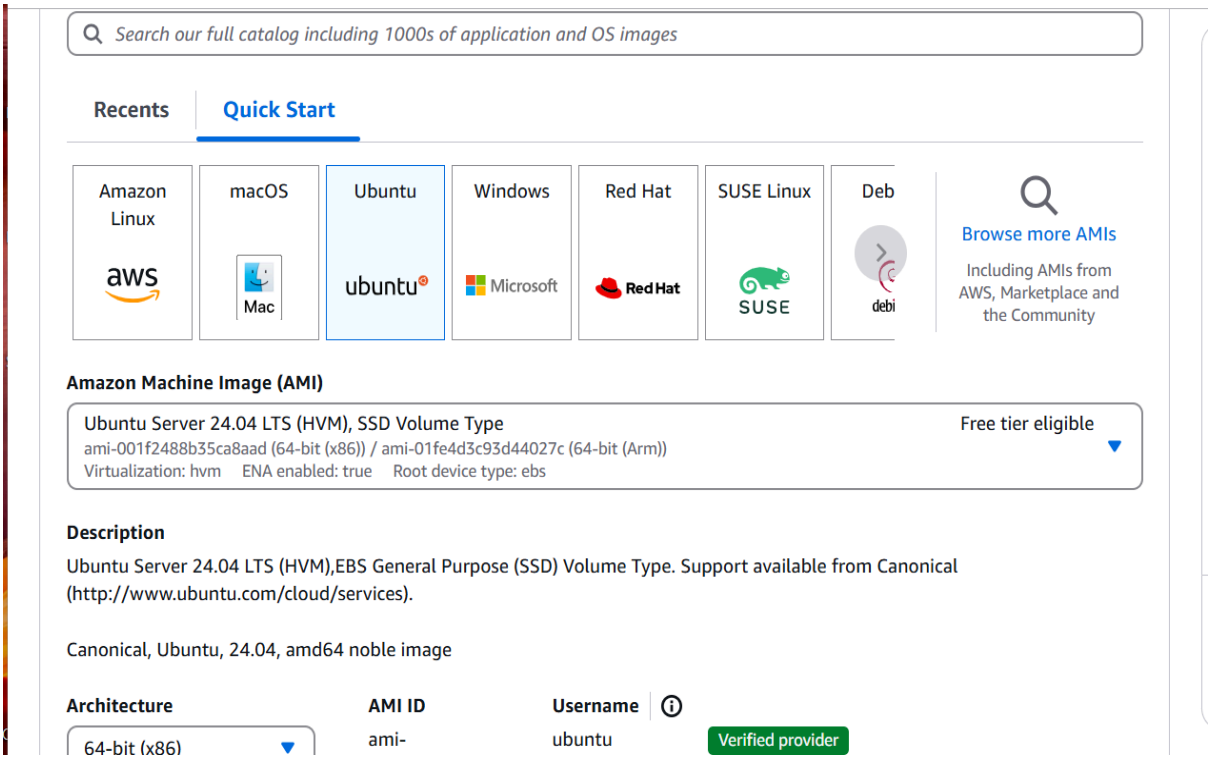
GUVI - AWS DEVOPS FINAL PROJECT

STEP 1 - create an aws ec2 instance (UBUNTU} by configure operating system with keypair, memory,ram and security groups with ssh and http port 80 in inbound and alow all traffic in outbound rules





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*

mai-age

Create new key pair

Network settings Info

VPC - *required* Info

vpc-0f29214e8a09cba66 (default)
172.31.0.0/16

Subnet Info

subnet-09e06fb7a282e3c90
VPC: vpc-0f29214e8a09cba66 Owner: 762233750461
Availability Zone: ap-southeast-2a Zone type: Availability Zone
IP addresses available: 4091 CIDR: 172.31.32.0/20)

Create new subnet

Auto-assign public IP 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-19

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

launch-wizard-19 created 2024-12-01T16:06:35.355Z

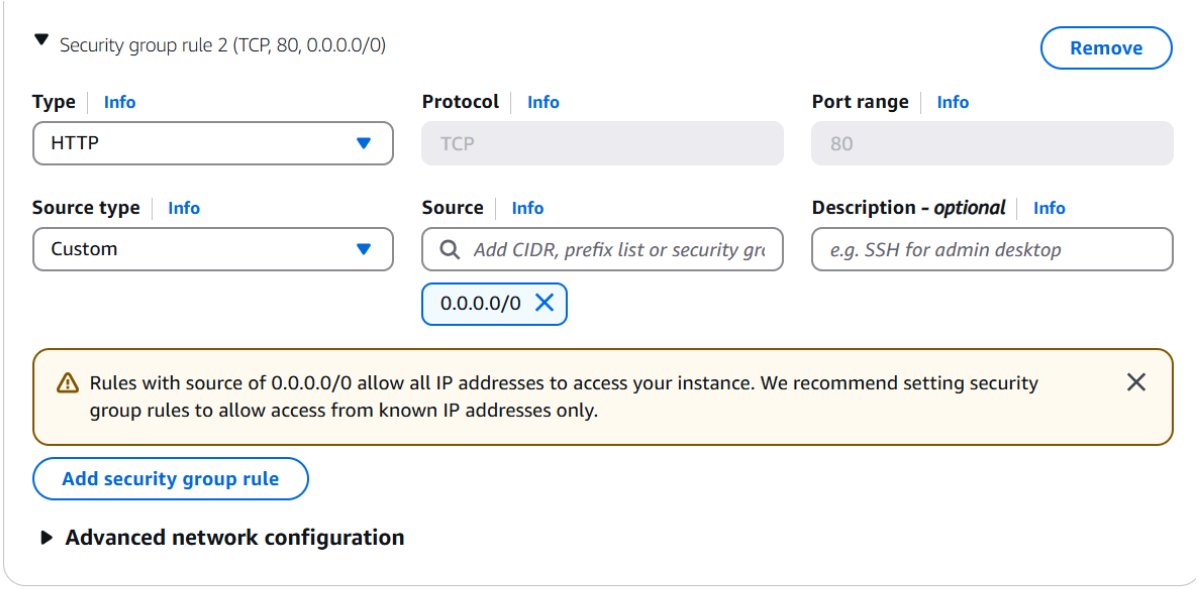
Inbound Security Group Rules

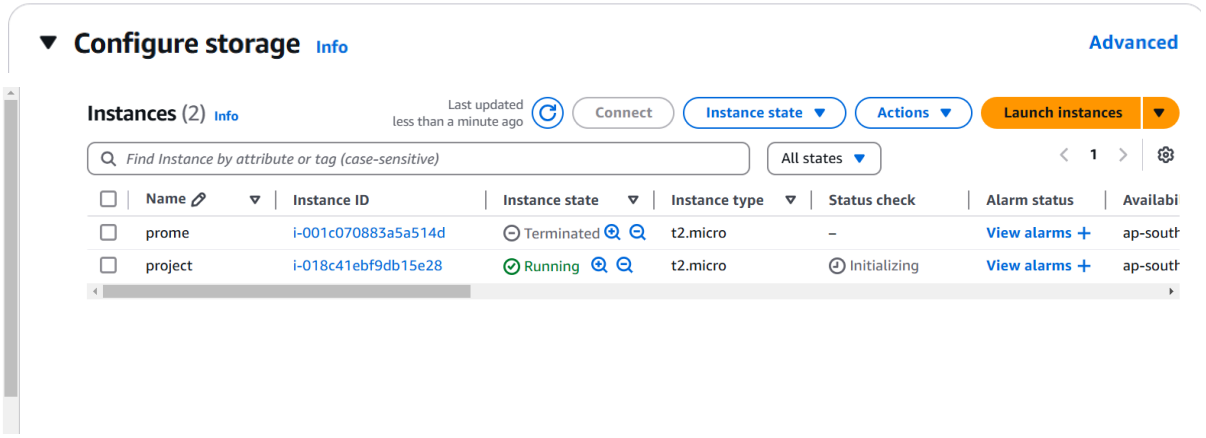
Security group rule 1 (TCP, 22, 0.0.0.0/0)

Remove

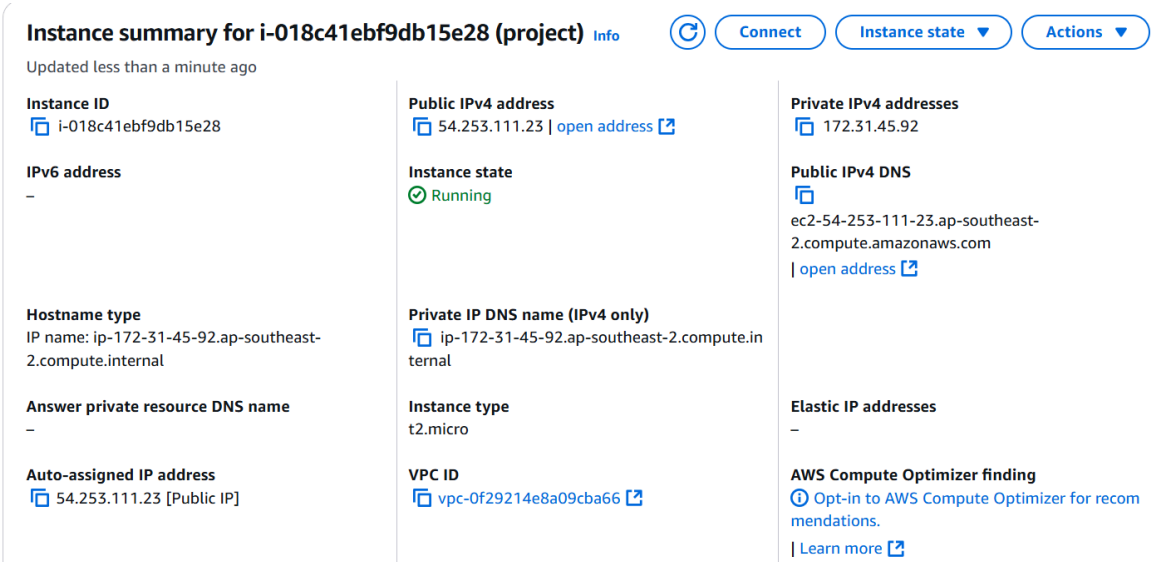
Type Info	Protocol Info	Port range Info
ssh	TCP	22

Source type Info	Source Info	Description - *optional* Info
Anywhere	Add CIDR, prefix list or security gr	e.g. SSH for admin desktop





Result : Instance created successfully and launched with all configurations and named as **project**



Instance security groups

Security groups

sg-0fc9636deaa121551 (launch-wizard-19)

Inbound rules

Filter rules

Name	Security group rule ID	Port range	Protocol	Source
–	sgr-0fec6d12a08b6afb9	80	TCP	0.0.0.0/0
–	sgr-0030a0e4d8ac17220	22	TCP	0.0.0.0/0
–	sgr-0f70ac170c10d9954	All	All	0.0.0.0/0

Outbound rules

Filter rules

Name	Security group rule ID	Port range	Protocol	Destination
–	sgr-08499ee54a2e6e067	All	All	0.0.0.0/0

```
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.

ubuntu@ip-172-31-45-92:~$
```

i-018c41ebf9db15e28 (project)

PublicIPs: 54.253.111.23 PrivateIPs: 172.31.45.92

STEP 2 - use GIT as version control system, by initiating **local repository** and clone the source code from **github** then **create a dev branch** and **cpy the code from main/master branch,** for more details follow the below image

<u>Git commands used for this project are listed below as per the work order i did:</u>

Note : when ever adding files or removing do git add and git commit

- **Sudo su** >> switch to root user
- Apt install git -y >> to install git
- Apt >> package manager for ubuntu
- **Git –version** >> check for git installation
- **Git init** >> create local repo
- **Ls -la** >> verify the .git file
- **Git clone** >> clone full source code remote repo **GITHUB**
- **Git status >>** checking for current branch and pending commits
- **Git add * >>** add the code to staged
- **Git commit -m >>** finalize to push the code to **GITHUB** for further process
- **Touch** >> command for create files
- **Git branch** >> check for current branch
- **Git branch <branch name>** >> command to create a new branch
- **Git checkout <switch to create branch>** >> command to switch to new branch
- **Ls -l** >> command for list all file and directory
- **Ls -la** >> command for list all hidden and non-hidden files and directory
- **Git remote set-url origin** >> command for connecting github from git
- **Git push -u origin <branch name>** >> command for pushing our code and branch to this location
- **Git logs** >> to get last commit id
- **Git cherry-pick <commit id previous branch>** >> picking a file from dev to main branch

```
ubuntu@ip-172-31-45-92:~$ sudo su
root@ip-172-31-45-92:/home/ubuntu# git --version
git version 2.43.0
root@ip-172-31-45-92:/home/ubuntu# git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/ubuntu/.git/
root@ip-172-31-45-92:/home/ubuntu# ls -la
total 32
drwxr-x--- 5 ubuntu ubuntu 4096 Dec  1 16:36 .
drwxr-xr-x 3 root   root   4096 Dec  1 16:09 ..
-rw-r--r-- 1 ubuntu ubuntu  220 Mar 31  2024 .bash_logout
-rw-r--r-- 1 ubuntu ubuntu 3771 Mar 31  2024 .bashrc
drwx------ 2 ubuntu ubuntu 4096 Dec  1 16:21 .cache
drwxr-xr-x 7 root   root   4096 Dec  1 16:36 .git
-rw-r--r-- 1 ubuntu ubuntu  807 Mar 31  2024 .profile
drwx------ 2 ubuntu ubuntu 4096 Dec  1 16:09 .ssh
-rw-r--r-- 1 ubuntu ubuntu    0 Dec  1 16:36 .sudo_as_admin_successful
```

```
root@ip-172-31-45-92:/home/ubuntu# git clone https://github.com/Karthick-sketch769/guvi-final-project.git
Cloning into 'guvi-final-project'...
remote: Enumerating objects: 21, done.
remote: Total 21 (delta 0), reused 0 (delta 0), pack-reused 21 (from 1)
Receiving objects: 100% (21/21), 720.09 KiB | 193.00 KiB/s, done.
root@ip-172-31-45-92:/home/ubuntu# touch .gitignore
```

```
root@ip-172-31-45-92:/home/ubuntu# git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .bash_logout
        .bashrc
        .cache/
        .gitignore
        .profile
        .ssh/
        .sudo_as_admin_successful
        guvi-final-project/

nothing added to commit but untracked files present (use "git add" to track)
```

```
root@ip-172-31-45-92:/home/ubuntu# git add *
warning: adding embedded git repository: guvi-final-project
hint: You've added another git repository inside your current repository.
hint: Clones of the outer repository will not contain the contents of
hint: the embedded repository and will not know how to obtain it.
hint: If you meant to add a submodule, use:
hint:
hint:   git submodule add <url> guvi-final-project
hint:
hint: If you added this path by mistake, you can remove it from the
hint: index with:
hint:
hint:   git rm --cached guvi-final-project
hint:
hint: See "git help submodule" for more information.
```

```
root@ip-172-31-45-92:/home/ubuntu# git commit -m "this for confirming the code to working"
[master (root-commit) ec8cb20] this for confirming the code to working
 Committer: root <root@ip-172-31-45-92.ap-southeast-2.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 1 file changed, 1 insertion(+)
 create mode 160000 guvi-final-project
```

.gitignore file is for the files which is need to keep more secure like config, passwd, cred datas

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# touch .gitignore
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git add .
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git commit -m "do commit"
[main c9c976f] do commit
 Committer: root <root@ip-172-31-45-92.ap-southeast-2.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 .gitignore
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# ls -la
total 16
drwxr-xr-x 4 root   root   4096 Dec  1 17:08 .
drwxr-x--- 6 ubuntu ubuntu 4096 Dec  1 16:43 ..
drwxr-xr-x 8 root   root   4096 Dec  1 17:12 .git
-rw-r--r-- 1 root   root      0 Dec  1 17:08 .gitignore
drwxr-xr-x 3 root   root   4096 Dec  1 16:43 build
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project#
```

As per project they asked to **create one dev branch and copy the code and push to remote repo GITHUB**

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git branch
* main
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git branch dev
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git checkout dev
Switched to branch 'dev'
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git branch
* dev
  main
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project#
```

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# ls -la
total 16
drwxr-xr-x 4 root   root   4096 Dec  1 17:08 .
drwxr-x--- 6 ubuntu ubuntu 4096 Dec  1 16:43 ..
drwxr-xr-x 8 root   root   4096 Dec  1 17:19 .git
-rw-r--r-- 1 root   root      0 Dec  1 17:08 .gitignore
drwxr-xr-x 3 root   root   4096 Dec  1 16:43 build
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git status
On branch dev
nothing to commit, working tree clean
```

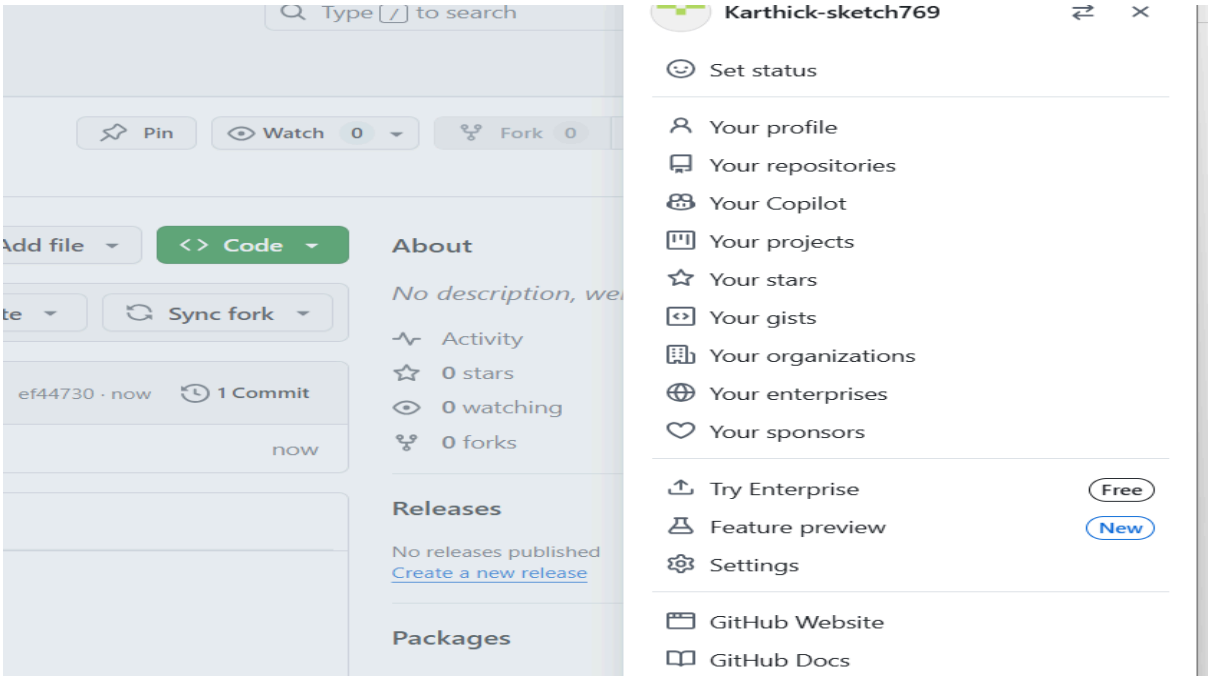
```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git remote set-url  origin https://github.com/Karthick-sketch769/guvi-final-project.git
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git push -u origin
```

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git push -u origin dev
Username for 'https://github.com': Karthick-sketch769
Password for 'https://Karthick-sketch769@github.com':
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 287 bytes | 287.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'dev' on GitHub by visiting:
remote:      https://github.com/Karthick-sketch769/guvi-final-project/pull/new/dev
remote:
To https://github.com/Karthick-sketch769/guvi-final-project.git
 * [new branch]      dev -> dev
branch 'dev' set up to track 'origin/dev'.
```

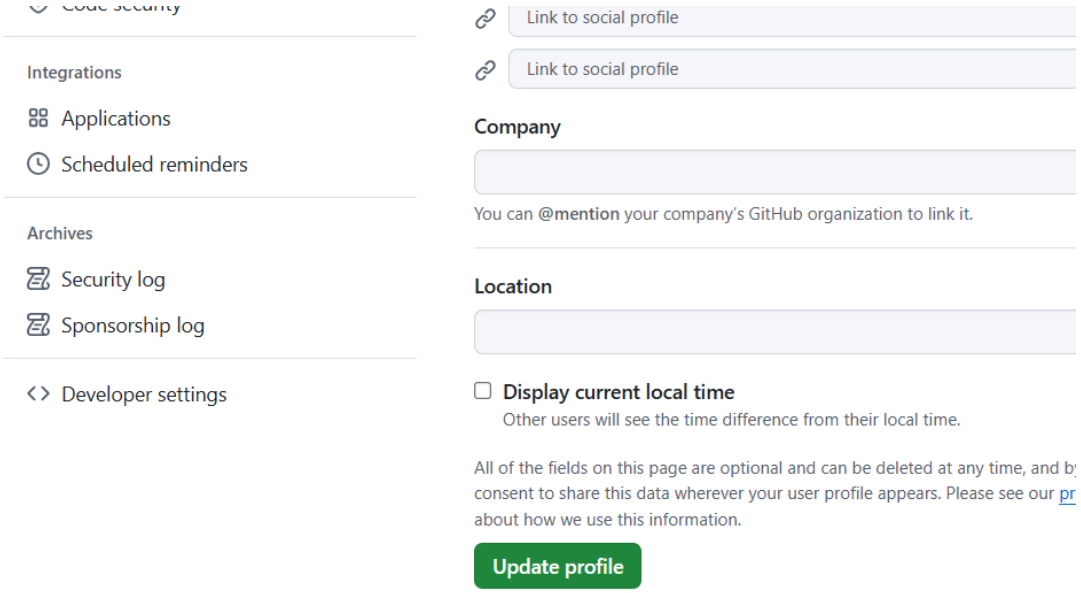
Here, user name : Karthick-sketch769
Passwd : 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 {token we generated from github}

STE P - 3 Steps to be followed for token generation in github

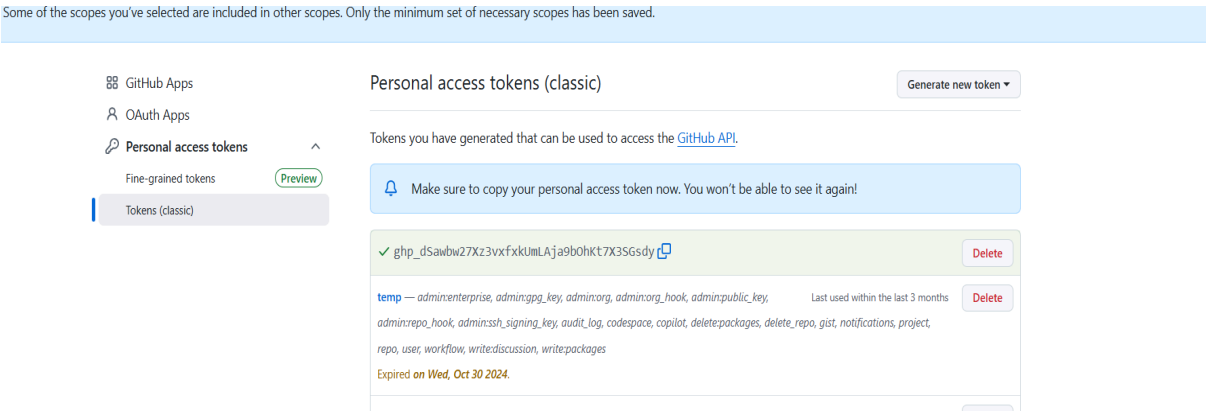
Settings



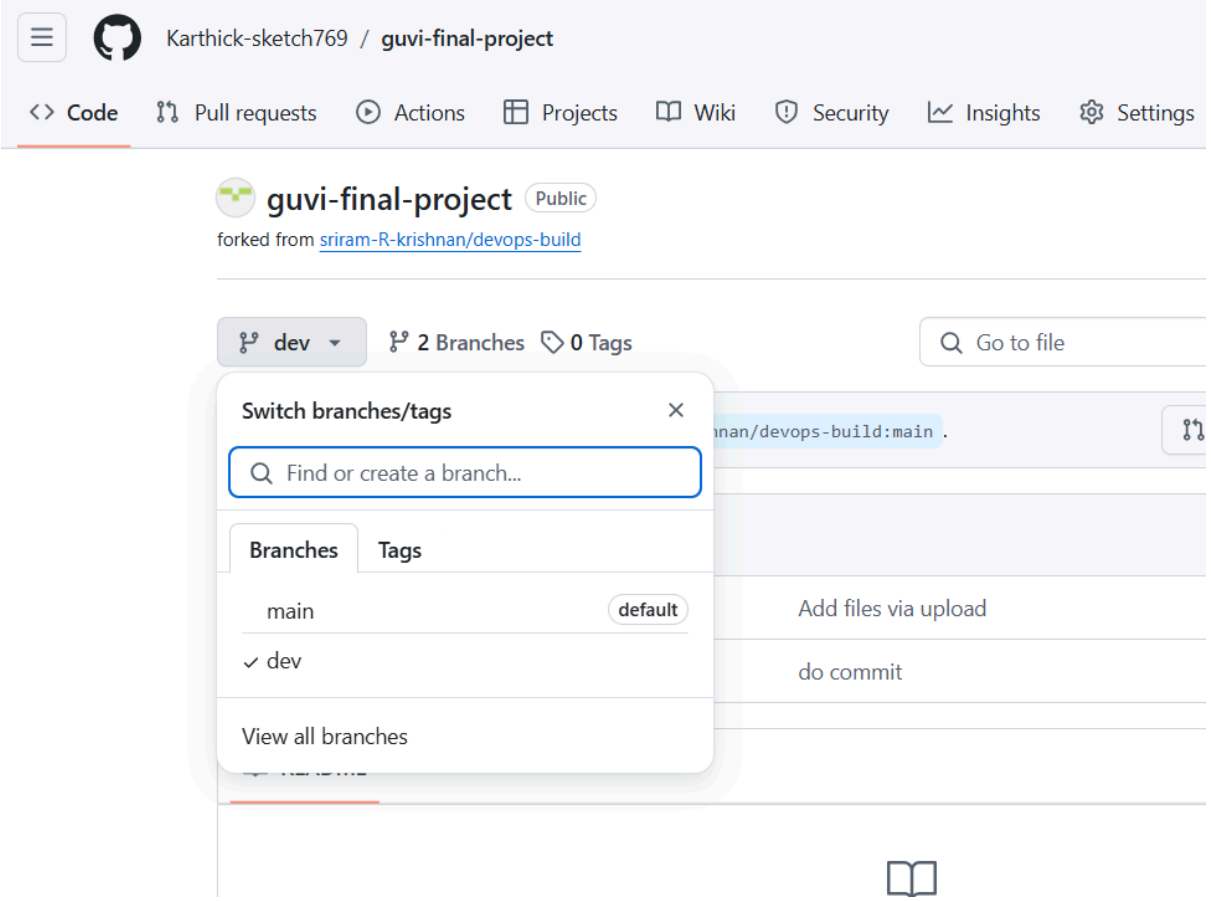
Developer settings

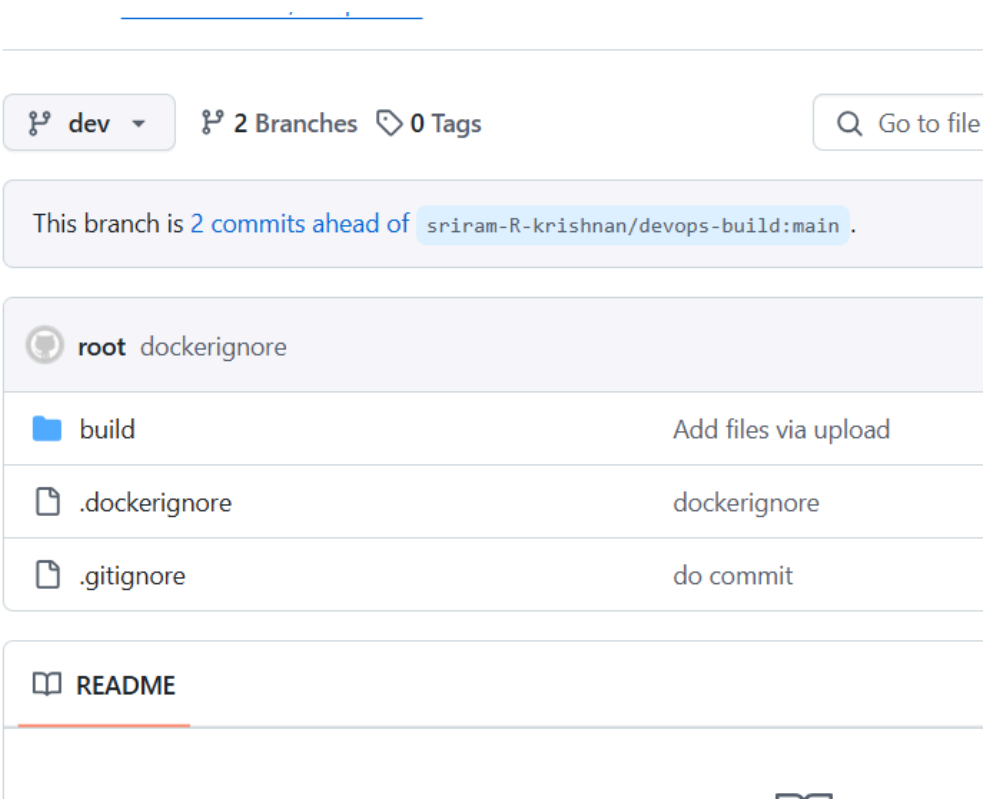


Personal access token > classic > generate



Result : code is pushed to the github with dev branch



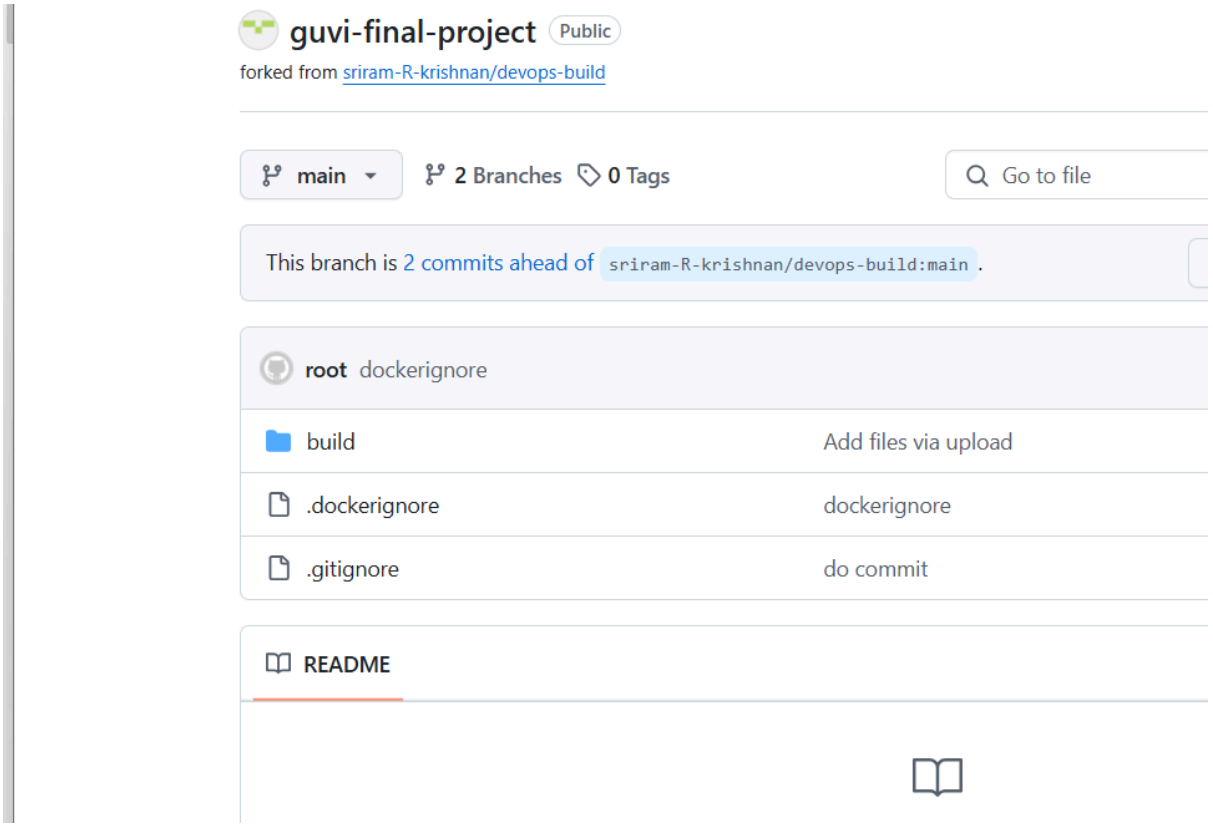


As per project they asked to create **docker and git ignore file** but before **create a dev branch** i created **gitignore** so i automatically **appeared in other branch also** when i create dev branch but now i created **docker ignore this file is in only at dev branch** but i want this file to be on **main branch** so i used **cherry-pick command with dev branch last commit id for cheking commit id in used git logs command**

```
  main
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# ls -la
total 16
drwxr-xr-x 4 root   root   4096 Dec  1 17:59 .
drwxr-x--- 6 ubuntu ubuntu 4096 Dec  1 16:43 ..
-rw-r--r-- 1 root   root      0 Dec  1 17:59 .dockerignore
drwxr-xr-x 8 root   root   4096 Dec  1 18:00 .git
-rw-r--r-- 1 root   root      0 Dec  1 17:08 .gitignore
drwxr-xr-x 3 root   root   4096 Dec  1 16:43 build
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git checkout dev
Already on 'dev'
Your branch is ahead of 'origin/dev' by 1 commit.
  (use "git push" to publish your local commits)
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# ls -la
total 16
drwxr-xr-x 4 root   root   4096 Dec  1 18:00 .
drwxr-x--- 6 ubuntu ubuntu 4096 Dec  1 16:43 ..
drwxr-xr-x 8 root   root   4096 Dec  1 18:00 .git
-rw-r--r-- 1 root   root      0 Dec  1 17:08 .gitignore
drwxr-xr-x 3 root   root   4096 Dec  1 16:43 build
```

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git cherry-pick 2da34c1fea56fb310fbe018df1e63f78d2251576
[main e0c80e3] dockerignore
 Date: Sun Dec 1 18:00:06 2024 +0000
 Committer: root <root@ip-172-31-45-92.ap-southeast-2.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 .dockerignore
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git branch
  dev
* main
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# ls -la
total 16
drwxr-xr-x 4 root   root   4096 Dec  1 18:06 .
drwxr-x--- 6 ubuntu ubuntu 4096 Dec  1 16:43 ..
-rw-r--r-- 1 root   root      0 Dec  1 18:06 .dockerignore
drwxr-xr-x 8 root   root   4096 Dec  1 18:06 .git
-rw-r--r-- 1 root   root      0 Dec  1 17:08 .gitignore
```

Result



STEP 4- this file is already build file because there is no pom.xml file in this code so we can go for creating docker images and by installing docker on the same instance

<u>Docker commands used for this project are listed below as per the work order i did:</u>

- **Apt** >> package manager for ubuntu OS
- **Apt get update -y** >> for update the package
- **Apt install docker-compose -y** >> to install docker-compose
- **Apt install docker -y** >> to install docker
- **Touch** >> create a file
- **vim/vi** >> to edit a file/write a code
- **Docker login >>** log in docker hub
- **Apt install npm** >> package manager for node.js
- **Docker build -t** <img tag> dockerfile >> command for create image
- **Docker images** >> command for list image
- **Docker-compose-up** >> command for run the container
-

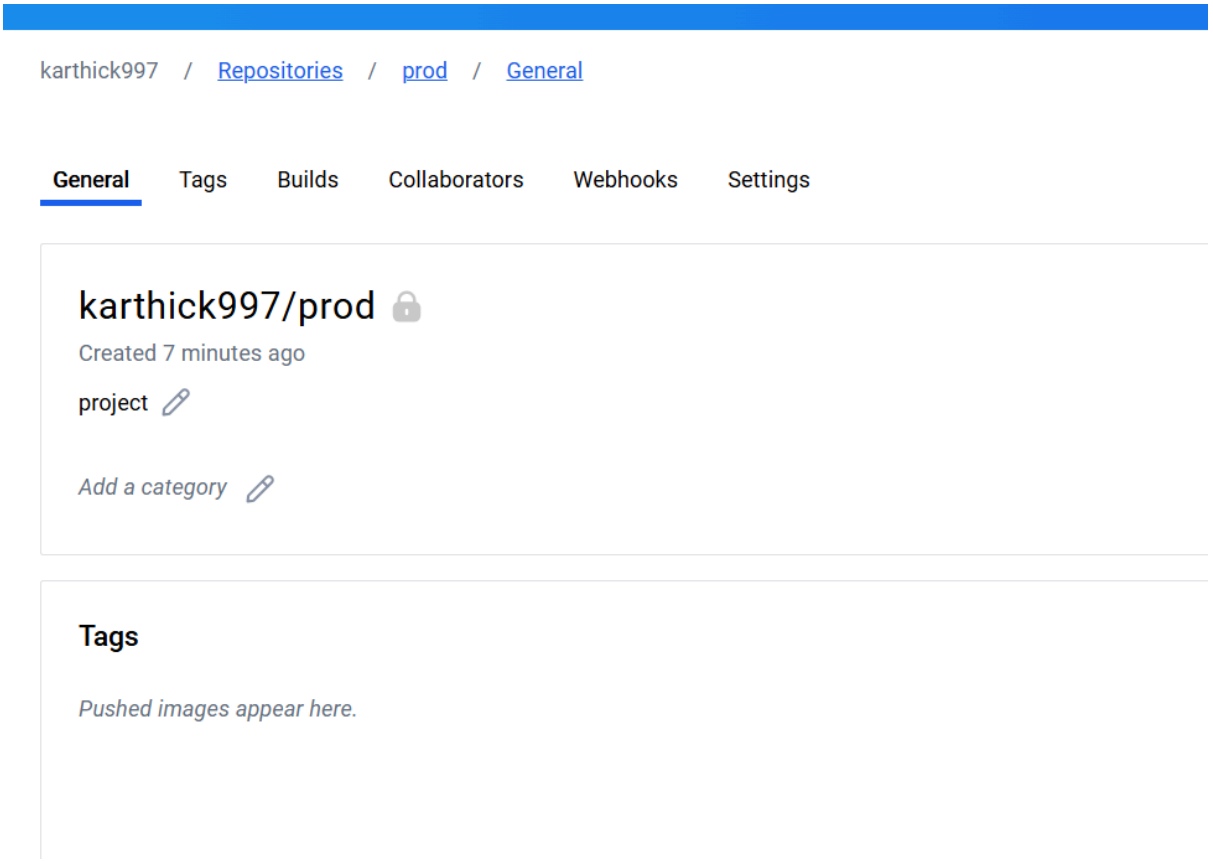
Create a docker file and the do git add and git commit once comiit is done it will create .dockerfile

```
drwxr-xr-x 3 root root 4096 Dec  1 16:43 build
-rw-r--r-- 1 root root    0 Dec  1 19:04 dockerfile
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# vim dockerfile
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git add .
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git commit -m "create images"
[main 51069a0] create images
 Committer: root <root@ip-172-31-45-92.ap-southeast-2.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:
```

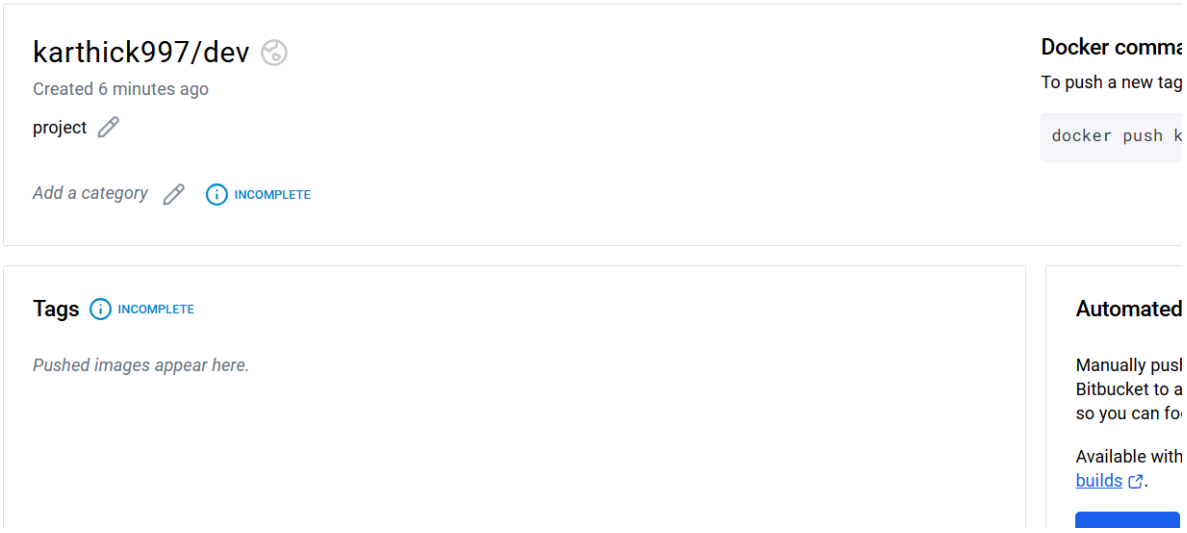
```
total 8
drwxr-xr-x 3 root root 4096 Dec  1 16:43 build
-rw-r--r-- 1 root root   91 Dec  1 19:11 dockerfile
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# ls -la
total 32
drwxr-xr-x 4 root   root    4096 Dec  1 19:11 .
drwxr-x--- 6 ubuntu ubuntu  4096 Dec  1 18:50 ..
-rw-r--r-- 1 root   root   12288 Dec  1 19:05 .dockerfile.swp
-rw-r--r-- 1 root   root       0 Dec  1 18:06 .dockerignore
drwxr-xr-x 8 root   root    4096 Dec  1 19:12 .git
-rw-r--r-- 1 root   root       0 Dec  1 17:08 .gitignore
drwxr-xr-x 3 root   root    4096 Dec  1 16:43 build
-rw-r--r-- 1 root   root      91 Dec  1 19:11 dockerfile
```

STEP 5 - create public repo as dev and private as prod in docker hub

Prod repo



Dev repo



STEP 6 - do docker login then proceed further steps in dev branch

Write a dockerfile

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# cat dockerfile
FROM nginx:alpine
WORKDIR /usr/share/nginx/html
COPY . .
EXPOSE 80
CMD ["nginx", "-g", "daemon off;"]
```

- **Npm** >> package manager javascript files

Npm installed

```
ubuntu@ip-172-31-45-92:~$ npm --version
9.2.0
```

Build images using build command as given in CLI

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# docker build -t karthick997/dev:react .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  44.73MB
Step 1/5 : FROM nginx:alpine
 ---> 91ca84b4f577
Step 2/5 : WORKDIR /usr/share/nginx/html
 ---> Using cache
 ---> 24d605b6e194
Step 3/5 : COPY . .
 ---> 99783632dc08
Step 4/5 : EXPOSE 80
 ---> Running in c45b6636a8cd
 ---> Removed intermediate container c45b6636a8cd
 ---> fd3703bbfa02
Step 5/5 : CMD ["nginx", "-g", "daemon off;"]
 ---> Running in f39d9ecae084
 ---> Removed intermediate container f39d9ecae084
 ---> e9738900baa5
Successfully built e9738900baa5
Successfully tagged karthick997/dev:react
```

List the build image using docker images command

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# docker images
REPOSITORY        TAG       IMAGE ID       CREATED          SIZE
karthick997/dev   cappro    d5fc37f7cc08   23 minutes ago   55.1MB
karthick997/dev   recap     8890364cb423   35 minutes ago   55.1MB
nginx             alpine    91ca84b4f577   8 days ago       52.5MB
node              latest    f394fba5cbb7   2 weeks ago      1.12GB
```

Write a Docker-compose .yml file

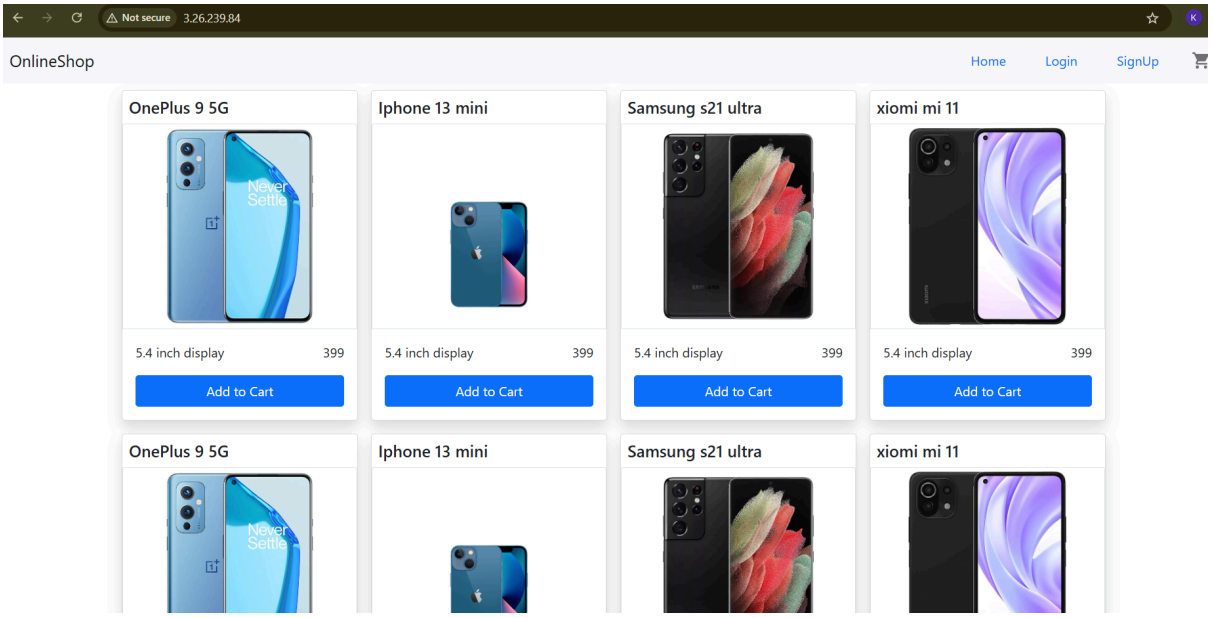
```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# cat docker-compose.yml
version: '3'
services:
  cappro:
    image: "karthick997/dev:cappro"
    container_name: "react"
    ports:
      - "80:80"
```

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# docker-compose up -d --remove-orphans
WARN[0000] /home/ubuntu/guvi-final-project/docker-compose.yml: the attribute `version` is obs
tial confusion
[+] Running 1/0
 ✓ Container react  Running
```

List active containers

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# docker ps -a
CONTAINER ID   IMAGE                  COMMAND                  CREATED        STATUS                     PORTS                                      NAMES
605cc0df9bf6   karthick997/dev:cappro "/docker-entrypoint.…"   10 minutes ago Up 9 minutes               0.0.0.0:80->80/tcp, :::80->80/tcp          react
24feacdb5977   f598ac3f4f62           "/bin/sh -c 'apt-get…"   3 hours ago    Exited (127) 3 hours ago                                              exciti
ng_galileo
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project#
```

Docker output in browser




```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git checkout dev
Switched to branch 'dev'
Your branch is up to date with 'origin/dev'.
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# ls -l
total 16
drwxr-xr-x 3 root root 4096 Dec  4 05:28 build
-rwxr-xr-x 1 root root  139 Dec  5 07:13 build.sh
-rw-r--r-- 1 root root  125 Dec  5 07:13 docker-compose.yml
-rw-r--r-- 1 root root  127 Dec  5 07:03 dockerfile
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project#
```

Merging has be done for prod branch from dev for dockerfile, compose file and build.sh file

```
oot@ip-172-31-45-92:/home/ubuntu/guvi-final-project# vim build.sh
oot@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git stash
ocker-compose.yml: needs merge
ockerfile: needs merge
oot@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git checkout dev
ocker-compose.yml: needs merge
ockerfile: needs merge
rror: you need to resolve your current index first
oot@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git merge dev
rror: Merging is not possible because you have unmerged files.
int: Fix them up in the work tree, and then use 'git add/rm <file>'
int: as appropriate to mark resolution and make a commit.
atal: Exiting because of an unresolved conflict.
oot@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git status
n branch main
our branch is ahead of 'origin/main' by 8 commits.
  (use "git push" to publish your local commits)

ou are currently cherry-picking commit eeb0ae9.
  (fix conflicts and run "git cherry-pick --continue")
  (use "git cherry-pick --skip" to skip this patch)
  (use "git cherry-pick --abort" to cancel the cherry-pick operation)

nmerged paths:
```

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git branch
  dev
* main
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# ls -lo
total 16
drwxr-xr-x 3 root 4096 Dec  4 05:28 build
-rwxr-xr-x 1 root  140 Dec  5 07:12 build.sh
-rw-r--r-- 1 root  126 Dec  5 07:12 docker-compose.yml
-rw-r--r-- 1 root  127 Dec  5 07:03 dockerfile
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project#
```

STEP 7 - Create a build.sh, deploy.sh, jenkins.sh and give executable permisoons then finally Pushed all files to dev branch in github and then do merge

guvi-final-project / build.sh

Karthick-sketch769 Update build.sh

Code Blame Executable File · 7 lines (6 loc) · 207 Bytes Code 55% faster with GitHub Copilot

```
#!/bin/bash

docker login -u karthick997 -p dckr_pat_Ir4BWXuJTfgAbsHhauMcWatLbFU
sudo docker build -t karthick997/dev:cappro .
sudo docker images
sudo docker-compose up -d --remove-orphans
sudo docker ps -a
```

Main/prod branch build file executable

guvi-final-project / build.sh

root how

Code Blame Executable File · 7 lines (6 loc) · 208 Bytes Code 55% faste

```
#!/bin/bash

docker login -u karthick997 -p dckr_pat_Ir4BWXuJTfgAbsHhauMcWatLbFU
sudo docker build -t karthick997/prod:cappro .
sudo docker images
sudo docker-compose up -d --remove-orphans
sudo docker ps -a
```

deploy.sh with executable

guvi-final-project / deploy.sh

Karthick-sketch769 Update deploy.sh

Code Blame Executable File · 11 lines (10 loc) · 300 Bytes

```
#!/bin/bash
sh 'chmod +x build.sh'
sh './build.sh'
if [ $GIT_BRANCH = = "origin/dev" ]; then
        docker tag cappro karthick997/dev
        docker push karthick997/dev:cappro
elif [ $GIT_BRANCH = = "origin/main" ]; then
        docker tag cappro karthick997/prod
        docker push karthick997/prod:cappro
fi
```

jenkinsfile.sh

guvi-final-project / Jenkinsfile

Karthick-sketch769 Update Jenkinsfile

Code | Blame | 15 lines (11 loc) · 210 Bytes | Code 55% faster with GitHub Copilot

```
pipeline {
    agent any
    stages {
        stage('deploy') {
            steps {
                sh 'chmod +x deploy.sh'
                sh './deploy.sh'
            }
        }

    }
}
```

Files moved to dev branch

dev | 2 Branches | 0 Tags | Go to file | Add file | Code

This branch is 12 commits ahead of sriram-R-krishnan/devops-build:main. Contribute | Sync fork

root okk ce9466e · 20 minutes ago 13 Commits

build	Add files via upload	4 days ago
.docker.swo	update it	10 hours ago
.dockerfile.swn	update it	10 hours ago
.dockerfile.swo	update it	10 hours ago
.dockerfile.swp	update it	10 hours ago
.dockerignore	dockerignore	4 days ago
.gitignore	do commit	4 days ago
build.sh	build file	7 hours ago
deploy.sh	okk	20 minutes ago
docker-compose.yml	githun	7 hours ago
dockerfile	githun	7 hours ago
jenkinsfile	okk	20 minutes ago

README

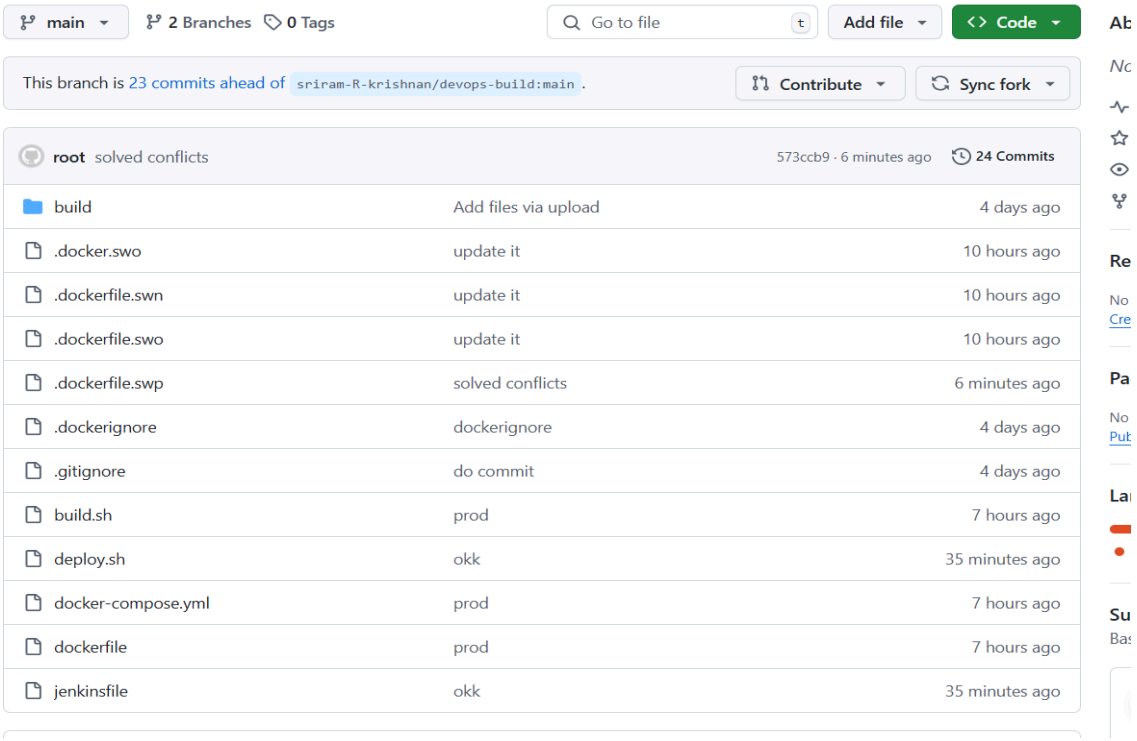
Merged with dev branch and pushed all files to github main branch by solving merge conflicts then comit

```
-rw-r--r-- 1 root root  367 Dec  5 13:55 jenkinsfile
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# vim .dockerfile.swp
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# vim build.sh
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# vim d
deploy.sh            docker-compose.yml  dockerfile
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# vim docker-compose.yml
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git merge conflict dev
error: Merging is not possible because you have unmerged files.
hint: Fix them up in the work tree, and then use 'git add/rm <file>'
hint: as appropriate to mark resolution and make a commit.
fatal: Exiting because of an unresolved conflict.
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git add .
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git commit -m "solved conflicts"
[main 573ccb9] solved conflicts
 Committer: root <root@ip-172-31-45-92.ap-southeast-2.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:
```

```
atal: Exiting because of an unresolved conflict.
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git add .
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git commit -m "solved confl
main 573ccb9] solved conflicts
Committer: root <root@ip-172-31-45-92.ap-southeast-2.compute.internal>
our name and email address were configured automatically based
n your username and hostname. Please check that they are accurate.
ou can suppress this message by setting them explicitly. Run the
ollowing command and follow the instructions in your editor to edit
our configuration file:

    git config --global --edit

fter doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# ls -l
otal 24
rwxr-xr-x 3 root root 4096 Dec  4 05:28 build
rwxr-xr-x 1 root root  140 Dec  5 13:58 build.sh
rwxr-xr-x 1 root root  364 Dec  5 13:55 deploy.sh
rw-r--r-- 1 root root  126 Dec  5 13:59 docker-compose.yml
rw-r--r-- 1 root root  127 Dec  5 07:03 dockerfile
```

```
root@ip-172-31-45-92:/home/ubuntu/guvi-final-project# git push -u origin main
Username for 'https://github.com': Karthick-sketch769
Password for 'https://Karthick-sketch769@github.com':
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 381 bytes | 381.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/Karthick-sketch769/guvi-final-project.git
   276b1f8..573ccb9  main -> main
branch 'main' set up to track 'origin/main'.
```

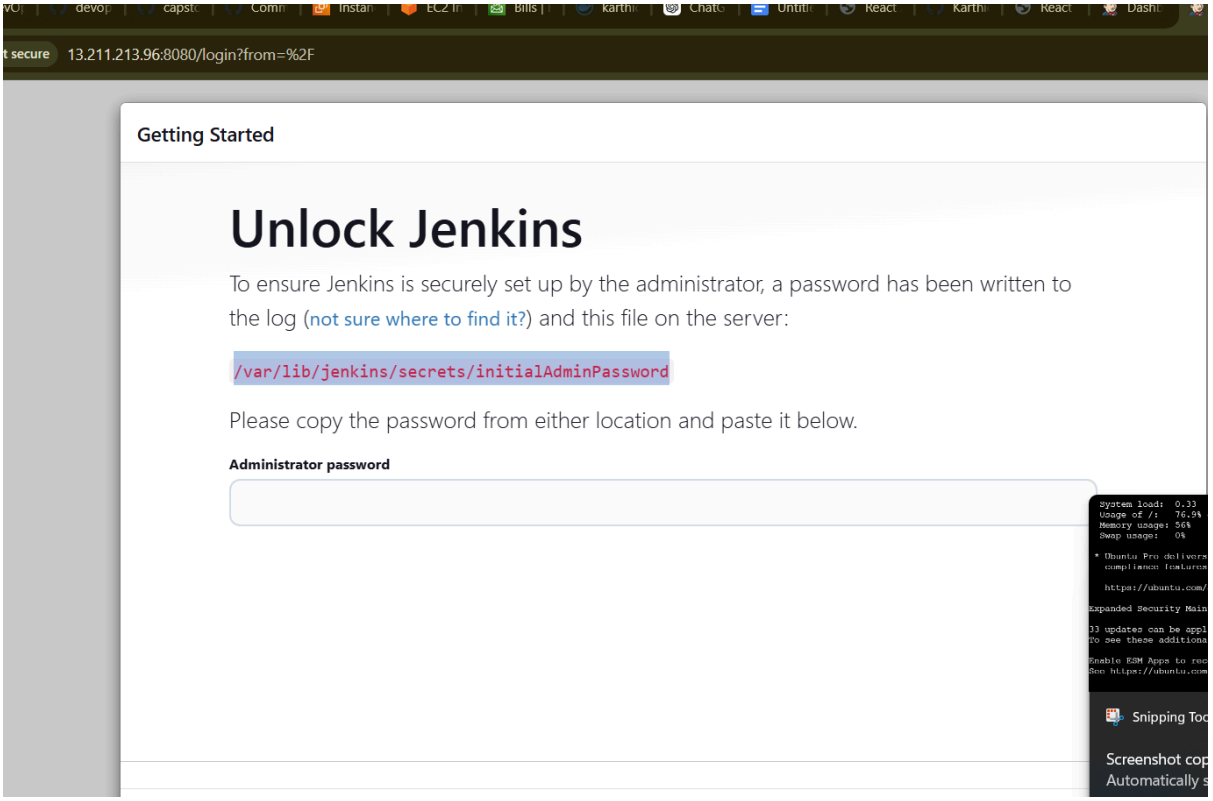
Github main/prod branch



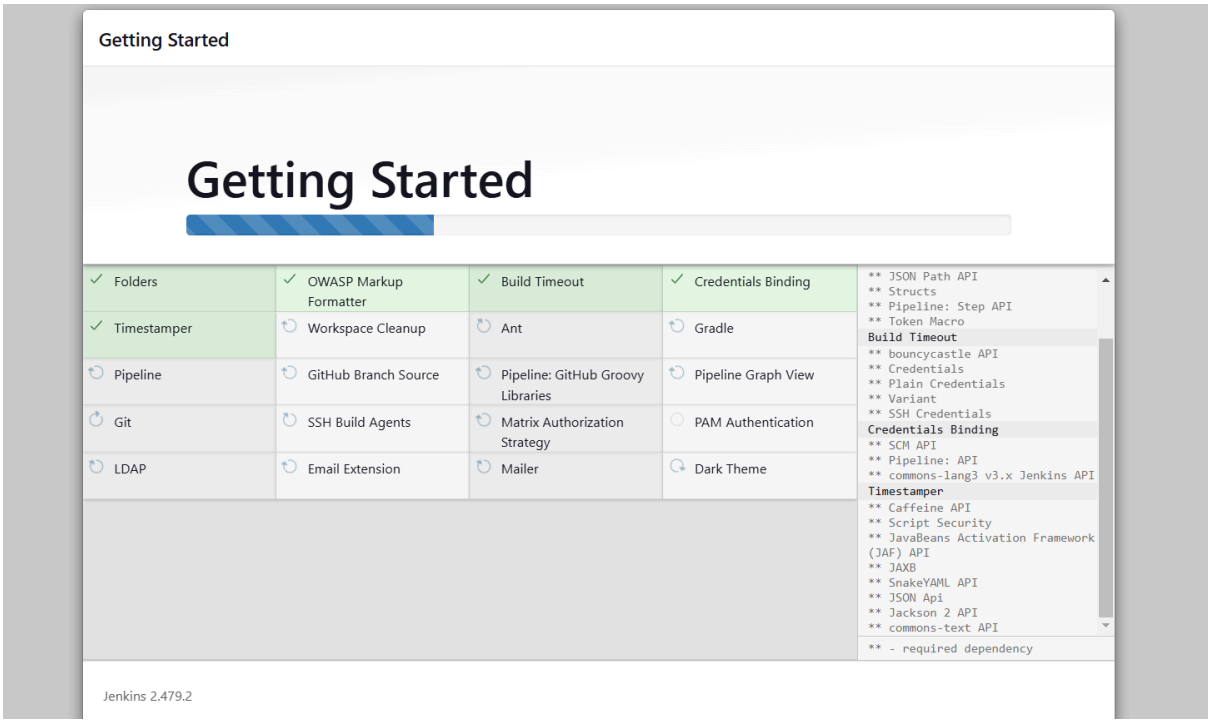
STEP 8 - Install jenkins & java on ubuntu

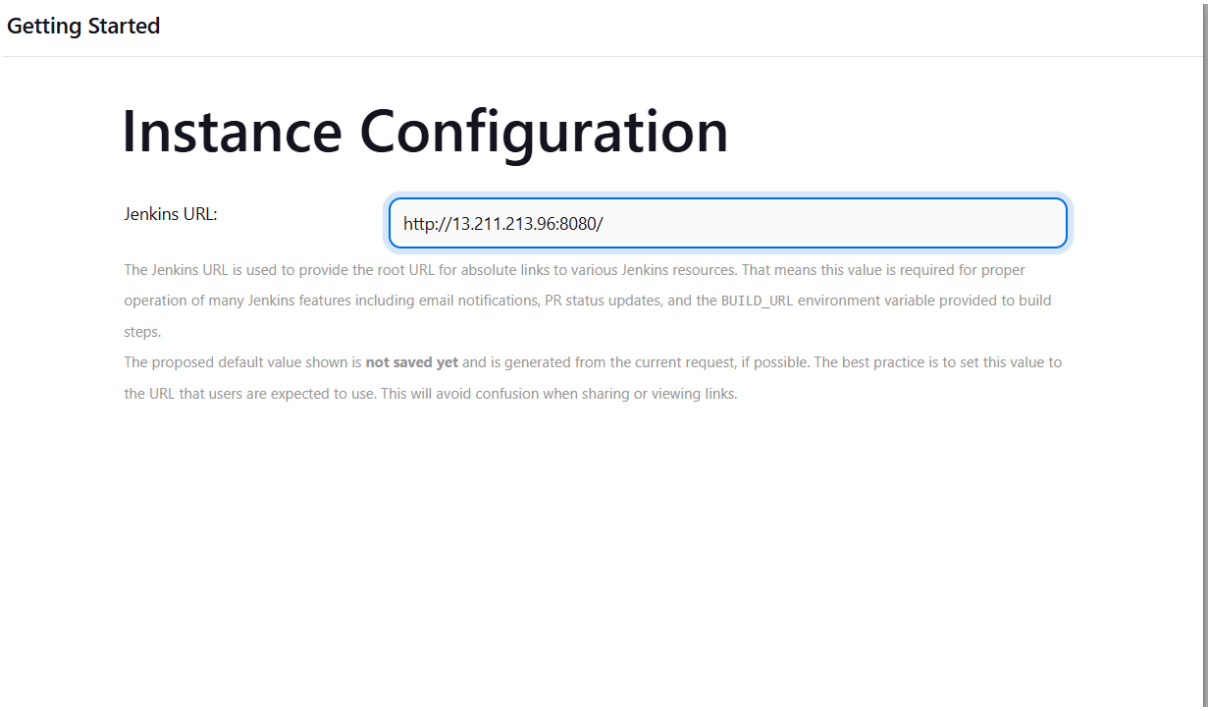
```
  System load:  0.33               Processes:             112
  Usage of /:   76.9% of 6.71GB    Users logged in:       1
  Memory usage: 56%                IPv4 address for enX0: 172.31.45.92
  Swap usage:   0%

 * Ubuntu Pro delivers the most comprehensive open source security and
   compliance features.

   https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

33 updates can be applied immediately.
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: Thu Dec  5 11:28:12 2024 from 13.239.158.4
ubuntu@ip-172-31-45-92:~$ sudo su
root@ip-172-31-45-92:/home/ubuntu# jenkins --version
2.479.2
root@ip-172-31-45-92:/home/ubuntu#
```

Run public.ip:8080 port on browser

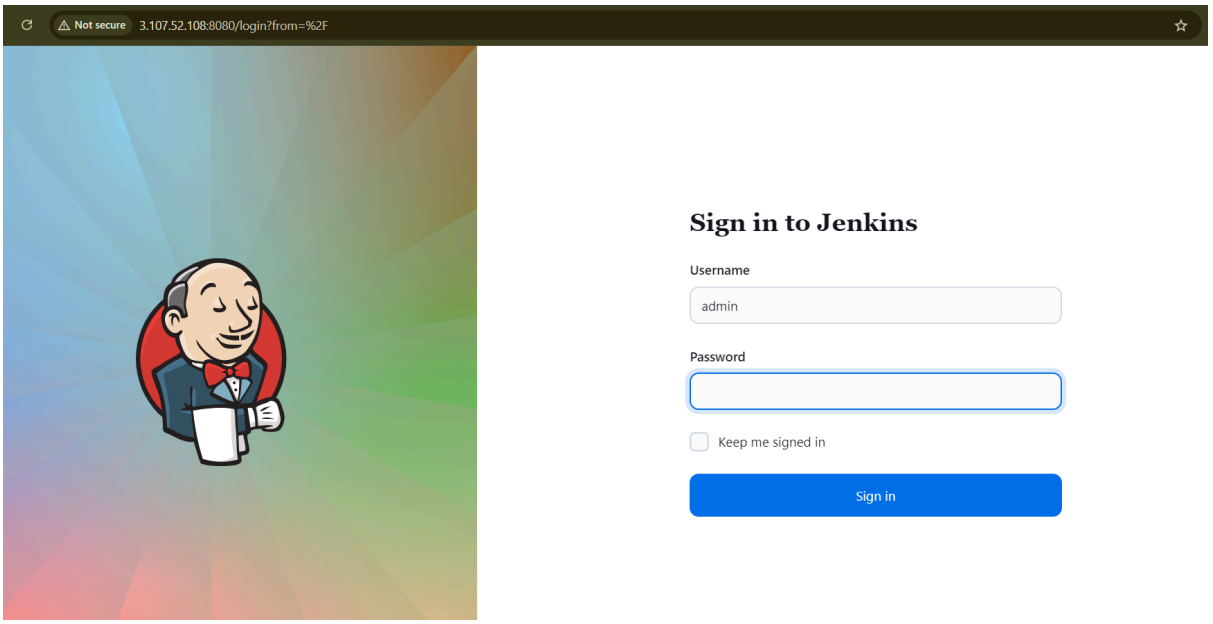


Using cat command read password from above path in u terminal copy and paste here and proceed

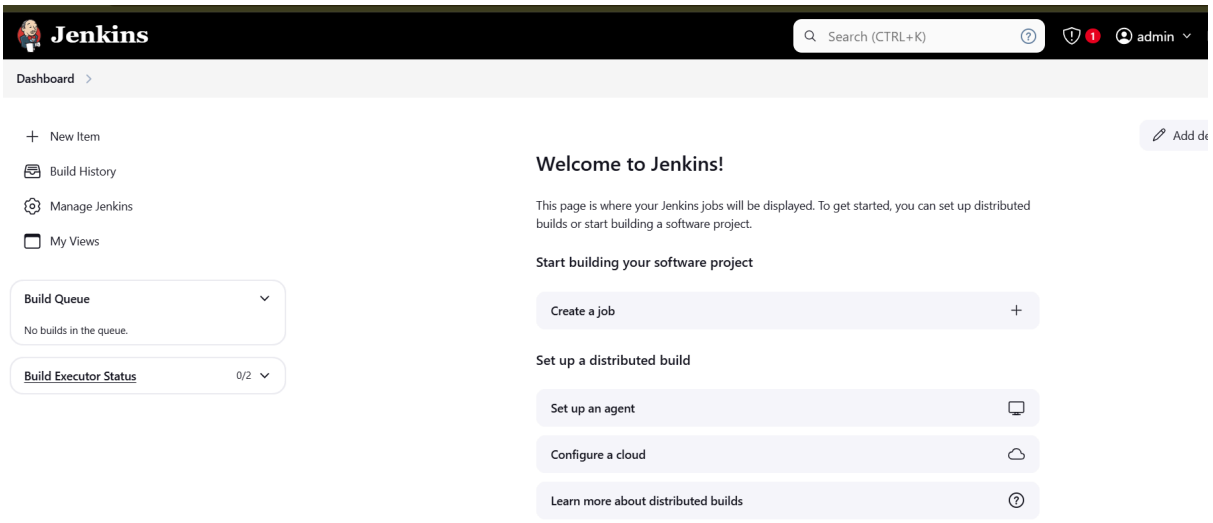




Jenkins login page

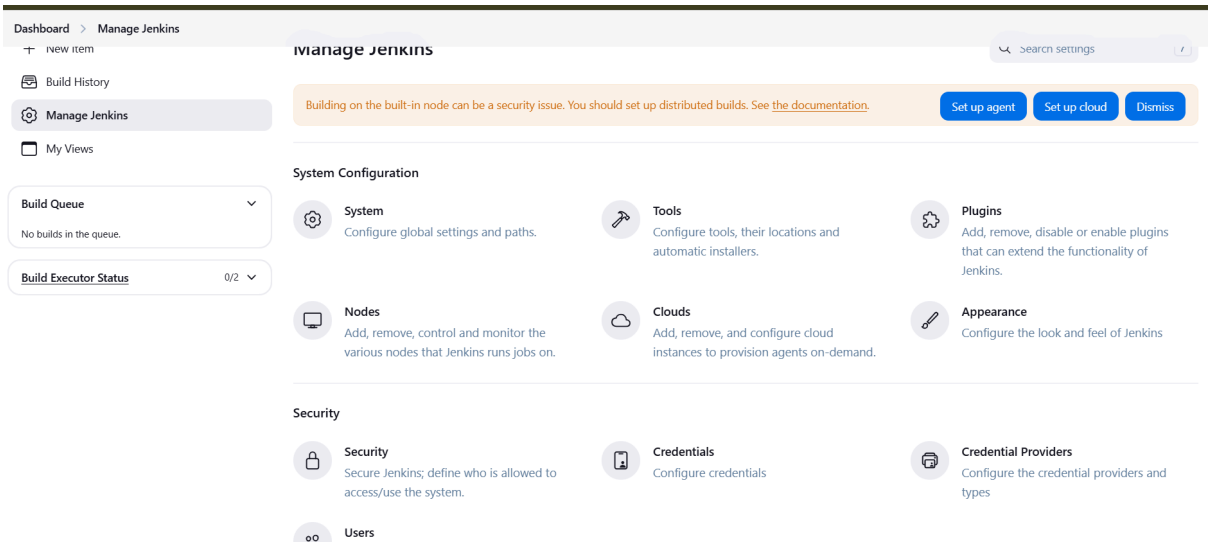


Jenkins dashboard

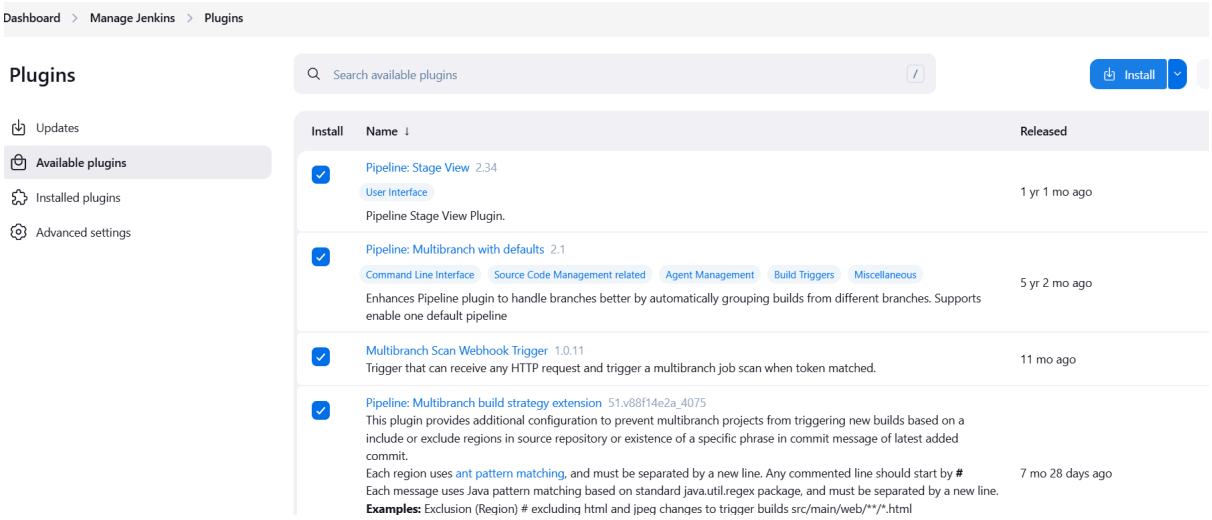


STEP 9 - Jenkins configurations for plugin installation

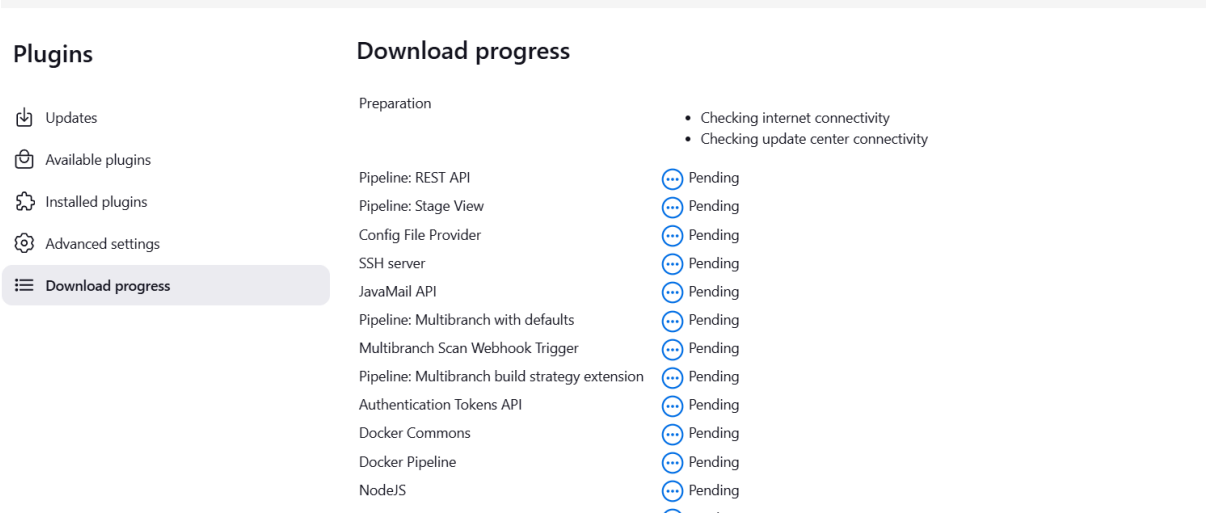
Manage jenkins



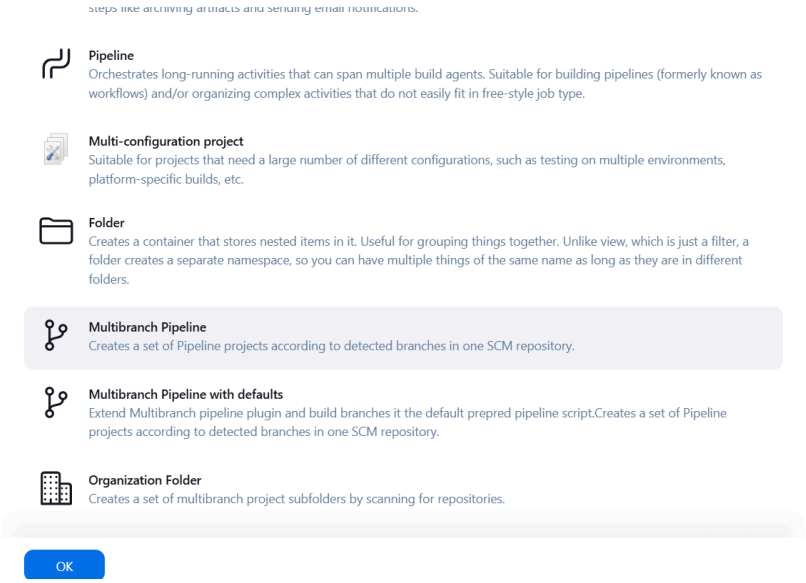
Plugins



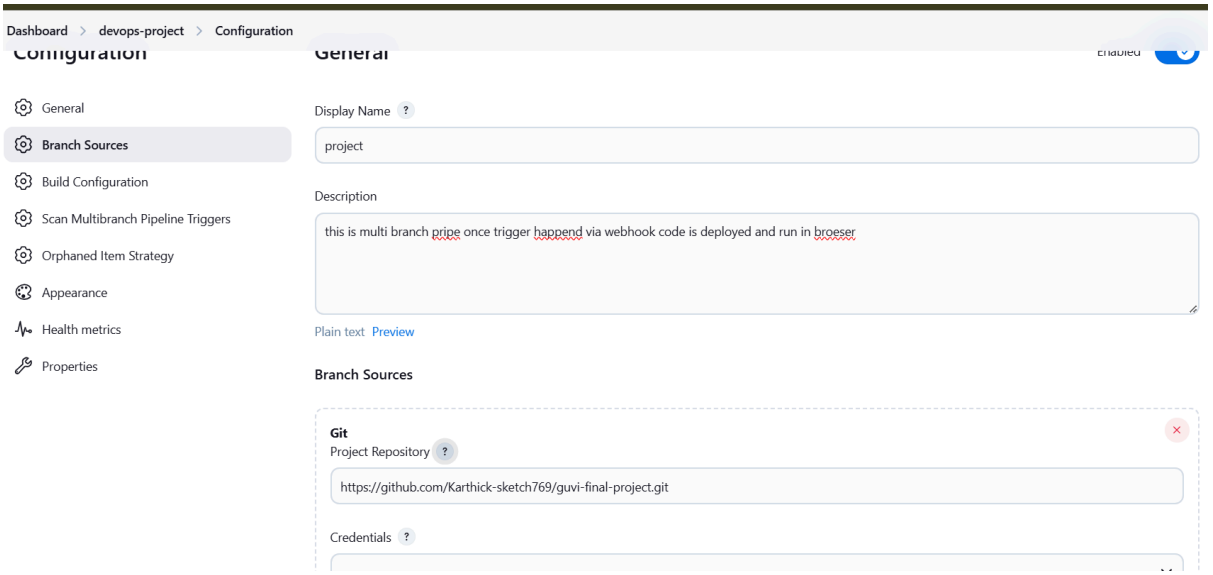
Installation



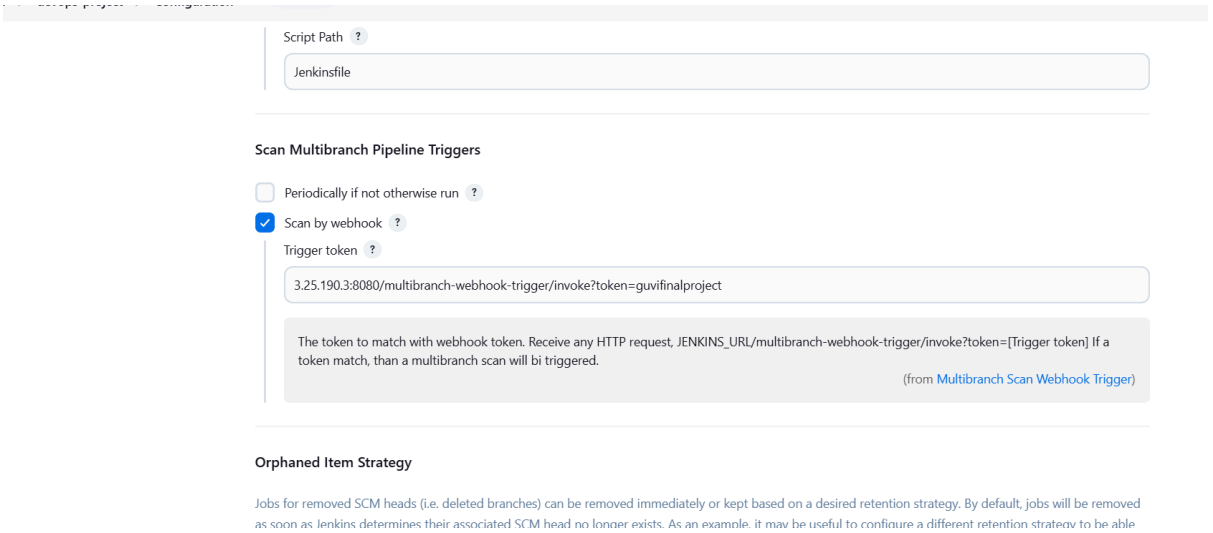
STEP 10 - Create a multi=branch pipeline project as name

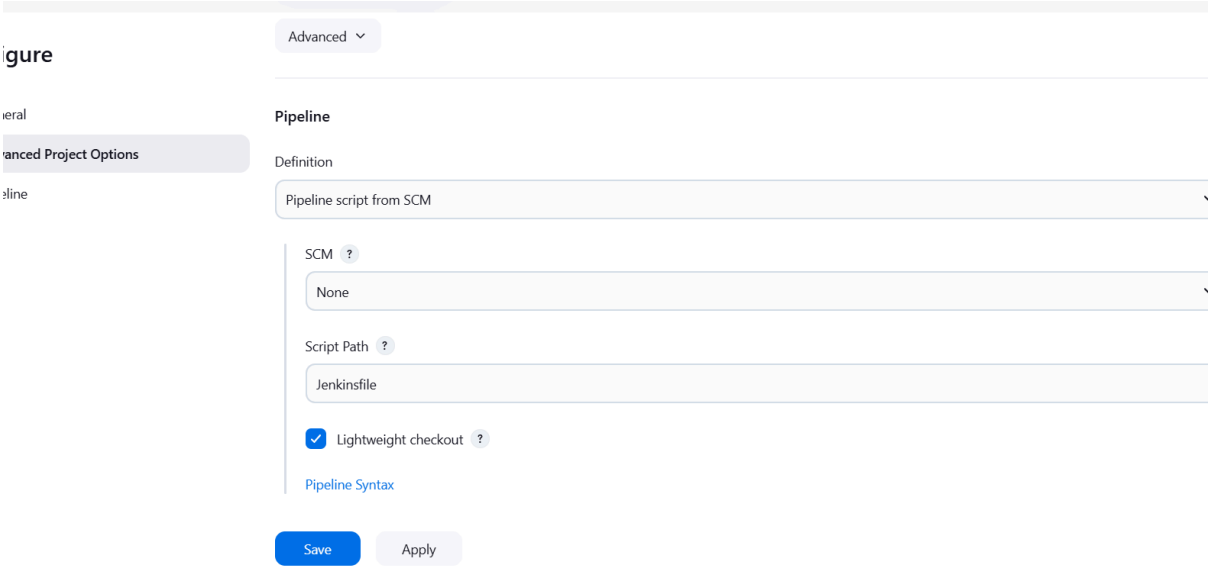


Add github repo



Configure webhook

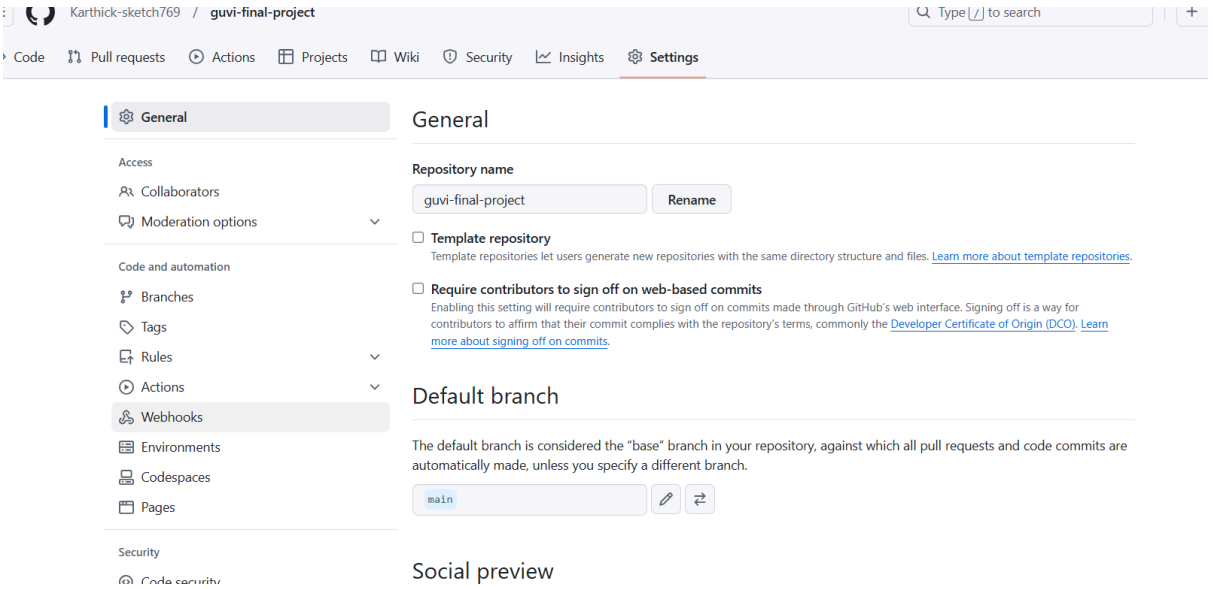




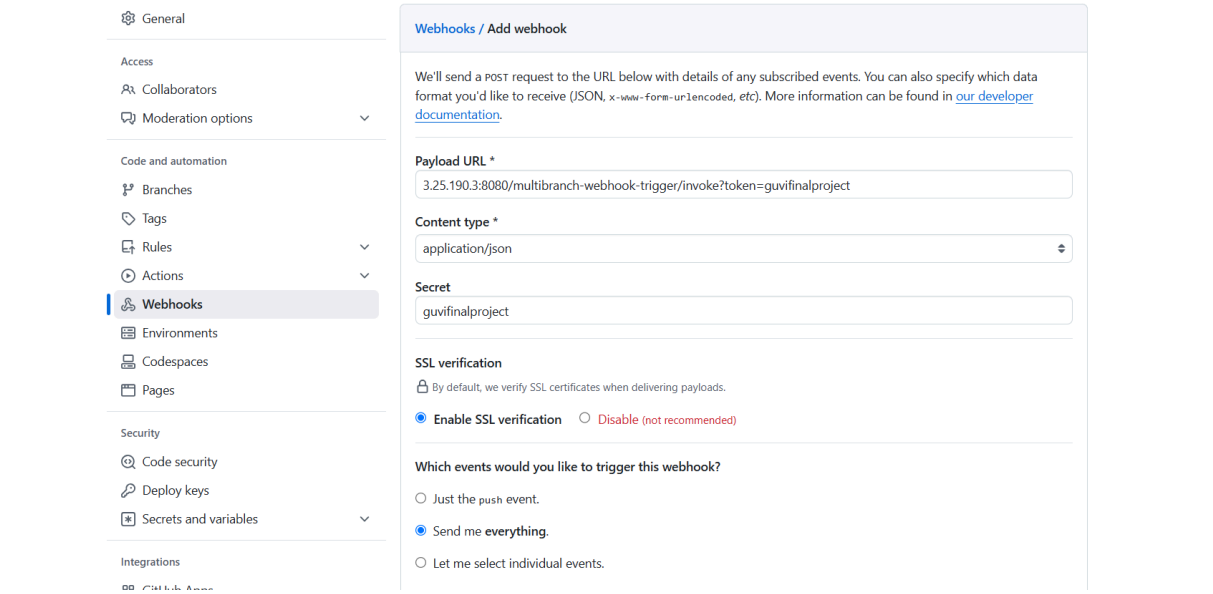
STEP 11 - Take the webhook url and put in jenkins payload url and the trigger token was created by me as own from github and paste it now github and jenkins intergrated

Then do webhook trigger in jenkins and github

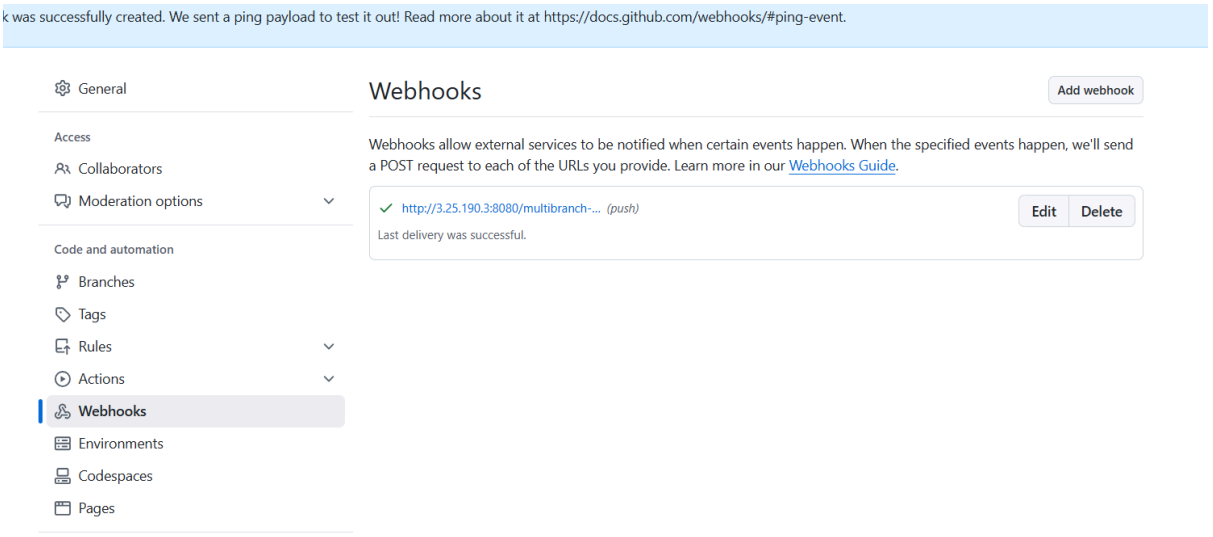
Go to github >> settings >> webhhook



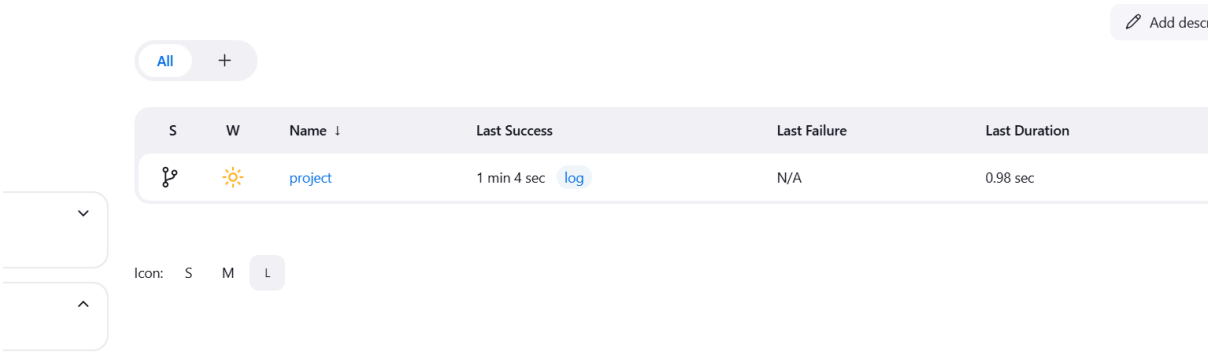
Use payload url as jenkins webhook url



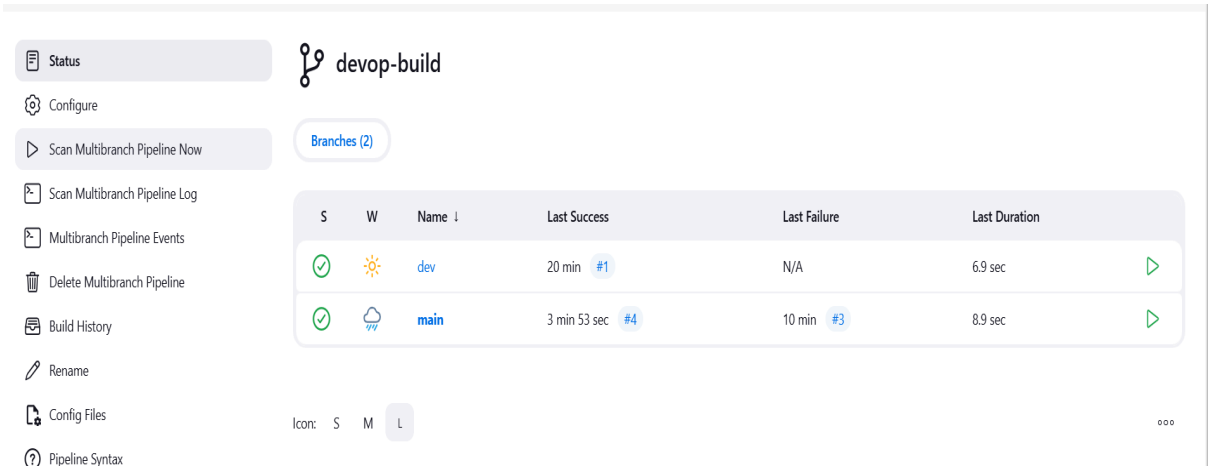
Finally configured



STEP 12 - Goto jenkins dashboard then view



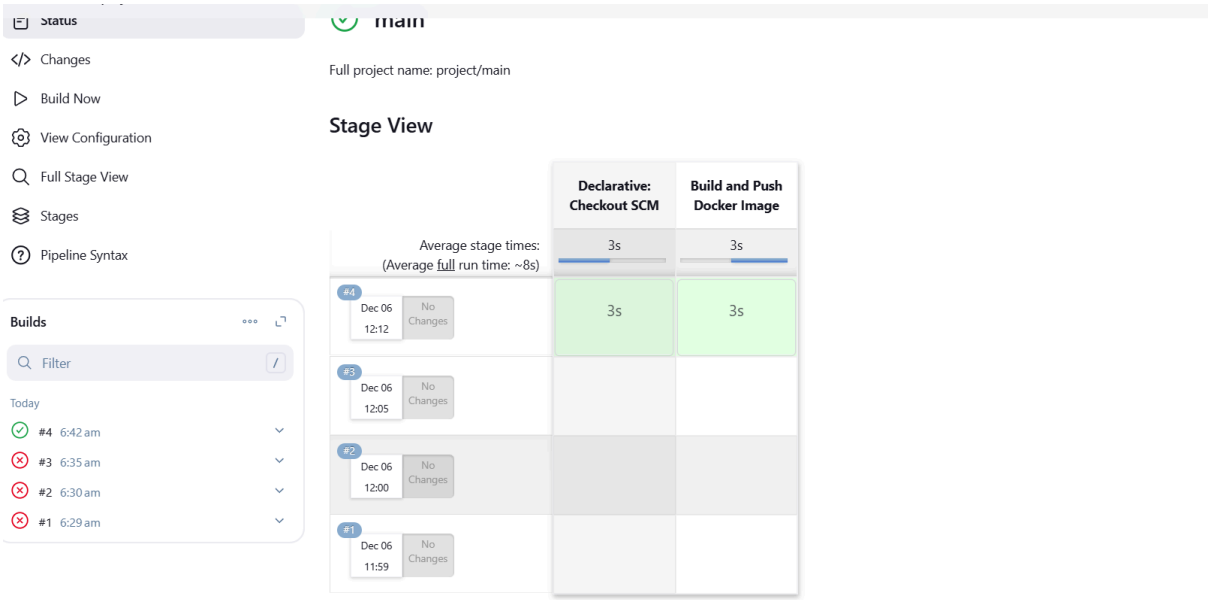
Do scan multi-branch



Build success

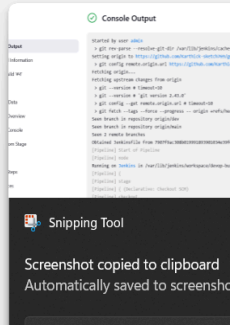
STEP 13 - main branch output

Stage view



console output

```
The recommended git tool is: git
No credentials specified
Cloning the remote Git repository
Cloning with configured refspecs honoured and without tags
Cloning repository https://github.com/Karthick-sketch769/guvi-final-project.git
 > git init /var/lib/jenkins/workspace/devop-build_main # timeout=10
Fetching upstream changes from https://github.com/Karthick-sketch769/guvi-final-project.git
 > git --version # timeout=10
 > git --version # 'git version 2.43.0'
 > git fetch --no-tags --force --progress -- https://github.com/Karthick-sketch769/guvi-final-project.git +refs/heads/*:refs/remo
# timeout=10
 > git config remote.origin.url https://github.com/Karthick-sketch769/guvi-final-project.git # timeout=10
 > git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
Checking out Revision 7907f9ac308b019991893901034e39f0557f7735 (main)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f 7907f9ac308b019991893901034e39f0557f7735 # timeout=10
Commit message: "Update Jenkinsfile"
First time build. Skipping changelog.
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Build and Push Docker Image)
```



Not secure 13.55.84.113:8080/job/project/job/main/4/console

nboard > project > main > #4

```
WARNING! Using --password via the CLI is insecure. Use --password-stdin.
WARNING! Your password will be stored unencrypted in /var/lib/jenkins/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
sudo: a terminal is required to read the password; either use the -S option to read from standard input or configure
sudo: a password is required
sudo: a terminal is required to read the password; either use the -S option to read from standard input or configure
sudo: a password is required
sudo: a terminal is required to read the password; either use the -S option to read from standard input or configure
sudo: a password is required
sudo: a terminal is required to read the password; either use the -S option to read from standard input or configure
sudo: a password is required
./deploy.sh: line 4: [: too many arguments
./deploy.sh: line 7: [: too many arguments
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

Success

Now the docker images is pushed to docker hub prod

General Tags Builds Collaborators Webhooks Settings

karthick997/prod

Last pushed 6 minutes ago

project

Add a category

Tags

This repository contains 1 tag(s).

Tag	OS	Type	Pulled	Pushed
cappro		Image	---	6 minutes ago

See all

STEP 14 - Dev branch output

Stage view

Dashboard > project > dev >

Status
Changes
Build Now
View Configuration
Full Stage View
Stages
Pipeline Syntax

Builds
Filter /
Today
#1 6:25 am

dev

Full project name: project/dev

Stage View

	Declarative: Checkout SCM	Build and Push Docker Image
Average stage times: (Average full run time: ~6s)	3s	691ms
#1 Dec 06 11:55 No Changes	3s	691ms

Permalinks

- Last build (#1), 3 hr 41 min ago
- Last stable build (#1), 3 hr 41 min ago

Console output

Dashboard > project > dev > #1

- Status
- Changes
- Console Output
- Edit Build Information
- Delete build '#1'
- Timings
- Git Build Data
- Pipeline Overview
- Pipeline Console
- Restart from Stage
- Replay
- Pipeline Steps
- Workspaces

Console Output

Download | Copy | View as plain

```
Branch indexing
 > git rev-parse --resolve-git-dir /var/lib/jenkins/caches/git-d37e363b19aebc07cfdb9aedc1ff2f68/.git # timeout=10
Setting origin to https://github.com/Karthick-sketch769/guvi-final-project.git
 > git config remote.origin.url https://github.com/Karthick-sketch769/guvi-final-project.git # timeout=10
Fetching origin...
Fetching upstream changes from origin
 > git --version # timeout=10
 > git --version # 'git version 2.43.0'
 > git config --get remote.origin.url # timeout=10
 > git fetch --tags --force --progress -- origin +refs/heads/*:refs/remotes/origin/* # timeout=10
Seen branch in repository origin/dev
Seen branch in repository origin/main
Seen 2 remote branches
Obtained Jenkinsfile from abe1710319e350833a450968c95558091eed72eb
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/devop-build_dev
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
```

```
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/devop-build_dev
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
The recommended git tool is: git
No credentials specified
Cloning the remote Git repository
Cloning with configured refspecs honoured and without tags
Cloning repository https://github.com/Karthick-sketch769/guvi-final-project.git
 > git init /var/lib/jenkins/workspace/devop-build_dev # timeout=10
Fetching upstream changes from https://github.com/Karthick-sketch769/guvi-final-project.git
 > git --version # timeout=10
 > git --version # 'git version 2.43.0'
 > git fetch --no-tags --force --progress -- https://github.com/Karthick-sketch769/guvi-final-project
# timeout=10
 > git config remote.origin.url https://github.com/Karthick-sketch769/guvi-final-project.git # timeou
 > git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
Checking out Revision abe1710319e350833a450968c95558091eed72eb (dev)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f abe1710319e350833a450968c95558091eed72eb # timeout=10
Commit message: "Update deploy.sh"
First time build. Skipping changelog.
[Pipeline] }
[Pipeline] // stage
```

Snipping Tool

Screenshot copied to clipboar
Automatically saved to screen

```
 > git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
Checking out Revision abe1710319e350833a450968c95558091eed72eb (dev)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f abe1710319e350833a450968c95558091eed72eb # timeout=10
Commit message: "Update deploy.sh"
First time build. Skipping changelog.
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Build and Push Docker Image)
[Pipeline] sh
+ chmod +x deploy.sh
[Pipeline] sh
+ ./deploy.sh
sh: 0: cannot open chmod +x build.sh: No such file
./deploy.sh: line 3: [: too many arguments
./deploy.sh: line 6: [: too many arguments
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

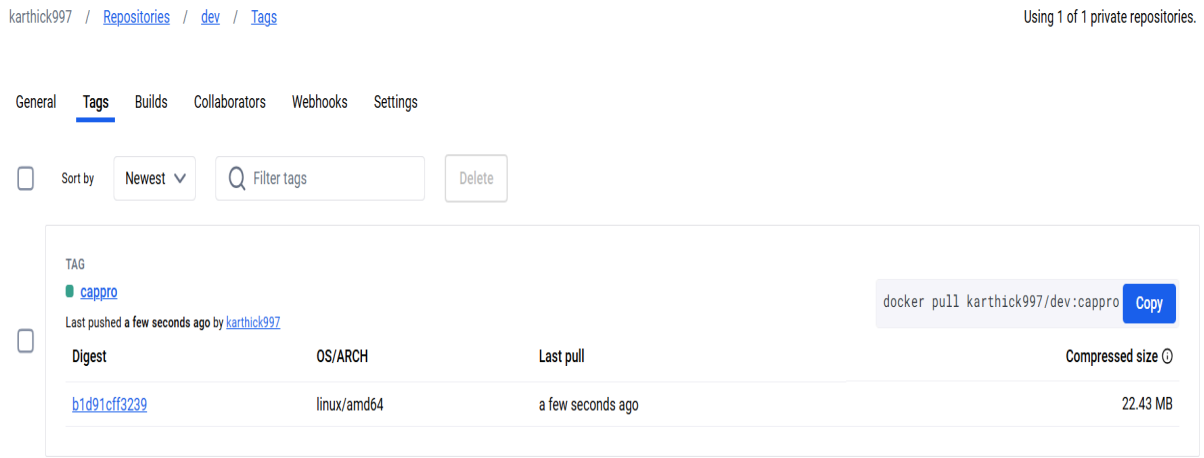
Snipping Tool

Screenshot copied to clipb
Automatically saved to scre

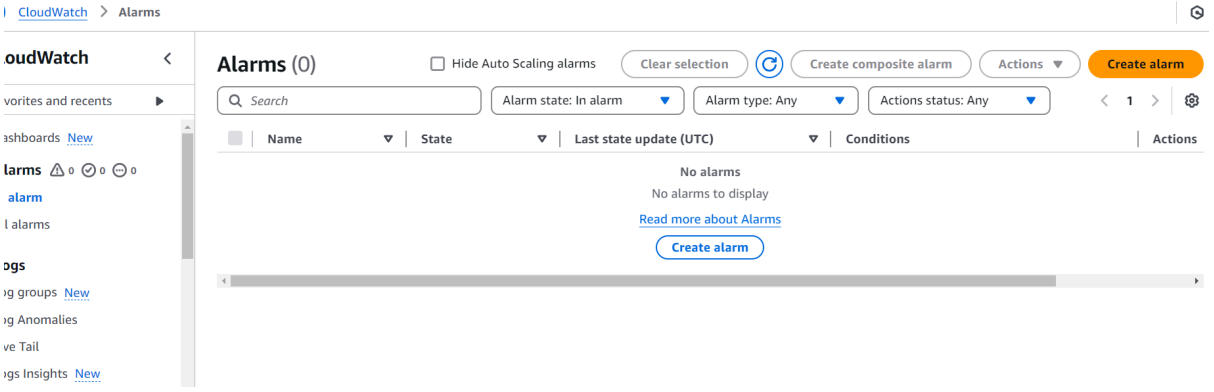
Mark-up

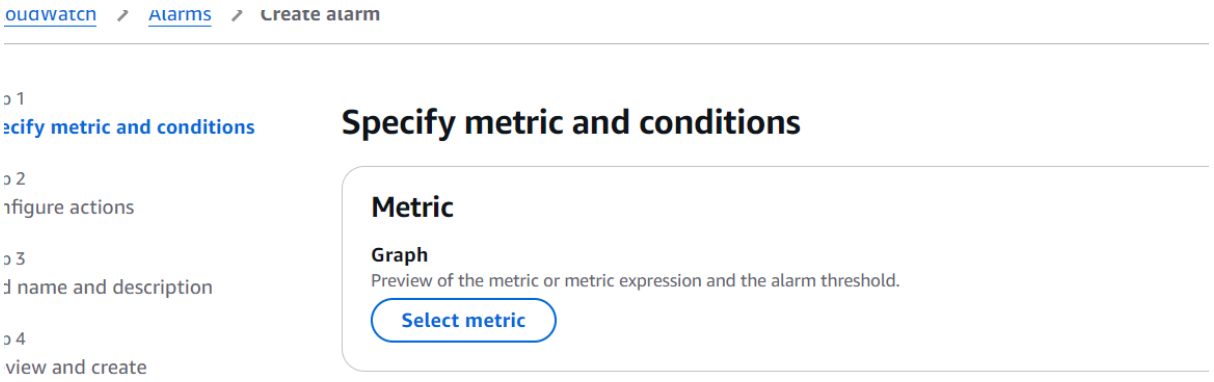
Success

Now, docker Image pushed to docker hub dev



STEP 15 - Setup the health check of our application when it goes down send the notification done my monitoring using cloud watch or prometheus and grafana. Monitoring using cloud watch tool to instance health for cpu utility and set sns notifcation to see cpu utility in mail using tresholdvalue





Untitled graph

1h 3h 12h 1d 3d 1w Custom | UTC timezone | Line

Browse | Multi source query | Graphed metrics (1) | Options | Source | Add math | Add query

☐	project	i-018c41ebf9db1...	EBSReadBytes	No alarms
☐	project	i-018c41ebf9db1...	EBSWriteBytes	No alarms
☑	project	i-018c41ebf9db1...	CPUUtilization	No alarms
☐	project	i-018c41ebf9db1...	NetworkIn	No alarms
☐	project	i-018c41ebf9db1...	NetworkPacketsOut	No alarms
☐	project	i-018c41ebf9db1...	NetworkOut	No alarms

Period

5 minutes

Conditions

Threshold type

- (●) Static — Use a value as a threshold
- ( ) Anomaly detection — Use a band as a threshold

Whenever CPUUtilization is...

Define the alarm condition.

- (●) Greater — > threshold
- ( ) Greater/Equal — >= threshold
- ( ) Lower/Equal — <= threshold
- ( ) Lower — < threshold

than...

Define the threshold value.

30

Send a notification to the following SNS topic

Define the SNS (Simple Notification Service) topic that will receive the notification.

- ( ) Select an existing SNS topic
- (●) Create new topic
- ( ) Use topic ARN to notify other accounts

Create a new topic...

The topic name must be unique.

ec2-alarm

SNS topic names can contain only alphanumeric characters, hyphens (-) and underscores (_).

Email endpoints that will receive the notification...

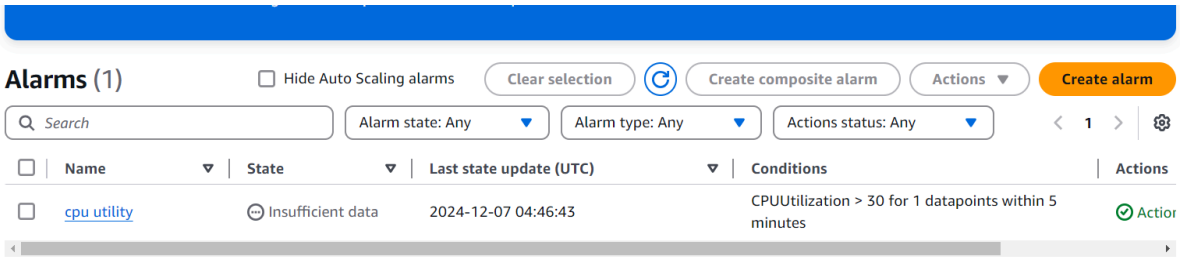
Add a comma-separated list of email addresses. Each address will be added as a subscription to the topic above.

karthicksethu189@gmail.com

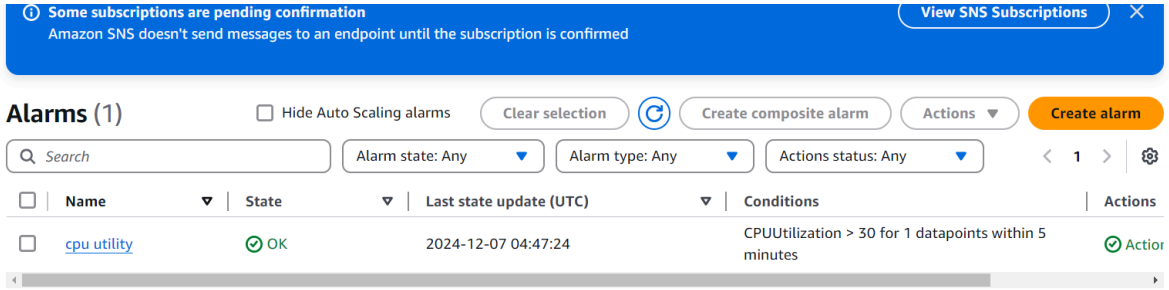
user1@example.com, user2@example.com

Create topic

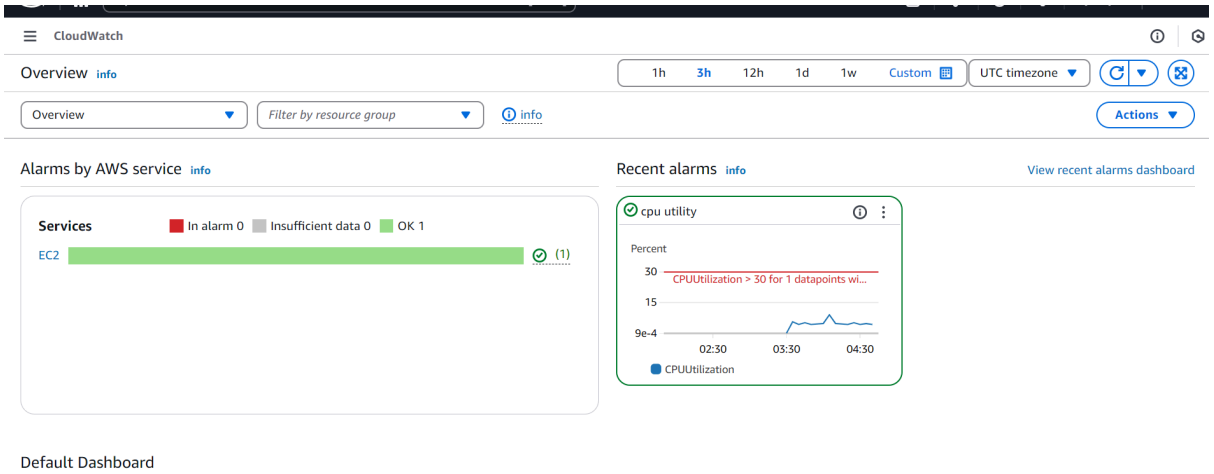
Alarm created successfully

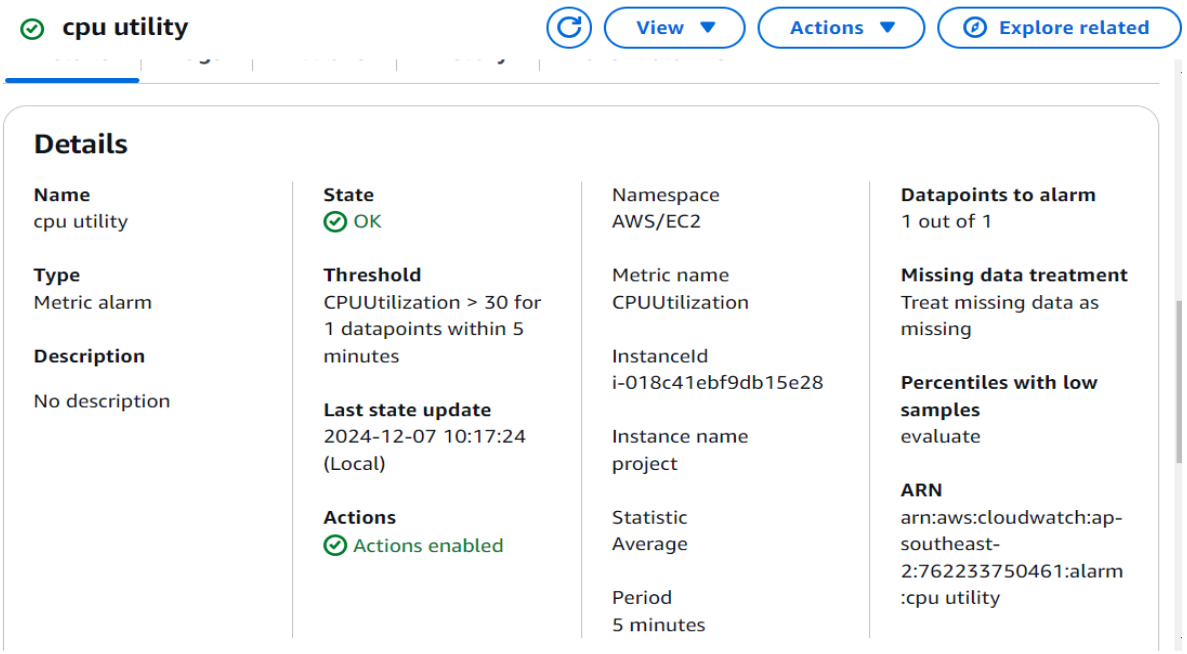


State is ok

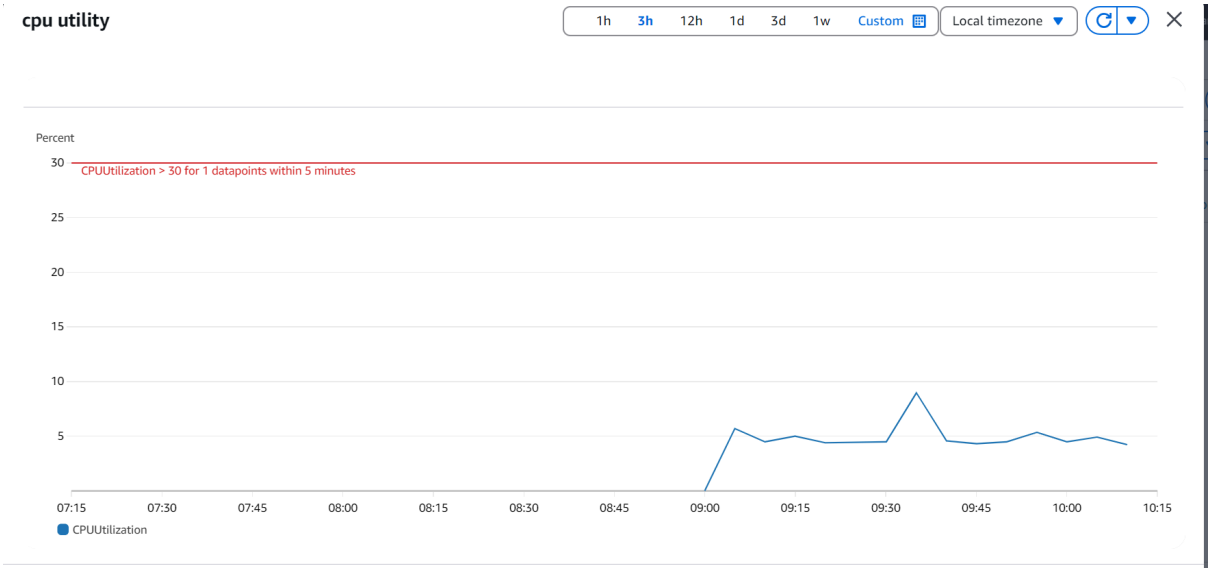


Logs of cpu utility

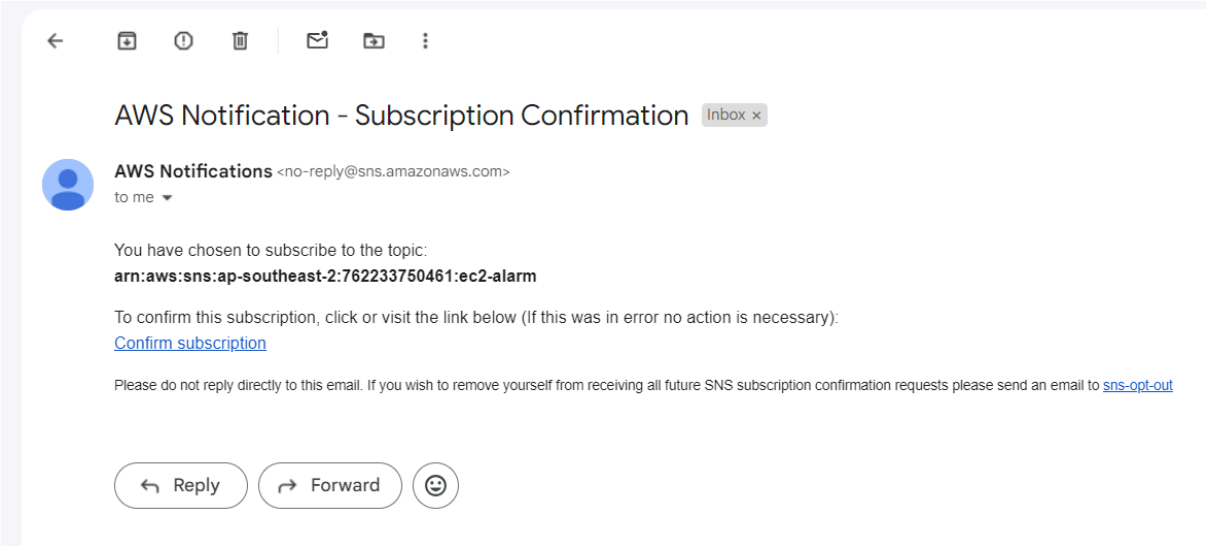



cpu utility
View
Actions
Explore related
Details
Name
cpu utility
Type
Metric alarm
Description
No description
State
OK
Threshold
CPUUtilization > 30 for 1 datapoints within 5 minutes
Last state update
2024-12-07 10:17:24 (Local)
Actions
Actions enabled
Namespace
AWS/EC2
Metric name
CPUUtilization
InstanceId
i-018c41ebf9db15e28
Instance name
project
Statistic
Average
Period
5 minutes
Datapoints to alarm
1 out of 1
Missing data treatment
Treat missing data as missing
Percentiles with low samples
evaluate
ARN
arn:aws:cloudwatch:ap-southeast-2:762233750461:alarm:cpu utility

OUTPUT

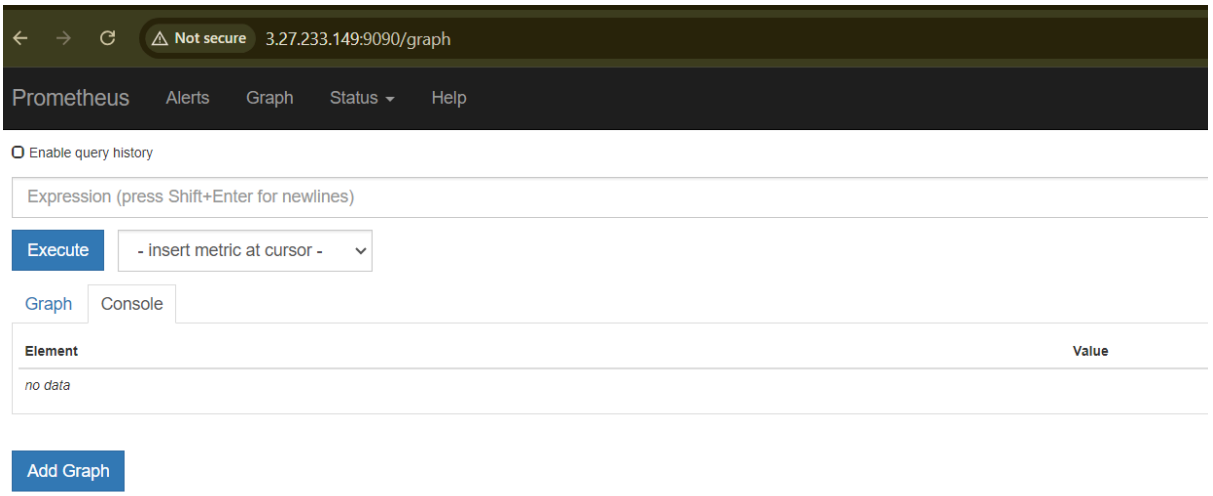

cpu utility
1h
3h
12h
1d
3d
1w
Custom
Local timezone
Percent
30
25
20
15
10
5
CPUUtilization > 30 for 1 datapoints within 5 minutes
07:15
07:30
07:45
08:00
08:15
08:30
08:45
09:00
09:15
09:30
09:45
10:00
10:15
CPUUtilization

E-mail notification

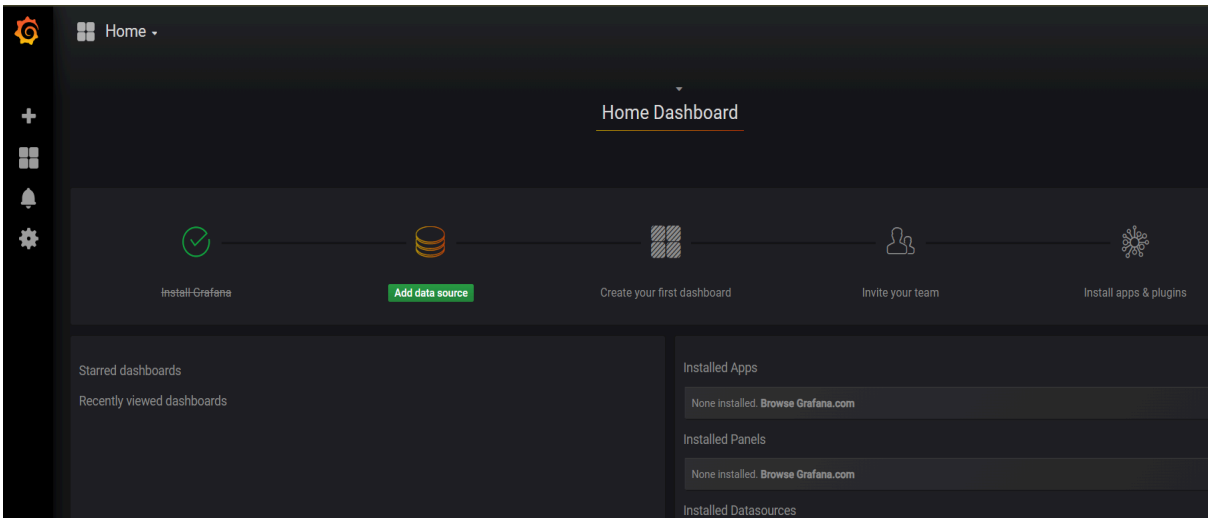


STEP 16 - Monitoring using prometheus and grtafana

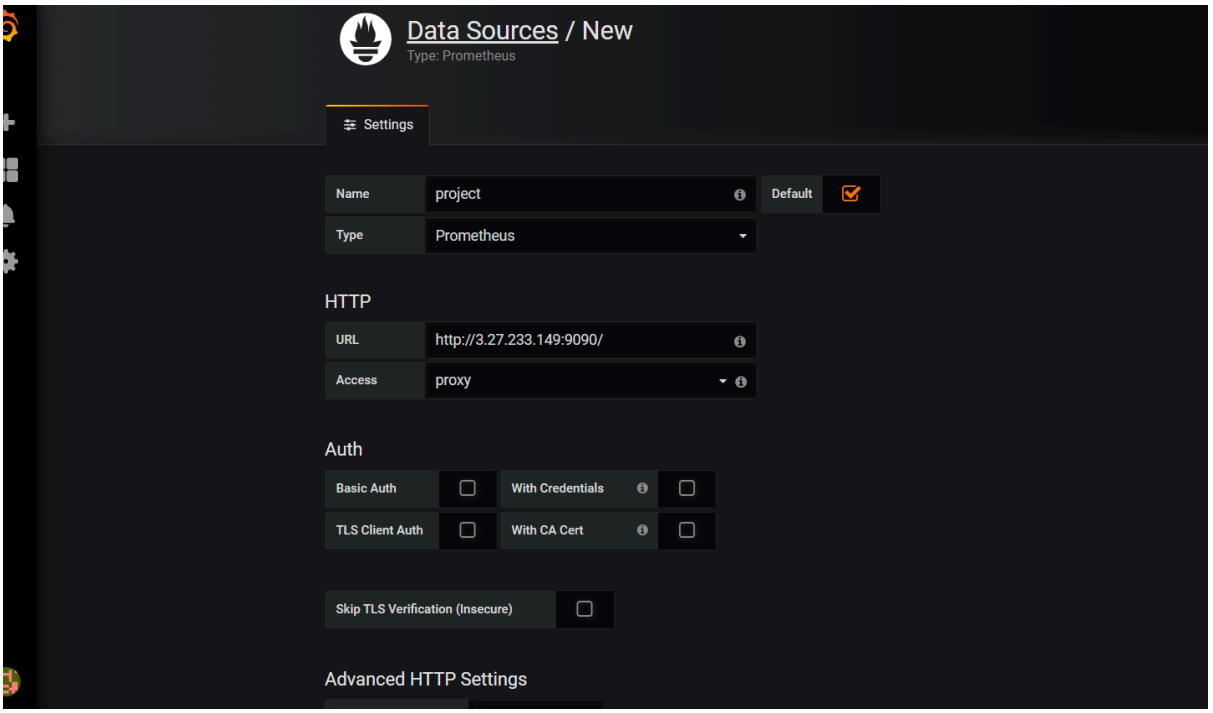
Prometheus dashboard



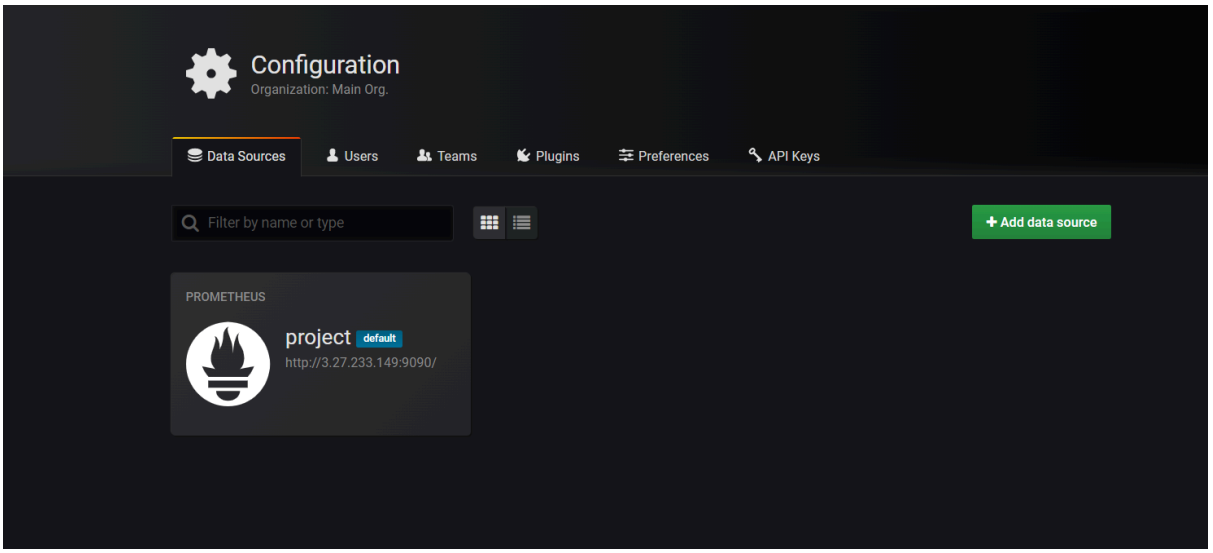
STEP 17 - Grafana dashboard



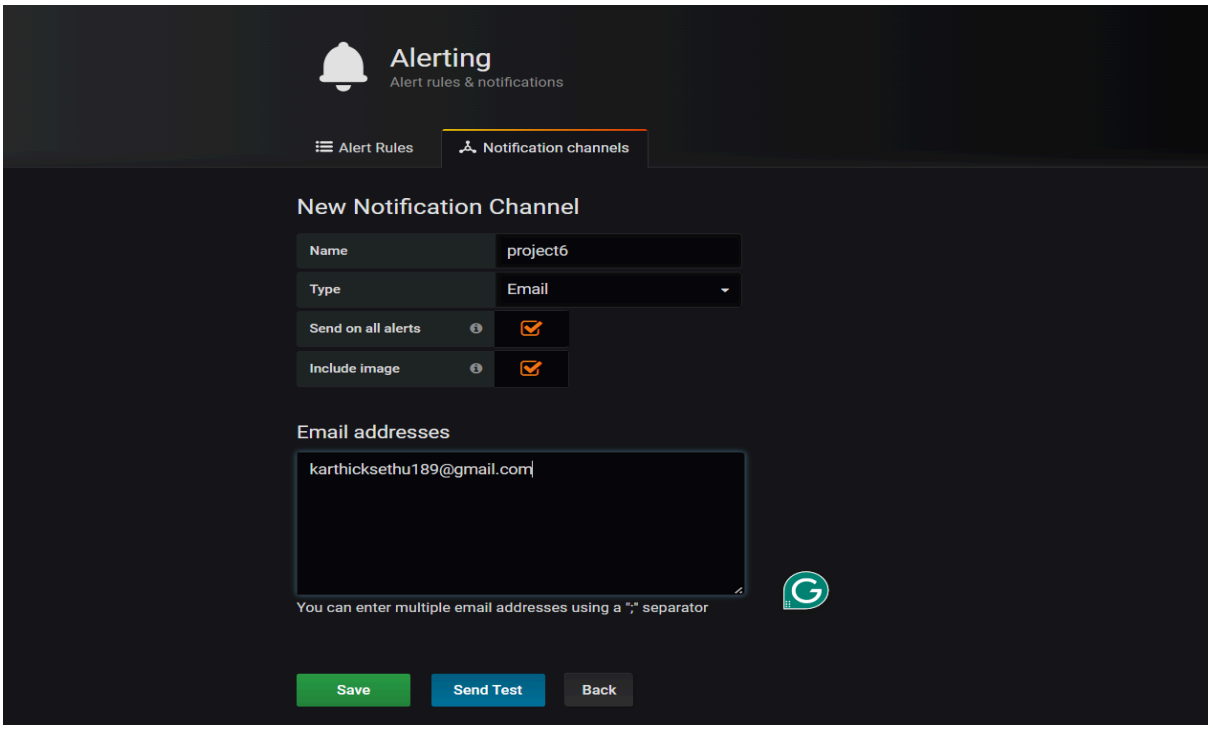
Create a datasource in dashboard as prometheus



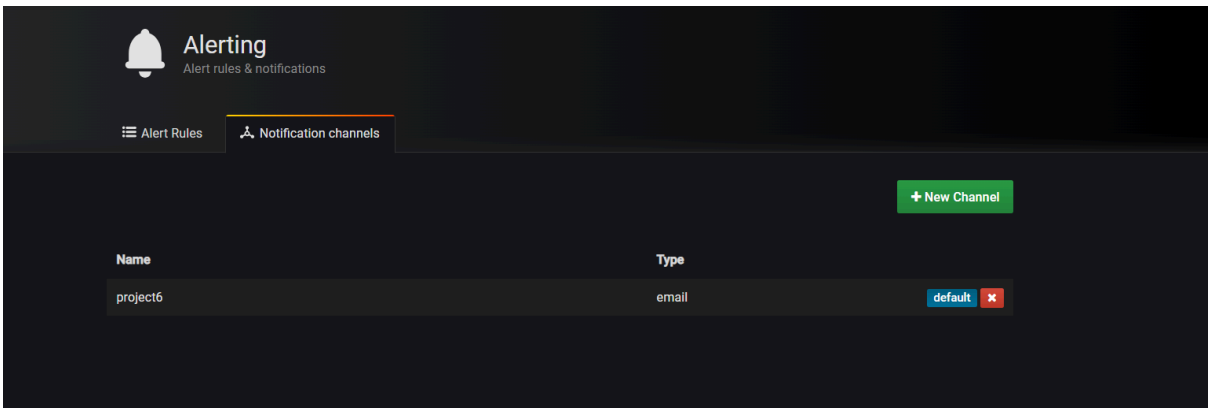
Now prometheus datasource is configured with public.ip@9090 port



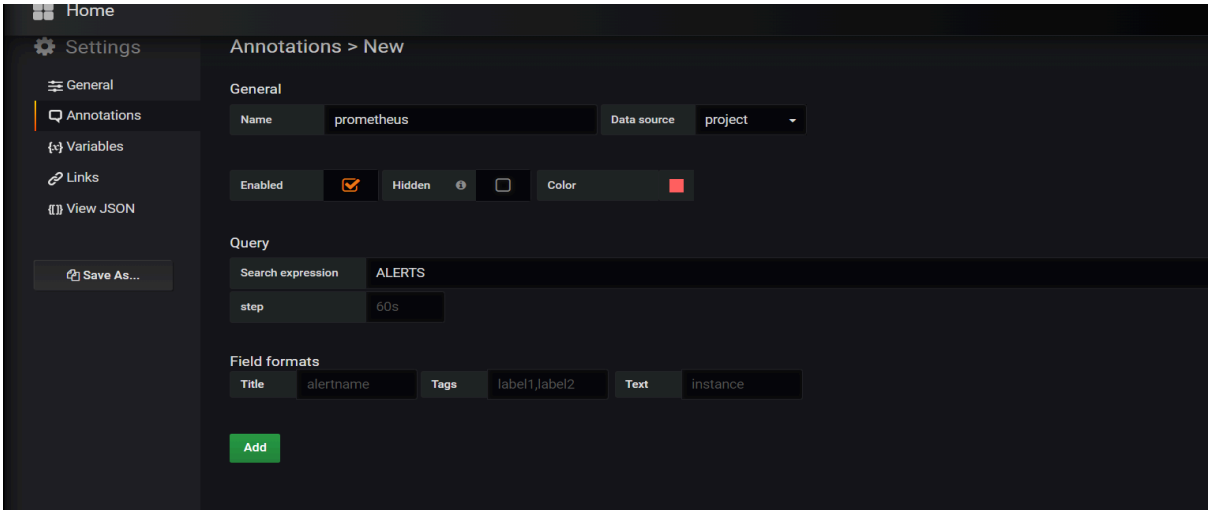
Set alarm for any issues in our application it will be notified by email



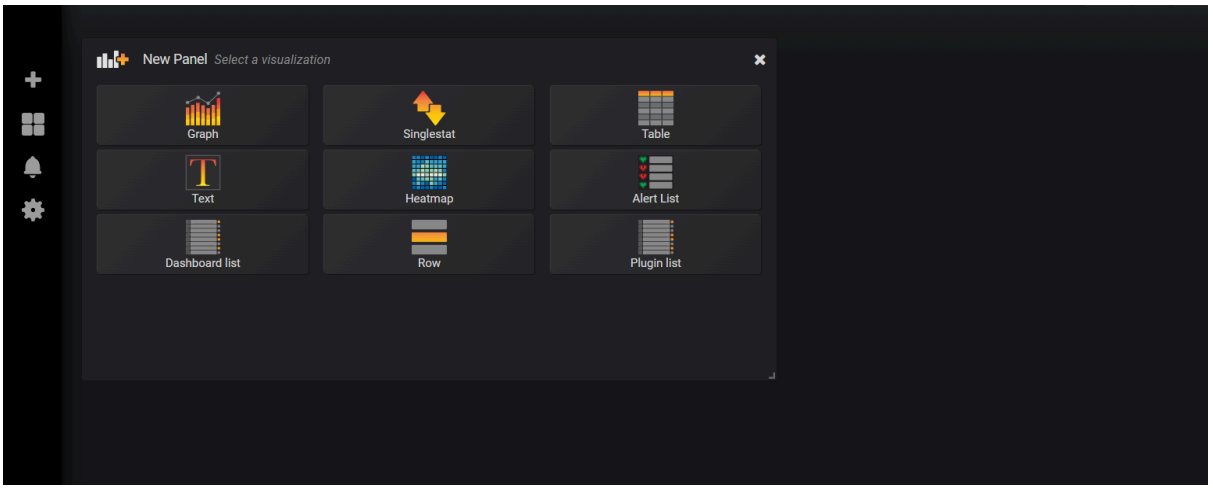
E-mail is comfigured



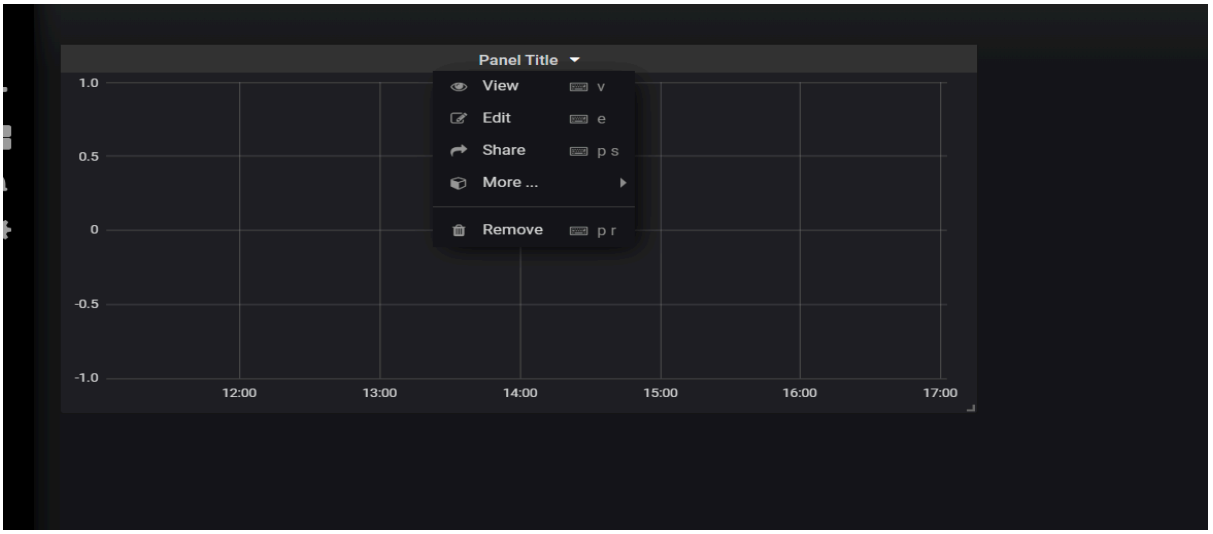
Now go to annotations to raise query



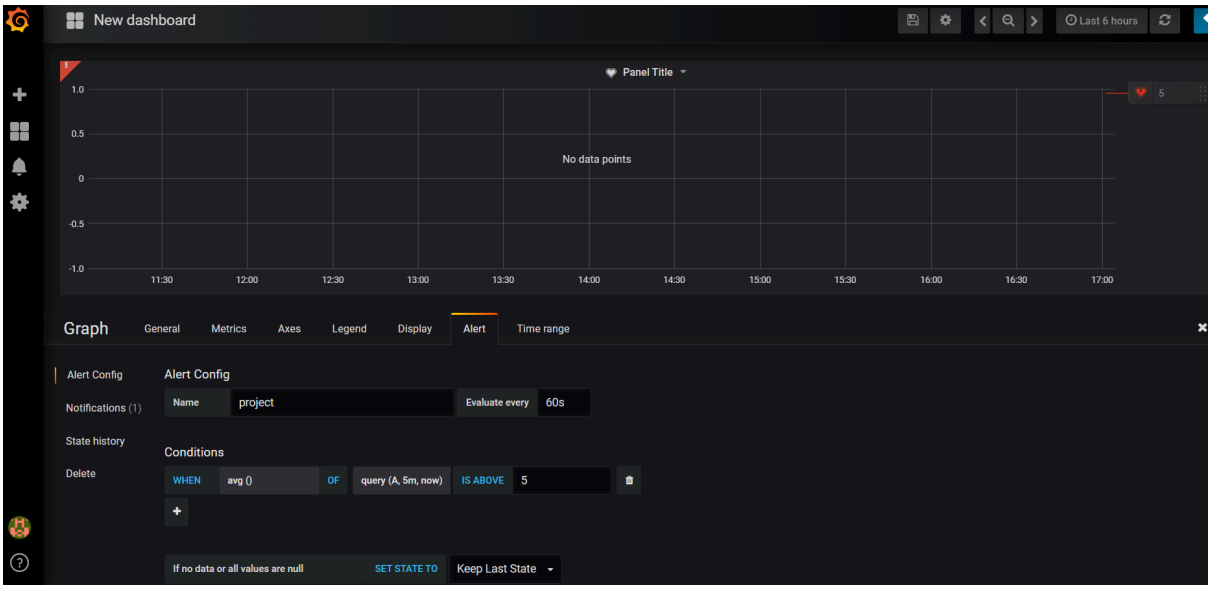
Chose detailed view under any 1 of the below



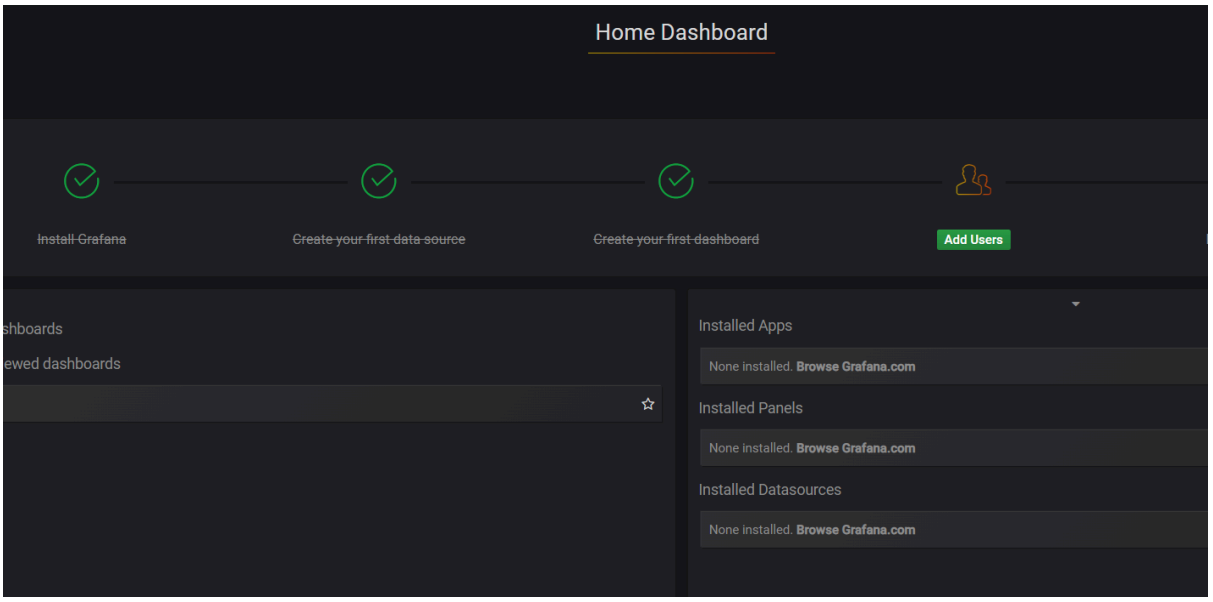
Here i have chosen bar graph view



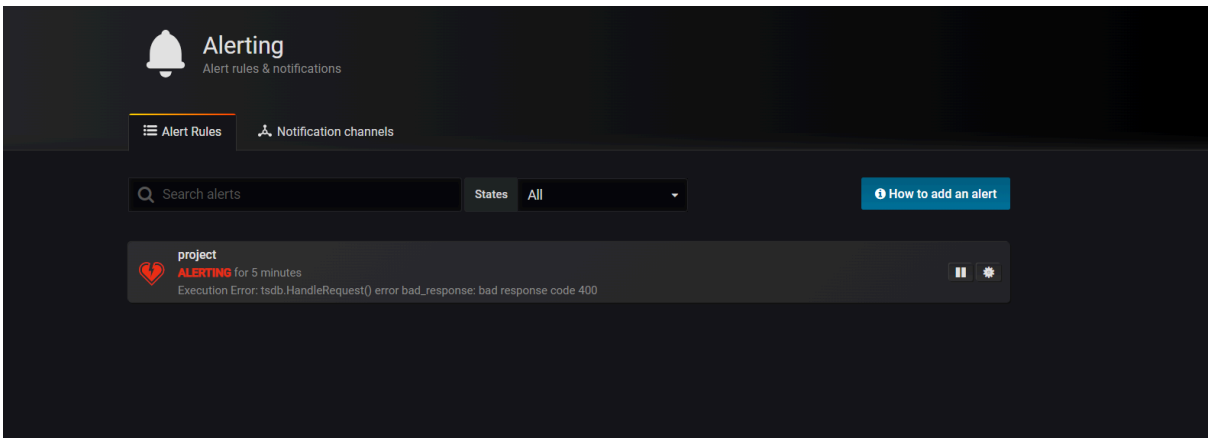
Edit the graft and mention our project and create a query to view status 0f app



Now viruavalization is configured success

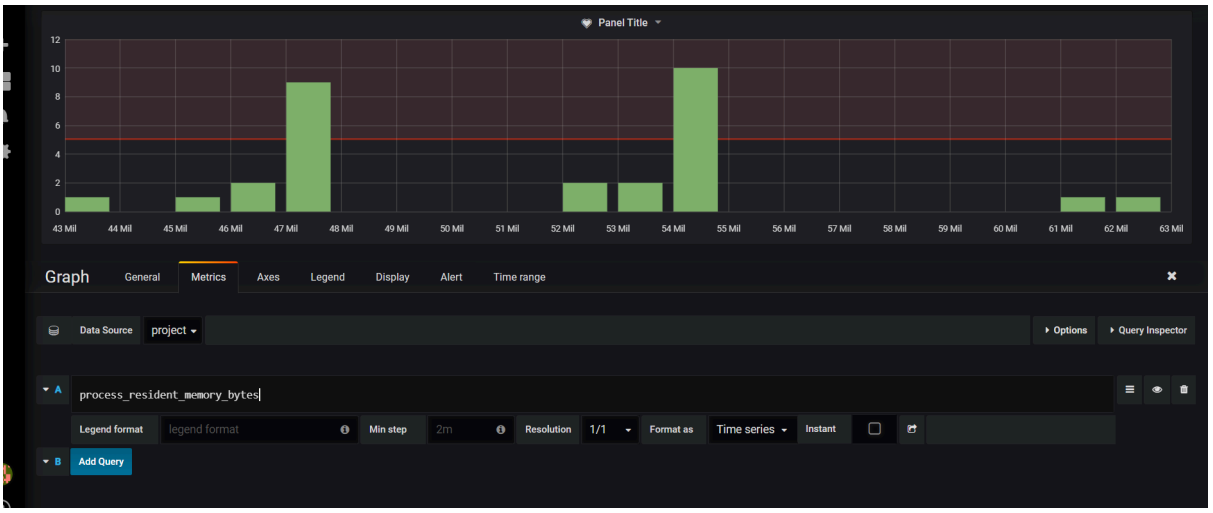


Our project has sent an alert to our mail



OUTPUT

The detailed view of alert is shown in bar graph at grafana



Docker hub URL

Prod

- https://hub.docker.com/repository/docker/karthick997/prod/general

Dev

- https://hub.docker.com/repository/docker/karthick997/dev/general

Jenkins URL

- http://3.107.52.108:8080/login?from=%2F

Github URL

- https://github.com/Karthick-sketch769/guvi-final-project.git

Deployed sit URL

- http://3.107.52.108/login

Prometheus URL

- http://3.27.233.149:9090/graph

Grafana URL

- http://3.27.233.149:3000/?orgId=1

Docker image output

Image Layers

1	ADD alpine-minirootfs-3.20.3-x86_64.tar.gz / # buildkit	3.46 MB
2	CMD ["/bin/sh"]	0 B
3	LABEL maintainer=NGINX Docker Maintainers <docker-maint@nginx.com>	0 B
4	ENV NGINX_VERSION=1.27.3	0 B
5	ENV PKG_RELEASE=1	0 B
6	ENV DYNPKG_RELEASE=1	0 B
7	RUN /bin/sh -c set -x	3.87 MB
8	COPY docker-entrypoint.sh / # buildkit	628 B
9	COPY 10-listen-on-ipv6-by-default.sh /docker-entrypoint.d # buildkit	956 B
10	COPY 15-local-resolvers.envsh /docker-entrypoint.d # buildkit	405 B
11	COPY 20-envsubst-on-templates.sh /docker-entrypoint.d # buildkit	1.18 KB
12	COPY 30-tune-worker-processes.sh /docker-entrypoint.d # buildkit	1.37 KB
13	ENTRYPOINT ["/docker-entrypoint.sh"]	0 B

```
14 EXPOSE map[80/tcp:{}]                                                    0 B
15 STOPSIGNAL SIGQUIT                                                       0 B
16 CMD ["nginx" "-g" "daemon off;"]                                         0 B
17 ENV NJS_VERSION=0.8.7                                                    0 B
18 ENV NJS_RELEASE=1                                                        0 B
19 RUN /bin/sh -c set -x                                                 14.4 MB
20 WORKDIR /usr/share/nginx/html                                            0 B
21 COPY dir:c2e438c2197ab49d08cca5477a64a41be5922edcc8612cc57b13e8d96cc66d23 i… 719.73 KB
22 EXPOSE 80                                                                0 B
23 CMD ["nginx" "-g" "daemon                                                0 B
```

Apart from this other specified output are present below the particular steps

**********THANK YOU**********