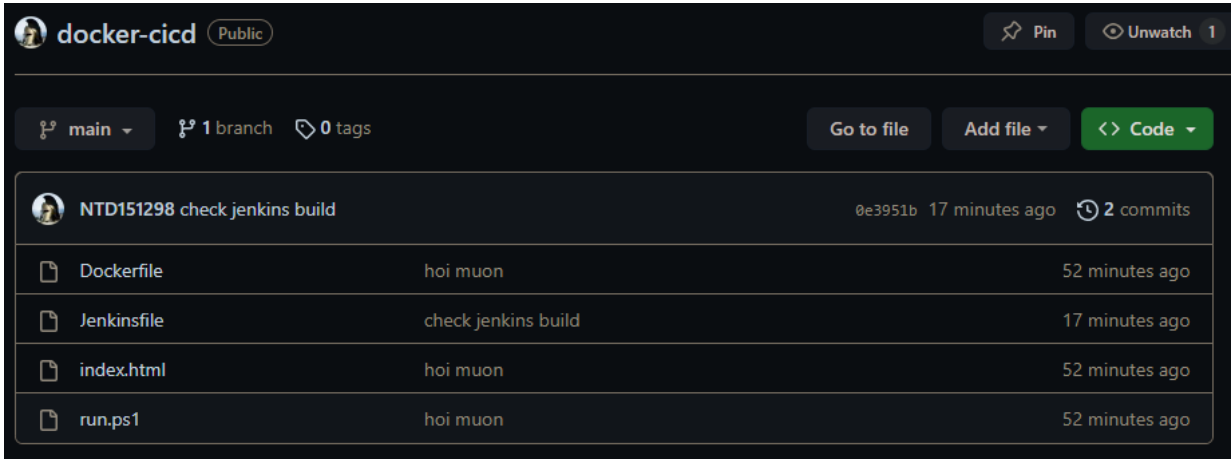


Exerise Jenkins day 5 CICD: lấy source code trong module docker -> build docker file thành image -> push docker hub

- Git hub repo chứa docker file



- Sử dụng terraform để tạo ec2 instance có cấu hình cài docker trong user data

```
# Cài đặt Container Engine
sudo apt-get update # Cập nhật danh sách gói phần mềm
sudo apt-get install -y ca-certificates curl gnupg lsb-release #

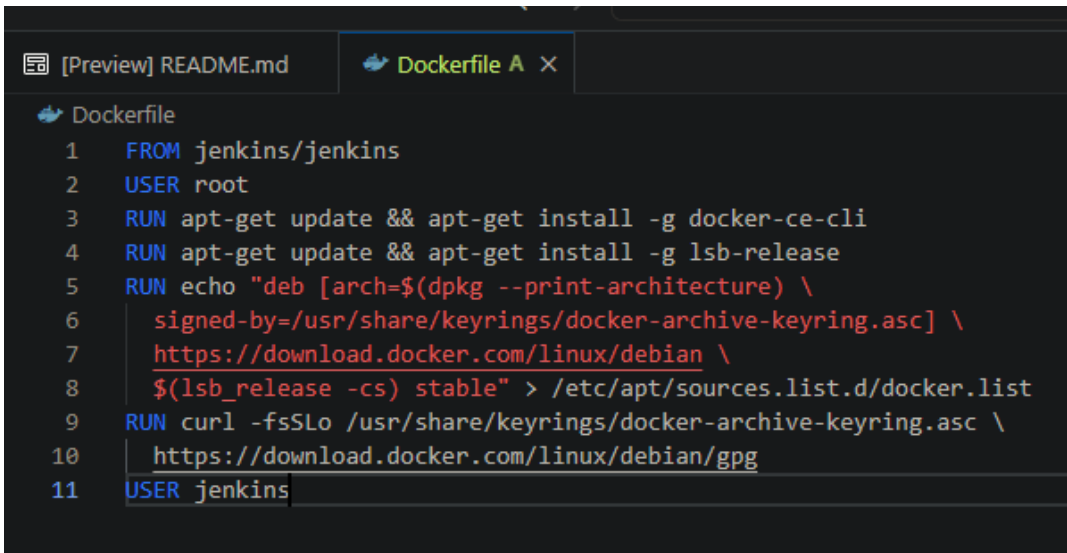
# Tải và cài đặt khóa GPG của Docker
curl -fsSL https://download.docker.com/linux/debian/gpg | sudo gp

# Thêm kho lưu trữ Docker vào danh sách các kho lưu trữ ứng dụng
echo \
"deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/ke
$(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/d

# Cài đặt Docker
sudo apt-get install docker.io -y # Cài đặt Docker
systemctl enable docker.service # Kích hoạt Docker để khởi động
systemctl start docker.service # Khởi động dịch vụ Docker
sudo apt-get install docker-compose -y # Cài đặt Docker compose

# Cấu hình Docker daemon
cat <<EOF | sudo tee /etc/docker/daemon.json
{
  "exec-opts": ["native.cgroupdriver=systemd"],
  "log-driver": "json-file",
  "log-opts": {
    "max-size": "100m"
  }
}
```

- Sau khi Ec2 instance lên được rồi ta ssh vào instance đó và viết docker file



- File docker file viết trước

```

Last login: Mon Oct  2 12:14:29 2023 from 3.0.5.37
ubuntu@ip-172-31-43-98:~$ ls
Dockerfile
ubuntu@ip-172-31-43-98:~$ cat Dockerfile
FROM jenkins/jenkins
USER root
RUN apt-get update && apt-get install -g docker-ce-cli
RUN apt-get update && apt-get install -g lsb-release
RUN echo "deb [arch=$(dpkg --print-architecture) \
signed-by=/usr/share/keyrings/docker-archive-keyring.asc] \
https://download.docker.com/linux/debian \
$(lsb_release -cs) stable" > /etc/apt/sources.list.d/docker.list
RUN curl -fsSLo /usr/share/keyrings/docker-archive-keyring.asc \
https://download.docker.com/linux/debian/gpg
USER jenkins
ubuntu@ip-172-31-43-98:~$

```

- Ở trong Ec2 instance

- Sử dụng lệnh docker build với tag jenkins/jenkins:latest tại đường dẫn thư mục

```

ubuntu@ip-172-31-43-98:~$ docekr build -t jenkins/jenkins:latest .
Command 'docekr' not found, did you mean:
  command 'docker' from snap docker (20.10.24)
  command 'docker' from deb podman-docker (3.4.4+ds1-1ubuntu1.22.04.2)
  command 'docker' from deb docker.io (24.0.5-0ubuntu1~22.04.1)
See 'snap info <snapname>' for additional versions.
ubuntu@ip-172-31-43-98:~$ docker build -t jenkins/jenkins:latest .
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 16.38kB
Step 1/7 : FROM jenkins/jenkins
----> d6cb4fb72e38
Step 2/7 : USER root
----> Using cache
----> cec132d1165d
Step 3/7 : RUN apt-get update && apt-get install -g docker-ce-cli
----> Running in d5794f6e0270
Get:1 http://deb.debian.org/debian bookworm InRelease [151 kB]
Get:2 http://deb.debian.org/debian bookworm-updates InRelease [52.1 kB]
Get:3 http://deb.debian.org/debian-security bookworm-security InRelease [48.0 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 Packages [8906 kB]
Get:5 http://deb.debian.org/debian bookworm-updates/main amd64 Packages [6408 B]
Get:6 http://deb.debian.org/debian-security bookworm-security/main amd64 Packages [65.8 kB]
Get:7 https://packagecloud.io/github/git-lfs/debian bookworm InRelease [25.8 kB]
Get:8 https://packagecloud.io/github/git-lfs/debian bookworm/main amd64 Packages [2131 B]
Fetched 9257 kB in 3s (3333 kB/s)
Reading package lists

```

- Image được build

```

ubuntu@ip-172-31-43-98:~$ docker image ls
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
duongtn1512/random_game  pingpong_latest    32939f3f9f11        2 hours ago        187MB
duongtn1512/random_game  <none>              bdfccfe6fa50        3 hours ago        187MB
<none>                 <none>              cec132d1165d        4 hours ago        478MB
jenkins/jenkins         latest              d6cb4fb72e38        6 days ago         478MB

```

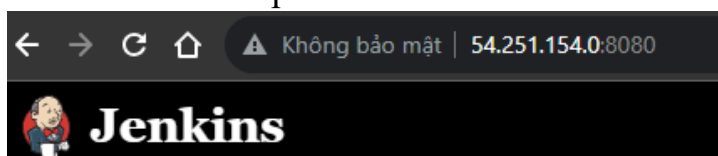
- Ta chạy image lên container với câu lệnh “ `docker run --privileged --name jenkins -it -v $(command -v docker):/usr/bin/docker -v /var/run/docker.sock:/var/run/docker.sock -p 8080:8080 jenkins/jenkins:latest` “
- Để jenkins container có khả năng sử dụng Docker Daemon của máy chủ, ta chạy Jenkins container với quyền truy cập vào Docker Daemon theo lệnh trên.

```

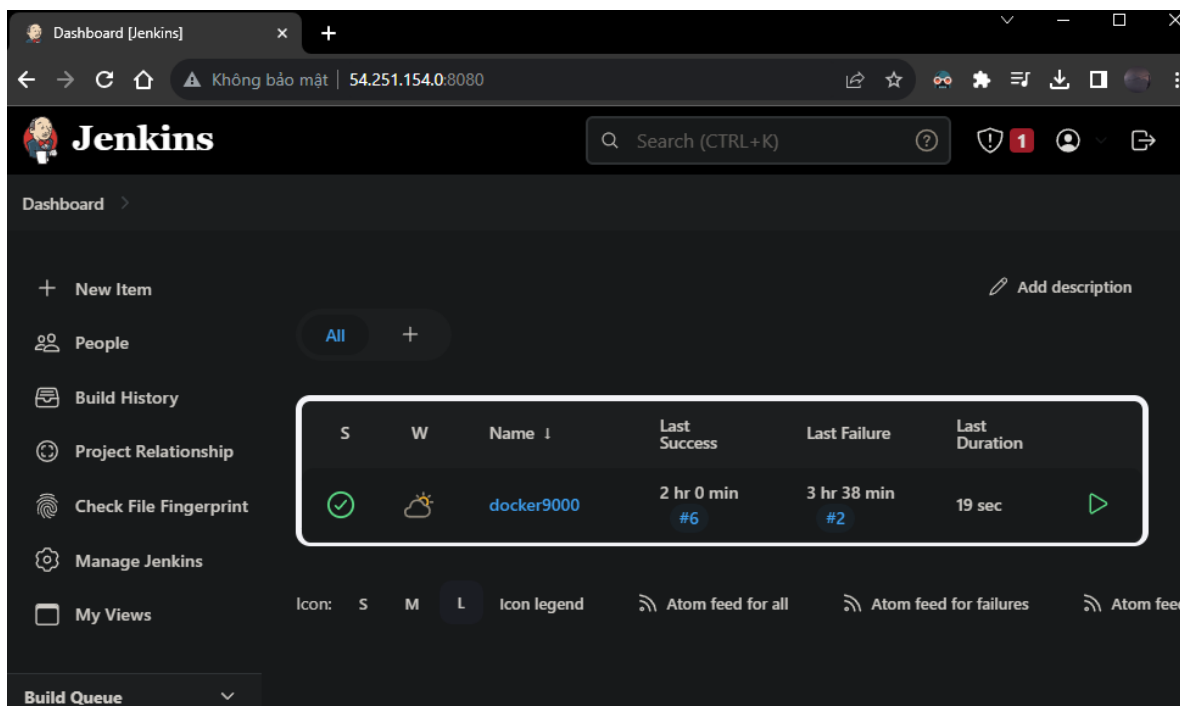
ubuntu@ip-172-31-43-98:~$ docker ps
CONTAINER ID   IMAGE                COMMAND                  CREATED        STATUS        PORTS
09de3ecb7f92   jenkins/jenkins:latest "/usr/bin/tini -- /u..." 4 hours ago   Up 3 seconds   0.0.0.0:8080->8080/tcp, :::8080->8080/tcp, 50000/tcp
ubuntu@ip-172-31-43-98:~$

```

- Theo như docker ps trên container Jenkins đã được chạy trên cổng 8080 ta check trên web



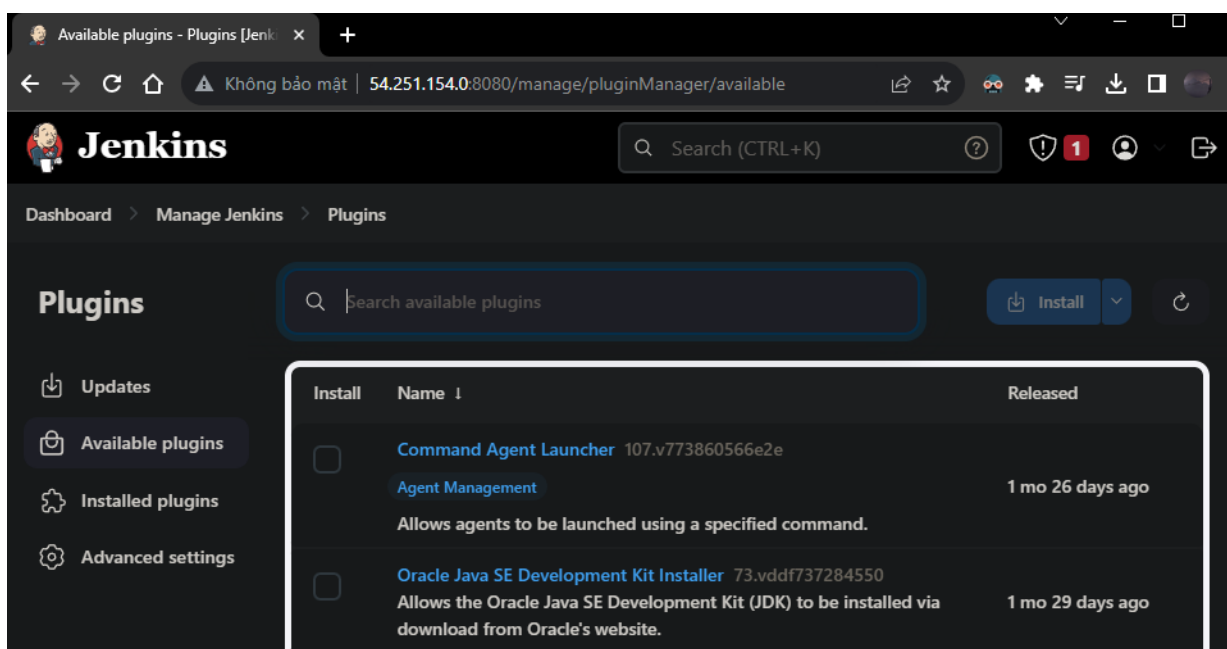
- Màn hình chính của jenkins



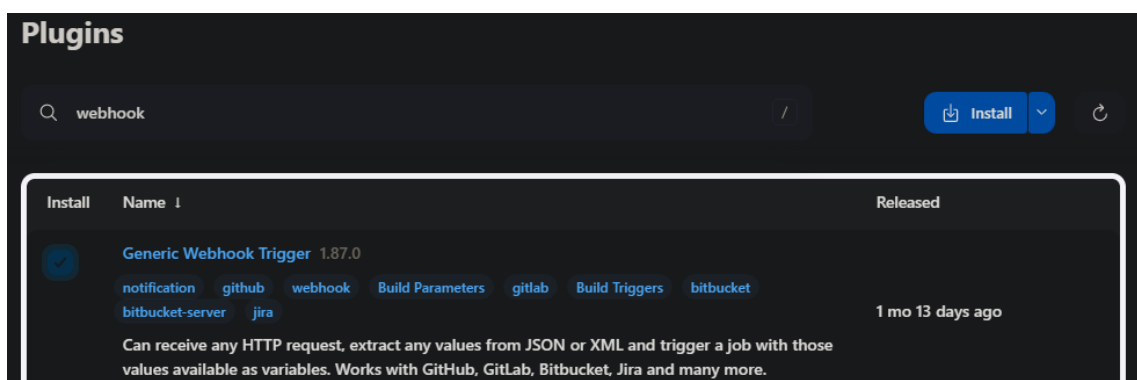
- Ta vào trong jenkins container với user root trao quyền 777 thư mục mount docker daemon

```
ubuntu@ip-172-31-43-98:~$ docker exec -u root -it jenkins bash
root@09de3ecb7f92:/# chmod 777 /var/run/docker.sock
root@09de3ecb7f92:/#
```

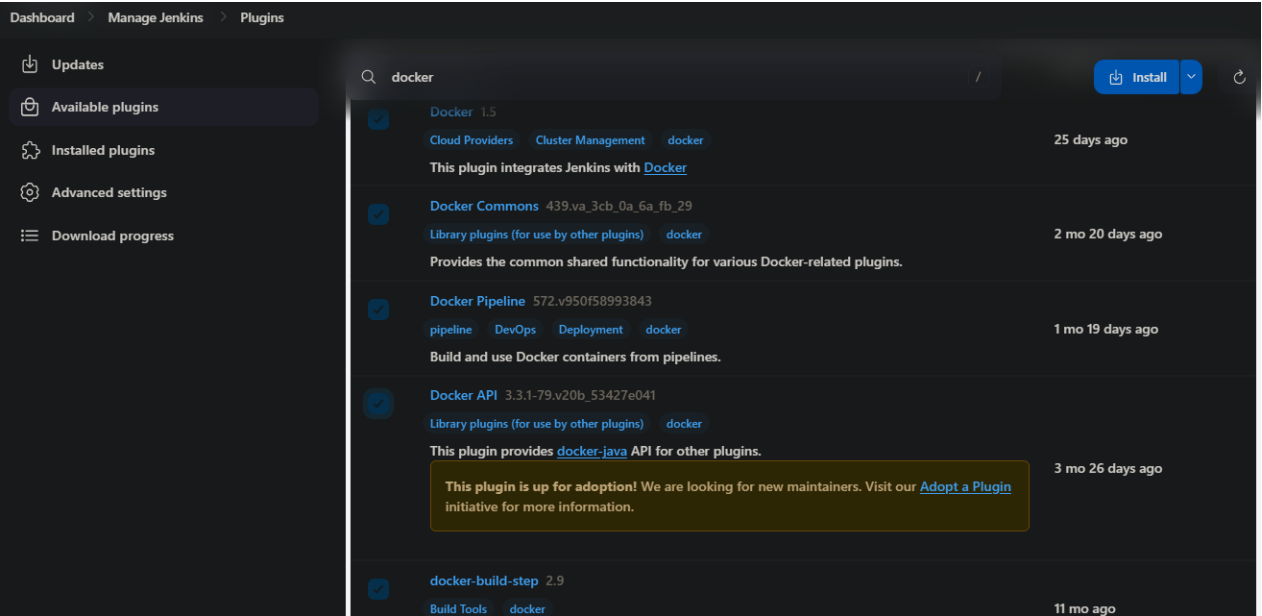
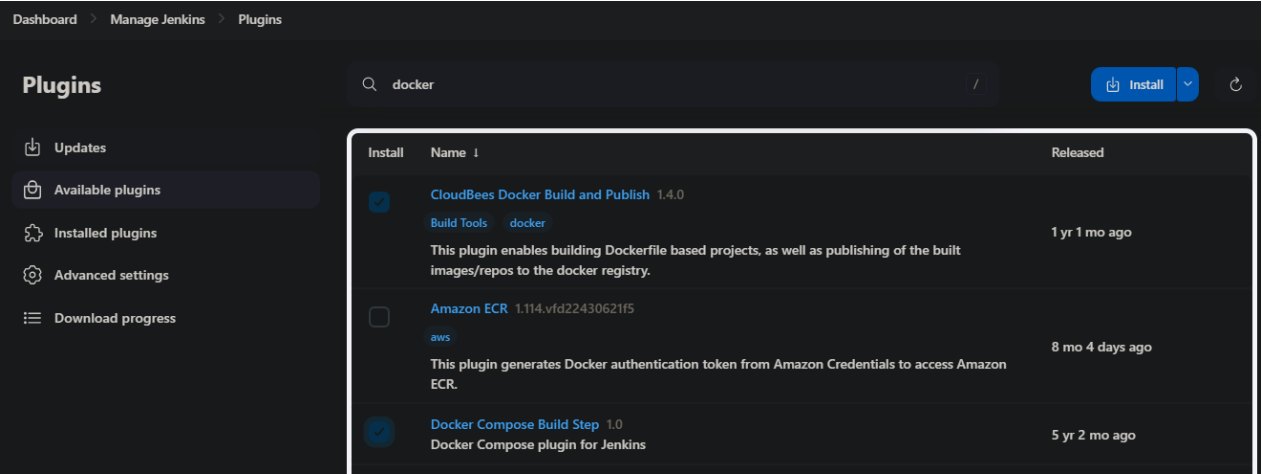
- Ta quay lại màn hình chính của jenkins được deploy tại cổng 8080 của ec2 instance chọn plugin



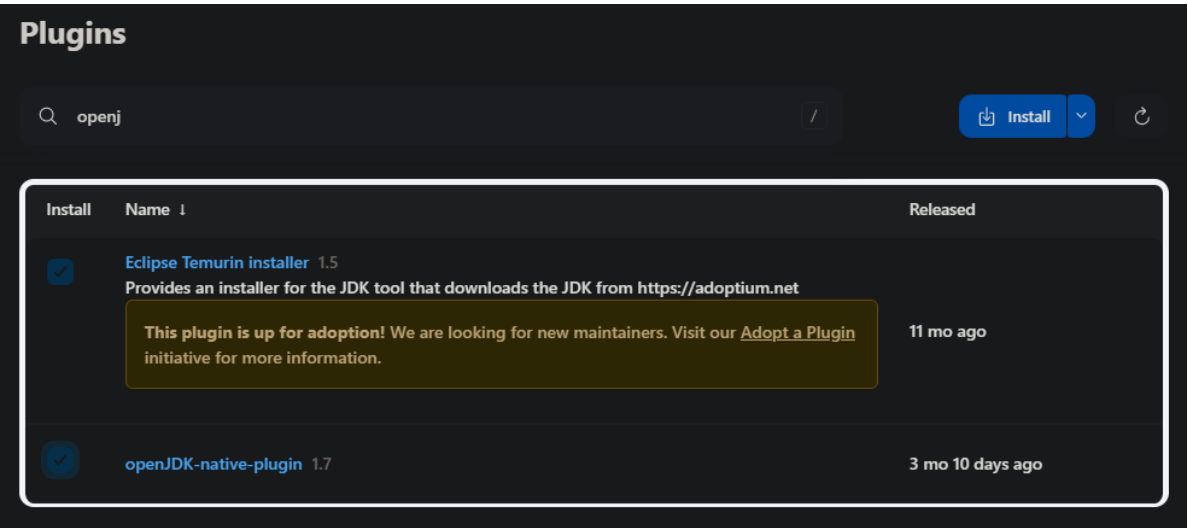
- Thêm webhook plugin để auto build khi code được push lên github



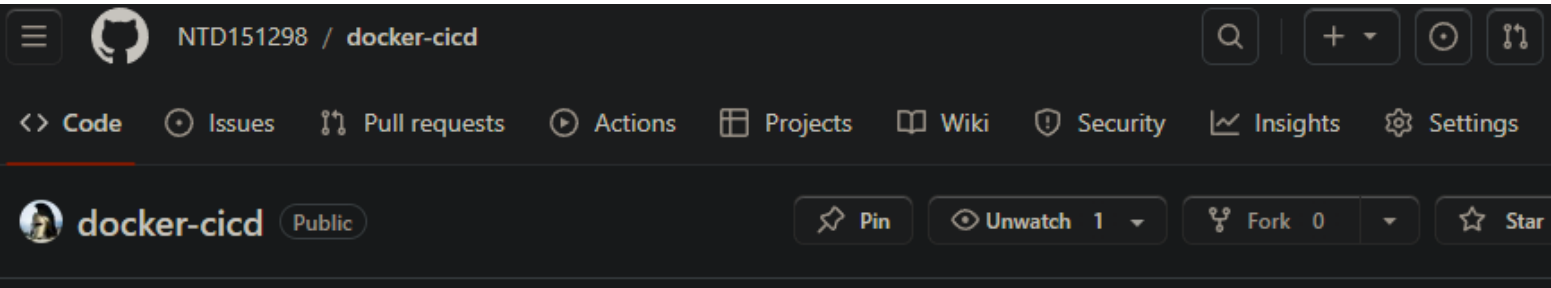
- Cài Docker plugin



- Cài OpenJDK



- Ta lên github tại trang repo github ta định xây jenkins CICD vào setting



- Cấu hình webhook trên Github url là của jenkins ta deploy trên ec2 server

[Webhooks](#) / Manage webhook

Settings Recent Deliveries

We'll send a POST request to the URL below with details of any subscribed events. You can also specify which data format you'd like to receive (JSON, x-www-form-urlencoded, etc). More information can be found in [our developer documentation](#).

Payload URL *

Content type

Secret

Which events would you like to trigger this webhook?

☒ Just the push event.


☐ Send me everything.

☐ Let me select individual events.

- Webhook kết nối thành công, ta thấy ping trả về giá trị 200

[Webhooks](#) / Manage webhook

Settings Recent Deliveries

✓  81f41a00-60a6-11ee-8ef2-293cd6c5fb96 ping 203-10-02 05:04:37 ...

Request Response **200** Redeliver ⌚ Completed in 1.59 seconds.

Headers

Request URL: http://52.77.250.125:8080/github-webhook/
Request method: POST


- Ta quay lại jenkins và tạo một pipeline project


New Item [Jenkins] x +


← → ↺ 🏠 ⚠ Không bảo mật | 54.251.154.0:8080/view/all/newJob 🔗 ☆ 🧑 ⚙️ 📋 ⬇️ 🗑️ 👤

Dashboard > All >

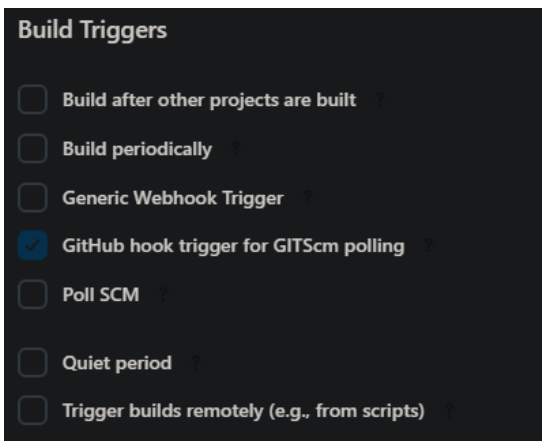
» A job already exists with the name 'docker9000'

 **Freestyle project**
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

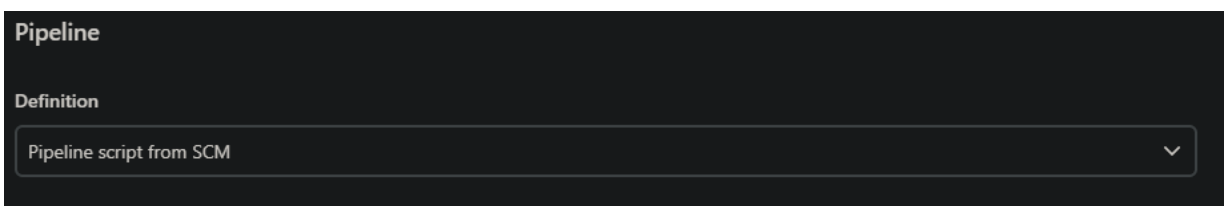
 **Maven project**
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

 **Pipeline**
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

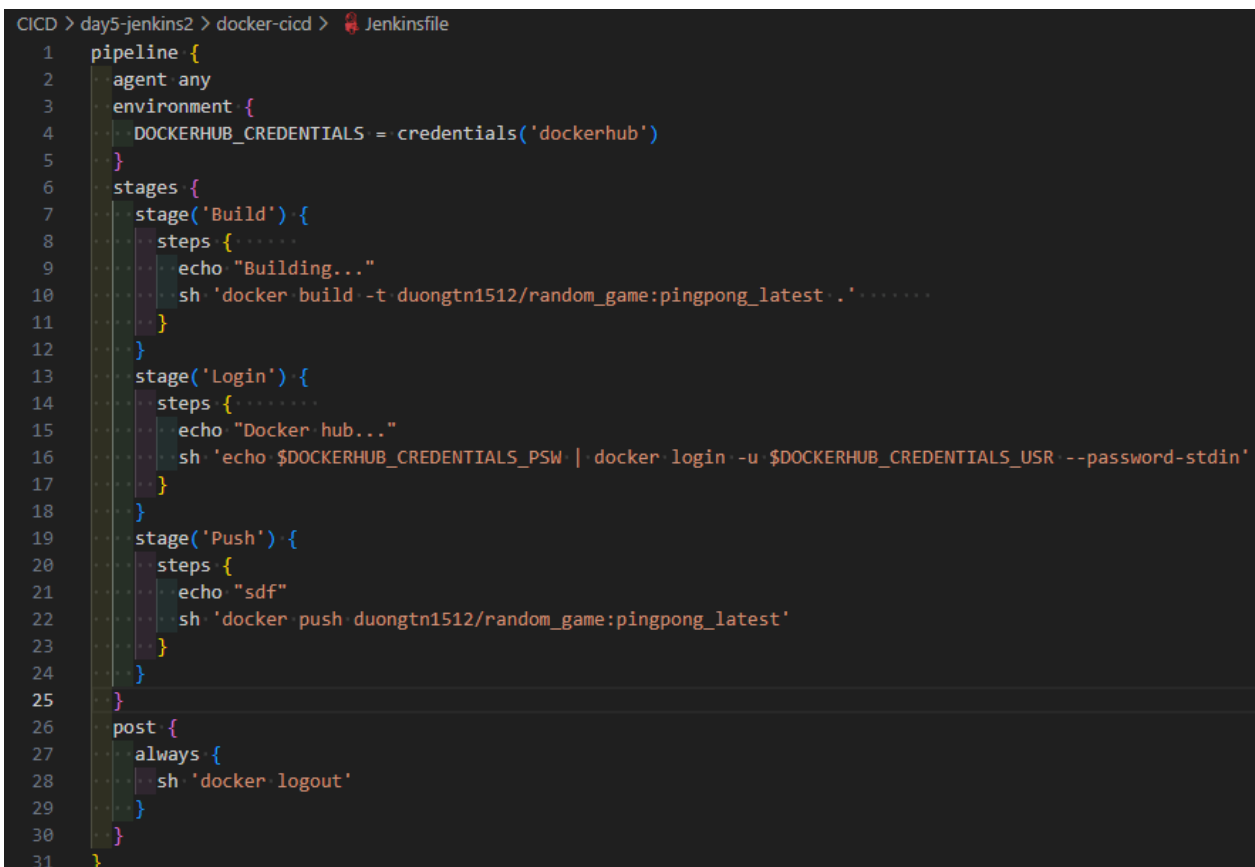
- Cấu hình build trigger trong pipeline docker 9000



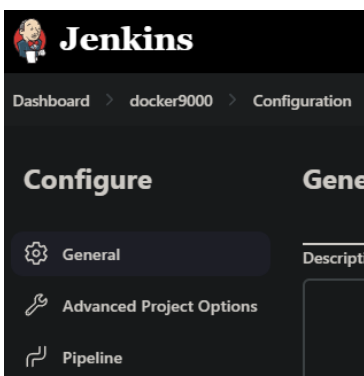
- Cấu hình lấy Jenkinsfile từ repo



- File jenkins với 4 stages build , login, push và logout



- Quay lại config pipeline project docker9000

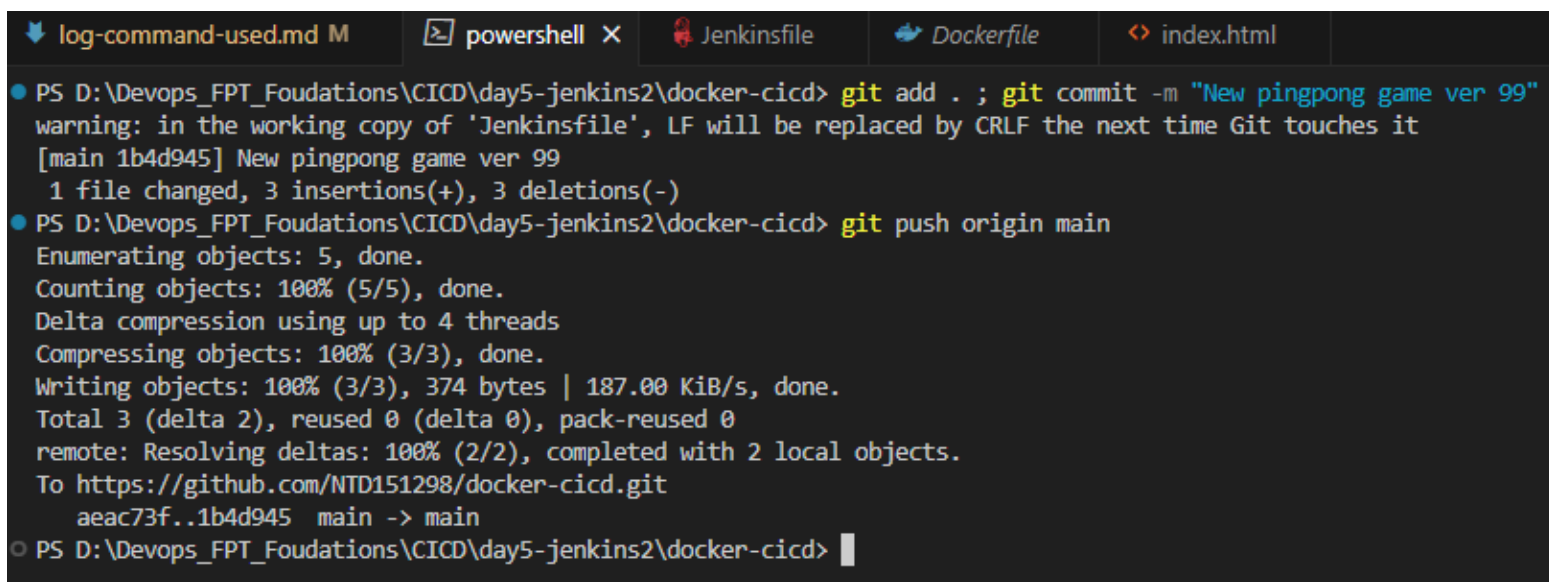


- Cấu hình git repo branch và credentials



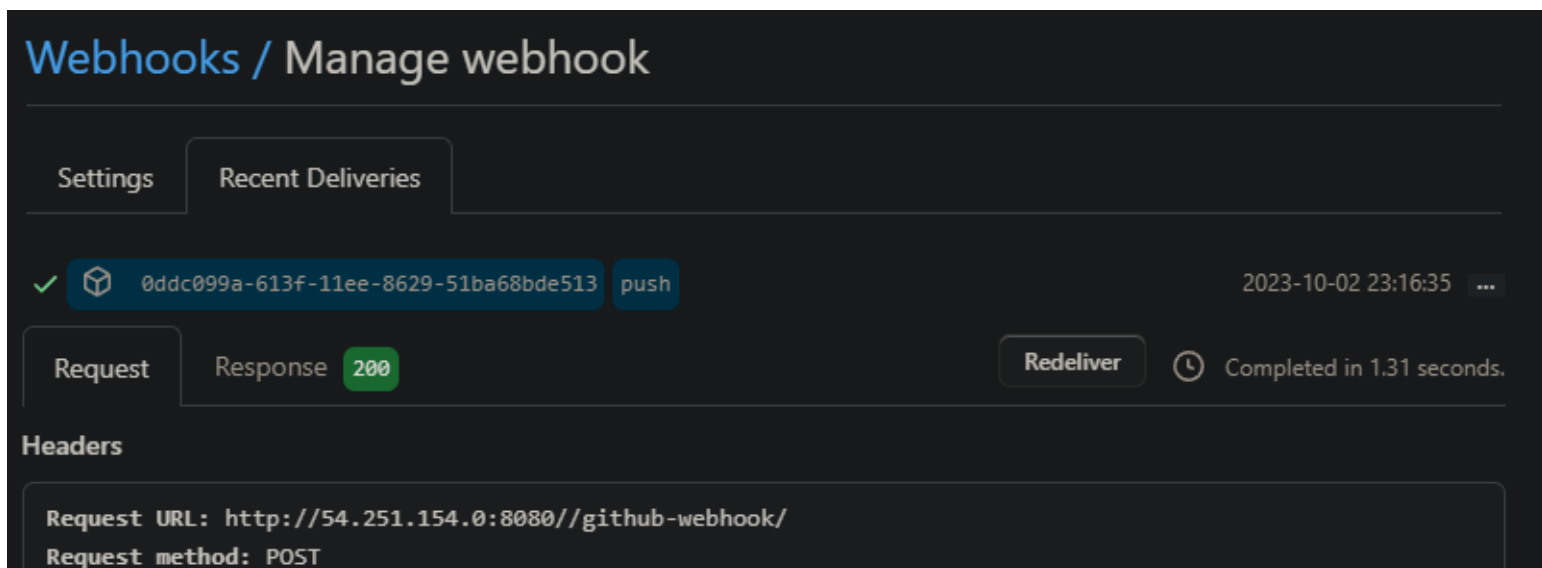
The screenshot shows the Jenkins configuration page for a new repository. The 'Repository URL' field is set to `https://github.com/NTD151298/docker-cicd.git`. The 'Credentials' dropdown is set to `NTD151298/***** (git hub user name)`. The 'Branches to build' section is set to `*/main`. The 'Add Repository' button is visible at the bottom left.

- Sau khi chuẩn bị đầy đủ jenkinsfile dockerfile .. đẩy lên repo với git push



```
PS D:\Devops_FPT_Foudations\CICD\day5-jenkins2\docker-cicd> git add .; git commit -m "New pingpong game ver 99"
warning: in the working copy of 'Jenkinsfile', LF will be replaced by CRLF the next time Git touches it
[main 1b4d945] New pingpong game ver 99
 1 file changed, 3 insertions(+), 3 deletions(-)
PS D:\Devops_FPT_Foudations\CICD\day5-jenkins2\docker-cicd> git push origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 374 bytes | 187.00 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/NTD151298/docker-cicd.git
 aeac73f..1b4d945  main -> main
PS D:\Devops_FPT_Foudations\CICD\day5-jenkins2\docker-cicd>
```

- Sau khi thấy repo bị thay đổi sau lần push webhook thông báo tới url được config từ trước



The screenshot shows the GitHub Webhooks interface. The 'Webhooks / Manage webhook' page is active. The 'Recent Deliveries' tab is selected, showing a delivery with ID `0ddc099a-613f-11ee-8629-51ba68bde513` and status `push`. The delivery was completed on `2023-10-02 23:16:35`. The 'Request' tab is selected, showing the 'Request URL' as `http://54.251.154.0:8080//github-webhook/` and the 'Request method' as `POST`. The response status is `200` and the delivery was completed in `1.31 seconds`.

- Jenkins được cài webhook plugin sẽ nhận được thông báo và bắt đầu CICD pipeline

✔

Build #7 (Oct 2, 2023, 4:16:42 PM)

Keep this build forever

✎

Add description

🕒

Started 3 min 36 sec ago

🕒

Took 19 sec

</>

Changes

1. New pingpong game ver 99 (details / githubweb)

🕒

Started by GitHub push by NTD151298

git

Revision: 1b4d94548a9afdb593b9bd4a07fb765250d09065

Repository: <https://github.com/NTD151298/docker-cicd.git>

• refs/remotes/origin/main

- Giao diện chính của jenkins thông báo trạng thái của các lần build mới nhất

Status

✔ docker9000

</> Changes

▶ Build Now

⚙️ Configure

🗑️ Delete Pipeline

🔍 Full Stage View

✎ Rename

🔍 Pipeline Syntax

📄 GitHub Hook Log

🔍 Build History

trend ▾

Filter builds... /

#7 Oct 2, 2023, 4:16 PM

#6 Oct 2, 2023, 1:53 PM

Stage View

Average stage times:
(Average full run time: ~19s)

	Declarative: Checkout SCM	Build	Login	Push	Declarative: Post Actions
#7	1s	2s	2s	5s	376ms
#6	1s	857ms	2s	5s	405ms
#5	1s	854ms	2s	12s	368ms
#4	1s	634ms	2s	5s	346ms

- Jenkins log của lần build mới nhất

✔ Console Output

Started by GitHub push by NTD151298

Obtained Jenkinsfile from git <https://github.com/NTD151298/docker-cicd.git>

[Pipeline] Start of Pipeline

[Pipeline] node

Running on Jenkins in /var/jenkins_home/workspace/docker9000

[Pipeline] {

[Pipeline] stage

[Pipeline] { (Declarative: Checkout SCM)

[Pipeline] checkout

Selected Git installation does not exist. Using Default

The recommended git tool is: NONE

using credential github

> git rev-parse --resolve-git-dir /var/jenkins_home/workspace/docker9000/.git # timeout=10

Fetching changes from the remote Git repository

> git config remote.origin.url <https://github.com/NTD151298/docker-cicd.git> # timeout=10

Fetching upstream changes from <https://github.com/NTD151298/docker-cicd.git>

> git --version # timeout=10

> git --version # 'git version 2.39.2'

using GIT_ASKPASS to set credentials git hub user name

> git fetch --tags --force --progress -- <https://github.com/NTD151298/docker-cicd.git> +refs/heads/*:refs/remotes/origin/* # timeout=10

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

Checking out Revision 1b4d94548a9afdb593b9bd4a07fb765250d09065 (refs/remotes/origin/main)

> git config core.sparsecheckout # timeout=10

> git checkout -f 1b4d94548a9afdb593b9bd4a07fb765250d09065 # timeout=10

Commit message: "New pingpong game ver 99"

> git rev-list --no-walk aeac73f287ab8bce522fc32e49ed1234a16e9805 # timeout=10

[Pipeline] }


[Pipeline] // stage


[Pipeline] withEnv

- Kiểm tra image mới được build bởi jenkins đã được đẩy trên dockerhub chưa

duongtn1512 / random_game











Description

This repository does not have a description 

 Last pushed: 8 minutes ago

Tags

This repository contains 7 tag(s).

Tag	OS	Type	Pulled	Pushed
 pingpong99		Image	---	8 minutes ago
 pingpong_latest		Image	---	3 hours ago
 pingpong5		Image	---	15 hours ago
 pingpong4		Image	---	16 hours ago
 pingpong3		Image	---	17 hours ago

[See all](#)

[Go to Advanced Image Management](#)

- Ta thấy pingpong99 mà ta muốn build đã được đẩy lên repo cá nhân trên dockerhub