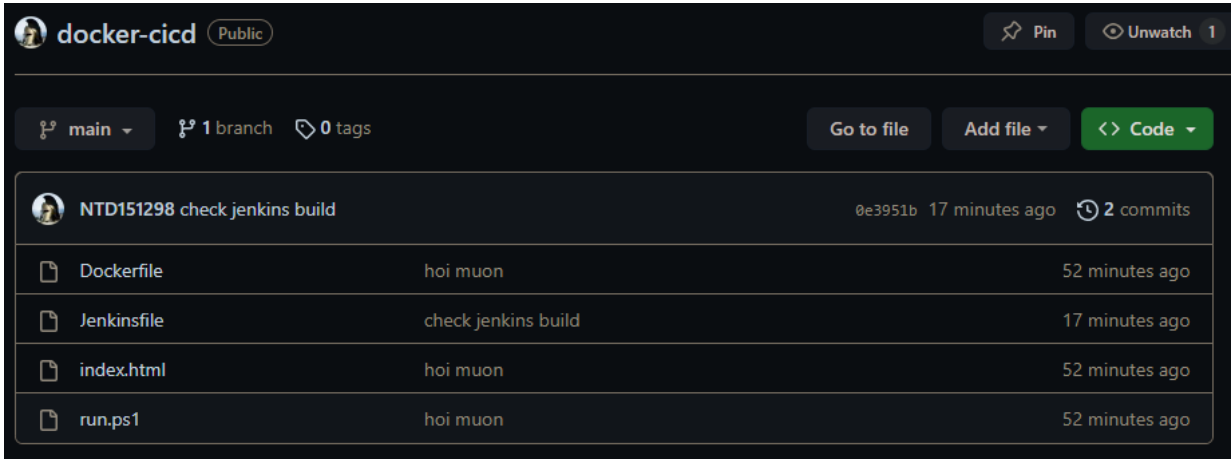


Exerise Jenkins day 5 CICD: lấy source code trong module docker -> build docker file thành image -> push docker hub

- Git hub repo chứa docker file



- Sử dụng terraform để tạo ec2 instance có cấu hình cài docker và jenkins 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 gpg

# Thêm kho lưu trữ Docker vào danh sách các kho lưu trữ ứng dụng
echo \
  "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/jenkins-keyring.asc] https://pkg.jenkins.io/debian-stable/jenkins.io-2023.01 main" | sudo tee /etc/apt/sources.list.d/jenkins.list

# 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"
  }
}
EOF

# Install Jenkins Long Term Support
curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-2023.01
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] https://pkg.jenkins.io/debian-stable/jenkins.io-2023.01 main >> /etc/apt/sources.list.d/jenkins.list
sudo apt-get update
sudo apt-get install jenkins -y

# Installation of Java (jenkins needs java to run)
sudo apt update
sudo apt install fontconfig openjdk-17-jre
java -version
sudo snap install openjdk
openjdk version "17.0.8" 2023-07-18
# OpenJDK Runtime Environment (build 17.0.8+7-Debian-1deb12u1)
# OpenJDK 64-Bit Server VM (build 17.0.8+7-Debian-1deb12u1, mixed mode, sharing)

# Start Jenkins
sudo systemctl enable jenkins
# sudo systemctl start jenkins

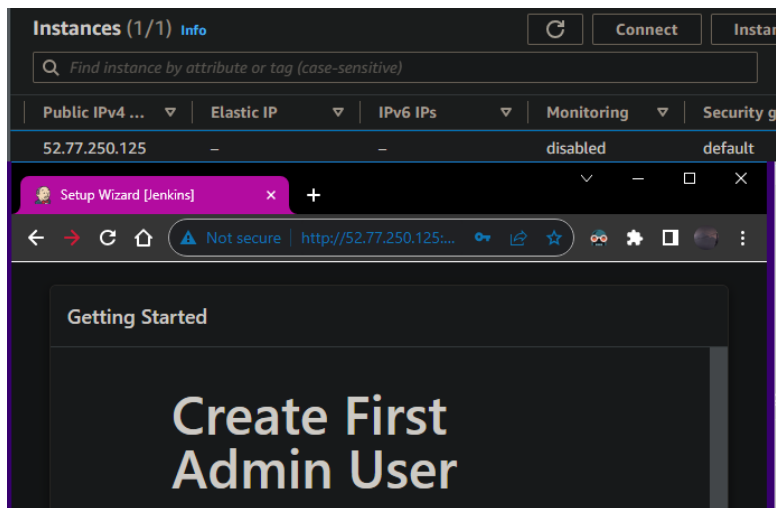
# Viết file docker compose cài và deploy Jenkins
# cd
# echo "version: '3'" >> compose.yaml
# echo "" >> compose.yaml
# echo "services:" >> compose.yaml
```

- Tham khảo cài docker, jenkins và JDK trên web
- Bắt đầu start jenkins và check status, ta thấy jenkins chạy trên cổng 8080

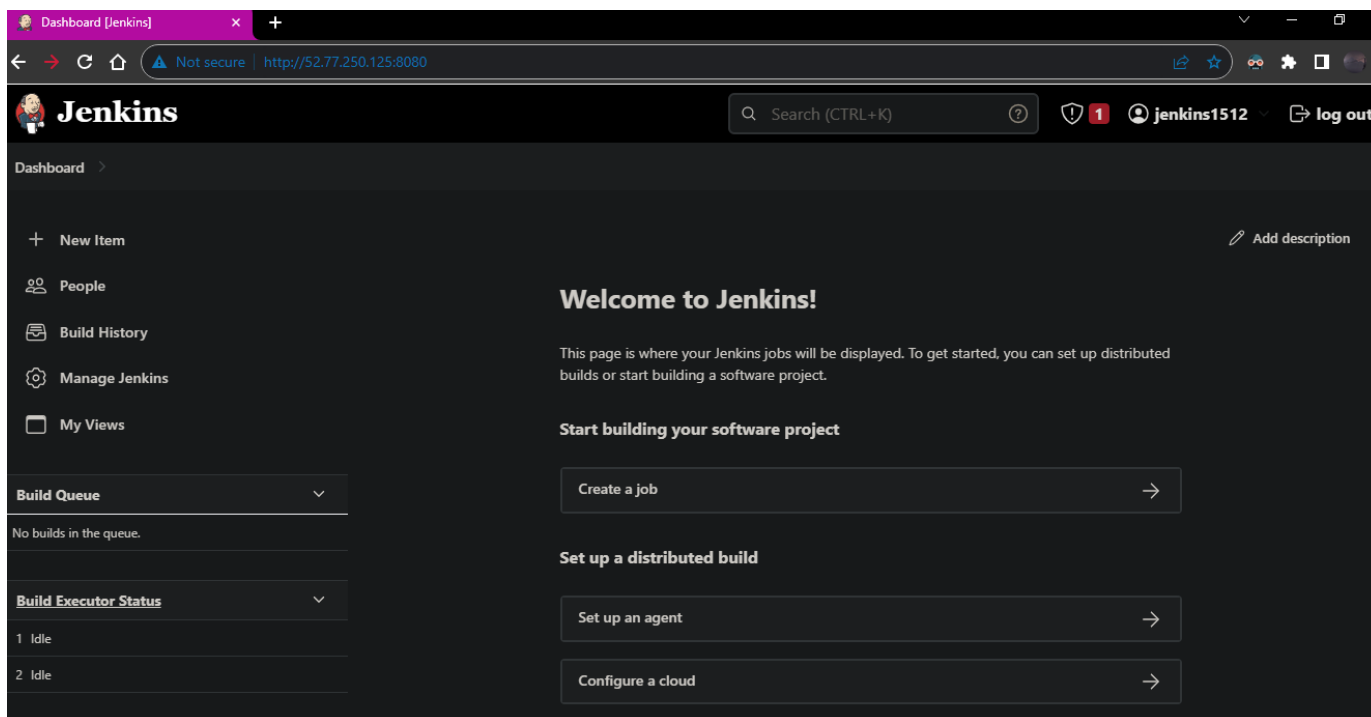
```
● jenkins.service - Jenkins Continuous Integration Server
   Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2023-10-01 20:51:11 UTC; 35min ago
     Main PID: 14502 (java)
        Tasks: 38 (limit: 1141)
       Memory: 257.6M
          CPU: 23.064s
      CGroup: /system.slice/jenkins.service
              └─14502 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Oct 01 20:50:55 ip-172-31-38-11 jenkins[14502]: Jenkins initial setup is required. An admin user has been created and a password generated.
Oct 01 20:50:55 ip-172-31-38-11 jenkins[14502]: Please use the following password to proceed to installation:
Oct 01 20:50:55 ip-172-31-38-11 jenkins[14502]: 592430e0b6014c7885522699edc85a3a
Oct 01 20:50:55 ip-172-31-38-11 jenkins[14502]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Oct 01 20:50:55 ip-172-31-38-11 jenkins[14502]: *****
Oct 01 20:50:55 ip-172-31-38-11 jenkins[14502]: *****
Oct 01 20:51:11 ip-172-31-38-11 jenkins[14502]: 2023-10-01 20:51:11.036+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained:
Oct 01 20:51:11 ip-172-31-38-11 jenkins[14502]: 2023-10-01 20:51:11.066+0000 [id=24] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is ready.
Oct 01 20:51:11 ip-172-31-38-11 systemd[1]: Started Jenkins Continuous Integration Server.
```

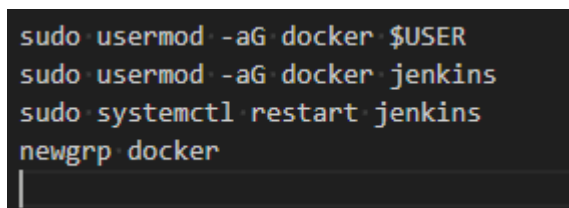
- Đăng nhập Jenkins chạy trên aws ec2 (ubuntu) instance, cổng 8080



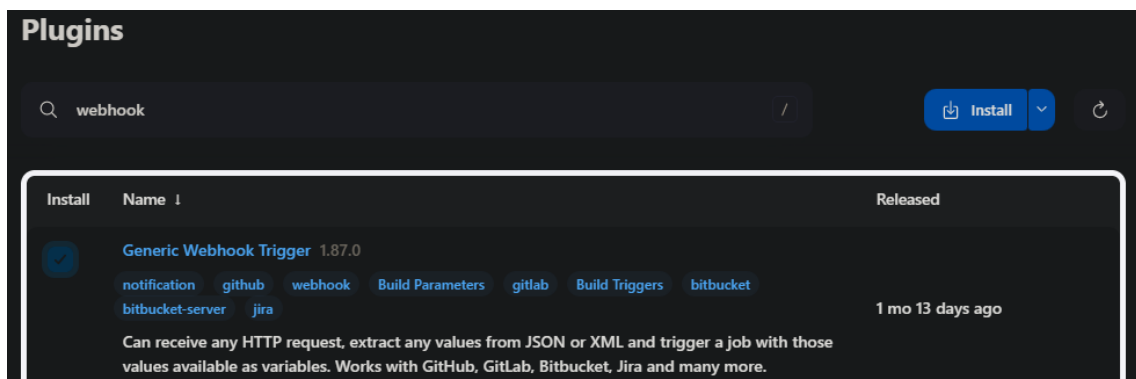
- Màn hình chính của jenkins



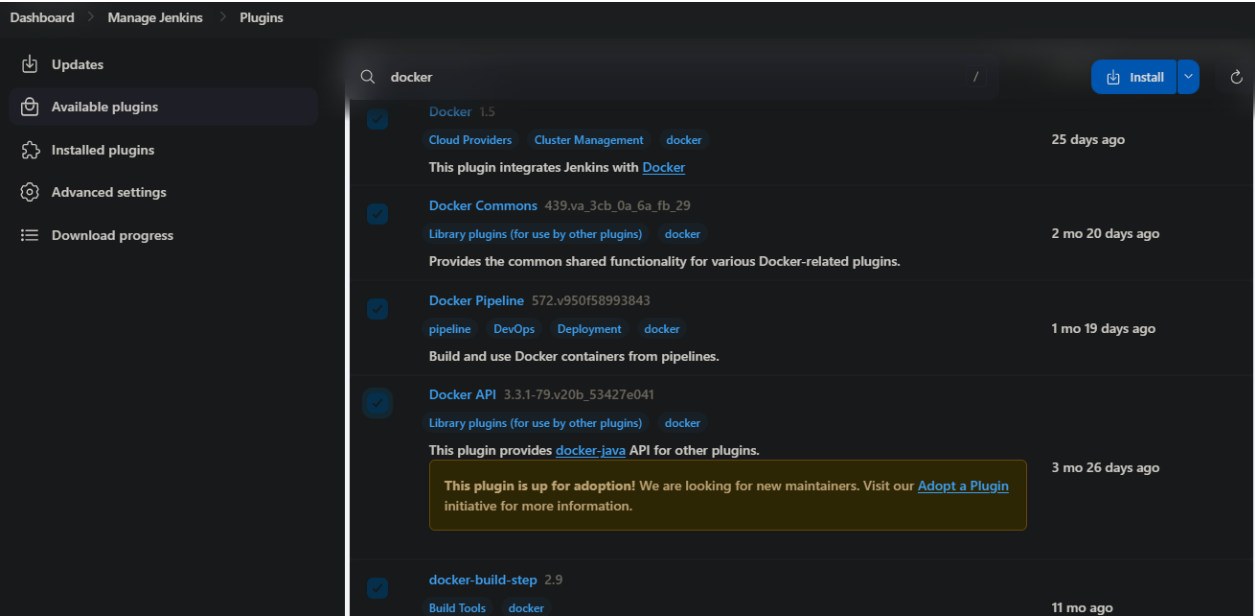
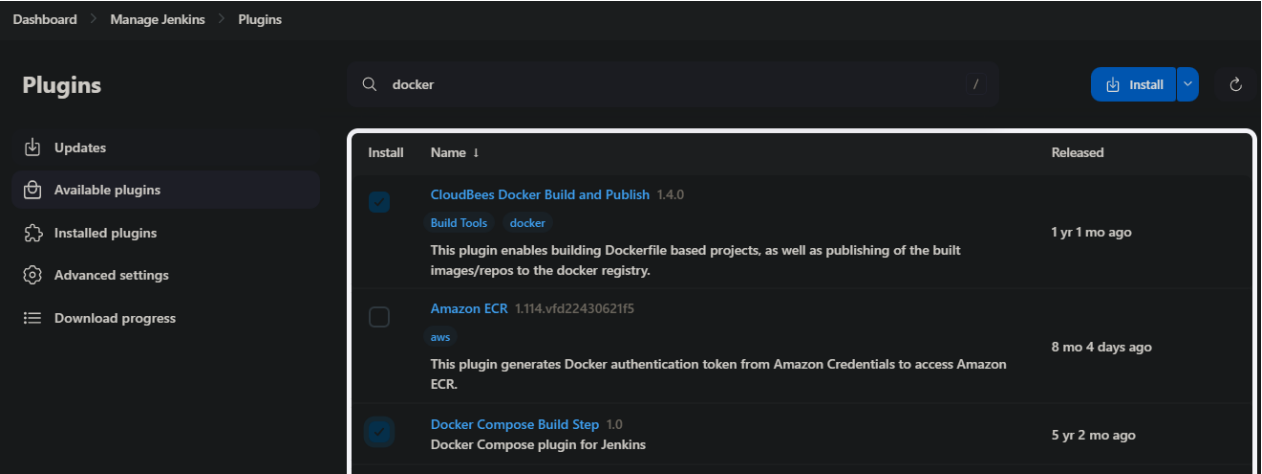
- Add người dùng ubuntu và jenkins được sử dụng docker



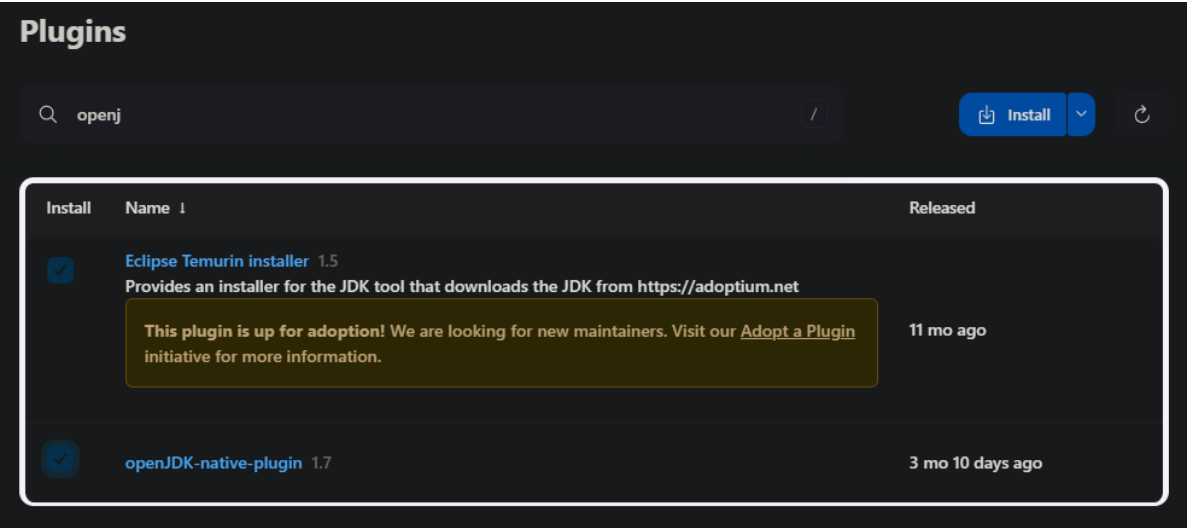
- Thêm webhook plugin để auto build khi code được push lên github



- Cài Docker plugin



- Cài OpenJDK



- Cấu hình webhook trên Github

[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 *

http://52.77.250.125:8080/github-webhook/

Content type

application/x-www-form-urlencoded

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

[Webhooks](#) / Manage webhook

Settings

Recent Deliveries

✓

81f41a00-60a6-11ee-8ef2-293cd6c5fb96

ping

2023-10-02 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
- Cấu hình build trigger

Build Triggers

☐ Build after other projects are built

☐ Build periodically

☐ Generic Webhook Trigger

☒ GitHub hook trigger for GITScm polling

☐ Poll SCM

☐ Quiet period

☐ Trigger builds remotely (e.g., from scripts)

- Cấu hình lấy jenkins file từ repo

Pipeline

Definition

Pipeline script from SCM

▼

- File jenkins

```
CICD > day5-jenkins2 > docker-cicd > Jenkinsfile
1 pipeline {
2   agent any
3   stages {
4     stage('Build and Push Docker Image') {
5       steps {
6         withDockerRegistry(credentialsId: 'dockerhub', url: 'https://index.docker.io/v1/') {
7           sh 'docker build -t duongtn1512/random_game:pingpong2 .'
8           sh 'docker push -t duongtn1512/random_game:pingpong2 '
9         }
10      }
11    }
12  }
13 }
```

- Cấu hình git repo branch và credentials

Repositories

Repository URL ✕

Credentials ?

▼

Advanced ▼

Add Repository

Branches to build ?

Branch Specifier (blank for 'any') ✕

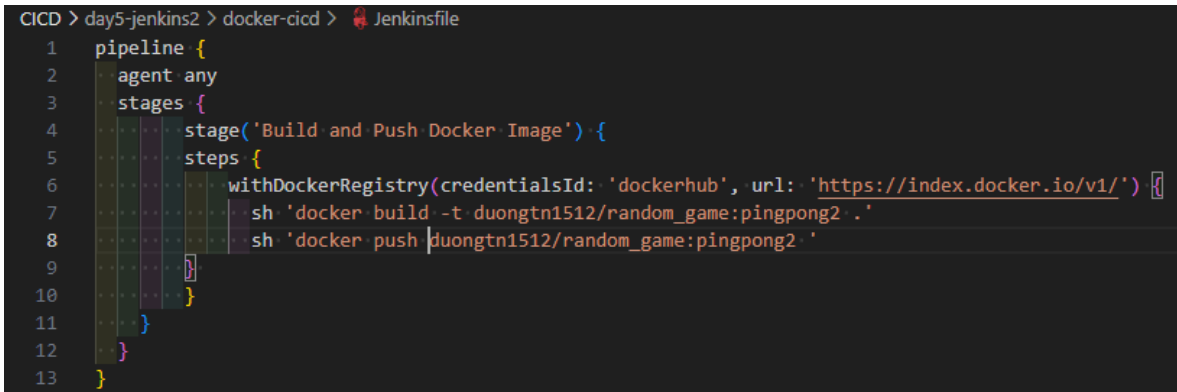
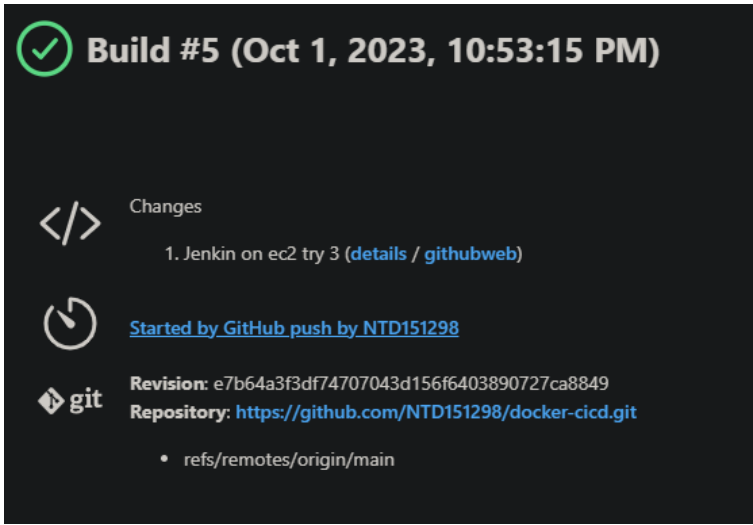
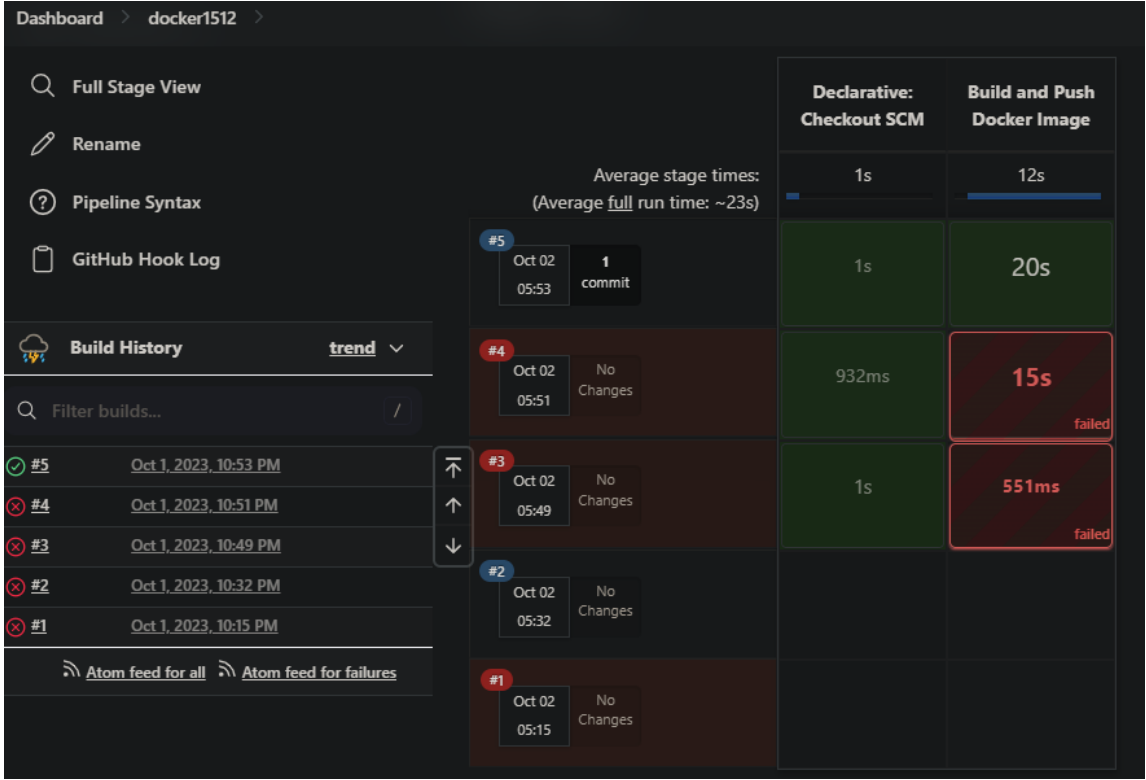
- Sau khi chuẩn bị đầy đủ jenkinsfile dockerfile .. đẩy lên repo

```
PS D:\Devops_FPT_Foudations\CICD\day5-jenkins2\docker-cicd> ls

Directory: D:\Devops_FPT_Foudations\CICD\day5-jenkins2\docker-cicd

Mode                LastWriteTime         Length Name
----                -
-a----            8/9/2023   7:18 PM             89 Dockerfile
-a----           7/23/2023   6:58 PM          6609 index.html
-a----           10/2/2023   5:06 AM           360 Jenkinsfile
-a----            8/9/2023   7:17 PM            99 run.ps1

PS D:\Devops_FPT_Foudations\CICD\day5-jenkins2\docker-cicd> git add .
warning: in the working copy of 'Jenkinsfile', LF will be replaced by CRLF the next time Git touches it
PS D:\Devops_FPT_Foudations\CICD\day5-jenkins2\docker-cicd> git commit -m "Jenkin on ec2"
[main 037f9ca] Jenkin on ec2
1 file changed, 4 insertions(+), 33 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), 328 bytes | 328.00 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
0ae7561..037f9ca main -> main
PS D:\Devops_FPT_Foudations\CICD\day5-jenkins2\docker-cicd> 
```



- Trên dockerhub repo

 **duongtn1512 / random_game**


Description

This repository does not have a description 

 Last pushed: 6 minutes ago

Tags

This repository contains 2 tag(s).

| Tag | OS | Type | Pulled | Pushed |
|---|---|-------|--------------|---------------|
|  pingpong2 |  | Image | — | 6 minutes ago |
|  pingpong1 |  | Image | 2 months ago | 2 months ago |

[See all](#)[Go to Advanced Image Management](#)

- Jenkins logs

 **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/lib/jenkins/workspace/docker1512

[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/lib/jenkins/workspace/docker1512/.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 2.34.1'

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

eb7e3384f0ab: Mounted from library/nginx

0eb14cdc1349: Pushed

d310e774110a: Mounted from library/nginx

pingpong2: digest: sha256:55ebbd8c68756fd9eadb302f6e22c8261a50c29c472eb8f9bc230443d602bf7 size: 1986

[Pipeline] }

[Pipeline] // withDockerRegistry

[Pipeline] }

[Pipeline] // stage

[Pipeline] }

[Pipeline] // withEnv

[Pipeline] }

[Pipeline] // node

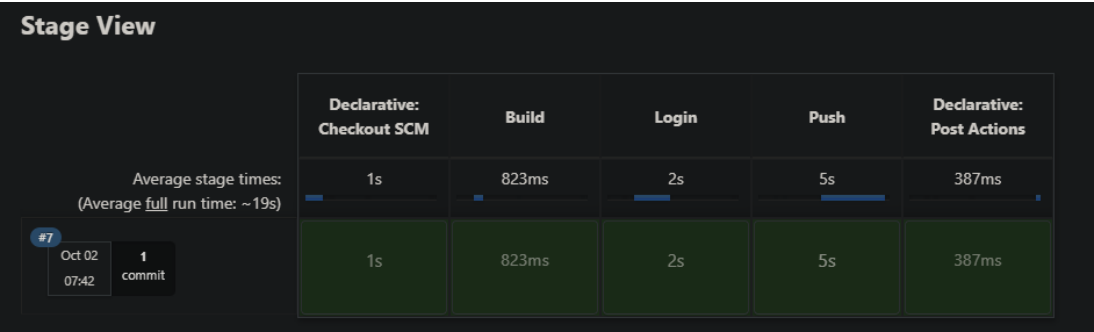
[Pipeline] End of Pipeline

Finished: SUCCESS

- File jenkins mới

```
CICD > day5-jenkins2 > docker-cicd > Jenkinsfile
1 pipeline {
2   agent any
3   environment {
4     DOCKERHUB_CREDENTIALS = credentials('dockerhub')
5   }
6   stages {
7     stage('Build') {
8       steps {
9         sh 'docker build -t duongtn1512/random_game:pingpong4 .'
10      }
11    }
12    stage('Login') {
13      steps {
14        sh 'echo $DOCKERHUB_CREDENTIALS_PSW | docker login -u $DOCKERHUB_CREDENTIALS_USR --password-stdin'
15      }
16    }
17    stage('Push') {
18      steps {
19        sh 'docker push duongtn1512/random_game:pingpong4'
20      }
21    }
22  }
23  post {
24    always {
25      sh 'docker logout'
26    }
27  }
28 }
```

- 5 bước jenkins build



 Console Output

```
Started by user jenkins1512
Obtained Jenkinsfile from git https://github.com/NTD151298/docker-cicd.git
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/docker1512
[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/lib/jenkins/workspace/docker1512/.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 2.34.1'
```