

DEVOPS

DAY-2

STEP -1 :INSTALL DOCKER

1) sudo apt update

```
aravind@Aravind: ~/docker-  
This message is shown once a day. To disable it please create the  
/home/aravind/.hushlogin file.  
aravind@Aravind:~$ sudo apt update  
[sudo] password for aravind:  
Ign:1 https://pkg.jenkins.io/debian-stable binary/ InRelease  
Hit:2 https://pkg.jenkins.io/debian-stable binary/ Release  
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]  
Hit:5 http://archive.ubuntu.com/ubuntu noble InRelease  
Get:6 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]  
Get:7 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [8976 B]  
Get:8 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]  
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.0 kB]  
Get:10 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]  
Get:11 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]  
Get:12 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [921 kB]  
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]  
Get:14 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1040 kB]  
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [364 kB]  
Get:16 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]  
Get:17 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]  
Get:18 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]  
Get:19 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [20.0 kB]  
Get:20 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]  
Get:21 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]  
Fetched 2939 kB in 5s (631 kB/s)  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
55 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

2) sudo apt install -y docker.io

```
aravind@Aravind: ~/docker-  
55 packages can be upgraded. Run 'apt list --upgradable' to see them.  
aravind@Aravind:~$ sudo apt install -y docker.io  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  bridge-utils containerd dns-root-data dnsmasq-base iptables libip4tc2 libip6tc2 libnetfilter-conntrack3 libnftables1 libnftnl  
  pigz runc ubuntu-fan  
Suggested packages:  
  ifupdown aufs-tools btrfs-progs cgroupfs-mount | cgroup-lite debootstrap docker-buildx docker-compose-v2 docker-doc rinse zfs-fuse | zfs  
The following NEW packages will be installed:  
  bridge-utils containerd dns-root-data dnsmasq-base docker.io iptables libip4tc2 libip6tc2 libnetfilter-conntrack3 libnftables1 libnftnl  
  nftables pigz runc ubuntu-fan  
0 upgraded, 16 newly installed, 0 to remove and 55 not upgraded.  
Need to get 79.6 MB of archives.  
After this operation, 306 MB of additional disk space will be used.  
Get:1 http://archive.ubuntu.com/ubuntu noble/universe amd64 pigz amd64 2.8-1 [65.6 kB]  
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 libip4tc2 amd64 1.8.10-3ubuntu2 [23.3 kB]  
Get:3 http://archive.ubuntu.com/ubuntu noble/main amd64 libip6tc2 amd64 1.8.10-3ubuntu2 [23.7 kB]  
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 libnftnl1 amd64 1.0.2-2build1 [14.8 kB]  
Get:5 http://archive.ubuntu.com/ubuntu noble/main amd64 libnetfilter-conntrack3 amd64 1.0.9-6build1 [45.2 kB]  
Get:6 http://archive.ubuntu.com/ubuntu noble/main amd64 libnftnl1 amd64 1.2.6-2build1 [66.0 kB]  
Get:7 http://archive.ubuntu.com/ubuntu noble/main amd64 iptables amd64 1.8.10-3ubuntu2 [381 kB]  
Get:8 http://archive.ubuntu.com/ubuntu noble/main amd64 libnftables1 amd64 1.0.9-1build1 [358 kB]  
Get:9 http://archive.ubuntu.com/ubuntu noble/main amd64 nftables amd64 1.0.9-1build1 [69.8 kB]  
Get:10 http://archive.ubuntu.com/ubuntu noble/main amd64 bridge-utils amd64 1.7.1-1ubuntu2 [33.9 kB]  
Get:11 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 runc amd64 1.1.12-0ubuntu3.1 [8599 kB]  
Get:12 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 containerd amd64 1.7.24-0ubuntu1~24.04.1 [37.0 MB]  
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 dns-root-data all 2024071801-ubuntu0.24.04.1 [5918 B]  
Get:14 http://archive.ubuntu.com/ubuntu noble/main amd64 dnsmasq-base amd64 2.90-2build2 [375 kB]  
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 docker.io amd64 26.1.3-0ubuntu1~24.04.1 [32.4 MB]  
Get:16 http://archive.ubuntu.com/ubuntu noble/universe amd64 ubuntu-fan all 0.12.16 [35.2 kB]  
Fetched 79.6 MB in 21s (3855 kB/s)  
Preconfiguring packages ...  
Selecting previously unselected package pigz.  
(Reading database ... 43000 files and directories currently installed.)  
Preparing to unpack .../00-pigz_2.8-1_amd64.deb ...
```

STEP 2: ENABLE AND DISABLE

1) sudo systemctl enable docker

2) sudo systemctl start docker

STEP 3:VERIFY THE INSTALLATION:

```
docker --version
```

STEP 4:INSTALL DOCKER COMPOSE

```
sudo curl -L "https://github.com/docker/compose/releases/latest/download/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
```

```
aravind@Aravind:~$ docker --version
Docker version 26.1.3, build 26.1.3-0ubuntu1-24.04.1
aravind@Aravind:~$ sudo curl -L "https://github.com/docker/compose/releases/latest/download/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
  0     0     0      0     0      0     0  --:--:-- --:--:-- --:--:--    0
  0     0     0      0     0      0     0  --:--:-- --:--:-- --:--:--    0
100 71.4M 100 71.4M    0     0 5241k    0:00:13 0:00:13 --:--:-- 6558k
```

VERIFY INSTALLATION

```
aravind@Aravind:~$ docker-compose --version
Docker Compose version v2.34.0
```

CREATE AN “HELLO WOLRD: APPLICATION

Create a project directory

```
~$ mkdir ~/docker-python-app
~$ cd ~/docker-python-app
```

Create the python Application File

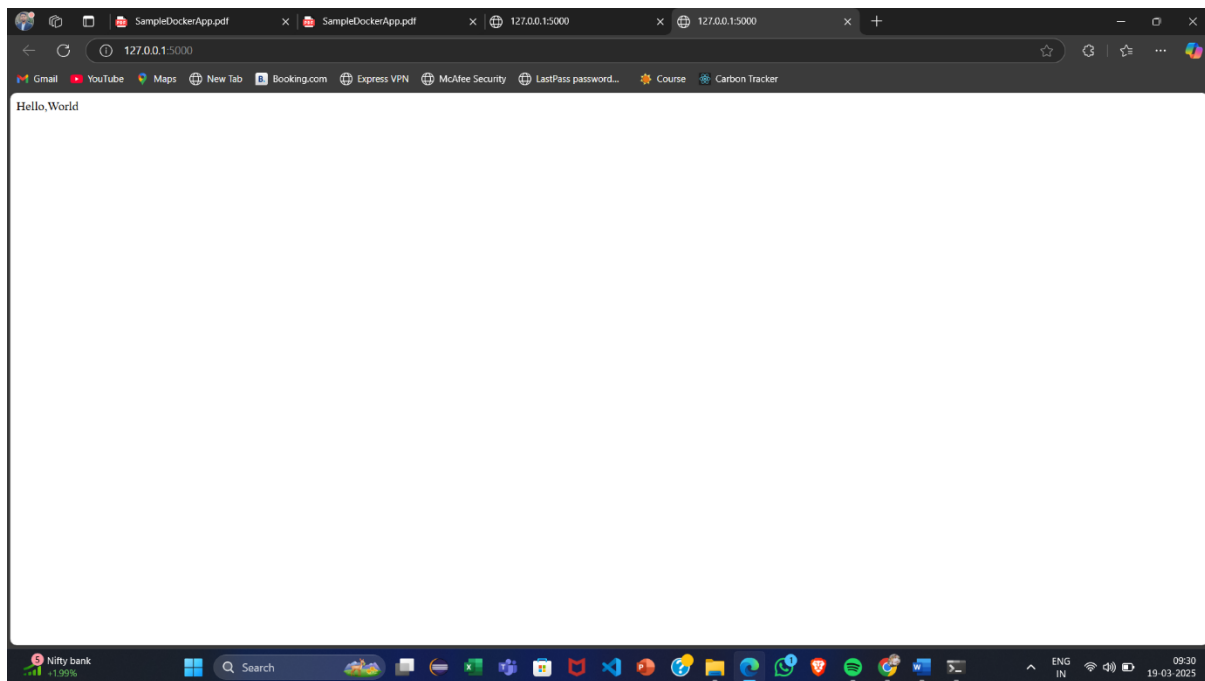
Create a file

```
aravind@Aravind:~/docker-python-app$ nano app.py
aravind@Aravind:~/docker-python-app$ cat app.py
from flask import Flask
app = Flask(__name__)
@app.route("/")
def hello():
    return "Hello, World! Running inside Docker!"
if __name__ == "__main__":
    app.run(host="0.0.0.0", port=5000)
aravind@Aravind:~/docker-python-app$ |
```

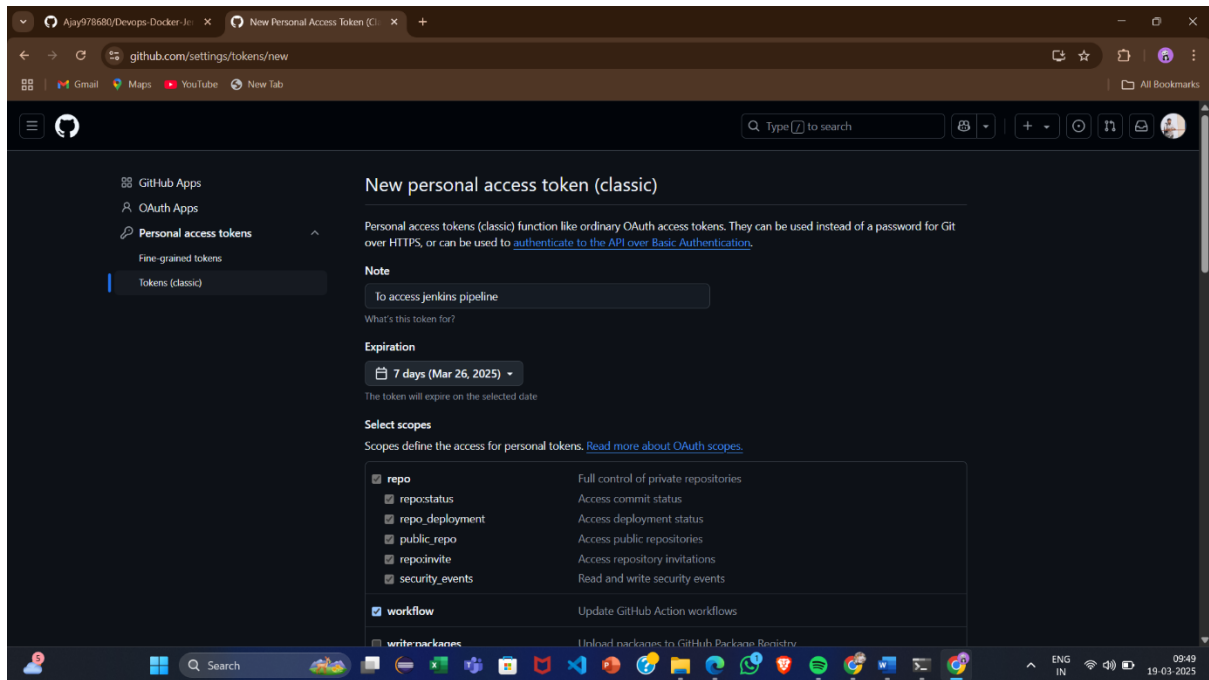
To Run an Docker

```
aravind@Aravind:~/docker-python-app$ sudo docker-compose build
WARN[0000] /home/aravind/docker-python-app/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential
confusion
Compose can now delegate builds to bake for better performance.
To do so, set COMPOSE_BAKE=true.
[+] Building 90.9s (7/8)                                docker:default
=> [app internal] load build definition from Dockerfile      0.3s
=> => transferring dockerfile: 164B                          0.0s
=> [app internal] load metadata for docker.io/library/python:3.11 11.4s
=> [app internal] load .dockerignore                          0.2s
=> => transferring context: 2B                                0.0s
=> [app 1/4] FROM docker.io/library/python:3.11@sha256:ebfa8696e47a 70.5s
=> => resolve docker.io/library/python:3.11@sha256:ebfa8696e47a68cfe 0.2s
=> => sha256:15c8f2265fd94dd172a0a85d6853f18dd19fde 6.18kB / 6.18kB 0.0s
=> => sha256:ebfa8696e47a68cfebb31e378a93ce57c01bc7 9.08kB / 9.08kB 0.0s
=> => sha256:53218a9ae69d38aedeef8f482e9a544862d3aee8 2.33kB / 2.33kB 0.0s
=> => sha256:255774e0027b72d2327719e78dbad5ad8c9c 64.40MB / 64.40MB 25.2s
=> => sha256:7cd785773db44407e20a679ce5439222e505 48.47MB / 48.47MB 36.3s
=> => sha256:091eb8249475f42de217265c501e0186f0a3e 24.01MB / 24.01MB 5.8s
=> => sha256:353e14e5cc47664fba714a7da2880d90 211.35MB / 211.35MB 60.6s
=> => sha256:963091970bc2ac7e8b231ef98df8c29a8cb44a 6.16MB / 6.16MB 29.0s
=> => sha256:e7235c43f7e31b18eb2e528d9c2e6b7935d9 24.31MB / 24.31MB 39.3s
=> => sha256:7f221c80e407e12492324c32985601405973634af6 250B / 250B 37.5s
=> => extracting sha256:7cd785773db44407e20a679ce5439222e505475eed5b 2.9s
=> => extracting sha256:091eb8249475f42de217265c501e0186f0a3e47490ef 0.6s
=> => extracting sha256:255774e0027b72d2327719e78dbad5ad8c9c4446d055 3.0s
=> => extracting sha256:353e14e5cc47664fba714a7da2880d900427c705494 6.5s
=> => extracting sha256:963091970bc2ac7e8b231ef98df8c29a8cb44ac28a26 0.3s
=> => extracting sha256:e7235c43f7e31b18eb2e528d9c2e6b7935d99979a261 1.1s
=> => extracting sha256:7f221c80e407e12492324c32985601495973634af6da 0.0s
=> [app internal] load build context                          0.2s
=> => transferring context: 618B                              0.0s
=> [app 2/4] WORKDIR /app                                    0.3s
```

Output:



Devops Jenkins-Docker



Personal Token : **ghp_EXgb7xbvrbM3qG6KapplueB7SCELLw1b8BES**

Start Jenkins

```
aravind@Aravind:~/docker-python-app$ sudo systemctl enable jenkins
[sudo] password for aravind:
Synchronizing state of jenkins.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable jenkins
aravind@Aravind:~/docker-python-app$ sudo systemctl start jenkins
```

New Item

Enter an item name

DeclarativePipelineDemo

Select an item type

**Freestyle project**

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.

**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.

**Multi-configuration project**

Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

**Folder**

Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

OK

Pipeline script from SCM

SCM ?

Git

Repositories ?

Repository URL ?

https://github.com/Ajay978680/Devops-Docker-Jenkins-Demo.git

Credentials ?

- none -

+ Add

Advanced ▾

Add Repository

Save

Apply

Click on Add Credentials and Fill the details

Git

Repositories ?

Repository URL ?

https://github.com/Ajay978680/Devops-Docker-Jenkins-Demo.git

Credentials ?

- none -

+ Add

Advanced ▾

Add Repository

Branches to build ?

In First Time, it Will have Password, in that we will give github token for it.

Clone the Git Repo in Terminal:

```
aravind@mcaccl-57:~/Devops_Day3$ git config --list
user.name=aravind
user.email=aravind110304@gmail.com
core.repositoryformatversion=0
core.filemode=true
core.bare=false
core.logallrefupdates=true
remote.origin.url=https://github.com/aravind11-3-4/Devops_Day3.git
remote.origin.fetch=+refs/heads/*:refs/remotes/origin/*
branch.main.remote=origin
branch.main.merge=refs/heads/main
aravind@mcaccl-57:~/Devops_Day3$ git config --global user.name aravind11-3-4
aravind@mcaccl-57:~/Devops_Day3$ git push https://github.com/aravind11-3-4/Devops_Day3.git
Username for 'https://github.com': aravind11-3-4
Password for 'https://aravind11-3-4@github.com':
remote: Invalid username or password
fatal: Authentication failed for 'https://github.com/aravind11-3-4/Devops_Day3.git/'
aravind@mcaccl-57:~/Devops_Day3$ git push https://aravind11-3-4:ghp_6zptG3TW2y0THa9DyubEtom56ajbqf0xMP48/aravind11-3-4/Devops_Day3.git
fatal: unable to access 'https://aravind11-3-4:ghp_6zptG3TW2y0THa9DyubEtom56ajbqf0xMP48/aravind11-3-4/Devops_Day3.git/': URL rejected: Port number was not a decimal number between 0 and 65535
aravind@mcaccl-57:~/Devops_Day3$ git push https://github.com/aravind11-3-4/Devops_Day3.git
Username for 'https://github.com': aravind11-3-4
Password for 'https://aravind11-3-4@github.com':
remote: Invalid username or password
fatal: Authentication failed for 'https://github.com/aravind11-3-4/Devops_Day3.git/'
aravind@mcaccl-57:~/Devops_Day3$ git push https://github.com/aravind11-3-4/Devops_Day3.git
Username for 'https://github.com': Aravind
Password for 'https://Aravind@github.com':
remote: Invalid username or password
fatal: Authentication failed for 'https://github.com/aravind11-3-4/Devops_Day3.git/'
aravind@mcaccl-57:~/Devops_Day3$ git push https://github.com/aravind11-3-4/Devops_Day3.git
Username for 'https://github.com': aravind11-3-4
Password for 'https://aravind11-3-4@github.com':
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 16 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (8/8), 887 bytes | 887.00 KiB/s, done.
Total 8 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/aravind11-3-4/Devops_Day3.git
 78d48a0..7ac94b3  main -> main
aravind@mcaccl-57:~/Devops_Day3$
```

And move all other file to github repo folder.

Git fetch – Remote repo Change and haven't pulled in local.

The screenshot shows a GitHub repository page for 'aravind11-3-4 / Devops_Day3'. The repository is on the 'main' branch. The commit history table shows the following entries:

| Name | Last commit message | Last commit date |
|--------------------|--|------------------|
| Dockerfile | Added Dockerfile, app.py, docker-compose.yml and removed requirement.txt | 6 hours ago |
| Jenkinsfile | jenkins file added | 8 hours ago |
| README.md | Initial commit | 12 hours ago |
| app.py | Added Dockerfile, app.py, docker-compose.yml and removed requirement.txt | 6 hours ago |
| docker-compose.yml | Added Dockerfile, app.py, docker-compose.yml and removed requirement.txt | 6 hours ago |
| requirements | Create requirements | 1 minute ago |

Below the commit history, the README.md file is displayed with the content:

```
Devops_Day3
```

The screenshot shows the Jenkins 'Credentials' page. The page title is 'Credentials'. The table below lists the credentials:

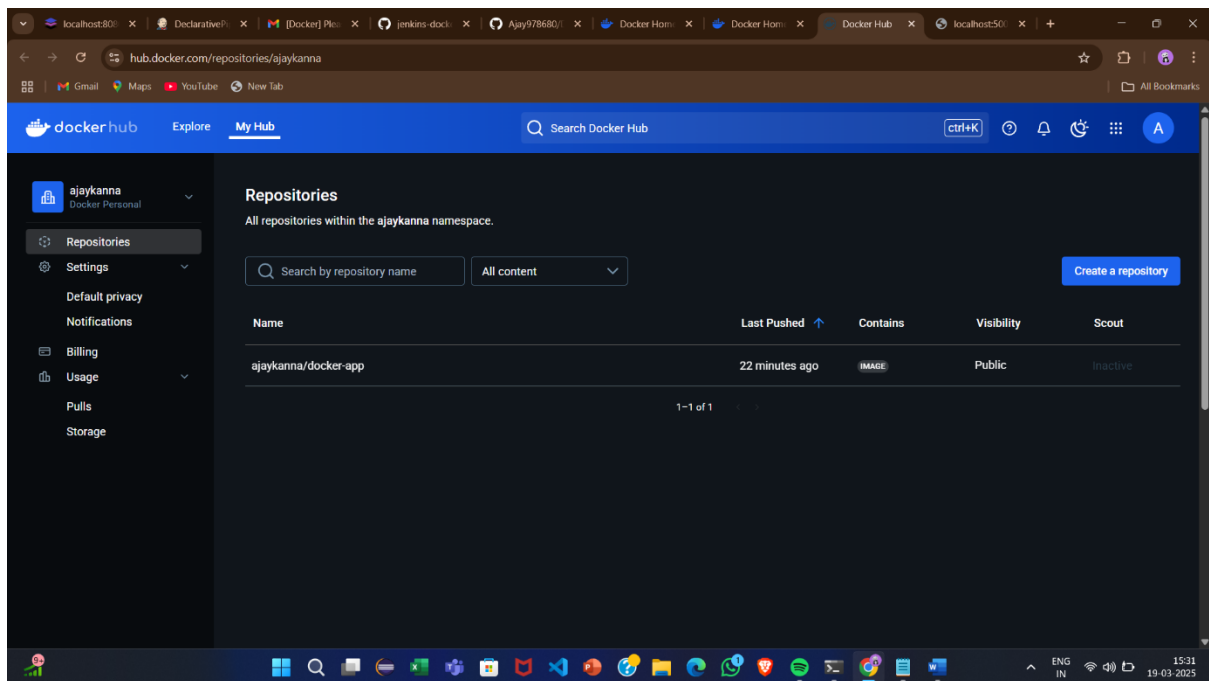
| T | P | Store | Domain | ID | Name |
|---|---|--------|----------|-----------|-------------------|
| | | System | (global) | Dev_03 | aravind/***** |
| | | System | (global) | Devops_03 | aravind1134/***** |

Below the table, the 'Stores scoped to Jenkins' section shows:

| P | Store | Domains |
|---|--------|----------|
| | System | (global) |

At the bottom, there are icons for 'Icon: S M L' and a footer with 'REST API' and 'Jenkins 2.492.2'.

Then create, Build now again and Click the repository in docker:



Click the container that we create in Jenkins:

