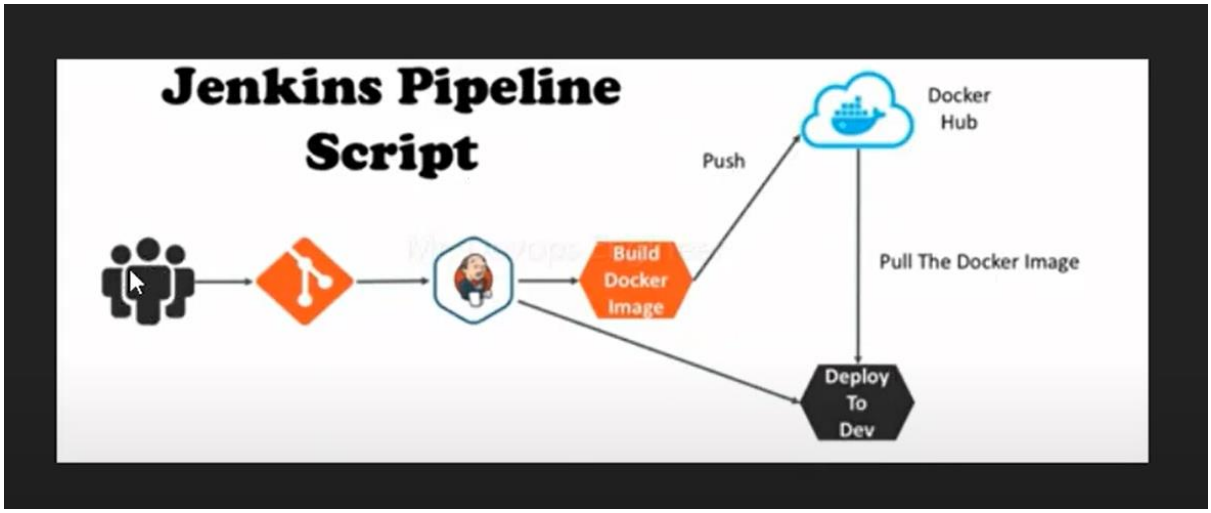
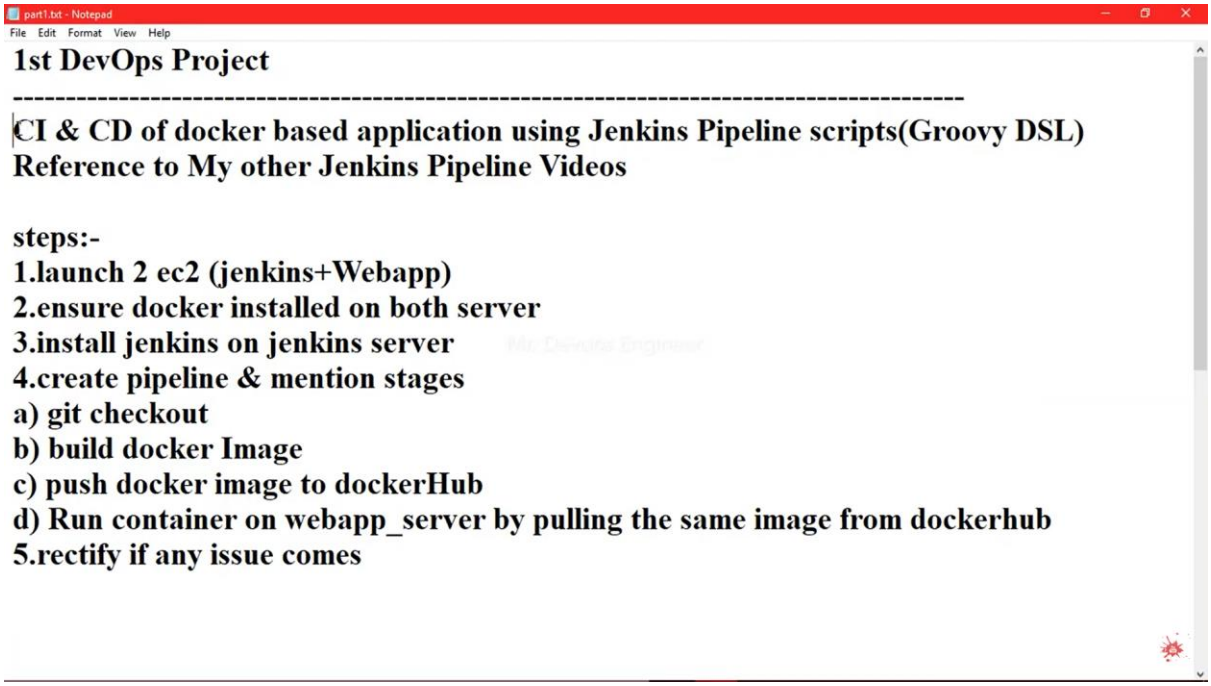


End user will write dockerfile -> push to github -> Jenkins will start building docker images based on dockerfile -> once image build Jenkins will push docker image to docker hub -> Jenkins will create container based on latest image in web app server


part1.txt - Notepad
File Edit Format View Help

1st DevOps Project

CI & CD of docker based application using Jenkins Pipeline scripts(Groovy DSL)
Reference to My other Jenkins Pipeline Videos

steps:-
1.launch 2 ec2 (jenkins+Webapp)
2.ensure docker installed on both server
3.install jenkins on jenkins server
4.create pipeline & mention stages
a) git checkout
b) build docker Image
c) push docker image to dockerHub
d) Run container on webapp_server by pulling the same image from dockerhub
5.rectify if any issue comes

Create 2 ec2 instances : 1 for Jenkins , 1 for webapp

Install docker in both server .

```
116  sudo su
 117  sudo yum update -y
 118  sudo yum install docker.io
 119  sudo amazon-linux-extras install docker -y
 120  sudo yum install -y yum-utils
 121  sudo yum-config-manager --add-repo https://download.docker.com/linux/centos/docker-ce.repo
 122  sudo yum install docker-ce docker-ce-cli containerd.io
 123  sudo systemctl start docker
 124  sudo docker run hello-world
 125  docker ps -a
```

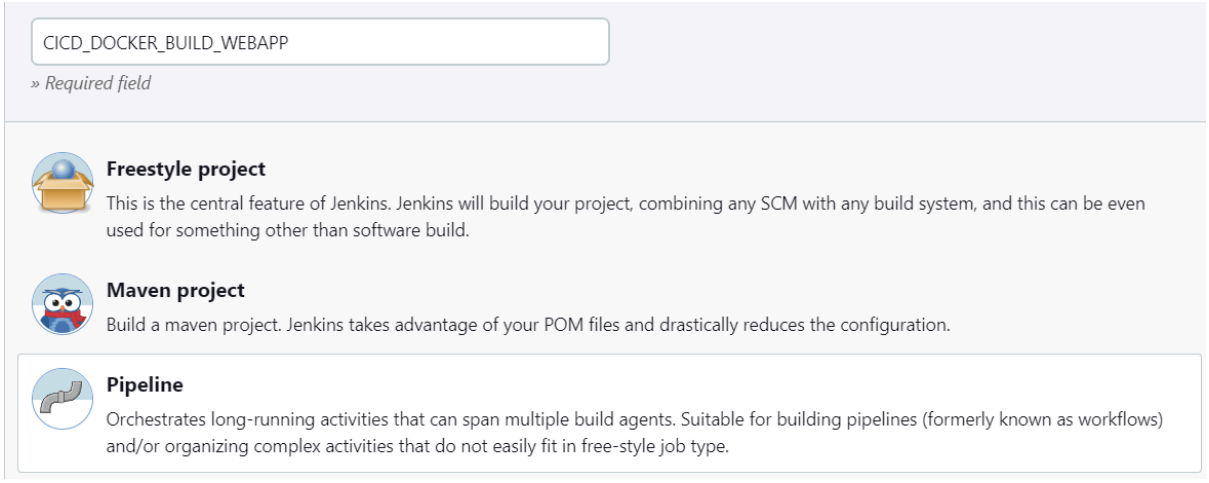
126 sudo usermod -aG docker ec2-user
127 docker ps -a

```
[ec2-user@ip-172-31-40-214 ~]$ sudo systemctl start docker
[ec2-user@ip-172-31-40-214 ~]$ docker ps -a
CONTAINER ID   IMAGE         COMMAND    CREATED          STATUS                      PORTS     NAMES
43de6fe07bda   hello-world   "/hello"   21 minutes ago   Exited (0) 21 minutes ago             romantic_stonebraker
[ec2-user@ip-172-31-40-214 ~]$
```

Plugin required : ssh agent

```
[ec2-user@ip-172-31-40-214 ~]$ sudo service jenkins start
Starting jenkins (via systemctl):                          [  OK  ]
[ec2-user@ip-172-31-40-214 ~]$
```

Create new pipeline : pipeline – Add pipeline script –




```
etcpus=&cpusetmems=&cpushares=0&dockerfile=Dockerfile&labels=%7B%7D&memory=0&memswap=0&networkmode=default&r
1": dial unix /var/run/docker.sock: connect: permission denied
```

```
root@ip-172-31-29-203: /home/ubuntu
root@ip-172-31-29-203:/home/ubuntu# chmod 777 /var/run/docker.sock
```

To resolve above error .

```
[ec2-user@ip-172-31-40-214 ~]$ chmod 777 /var/run/docker.sock
chmod: changing permissions of '/var/run/docker.sock': Operation not permitted
[ec2-user@ip-172-31-40-214 ~]$ sudo su -
Last login: Thu Apr  6 06:32:30 UTC 2023 on pts/0
[root@ip-172-31-40-214 ~]# chmod 777 /var/run/docker.sock
[root@ip-172-31-40-214 ~]# exit
logout
[ec2-user@ip-172-31-40-214 ~]$
```

```
ERROR: invalid tag "CICD_DOCKER_BUILD_WEBAPP:v1.4": repository name must be lowercase
[Pipeline] }
```

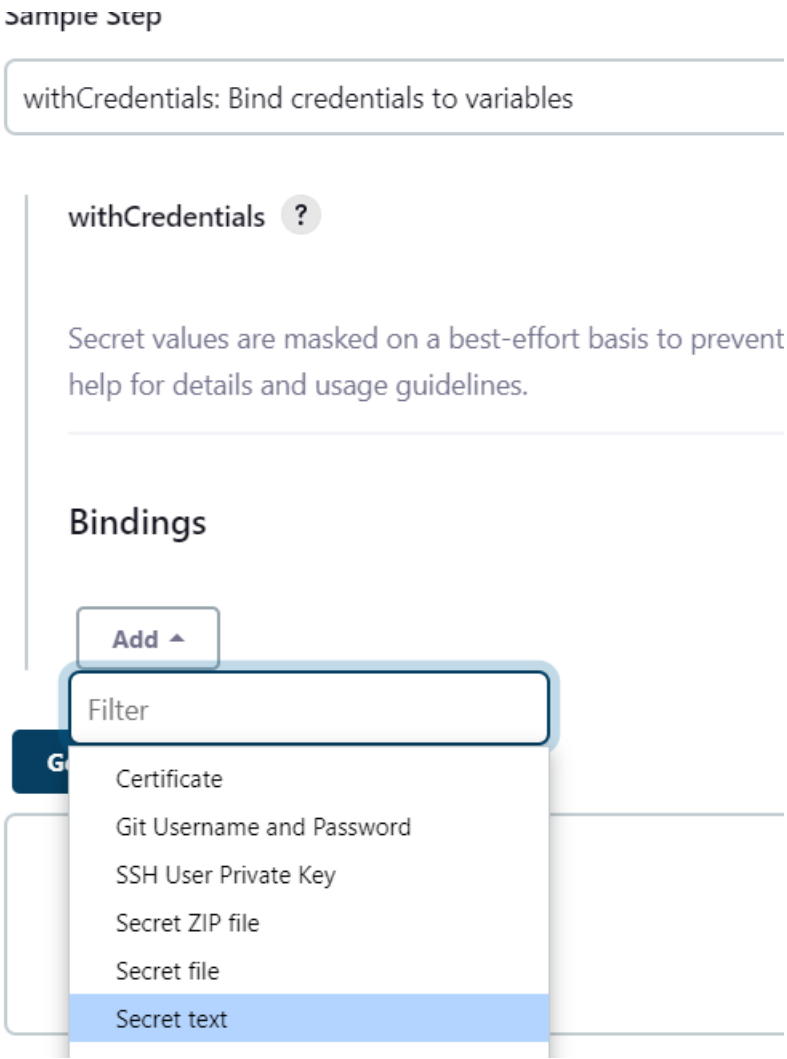
Do changes in pipline script and run .

Once docker build image done .

```
[ec2-user@ip-172-31-40-214 ~]$ docker images
REPOSITORY                          TAG       IMAGE ID       CREATED          SIZE
cicd_docker_build_webapp            v1.8      6f87587c9cdf   2 minutes ago    301MB
sravtar/cicd_docker_build_webapp    latest    6f87587c9cdf   2 minutes ago    301MB
sravtar/cicd_docker_build_webapp    v1.8      6f87587c9cdf   2 minutes ago    301MB
cicd_docker_build_webapp            v1.7      3bc608636fde   3 minutes ago    309MB
hello-world                         latest    feb5d9fea6a5   18 months ago    13.3kB
[ec2-user@ip-172-31-40-214 ~]$
```

Images will be present in server .
Now we need to push images to docker hub .

Generate pipeline script to push docker image to docker hub – with creds – bind creds to variable . – add secret text . – creds username with password .



Once image pushed to dockerhub , we can remove from Jenkins .
Add in pipeline script .

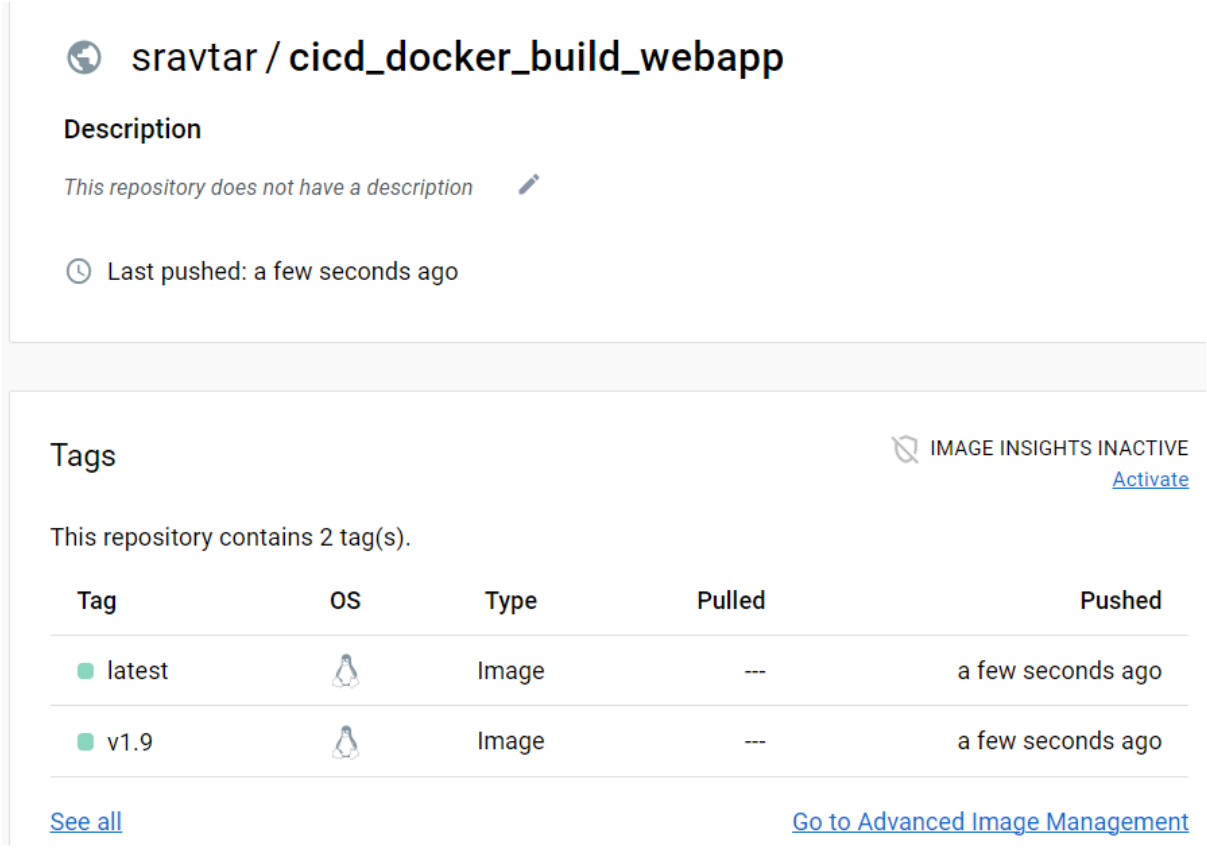


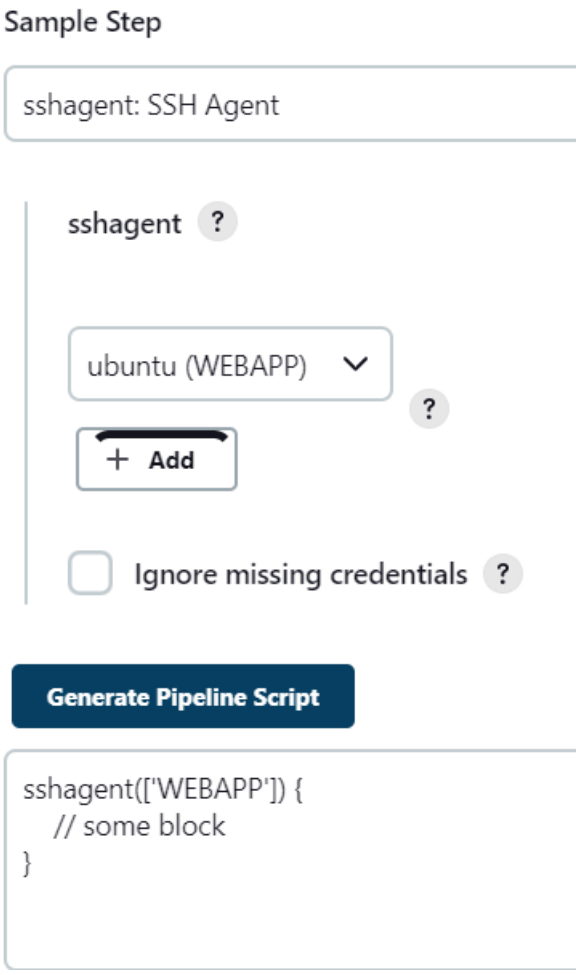
Image pushed to dockerhub .

Now Jenkins will ssh to webapp server using sshagent plugin and create container .

Create ec2 for webapp .
Install docker .

```
1  sudo apt-get update
   2  sudo apt-get install apt-transport-https ca-certificates curl gnupg-agent software-properties-common
   3  curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
   4  sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu $(lsb_release -
cs) stable"
   5  sudo apt-get update
   6  sudo apt-get install docker-ce docker-ce-cli containerd.io
   7  sudo docker run hello-world
   8  sudo docker ps
   9  sudo docker ps -a
  10  history
```

Create pipeline script for sshagent to webapp .

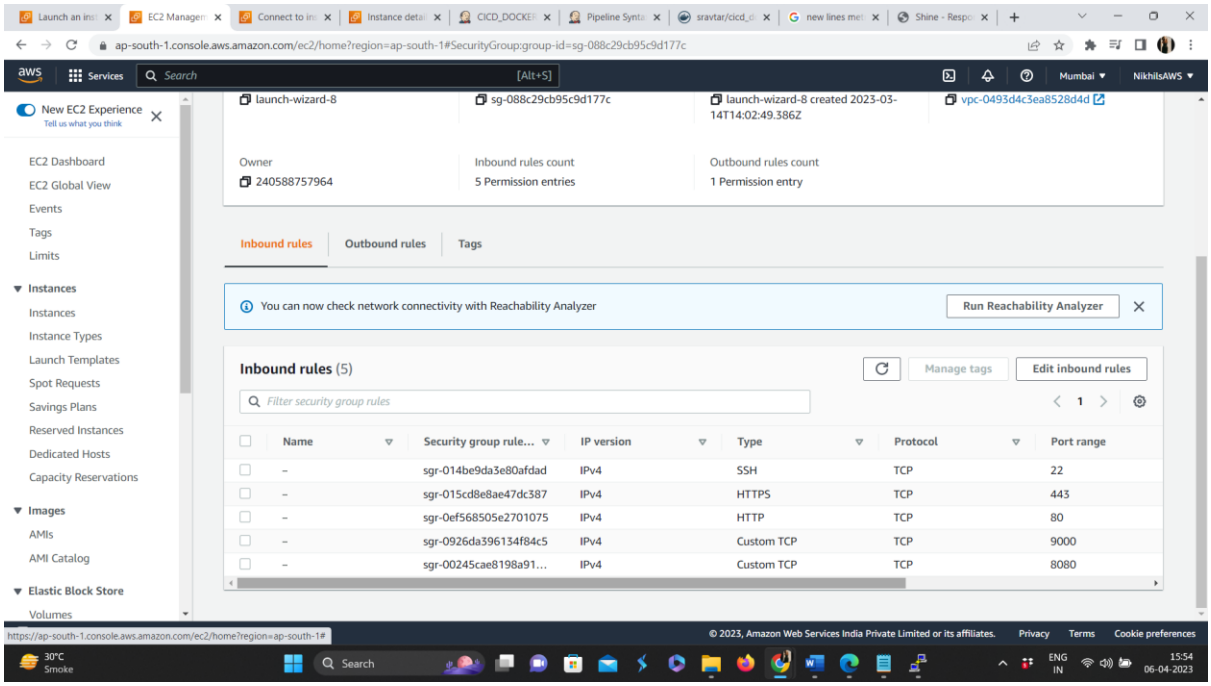


Ssh username and private key .

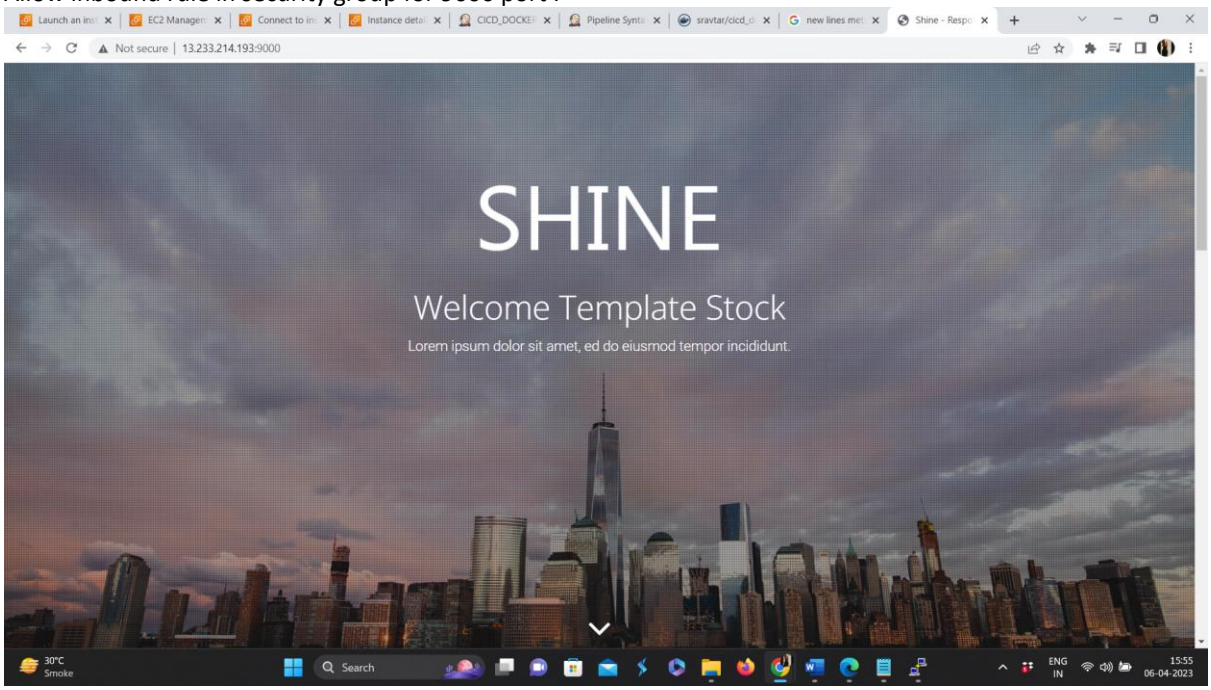
Once pipeline success .
Image will be deployed in webapp .

```
ubuntu@ip-172-31-38-131:~$ docker ps -a
CONTAINER ID   IMAGE                              COMMAND                  CREATED             STATUS                     PORTS                                                 NAMES
f5cec6c1032b   sravtar/cicd_docker_build_webapp   "/usr/sbin/httpd -D …"   About an hour ago   Up About an hour           22/tcp, 0.0.0.0:9000->80/tcp, :::9000->80/tcp         scriptedcontainer
156a4f961cd1   hello-world                        "/hello"                 2 hours ago         Exited (0) 2 hours ago                                                   focused_brahmagupta
ubuntu@ip-172-31-38-131:~$
```

As we can see container is running .
We can access it using 9000 port .



Allow inbound rule in security group for 9000 port .



Site is accessible .

Now if we rerun pipeline it will fail as same container name already exists so we have to make changes in pipeline script .

So container is deployed to webapp using docker image .