

Program 5: Demonstrate CI integration by running jenkins in a docker container

File structure:

/Dockerfile

/docker-compose.yml

Create folder >> mkdir lab5 >> cd lab5

Dockerfile

FROM jenkins/jenkins:lts

#change to root user to install the packages

USER root

RUN apt-get update && apt-get install -y docker.io

USER jenkins

docker-compose.yml

version: "3.8"

services:

jenkins:

build: .

container_name: jenkins_ci

ports:

- "8080:8080"

- "50000:50000"

volumes:

- jenkins_home:/var/jenkins_home

- /var/run/docker.sock:/var/run/docker.sock

volumes:

jenkins_home:

Build and run the containers

Using Docker File

#sudo docker build -t lab5 .

#sudo docker run -p 8080:8080 -p 50000:50000 --name jenkins_ci lab5

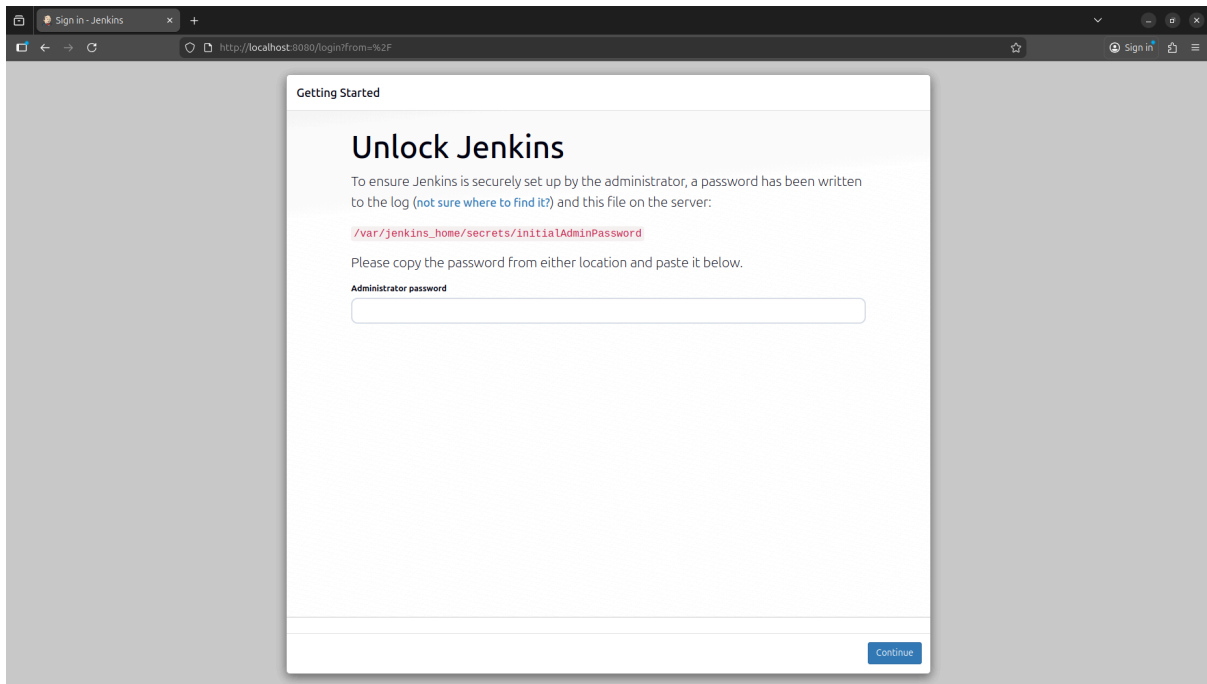
```
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ: ~/Desktop/LabPrograms/Lab5
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~$ sudo docker build -t lab5 .
[+] Building 6.2s (6/6) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 185B
=> [internal] load metadata for docker.io/jenkins/jenkins:lt
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/2] FROM docker.io/jenkins/jenkins:lt@sha256:7b1c378278279c8688efd6168c25a1c2723a6bd6f0420beb5cfee3cc3bb1
=> CACHED [2/2] RUN apt-get update && apt-get install -y docker.io
=> exporting to image
=> => writing image sha256:9f6f9e412acb760183c08619e7527a88443f1212af355950c5e5f8f291dad5da
=> => naming to docker.io/library/lab5
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~$ sudo docker run -p 8080:8080 -p 50000:50000 --name jenkins_ci lab5
Running from: /usr/share/jenkins/jenkins.war
webroot: /var/jenkins_home/war
2025-11-21 03:59:14.307+0000 [id=1] INFO winstone.Logger#logInternal: Beginning extraction from war file
2025-11-21 03:59:15.091+0000 [id=1] WARNING o.e.j.ee9.nested.ContextHandler#setContextPath: Empty contextPath
2025-11-21 03:59:15.153+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: Jetty-12.0.25; built: 2025-08-11T23:52:37.219Z; git: a862b76d8372e24205765182d9ae1d333ce2ea;
jvm 21.0.9+10-LTS
2025-11-21 03:59:15.607+0000 [id=1] INFO o.e.j.e.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclipse.jetty.ee9.jsp.JettyJspServlet
2025-11-21 03:59:15.678+0000 [id=1] INFO o.e.j.s.DefaultSessionIdManager#doStart: Session workerName=node0
2025-11-21 03:59:16.056+0000 [id=1] INFO hudson.WebAppMain#contextInitialized: Jenkins home directory: /var/jenkins_home found at: EnvVars.masterEnvVars.get("JENKINS_HOME")
2025-11-21 03:59:16.190+0000 [id=1] INFO o.e.j.s.handler.ContextHandler#doStart: Started oeje9n.ContextHandler$CoreContextHandler@3c782d8e[Jenkins v2.528.2/,b=file:///var/jenki
ns_home/war/,a=AVAILABLE,h=oeje9n.ContextHandler$CoreContextHandler$CoreToNestedHandler@572e6fd9[STARTED]]
2025-11-21 03:59:16.201+0000 [id=1] INFO o.e.j.server.AbstractConnector#doStart: Started ServerConnector@7bca6fac[HTTP/1.1, (http/1.1)]{0.0.0.0:8080}
2025-11-21 03:59:16.213+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: Started oejs.Server@3668d4[STARTING][12.0.25,sto=0] @2585ms
2025-11-21 03:59:16.214+0000 [id=43] INFO winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
2025-11-21 03:59:16.322+0000 [id=42] INFO jenkins.model.Jenkins#<init>: Starting version 2.528.2
2025-11-21 03:59:16.403+0000 [id=51] INFO jenkins.InitReactorRunner$1#onAttained: Started initialization
2025-11-21 03:59:16.423+0000 [id=72] INFO jenkins.InitReactorRunner$1#onAttained: Listed all plugins
2025-11-21 03:59:17.173+0000 [id=56] INFO jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
2025-11-21 03:59:17.180+0000 [id=56] INFO jenkins.InitReactorRunner$1#onAttained: Started all plugins
2025-11-21 03:59:17.181+0000 [id=72] INFO jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
2025-11-21 03:59:17.317+0000 [id=53] INFO jenkins.InitReactorRunner$1#onAttained: System config loaded
2025-11-21 03:59:17.318+0000 [id=49] INFO jenkins.InitReactorRunner$1#onAttained: System config adapted
2025-11-21 03:59:17.319+0000 [id=55] INFO jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
2025-11-21 03:59:17.321+0000 [id=68] INFO jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
2025-11-21 03:59:17.341+0000 [id=86] INFO hudson.util.Retrier#start: Attempt #1 to do the action check updates server
2025-11-21 03:59:17.637+0000 [id=65] INFO jenkins.install.SetupWizard#init:
[LF]>
[LF]> *****
[LF]> *****
```

Go to browser and type <http://localhost:8080> to see the output

Using docker-compose.yml #sudo docker compose up

```
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ: ~/Desktop/LabPrograms/Lab5
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~$ sudo docker compose up
WARN[0000] /home/anantha/Desktop/LabPrograms/Lab5/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Running 1/1
✔ Container jenkins_ci Created
Attaching to jenkins_ci
jenkins_ci | Running from: /usr/share/jenkins/jenkins.war
jenkins_ci | webroot: /var/jenkins_home/war
jenkins_ci | 2025-11-21 04:14:48.808+0000 [id=1] INFO winstone.Logger#logInternal: Beginning extraction from war file
jenkins_ci | 2025-11-21 04:14:49.542+0000 [id=1] WARNING o.e.j.ee9.nested.ContextHandler#setContextPath: Empty contextPath
jenkins_ci | 2025-11-21 04:14:49.615+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: Jetty-12.0.25; built: 2025-08-11T23:52:37.219Z; git: a862b76d8372e24205765182d9
ae1dd333ce2ea; jvm 21.0.9+10-LTS
jenkins_ci | 2025-11-21 04:14:50.053+0000 [id=1] INFO o.e.j.e.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclipse.jetty.ee9.jsp.JettyJs
pServlet
jenkins_ci | 2025-11-21 04:14:50.129+0000 [id=1] INFO o.e.j.s.DefaultSessionIdManager#doStart: Session workerName=node0
jenkins_ci | 2025-11-21 04:14:50.488+0000 [id=1] INFO hudson.WebAppMain#contextInitialized: Jenkins home directory: /var/jenkins_home found at: EnvVars.masterEnvVars.get("JEN
KINS_HOME")
jenkins_ci | 2025-11-21 04:14:50.585+0000 [id=1] INFO o.e.j.s.handler.ContextHandler#doStart: Started oeje9n.ContextHandler$CoreContextHandler@3c782d8e[Jenkins v2.528.2/,b=f
ile:///var/jenkins_home/war/,a=AVAILABLE,h=oeje9n.ContextHandler$CoreContextHandler$CoreToNestedHandler@572e6fd9[STARTED]]
jenkins_ci | 2025-11-21 04:14:50.601+0000 [id=1] INFO o.e.j.server.AbstractConnector#doStart: Started ServerConnector@7bca6fac[HTTP/1.1, (http/1.1)]{0.0.0.0:8080}
jenkins_ci | 2025-11-21 04:14:50.613+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: Started oejs.Server@3668d4[STARTING][12.0.25,sto=0] @2418ms
jenkins_ci | 2025-11-21 04:14:50.613+0000 [id=43] INFO winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
jenkins_ci | 2025-11-21 04:14:50.724+0000 [id=42] INFO jenkins.InitReactorRunner$1#onAttained: Started initialization
jenkins_ci | 2025-11-21 04:14:50.805+0000 [id=51] INFO jenkins.InitReactorRunner$1#onAttained: Listed all plugins
jenkins_ci | 2025-11-21 04:14:50.826+0000 [id=72] INFO jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
jenkins_ci | 2025-11-21 04:14:51.592+0000 [id=61] INFO jenkins.InitReactorRunner$1#onAttained: Started all plugins
jenkins_ci | 2025-11-21 04:14:51.597+0000 [id=61] INFO jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
jenkins_ci | 2025-11-21 04:14:51.597+0000 [id=61] INFO jenkins.InitReactorRunner$1#onAttained: System config loaded
jenkins_ci | 2025-11-21 04:14:51.741+0000 [id=57] INFO jenkins.InitReactorRunner$1#onAttained: System config adapted
jenkins_ci | 2025-11-21 04:14:51.741+0000 [id=65] INFO jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
jenkins_ci | 2025-11-21 04:14:51.742+0000 [id=66] INFO jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
jenkins_ci | 2025-11-21 04:14:51.744+0000 [id=66] INFO jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
jenkins_ci | 2025-11-21 04:14:51.763+0000 [id=86] INFO hudson.util.Retrier#start: Attempt #1 to do the action check updates server
jenkins_ci | 2025-11-21 04:14:52.033+0000 [id=57] INFO jenkins.install.SetupWizard#init:
jenkins_ci | [LF]>
jenkins_ci | [LF]> *****
jenkins_ci | [LF]> *****
jenkins_ci | [LF]> *****
jenkins_ci | [LF]>
jenkins_ci | [LF]> Jenkins initial setup is required. An admin user has been created and a password generated.
jenkins_ci | [LF]> Please use the following password to proceed to installation:
jenkins_ci | [LF]>
jenkins_ci | [LF]> 0b2d9f00242744e885928c6c9ae67792
jenkins_ci | [LF]>
jenkins_ci | [LF]> This may also be found at: /usr/jenkins_home/secrets/initialAdminPassword
```

Go to browser and type <http://localhost:8080> to see the output



See the list of containers and volumes which were created

#sudo docker container ls -a

#sudo docker volume ls

```
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IH... x 1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IH... x 1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IH... x
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab5$ sudo docker container ls -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                                                                                                                                            NAMES
92c7ab7114f6   lab5-jenkins   "/usr/bin/tini -- /u..." 7 minutes ago   Up 7 minutes   0.0.0.0:8080->8080/tcp, [::]:8080->8080/tcp, 0.0.0.0:50000->50000/tcp, [::]:50000->50000/tcp   jenkins
9f27f8755c95   lab5           "/usr/bin/tini -- /u..." 7 minutes ago   Up 7 minutes   0.0.0.0:8081->8080/tcp, [::]:8081->8080/tcp, 0.0.0.0:50001->50000/tcp, [::]:50001->50000/tcp   jenkins

1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab5$ sudo docker volume ls
DRIVER         VOLUME NAME
local          6ae7fce735689b3ce82faa6b673212900bf418e89e5543dc8694b5e85dfc212a
local          7d9b32fe7796155a10eb3341e06244bf2487dbe9aca7c0c34a8e4dee2393961e
local          53f6a311d438a5a5e10dc1bd5a107420f706b7d1188081650332ca3bda2e4ad4
local          2910d202378df49af04970f95af1fde5b2f854f867d60567e4d39bac15f6df3f
local          a15a4cfdc8c5c7a574b87dd725d9ade4b108ac53d36b9bea24c7a45a27a249f1
local          c88a1899bc520e0f7530b3522e91d75171d20f256b08b26f9e73e016af622cb4
local          d52143b0c1ec2621c846ba8bcd09dda6973b5bebbf77fe3d4f9569294deb8422
local          e34515d4c3fc5c54366a928f95c7c5602f954de5d5a7cf0147c928f29edd8b19
local          lab5_jenkins_home
```