

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$ sudo docker build -t lab5 .
[+] Building 6.2s (6/6) FINISHED
--> [internal] load build definition from Dockerfile
--> transferring dockerfile: 105B
--> [internal] load metadata for docker.io/jenkins/jenkins:lts
--> [internal] load .dockerrcignore
--> transferring context: 2B
--> [1/2] FROM docker.io/jenkins/jenkins:lts@sha256:7b1c378279c8688efd6168c25alc2723a6bd6f0420beb5ccefabee3cc3bb1
--> CACHED [2/2] RUN apt-get update && apt-get install -y docker.io
--> exporting layers
--> exporting layers
--> writing image sha256:9f6f9e412acb760103c08619e7527e88443f1212af355950c5e5f8f291dad5d
--> naming to docker.io/library/lab5
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab5$ sudo docker run -p 8080:8000 -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 03:59:15.671+0000 [id=1] INFO o.e.j.s.DefaultSessionIdManager#doStart: Session workerName=node9
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 03:59:16.199+0000 [id=1] INFO o.e.j.s.handler.ContextHandler#doStart: Started oeje9n.ContextHandler$CoreContextHandler@3c782d8e[Jenkins v2.528.2,/,b=file:///var/jenkins_home/war/,a=AVAILABLE,h=oeje9n.ContextHandler$CoreContextHandler$CoreToNestedHandler@572e6fd9{STARTED}]
2025-11-21 03:59:16.213+0000 [id=1] INFO winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
2025-11-21 03:59:16.244+0000 [id=43] INFO winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
2025-11-21 03:59:16.677+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=51] 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=40] 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.Retriger#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

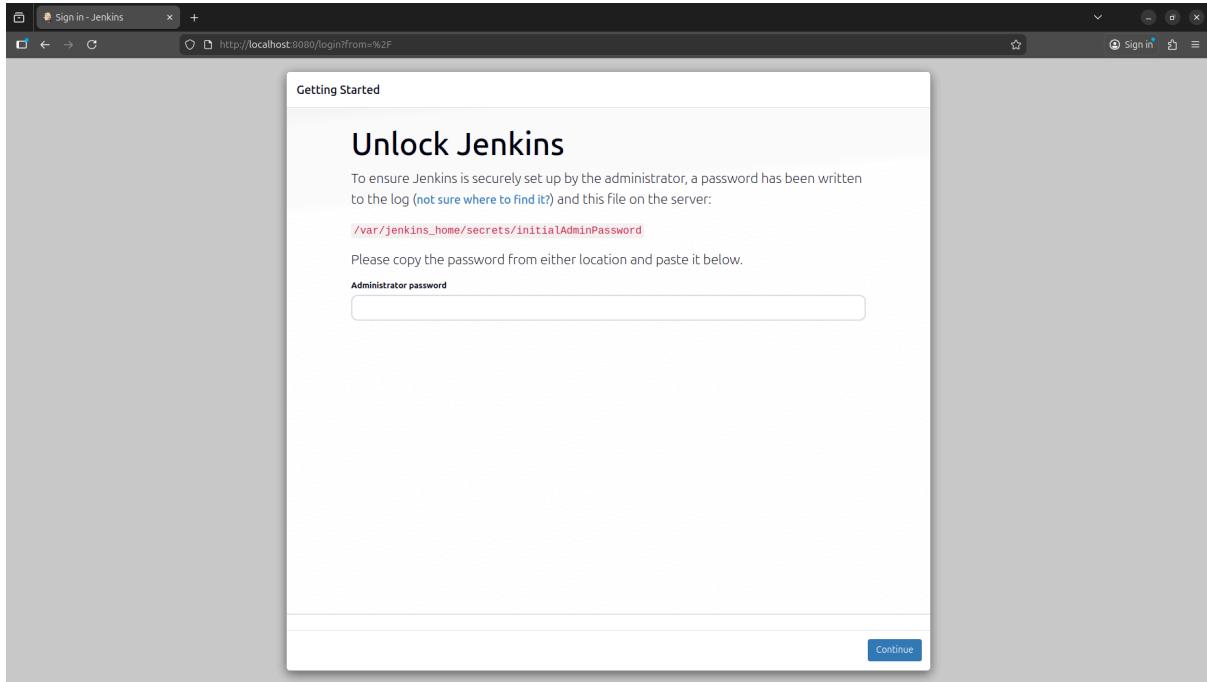
Using docker-compose.yml #sudo docker compose up

```

1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab5$ 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: a862b76d8372e24205765182d9ae1d333ce2ea; jvm: 21.0.9+10-LTS
jenkins_ci | 2025-11-21 04:14:50.505+0000 [id=1] INFO o.e.j.e.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclipse.jetty.ee9.jsp.JettyJspServlet
jenkins_ci | 2025-11-21 04:14:50.129+0000 [id=1] INFO o.e.j.s.DefaultSessionIdManager#doStart: Session workerName=node9
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("JENKINS_HOME")
jenkins_ci | 2025-11-21 04:14:50.585+0000 [id=1] INFO o.e.j.s.handler.ContextHandler#doStart: Started oeje9n.ContextHandler$CoreContextHandler@3c782d8e[Jenkins v2.528.2,/,b=file:///var/jenkins_home/war/,a=AVAILABLE,h=oeje9n.ContextHandler$CoreContextHandler$CoreToNestedHandler@572e6fd9{STARTED}]
jenkins_ci | 2025-11-21 04:14:50.601+0000 [id=1] INFO o.e.j.s.Server#doStart: Started ServerConnector@7bcfafc[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 04:14:50.724+0000 [id=43] INFO winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
jenkins_ci | 2025-11-21 04:14:50.805+0000 [id=42] INFO jenkins.model.Jenkins<init>: Starting version 2.528.2
jenkins_ci | 2025-11-21 04:14:51.458+0000 [id=51] INFO jenkins.InitReactorRunner$1#onAttained: Started initialization
jenkins_ci | 2025-11-21 04:14:51.826+0000 [id=72] INFO jenkins.InitReactorRunner$1#onAttained: Listed all plugins
jenkins_ci | 2025-11-21 04:14:51.592+0000 [id=61] INFO jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
jenkins_ci | 2025-11-21 04:14:51.597+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 04:14:51.741+0000 [id=57] INFO jenkins.InitReactorRunner$1#onAttained: System config loaded
jenkins_ci | 2025-11-21 04:14:51.741+0000 [id=65] INFO jenkins.InitReactorRunner$1#onAttained: System config adapted
jenkins_ci | 2025-11-21 04:14:51.742+0000 [id=66] INFO jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
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.Retriger#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 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]> 0b2df00242744e885928c6c9ae67792
jenkins_ci | [LF]> This may also be found at: /var/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-FA506IHR... x 1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHR... x 1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHR... 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
82c7ab7114f6      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   jen
kins_ci          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   jen
kins
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:-/Desktop/LabPrograms/Lab5$ sudo docker volume ls
DRIVER    VOLUME NAME
local    6ae7fce7356e89b3ce02faa6b673212900bfa18e89e5543dc8694b5e85dfc212a
local    7d9b32fe7796155a10eb3341e06244bf7407db9e9ac7c0c34a8e4dee2393961e
local    53f6a3110438a5a5e10dc1bd5a107420f766b7d1188081650332ca30da2e4a4d
local    2910d2b2378df49af0497bf95af1fde562f854f867d60567ed439bac15f6df3f
local    a15a4cfdfc8c5c7a574b87d7d25d9ade4b188ac53d36b9bea24c74d5a27a249f1
local    c88a1899bc520e0f7530b352e91d7517120bf256db0b26f9e73e016af622c04
local    d52143b0c1ec2621c846ba8bcd099ddaa973b5e6bbf77f7e3d4f9569294deb8422
local    e34515d4c3fc5c54366a928f95c7c5602f954de5d5a7cf0147c928f29edd8b19
local    lab5_jenkins_home
```