Edureka Industrial Grade Project

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Version 1

Document History		
Date	Description	Author
02/12/2025	Created	Rakesh Ranade

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Introduction:

This document contains information regarding the project work completed for Edureka DevOps certification. Goal of this project is to develop a deployment pipeline using git as a source repository, jenkings as a CI/CD pipeline and docker as its image creation tool. At the end the same image is deployed at microk8s on the same machine

Flow of Pipeline

- Pull Source from Repository
- pull a docker image from microsofts images
- copy source to image
- restore packages and build code in the image
- start a container using that image
- use curl command to perform a healthcheck on the website
- publish the image to docker hub
- deploy image to microk8s
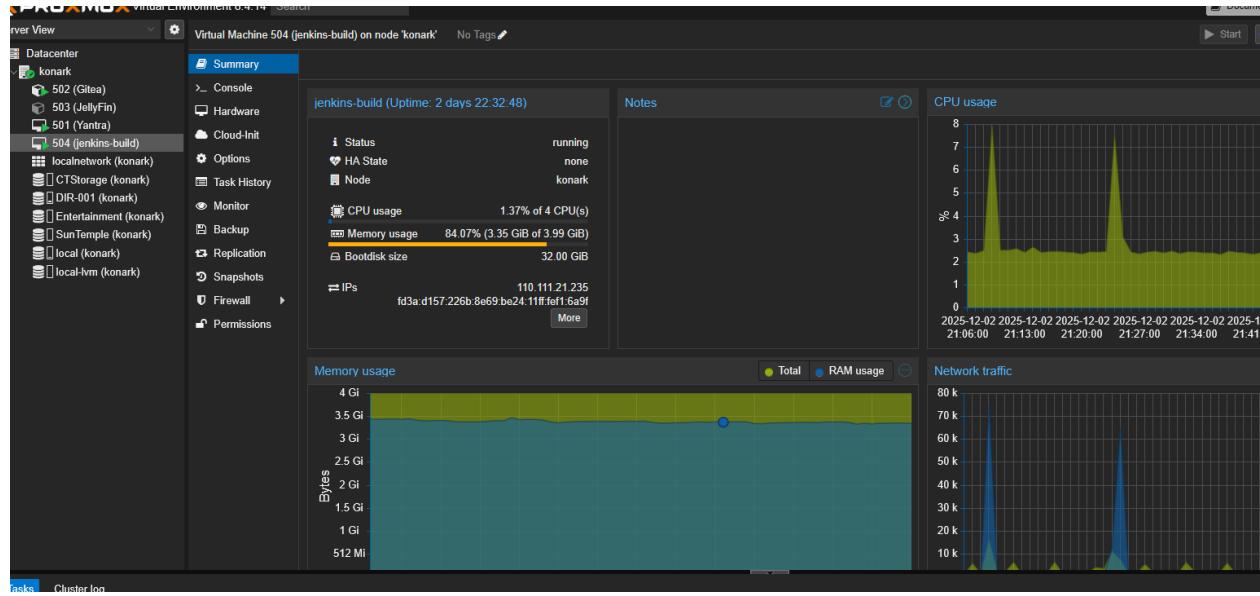
a sample build log is also added to github repo to view the results

Environment/Inventory:

#	Description	
1	GitHub repository	https://github.com/rakeshranade/Edureka-IGP1
2	Docker Registry	https://hub.docker.com/r/rranade/edureka-igp
3	Jenkins	Running on a Ubuntu VM
4	Docker	Installed and configured on same VM
5	Microk8s	Installed and running on same VM
6	Jenkins File	[source_root]/.jenkins/jenkinsfile
7	Docker File	[source_root]/.docker/igp1.dockerfile
8	Deployment.yaml	[source_root]/.jenkins/.Kubernetes/deployment.yaml
9	Services.yaml	[source_root]/.jenkins/.Kubernetes/services.yaml
10	Build Log Output	[source_root]/Documentation/Jenkins_build_log_33.txt
11	Documents	[source_root]/Documentation

<u>Installation Process…</u>

1 Ubuntu VM Created on Proxmox
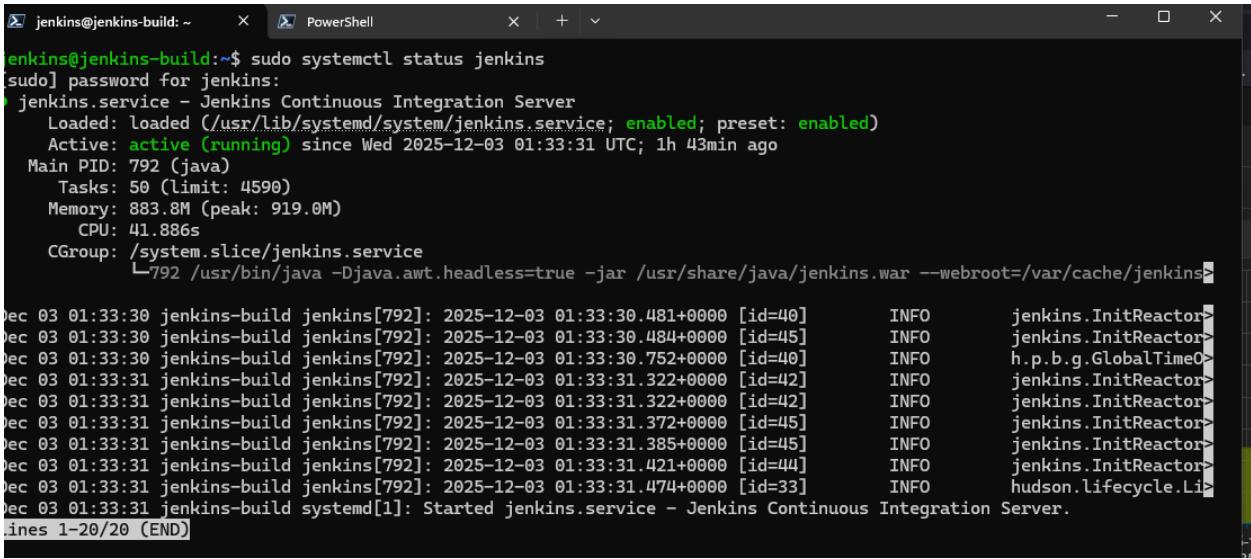
2 Jenkins Installed and Running

Documentation: https://www.jenkins.io/doc/book/installing/linux/

Commands Used:

```
sudo wget -O /etc/apt/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
echo "deb [signed-by=/etc/apt/keyrings/jenkins-keyring.asc]" \
  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt update
sudo apt install jenkins
```

3 Docker Installed and Running

Documentation: https://docs.docker.com/engine/install/ubuntu/

Commands Used:

```
sudo apt install apt-transport-https ca-certificates curl software-properties-common

 curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o
/usr/share/keyrings/docker-archive-keyring.gpg


echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-
keyring.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee
/etc/apt/sources.list.d/docker.list > /dev/null

sudo apt update

sudo apt install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin

sudo usermod -aG docker $USER

sudo docker run hello-world
```

```
Dec 03 01:33:31 jenkins-build jenkins[792]: 2025-12-03 01:33:31.421+0000 [id=44]        INFO        jenkins.InitReactor>
Dec 03 01:33:31 jenkins-build jenkins[792]: 2025-12-03 01:33:31.474+0000 [id=33]        INFO        hudson.lifecycle.Li>
Dec 03 01:33:31 jenkins-build systemd[1]: Started jenkins.service - Jenkins Continuous Integration Server.
jenkins@jenkins-build:~$
jenkins@jenkins-build:~$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
     Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
     Active: active (running) since Wed 2025-12-03 01:33:28 UTC; 1h 44min ago
TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
   Main PID: 1319 (dockerd)
      Tasks: 12
     Memory: 168.7M (peak: 201.0M)
        CPU: 4.090s
     CGroup: /system.slice/docker.service
             └─1319 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Dec 03 02:23:43 jenkins-build dockerd[1319]: time="2025-12-03T02:23:43.926738309Z" level=info msg="detected 127.0.0.53 >
Dec 03 02:23:44 jenkins-build dockerd[1319]: time="2025-12-03T02:23:44.079234098Z" level=info msg="sbJoin: gwep4 ''->'0>
Dec 03 02:23:45 jenkins-build dockerd[1319]: time="2025-12-03T02:23:45.855031574Z" level=info msg="detected 127.0.0.53 >
Dec 03 02:23:46 jenkins-build dockerd[1319]: time="2025-12-03T02:23:46.077658702Z" level=info msg="sbJoin: gwep4 ''->'e>
Dec 03 02:23:50 jenkins-build dockerd[1319]: time="2025-12-03T02:23:50.506331883Z" level=info msg="detected 127.0.0.53 >
Dec 03 02:23:50 jenkins-build dockerd[1319]: time="2025-12-03T02:23:50.698175360Z" level=info msg="sbJoin: gwep4 ''->'2>
Dec 03 02:23:50 jenkins-build dockerd[1319]: time="2025-12-03T02:23:50.995210900Z" level=warning msg="forcibly turning >
Dec 03 02:23:56 jenkins-build dockerd[1319]: time="2025-12-03T02:23:56.101299248Z" level=info msg="sbJoin: gwep4 ''->'9>
Dec 03 02:23:58 jenkins-build dockerd[1319]: time="2025-12-03T02:23:58.649878475Z" level=info msg="ignoring event" cont>
Dec 03 02:24:01 jenkins-build dockerd[1319]: time="2025-12-03T02:24:01.177344583Z" level=info msg="image created" image>
lines 1-22/22 (END)
```

4   Jenkins Pipeline Configured

Course Curriculum | Edureka ×   Edureka-IGP - Jenkins ×   +

← → ↻   🛡 🔒 Not Secure   http://110.111.21.235:8080/job/Edureka-IGP/

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Jenkins / Edureka-IGP

📋	Status
</>	Changes
▷	Build Now
⚙	Configure
🗑	Delete Pipeline
▤	Stages
✎	Rename
?	Pipeline Syntax
📱	Credentials

✓ **Edureka-IGP**

Edureka IGP Pipeline, build a dotnet project in docker image and then deploy it to docker hub

Permalinks

- Last build (#33), 1 hr 4 min ago
- Last stable build (#33), 1 hr 4 min ago
- Last successful build (#33), 1 hr 4 min ago
- Last failed build (#32), 1 hr 20 min ago
- Last unsuccessful build (#32), 1 hr 20 min ago
- Last completed build (#33), 1 hr 4 min ago

Builds ••• ⤢

🔍 Filter   /

Today

✓	#33 2:23 AM	⌄
✕	#32 2:08 AM	⌄
✕	#31 1:48 AM	⌄
✕	#30 1:29 AM	⌄
✕	#29 1:25 AM	⌄
✕	#28 1:24 AM	⌄
✕	#27 1:21 AM	⌄
✕	#26 1:17 AM	⌄

November 26, 2025

✓	#25 9:18 AM	⌄

Jenkins / All ⌄ / Build History

＋	New Item
📖	Build History

Build Queue   ⌄

No builds in the queue.

Build Executor Status   0/2 ⌄

Build History of Jenkins

S	Build		Time Since ↑	Status
✓	Edureka-IGP	#33	1 hr 7 min	back to normal
✕	Edureka-IGP	#32	1 hr 22 min	broken since build #26
✕	Edureka-IGP	#31	1 hr 42 min	broken since build #26
✕	Edureka-IGP	#30	2 hr 1 min	broken since build #26
✕	Edureka-IGP	#29	2 hr 5 min	broken since build #26
✕	Edureka-IGP	#28	2 hr 6 min	broken since build #26
✕	Edureka-IGP	#27	2 hr 9 min	broken since build #26
✕	Edureka-IGP	#26	2 hr 13 min	broken since this build
✓	Edureka-IGP	#25	6 days 18 hr	back to normal
✕	Edureka-IGP	#24	6 days 18 hr	broken since build #19
✕	Edureka-IGP	#23	6 days 18 hr	broken since build #19
✕	Edureka-IGP	#22	6 days 18 hr	broken since build #19
✕	Edureka-IGP	#21	6 days 18 hr	broken since build #19
✕	Edureka-IGP	#20	6 days 18 hr	broken since build #19
✕	Edureka-IGP	#19	6 days 18 hr	broken since this build

Jenkins pipeline is configured to pull the pipeline file from github repository

+ Add Branch

Repository browser ?

(Auto)

Additional Behaviours

+ Add

Script Path ?

.jenkins/jenkinsfile

☑ Lightweight checkout ?

Pipeline Syntax

Advanced

Branches to build ?

Branch Specifier (blank for 'any') ?

*/master

Branch Specifier (blank for 'any') ?

*/main

+ Add Branch

Repository browser ?

(Auto)

Additional Behaviours

+ Add

Script Path ?

.jenkins/jenkinsfile

☑ Lightweight checkout ?

Pipeline Syntax

Advanced

Additional commands used while testing

docker build -f .docker/igp1.dockerfile -t edureka-igp1:7 .

docker run -it --name igp edureka-igp1:7 /bin/bash

```
dotnet publish /src/src/Edureka-igp1/Edureka-igp1.csproj -c Release -o /app/publish --
no-restore -p:PublishTrimmed=true --runtime linux-x64
dotnet build --runtime linux-x64 -c Debug -o ~/app/debug ./Edureka-igp1.csproj
```

```
docker run -d -p 8090:5000 --name edureka-igp edureka-igp1:7
```

http://localhost:8090/Privacy