**Assignment:**

Create a CICD pipeline in Jenkins to fetch Java code from GitHub repository, containerize using Docker, push to ECR and deploy to EKS so that users can access the application viz URL.

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**Technology Used:**

Docker, ECR, EKS, GitHub Actions

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**Folder structure:**

**|\_** src

**|\_** .github

**|\_**workflows

**|\_** deploy.yml

**|\_** Dockerfile

**|\_** pom.xml

|\_ k8s/

**|\_** deployment.yaml

**|\_** service.yaml

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**Prerequisites**

* Install AWS CLI

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**Local Setup**

* Create new repository in GitHub.

GiHub > Plus icon > New repository

Repository name – java-hello-world > Add README **>** Create repository

* Configure Git in Local & push existing code.

1. Open GitBash/Terminal on local
2. Configure Git user info

$ git config --global user.name "shivam"

$ git config --global user.email [shivamthakur0567@gmail.com](mailto:shivamthakur0567@gmail.com)

1. Initialize Git Repository

$ git init

1. Add files to Git:

$ git add .

1. Commit changes:

$ git commit -m "Initial commit"

1. Check current local branch

$ git branch

Master

1. Rename local branch to main

$ git branch -m main

1. Add our remote repository

$ git remote add origin <https://github.com/shivam-th/java-hello-world.git>

1. Push the code from local to remote repository

$ git push -u origin main --force

* Create user

IAM > Users > Create user

User name – admin > Check – Provide access to the AWS Management Console > Next  
Permissions options – Attach policies directly > Permissions policies – [AdministratorAccess](https://983877353540-643piekf.us-east-1.console.aws.amazon.com/iam/home?region=us-east-1#/policies/details/arn%3Aaws%3Aiam%3A%3Aaws%3Apolicy%2FAdministratorAccess)  
Next > Create user

* Create access key

IAM > Users > admin > Create access key

Use case – Command line Interface (CLI)/Other > Next > Create access key

* Configure AWS in local

$ aws configure

AWS Access Key ID [None]:

AWS Secret Access Key [None]:

Default region name [None]:

Default output format [None]:

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**Jenkins Instance Setup**

* Visit

EC2 > Instances > Launch instances

* Give name for instance

Names and tags > Name – jenkins-server

* Select AMI

Application and OS Images > Quick Start > Select – Ubuntu (Ubuntu Server 22.04)

* Select Instance type

Instance type > Instance type – t2.small

* Create or choose existing key

Key pair > Create new key pair > Key pair name – jenkins-key > Type – RSA > File Format – .pem > Create Key pair

* Create security group

Network settings > Choose – Create security group > Edit

Security group name – jenkins-sg > Description – jenkins-sg

Type – ssh > Source type – MyIP > Add security group

Type – Custom TCP > Port range – 8080 > Source type – Anywhere > Description – allow port 8080

* Add provisioner

Advanced details > User data

#!/bin/bash

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-get update

sudo apt-get install jenkins -y

sudo apt update

sudo apt install fontconfig openjdk-21-jre -y

sudo reboot

* Login to Jenkins server

$ ssh -i <key-pair-file-name> ubuntu@<public-p>

* Check service

$ systemctl status jenkins

* Verify

Browse – <instance public IP>:8080

* Copy password

$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword

<copy-password>

* Unlock Jenkins

Administrator password – <paste-password> > Continue

* Customize Jenkins

Select plugins to install > Uncheck plugins if not required (ant) > Install

* Create First Admin User

Username – admin

Password – admin

Fullname – admin

E-mail address – [admin@gmail.com](mailto:admin@gmail.com)

* Save & Continue
* If your instance IP is dynamic, then give any domain

Jenkins URL - <http://jenkins.xyz> > Save and Finish

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**Install & Configure AWS CLI on Jenkins**

* Install AWS CLI

$ sdf

* Install