***2 . Jenkins with Docker***

***Docker File -> Docker Image -> Docker Containers -> Docker Hub using JenKins pipeline using GitHub Objective:***

The objective of this Jenkins pipeline script is to automate the building, tagging, pushing, and deployment of a Dockerized Nginx web application. Specifically, it aims to:

1. Ensure Docker is installed and running on the Jenkins build server.
2. Stop and remove any existing Nginx container to prevent conflicts.
3. Build a new Docker image from the latest changes in the repository.
4. Tag and push the image to Docker Hub (kiruthik1304/docker\_jenkins\_task2) for version control and deployment.
5. Ensure port 80 is free before running the new container.
6. Deploy the newly built image as an Nginx container and verify its status.
7. Handle errors gracefully and notify the user in case of failure.

Procedure:

**Steps to Automate Docker Build & Deployment with Jenkins**

Follow these steps to ensure your **Jenkins pipeline** successfully builds, pushes, and deploys a Docker container with Nginx.

**Step 1: Install & Configure Jenkins**

1. **Install Jenkins** (if not already installed): sudo apt update sudo apt install openjdk-11-jdk -y

wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo tee

/etc/apt/trusted.gpg > /dev/null

echo "deb 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 -y

1. **Start Jenkins & Enable at Boot:**

sudo systemctl start jenkins sudo systemctl enable jenkins

1. **Get Jenkins Admin Password:**

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

o **Log in to Jenkins UI** (http://<your-server-ip>:8080) o **Install recommended plugins** during setup.

**Step 2: Install Docker & Grant Jenkins Access**

1. **Install Docker:**

sudo apt install docker.io -y sudo systemctl start docker sudo systemctl enable docker

1. **Give Jenkins permission to use Docker:** sudo usermod -aG docker jenkins sudo systemctl restart jenkins
2. **Verify Jenkins can run Docker commands:** sudo su - jenkins docker --version

**Step 3: Configure Docker Hub Authentication in Jenkins**

1. **Go to Jenkins Dashboard → Manage Jenkins → Manage Credentials**
2. **Add New Credentials**:
   * **Username:** shandeep04
   * **Password or Token:** Use a **Docker Hub Access Token** instead of a password. o **ID:** docker-hub-credentials (you'll use this in the script)

**Step 4: Create a New Jenkins Job**

1. **Go to Jenkins Dashboard → New Item**
2. **Select "Pipeline" → Enter Name (e.g., Docker Deployment)**
3. **Under "pipeline", choose Pipeline Script from SCM in Definition**
4. **Under "SCM," choose Git and add your repository:**

https://github.com/kiruthik13/DevOps02.git

















