Project 01
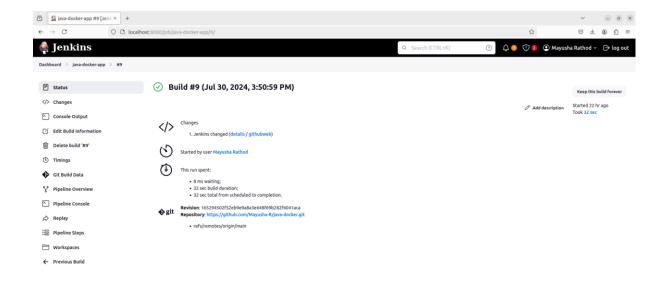
Problem Statement:

You are tasked with setting up a CI/CD pipeline using Jenkins to streamline the deployment process of a simple Java application. The pipeline should accomplish the following tasks:

1. **Fetch the Dockerfile**: The pipeline should clone a GitHub repository containing the source code of the Java application and a Dockerfile.
2. **Create a Docker Image**: The pipeline should build a Docker image from the fetched Dockerfile.
3. **Push the Docker Image**: The pipeline should push the created Docker image to a specified DockerHub repository.
4. **Deploy the Container**: The pipeline should deploy a container using the pushed Docker image.

Deliverables:

1. **GitHub Repository**: A GitHub repository containing:
    - The source code of a simple Java application.
    - A Dockerfile for building the Docker image.
2. **Jenkins Pipeline Script**: A Jenkinsfile (pipeline script) that:
    - Clones the GitHub repository.
    - Builds the Docker image.
    - Pushes the Docker image to DockerHub.
    - Deploys a container using the pushed image.
3. **DockerHub Repository**: A DockerHub repository where the Docker images will be stored.
4. **Jenkins Setup**:
    - Jenkins installed and configured on a local Ubuntu machine.
    - Required plugins installed (e.g., Git, Docker, Pipeline).
5. **Documentation**: Detailed documentation explaining:
    - How to set up the local Jenkins environment.
    - Configuration steps for the pipeline.
    - Instructions for verifying the deployment.

Jenkins

Search (CTRL+K)

Mayusha Rathod ˅   log out

Status
Changes
Console Output
Edit Build Information
Delete build '#9'
Timings
Git Build Data
Pipeline Overview
Pipeline Console
Replay
Pipeline Steps
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Previous Build

Build #9 (Jul 30, 2024, 3:50:59 PM)

Keep this build forever

Add description

Started 22 hr ago
Took 32 sec

Changes

1. Jenkins changed (details / githubweb)

Started by user Mayusha Rathod

This run spent:

- 8 ms waiting;
- 32 sec build duration;
- 32 sec total from scheduled to completion.

Revision: 165294502f52eb9e9a8a3e648f69b282f6041aca
Repository: https://github.com/Mayusha-R/java-docker.git

- refs/remotes/origin/main

REST API   Jenkins 2.452.3

```
> git rev-parse refs/remotes/origin/main {commit} # timeout=10
Checking out Revision 165294502f52eb9e9a8a3e648f69b282f6041aca (refs/remotes/origin/main)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f 165294502f52eb9e9a8a3e648f69b282f6041aca # timeout=10
 > git branch -a -v --no-abbrev # timeout=10
 > git branch -D main # timeout=10
 > git checkout -b main 165294502f52eb9e9a8a3e648f69b282f6041aca # timeout=10
Commit message: "Jenkins changed"
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Build Docker Image)
[Pipeline] sh
+ docker build -t mayusharathod/java-app:v1 .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  96.77kB

Step 1/5 : FROM eclipse-temurin:11.0.23_9-jdk-alpine
 ---> abd798acdfb2
Step 2/5 : WORKDIR /app
 ---> Using cache
 ---> 3ea63a083e23
Step 3/5 : COPY . /app
 ---> 60056ef59420
Step 4/5 : RUN javac App.java
 ---> Running in 57a194d25bdf
Removing intermediate container 57a194d25bdf
 ---> be3d4fe27c6b
Step 5/5 : CMD [ "java","App" ]
 ---> Running in 14abaa6cbe95
Removing intermediate container 14abaa6cbe95
 ---> 6fbcac885487
Successfully built 6fbcac885487
Successfully tagged mayusharathod/java-app:v1
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Push Docker Image)
[Pipeline] script
```

```
[Pipeline] withDockerRegistry
$ docker login -u mayusharathod -p ******** https://index.docker.io/v1/
WARNING! Using --password via the CLI is insecure. Use --password-stdin.
WARNING! Your password will be stored unencrypted in /var/lib/jenkins/workspace/java-docker-app@tmp/d2dee7d4-b328-4e52-a698-f3d156a4c3ed/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
[Pipeline] {
[Pipeline] isUnix
[Pipeline] withEnv
[Pipeline] {
[Pipeline] sh
+ docker tag mayusharathod/java-app:v1 index.docker.io/mayusharathod/java-app:v1
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] isUnix
[Pipeline] withEnv
[Pipeline] {
[Pipeline] sh
+ docker push index.docker.io/mayusharathod/java-app:v1
The push refers to repository [docker.io/mayusharathod/java-app]
55d86f45da94: Preparing
aaf3da146cb1: Preparing
2a1a7acf86a0: Preparing
29eaa6391cfd: Preparing
746345de0f90: Preparing
af44bafb2369: Preparing
d7caef1738b1: Preparing
b895814e9e64: Preparing
af44bafb2369: Waiting
d7caef1738b1: Waiting
b895814e9e64: Waiting
746345de0f90: Mounted from library/eclipse-temurin
29eaa6391cfd: Mounted from library/eclipse-temurin
aaf3da146cb1: Pushed
55d86f45da94: Pushed
2a1a7acf86a0: Pushed
af44bafb2369: Mounted from library/eclipse-temurin
d7caef1738b1: Mounted from library/eclipse-temurin
b895814e9e64: Mounted from library/eclipse-temurin
v1: digest: sha256:5c880401eed8f0e179d10f8eb59c719993d944c1b361db93700d2300162ea8da size: 1988
```

```
b895814e9e64: Preparing
af44bafb2369: Waiting
d7caef1738b1: Waiting
b895814e9e64: Waiting
746345de0f90: Mounted from library/eclipse-temurin
29eaa6391cfd: Mounted from library/eclipse-temurin
aaf3da146cb1: Pushed
55d86f45da94: Pushed
2a1a7acf86a0: Pushed
af44bafb2369: Mounted from library/eclipse-temurin
d7caef1738b1: Mounted from library/eclipse-temurin
b895814e9e64: Mounted from library/eclipse-temurin
v1: digest: sha256:5c880401eed8f0e179d10f8eb59c719993d944c1b361db93700d2300162ea8da size: 1988
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withDockerRegistry
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // script
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Deploy Container)
[Pipeline] sh
+ docker run -d -p 8089:8080 mayusharathod/java-app:v1
608ba27c4deae51873386d45fce6b32ed60f248c6112204e864fbdc03abd4c8a
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

```
CONTAINER ID    IMAGE                                    COMMAND                      CR
EATED              STATUS                    PORTS       NAMES
608ba27c4dea    mayusharathod/java-app:v1                "/__cacert_entrypoin…"   4
minutes ago        Exited (0) 4 minutes ago             kind_benz
9c4f7088e74e    14ec4e252f8e                             "/bin/sh -c 'javac A…"   54
 minutes ago       Exited (1) 54 minutes ago            compassionate_curie
4d0422dd56f1    500b957cfb26                             "/bin/sh -c 'javac s…"   Ab
out an hour ago    Exited (1) About an hour ago         cool_mcnulty
a1953a921e74    gcr.io/k8s-minikube/kicbase:v0.0.44      "/usr/local/bin/entr…"   11
 days ago          Exited (137) 10 days ago             minikube
b3daf87354c4    nodejs-k8s-app                           "docker-entrypoint.s…"   2
weeks ago          Exited (137) 2 weeks ago             sleepy_elbakyan
1e54ac185456    004a4a3d8c7f                             "docker-entrypoint.s…"   2
weeks ago          Exited (1) 2 weeks ago               vibrant_elion
einfochips@AHMLPT1474:~/java-docker$ docker logs
"docker logs" requires exactly 1 argument.
See 'docker logs --help'.

Usage:  docker logs [OPTIONS] CONTAINER

Fetch the logs of a container
einfochips@AHMLPT1474:~/java-docker$ docker logs 608ba27c4dea
Hello Java from Docker!
einfochips@AHMLPT1474:~/java-docker$
```