Homework for DevOps Upskilling Program

#Prerequisites:

## Have installed [GitBash](https://www.oracle.com/webfolder/technetwork/tutorials/ocis/ocis_fundamental/gitbash-inst.pdf)

## Have Installed [Docker](https://docs.rancherdesktop.io/getting-started/installation/#windows) (Rancher Desktop)

## Have Installed [Docker Compose](https://docs.docker.com/compose/install/)   
## Create git hub account, create a public repository, import Pet Clinic project from: <https://github.com/nikolai-kisakov/petclinic-project>

## Create docker hub account, create a docker hub repository for your project.

Task 1: Have all Prerequisites.

Task 2: Run Jenkins Docker container locally using Docker-Compose:

1. In the same directory with docker-compose.yml file, run “*docker compose up -d*”. It may take some time in order Jenkins to start;
2. Open Jenkins in browser by accessing localhost:8080;
3. Follow the initiation instructions; create user account; login;
4. Install all suggested Jenkins Plugins (and other plugins, if you wish or it’s needed);
5. Configure Global Tools: Maven 3.9.6; JDK 8(latest version); (http://localhost:8080/manage/configureTools/)

Task 3: Add Jenkinsfile to the imported github repository, which contains Declarative Pipeline script with the following stages:

1. Compile Project: Compile the project using Maven *“mvn clean compile”*
2. Execute test cases: Execute tests using Maven “mvn test”
3. Build Project: Build the project using Maven. Run “mvn clean install” command.
4. Build Docker Image: Build docker image using “docker build -t {docker\_hub\_username}/{docker\_hub\_repository\_name}:{tag}”, where {tag} is the number of the Build. Please refer to the <http://localhost:8080/env-vars.html>, to extract the number of the Build.
5. Push Docker Image: Publish docker image to docker hub registry using “docker push {docker\_hub\_username}/{docker\_hub\_repository\_name}:{tag}”. You will have to “docker login” firstly. Use withCredentials method to store and use credentials.

Your pipeline script should be structured using the Jenkins Declarative Pipeline syntax.

Task4: Create a Multibranch Pipeline (Jenkins Job), use Jenkinsfile you’ve previously added. Configure “Poll SCM” to be executed every 2 minutes, as build trigger. Troubleshoot syntax and other errors, if needed. Wait until Job Build is triggered and fully done.

Task5: Pull your docker image and run docker container locally:

“docker run -d -p 8090:8080 {docker\_hub\_username}/{docker\_hub\_repository\_name}:{tag}”

You can now access the application in your web browser under <http://localhost:8090> :

A screenshot of a computer

Description automatically generated

Submission Details

Please submit your completed homework by 30.05.2024(before 2nd Jenkins session). Include any documentation or notes detailing your process and any challenges faced during the tasks as well as Jenkinsfile, logs of the successful build (as plain text) and some screenshots (Github, Docker hub, PetClinic application, Jenkins job configuration, etc.)

Use online resources, official documentation and forums for troubleshooting and learning.

Reach me out for support or clarification if needed.

Have fun exploring and learning about Docker, Jenkins, and CI process!