Task05 Building Maven with pipeline concept through Jenkins

Objective

The objective is to deploy the GitHub repository Ekart on Minikube using Jenkins pipelines and access it locally in a browser.

Procedure:

1. Setup Jenkins on Windows

- Installed **Jenkins** on a Windows machine.
- Configured Jenkins to use **Kubernetes for dynamic build agents**.
- Installed required **Jenkins plugins** for Kubernetes integration.

2. Installed and Configured Minikube

- Installed **Minikube** on the Windows machine.
- Initialized Minikube using:
  minikube start
- Verified Minikube was running using:
  minikube status

3. Installed and Configured kubectl

- Installed kubectl and configured it to interact with Minikube.
- Checked the Kubernetes cluster status:
  kubectl cluster-info

4. Cloned the GitHub Repository in Jenkins

- Configured Jenkins to pull the Ekart repository from GitHub.

5. Issues Encountered

- Running kubectl get pods gave an error:
  The connection to the server 127.0.0.1:32781 was refused - did you specify the right host or port?
- Switched context to Minikube using:

kubectl config use-context minikube

- kubectl cluster-info still showed the connection refused error.

6. Troubleshooting Steps Taken

- Restarted Minikube using:
  minikube stop
  minikube start
- Checked logs using:
- minikube logs
- Ensured kubectl was using the correct environment:

eval $(minikube docker-env)

- Checked Minikube's IP and manually set kubectl to use it:
  minikube ip
  kubectl config set-cluster minikube --server=https://$(minikube ip):8443

```
[INFO] Tests run: 4, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.142 s - in org.springframework.samples
.petclinic.web.VisitControllerTests
WARN  DisposableBeanAdapter - Invocation of destroy method failed on bean with name 'org.springframework.jdbc.d
atasource.init.DataSourceInitializer#0': org.springframework.jdbc.datasource.init.UncategorizedScriptException:
 Failed to execute database script; nested exception is org.h2.jdbc.JdbcSQLNonTransientConnectionException: Dat
abase is already closed (to disable automatic closing at VM shutdown, add ";DB_CLOSE_ON_EXIT=FALSE" to the db U
RL) [90121-200]
INFO  LocalContainerEntityManagerFactoryBean - Closing JPA EntityManagerFactory for persistence unit 'petclinic
'
WARN  DisposableBeanAdapter - Invocation of destroy method failed on bean with name 'org.springframework.jdbc.d
atasource.init.DataSourceInitializer#0': org.springframework.jdbc.datasource.init.UncategorizedScriptException:
 Failed to execute database script; nested exception is org.h2.jdbc.JdbcSQLNonTransientConnectionException: Dat
abase is already closed (to disable automatic closing at VM shutdown, add ";DB_CLOSE_ON_EXIT=FALSE" to the db U
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 Failed to execute database script; nested exception is org.h2.jdbc.JdbcSQLNonTransientConnectionException: Dat
abase is already closed (to disable automatic closing at VM shutdown, add ";DB_CLOSE_ON_EXIT=FALSE" to the db U
RL) [90121-200]
INFO  LocalContainerEntityManagerFactoryBean - Closing JPA EntityManagerFactory for persistence unit 'petclinic
'

[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 62, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  44.501 s
[INFO] Finished at: 2025-02-10T18:47:22+05:30
[INFO] ------------------------------------------------------------------------
```
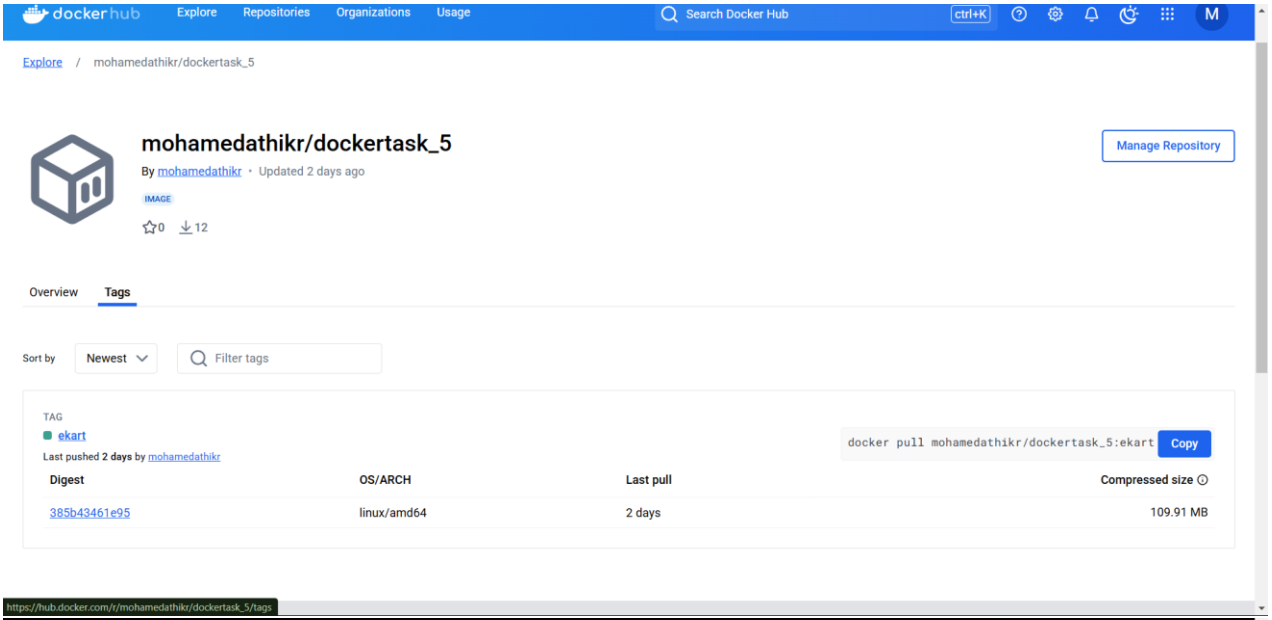
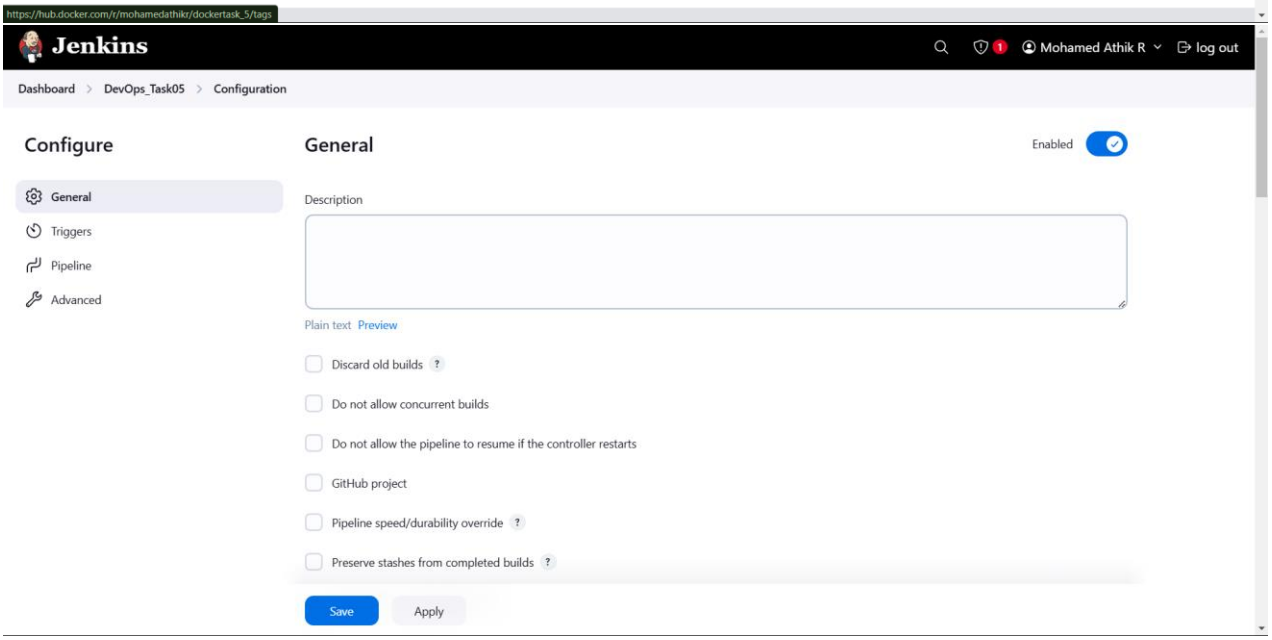
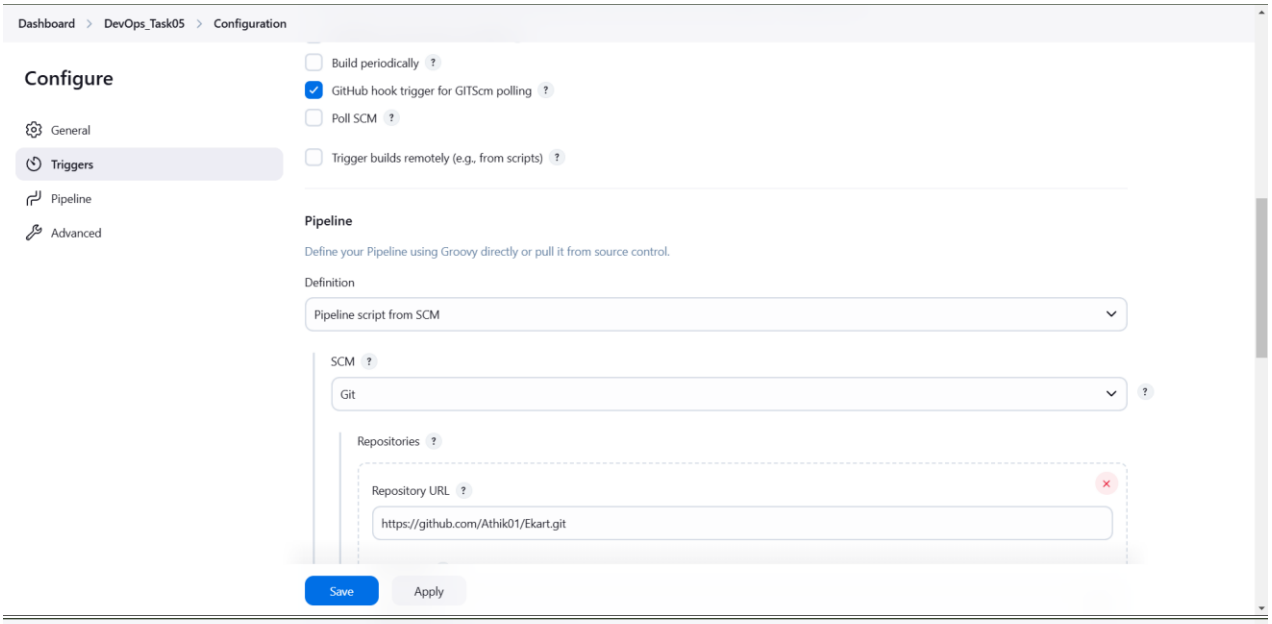
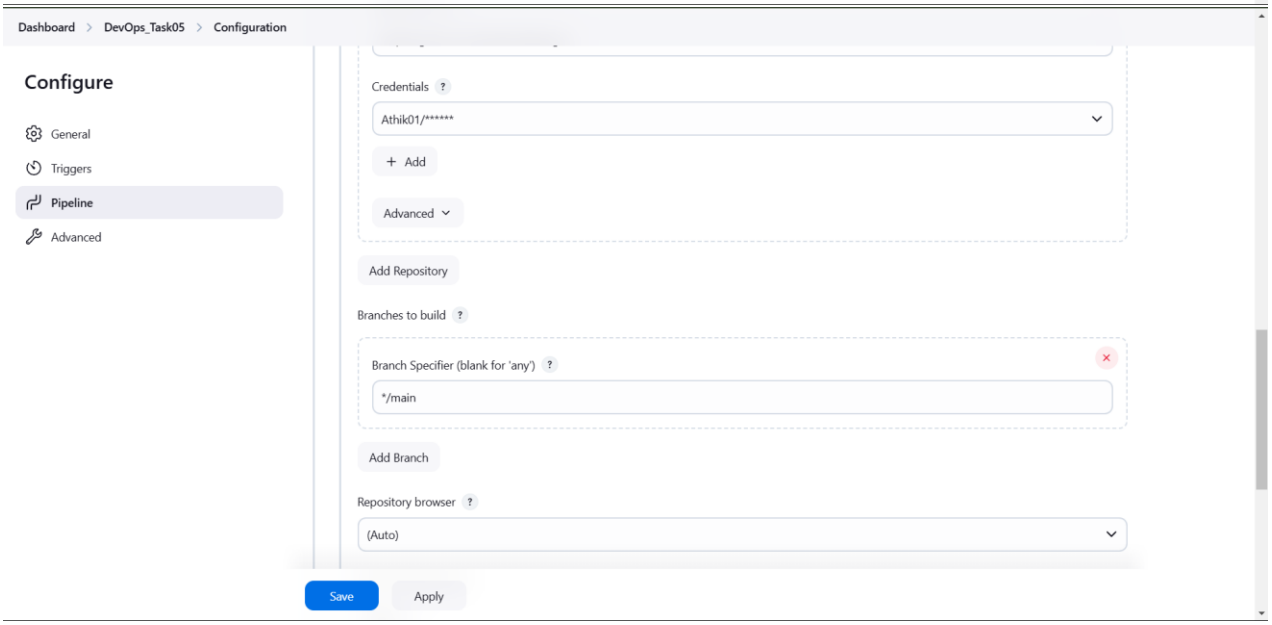

```
rathi@Athik MINGW64 /d/infosys-petclinic-main
$ mvn install
[INFO] Scanning for projects...
[INFO]
[INFO] -------< org.springframework.samples:spring-framework-petclinic >-------
[INFO] Building Spring Framework Petclinic 5.3.13
[INFO]   from pom.xml
[INFO] --------------------------------[ war ]---------------------------------
[INFO]
[INFO] --- jacoco:0.8.6:prepare-agent (default) @ spring-framework-petclinic ---
[INFO] argLine set to -javaagent:C:\\Users\\rathi\\.m2\\repository\\org\\jacoco\\org.jacoco.agent\\0.8.6\\org.jacoco.agent-0.8.6-runtim
e.jar=destfile=D:\\infosys-petclinic-main\\target\\jacoco.exec
[INFO]
[INFO] --- wro4j:1.8.0:run (default) @ spring-framework-petclinic ---
[INFO] D:\infosys-petclinic-main/src/main/webapp/resources/less
[INFO] Executing the mojo:
```

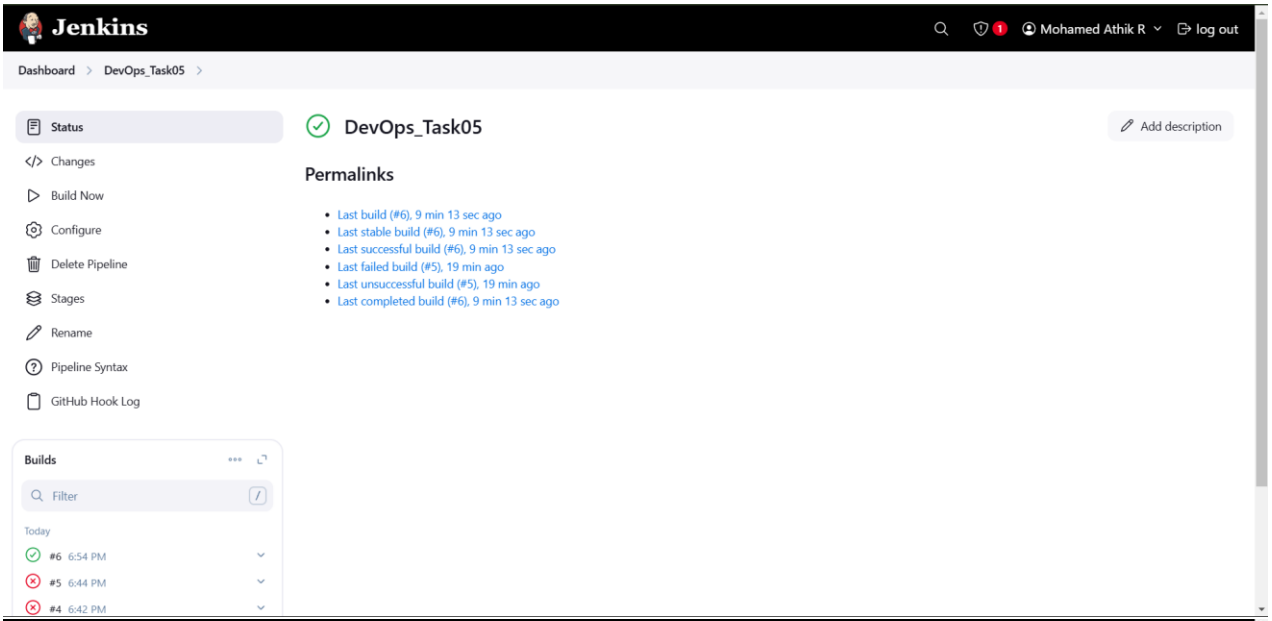
```
rathi@Athik MINGW64 /d/infosys-petclinic-main
$ mvn -version
Apache Maven 3.9.9 (8e8579a9e76f7d015ee5ec7bfcdc97d260186937)
Maven home: C:\Program Files\apache-maven-3.9.9
Java version: 17, vendor: Oracle Corporation, runtime: C:\Program Files\Java\jdk-17
Default locale: en_IN, platform encoding: Cp1252
OS name: "windows 10", version: "10.0", arch: "amd64", family: "windows"
```

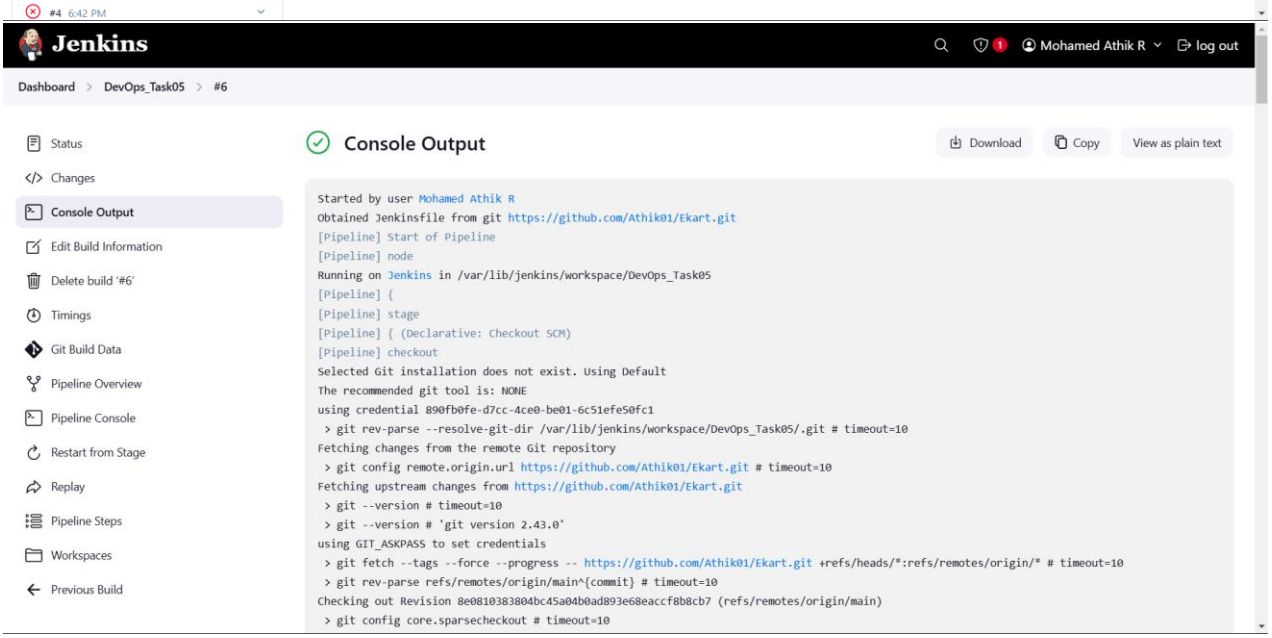

docker hub
Explore
Repositories
Organizations
Usage
Search Docker Hub
ctrl+K
Explore / mohamedathikr/dockertask_5
mohamedathikr/dockertask_5
By mohamedathikr • Updated 2 days ago
IMAGE
0
12
Manage Repository
Overview
Tags
Sort by
Newest
Filter tags
TAG
ekart
Last pushed 2 days by mohamedathikr
docker pull mohamedathikr/dockertask_5:ekart
Copy
Digest
OS/ARCH
Last pull
Compressed size
385b43461e95
linux/amd64
2 days
109.91 MB

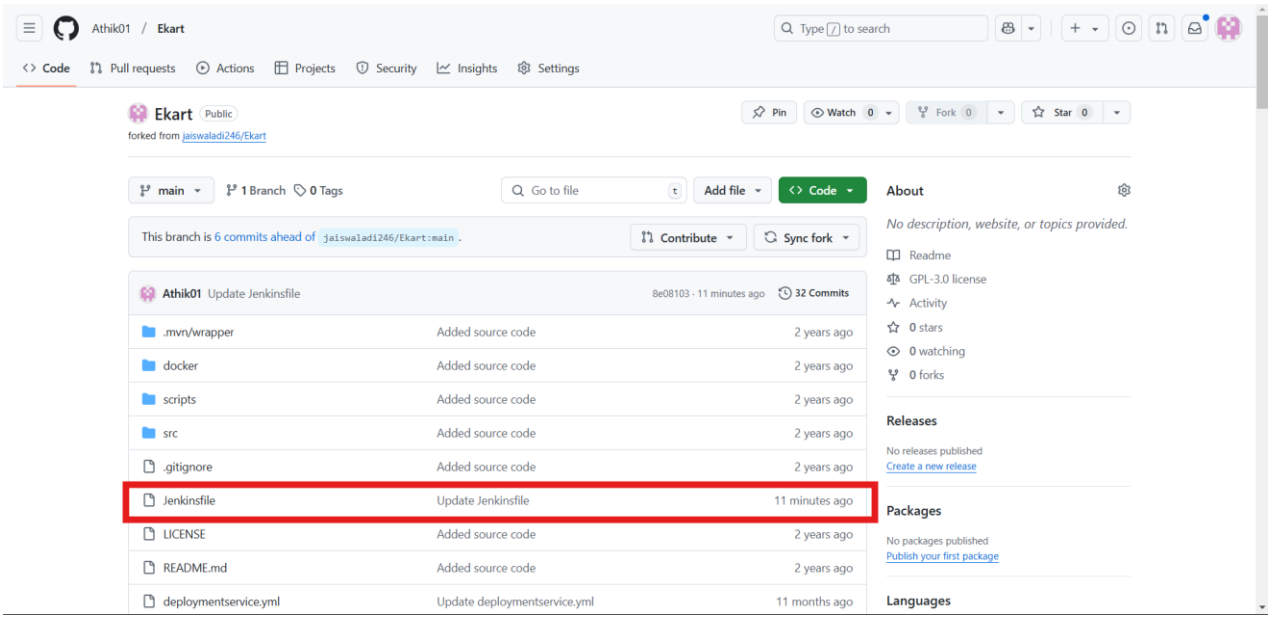

https://hub.docker.com/r/mohamedathikr/dockertask_5/tags
Jenkins
Mohamed Athik R
log out
Dashboard > DevOps_Task05 > Configuration
Configure
General
Triggers
Pipeline
Advanced
General
Enabled
Description
Plain text Preview
Discard old builds
Do not allow concurrent builds
Do not allow the pipeline to resume if the controller restarts
GitHub project
Pipeline speed/durability override
Preserve stashes from completed builds
Save
Apply


Dashboard > DevOps_Task05 > Configuration
Configure
General
Triggers
Pipeline
Advanced
Build periodically
GitHub hook trigger for GITScm polling
Poll SCM
Trigger builds remotely (e.g., from scripts)
Pipeline
Define your Pipeline using Groovy directly or pull it from source control.
Definition
Pipeline script from SCM
SCM
Git
Repositories
Repository URL
https://github.com/Athik01/Ekart.git
Save
Apply


Dashboard > DevOps_Task05 > Configuration
Configure
General
Triggers
Pipeline
Advanced
Credentials
Athik01/******
+ Add
Advanced
Add Repository
Branches to build
Branch Specifier (blank for 'any')
*/main
Add Branch
Repository browser
(Auto)
Save
Apply


Jenkins
Mohamed Athik R
log out
Dashboard > DevOps_Task05 >
Status
Changes
Build Now
Configure
Delete Pipeline
Stages
Rename
Pipeline Syntax
GitHub Hook Log
DevOps_Task05
Add description
Permalinks
Last build (#6), 9 min 13 sec ago
Last stable build (#6), 9 min 13 sec ago
Last successful build (#6), 9 min 13 sec ago
Last failed build (#5), 19 min ago
Last unsuccessful build (#5), 19 min ago
Last completed build (#6), 9 min 13 sec ago
Builds
Filter
Today
#6 6:54 PM
#5 6:44 PM
#4 6:42 PM

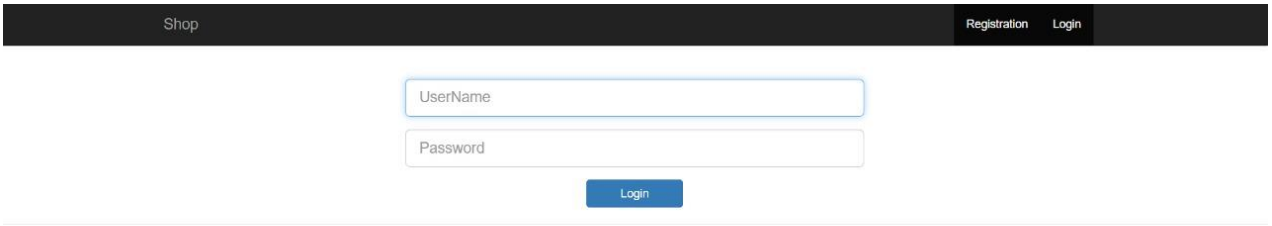

Jenkins
Mohamed Athik R
log out
Dashboard > DevOps_Task05 > #6
Status
Changes
Console Output
Edit Build Information
Delete build '#6'
Timings
Git Build Data
Pipeline Overview
Pipeline Console
Restart from Stage
Replay
Pipeline Steps
Workspaces
Previous Build
Console Output
Download
Copy
View as plain text
Started by user Mohamed Athik R
Obtained Jenkinsfile from git https://github.com/Athik01/Ekart.git
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/DevOps_Task05
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
Selected Git installation does not exist. Using Default
The recommended git tool is: NONE
using credential 890fb0fe-d7cc-4ce0-be01-6c51efe50fc1
> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/DevOps_Task05/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/Athik01/Ekart.git # timeout=10
Fetching upstream changes from https://github.com/Athik01/Ekart.git
> git --version # timeout=10
> git --version # 'git version 2.43.0'
using GIT_ASKPASS to set credentials
> git fetch --tags --force --progress -- https://github.com/Athik01/Ekart.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/main^{commit} # timeout=10
Checking out Revision 8e0810383804bc45a04b0ad893e68eaccf8b8cb7 (refs/remotes/origin/main)
> git config core.sparsecheckout # timeout=10



JenkinFile Source Code:

```
pipeline {
    agent any

    environment {
        DOCKER_IMAGE = "mohamedathikr/ekart:latest"
        DOCKER_CREDENTIALS = "mohamedathikr"
    }

    stages {
        stage('Checkout Code') {
            steps {
                git branch: 'main', credentialsId: '890fb0fe-d7cc-4ce0-be01-6c51efe50fc1', url:
'https://github.com/Athik01/Ekart.git'
            }
        }

        stage('Build Application') {
            steps {
                script {
                    sh 'mvn clean package -DskipTests'
                }
            }
        }

        stage('Build Docker Image') {
            steps {
                script {
                    sh 'docker build -t ${DOCKER_IMAGE} -f docker/Dockerfile .'
                }
```

```
        }
    }

    stage('Push Docker Image to Hub') {
        steps {
            script {
                withDockerRegistry([credentialsId: 'mohamedathikr', url: 'https://index.docker.io/v1/']) {
                    sh 'docker push ${DOCKER_IMAGE}'
                }
            }
        }
    }

    stage('Deploy to Minikube') {
        steps {
            script {
                sh """
                    minikube stop
                    minikube delete
                    minikube start
                    kubectl delete deployment ekart-deployment || true
                    kubectl create deployment ekart-deployment --image=${DOCKER_IMAGE} --port=8070
                    kubectl expose deployment ekart-deployment --type=NodePort --port=8070 || true
                """
            }
        }
    }

    stage('Verify Deployment') {
        steps {
            script {
                sh 'kubectl get pods'
                sh 'kubectl get services'
            }
        }
    }
  }
}
```


Shop
Registration
Login
UserName
Password
Login
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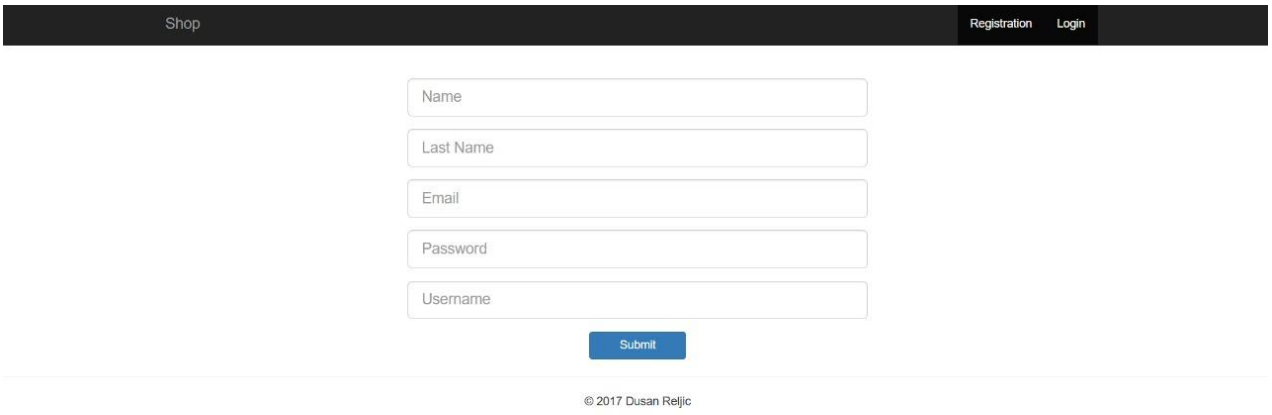
Shop
Registration
Login
Name
Last Name
Email
Password
Username
Submit
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