University of Petroleum and Energy Studies

Sub- CONTINOUS INTEGRATION AND CONTINUOUS DELIVERY LAB

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DevOps(B3)

Lab Experiment 2: Creating a Jenkins Pipeline with a Jenkinsfile

Objective: Create a Jenkins pipeline using a Jenkinsfile that builds a simple project, runs tests, and deploys the project to a designated environment.

Prerequisites:

1. Jenkins server up and running.
2. A sample project hosted in a version control repository (e.g., Git).

Steps:

Jenkins Configuration:

- Ensure that Jenkins is installed and accessible.
- Install necessary plugins: Pipeline and any plugins specific to your version control system (e.g., Git Plugin).

Setting Up the Project:

- Create a sample project (e.g., a simple web application) and host it on a version control repository (e.g., GitHub).

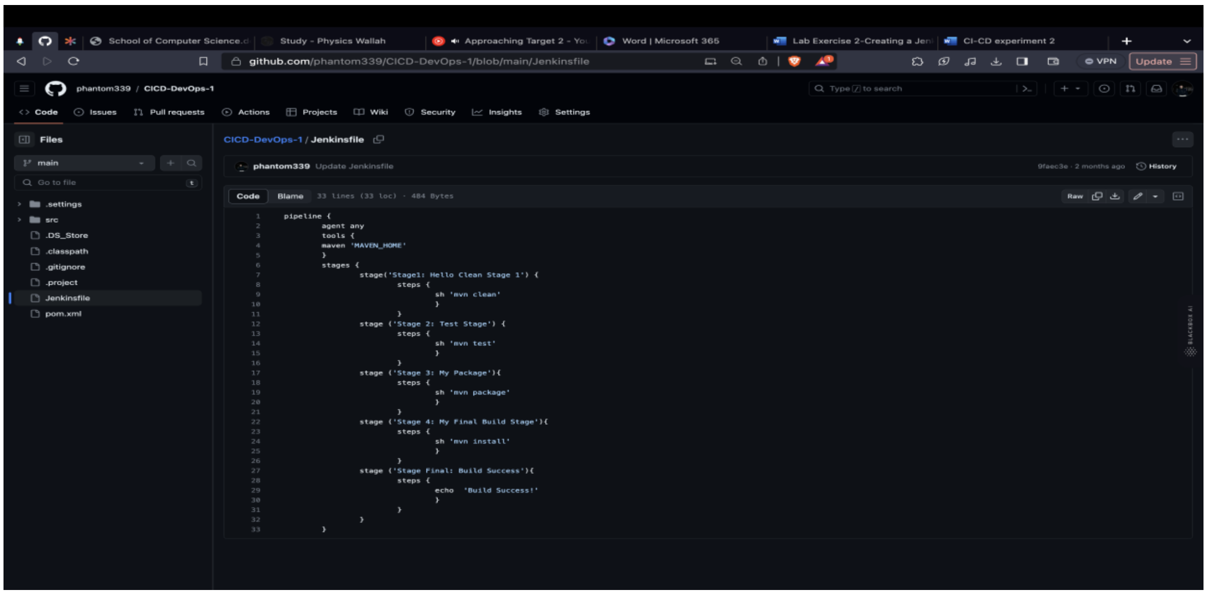
Creating a Jenkinsfile:

In the root of your project repository, create a file named Jenkinsfile.

Defining the Pipeline:

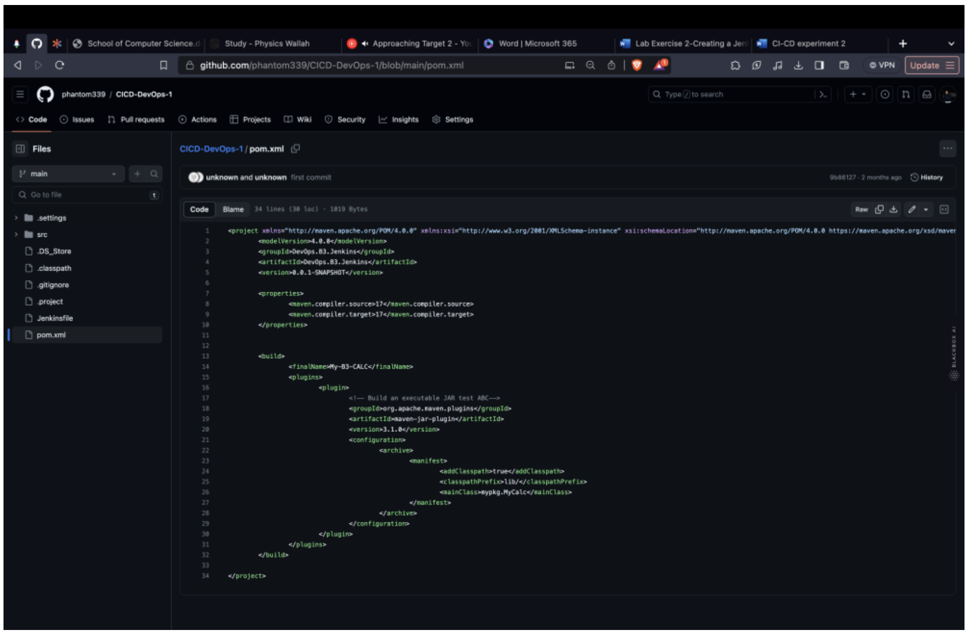
Open the Jenkinsfile and define the pipeline stages using the declarative pipeline syntax.

Here's an example Jenkinsfile with basic stages:



```
pipeline {
        agent any
        tools {
        maven 'MAVEN_HOME'
        }
        stages {
                stage('Stage1: Hello Clean Stage 1') {
                        steps {
                                sh 'mvn clean'
                                }
                        }
                stage ('Stage 2: Test Stage') {
                        steps {
                                sh 'mvn test'
                                }
                        }
                stage ('Stage 3: My Package'){
                        steps {
                                sh 'mvn package'
                                }
                        }
                stage ('Stage 4: My Final Build Stage'){
                        steps {
                                sh 'mvn install'
                                }
                        }
                stage ('Stage Final: Build Success'){
                        steps {
                                echo  'Build Success!'
                                }
                        }
                }
        }
```

```
pipeline {
    agent any

    stages {
        stage('Checkout') {
            steps {
                checkout scm
            }
        }

        stage('Build') {
            steps {
                sh 'your-build-command-here'
            }
        }

        stage('Test') {
            steps {

                sh 'your-test-command-here'
            }
        }

        stage('Deploy') {
            steps {

                sh 'your-deployment-command-here'
            }
        }
    }

    post {
        success {
            echo 'Pipeline succeeded! Project built and deployed.'
        }
        failure {
            echo 'Pipeline failed! Check logs for details.'
        }
    }
}
```


CICD-DevOps-1 / pom.xml

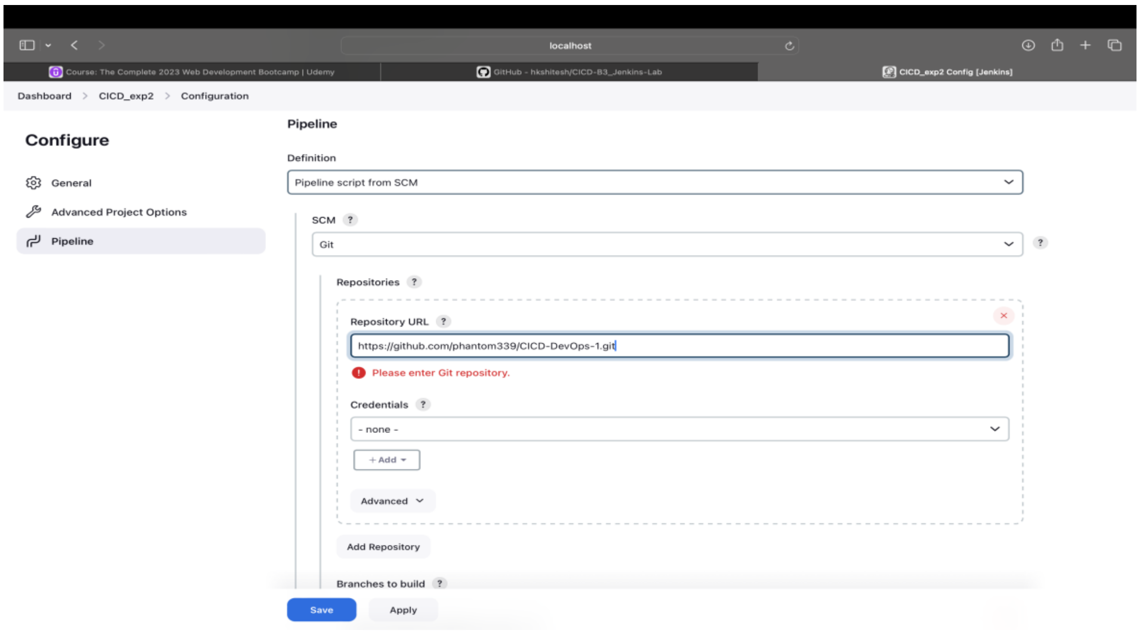
unknown and unknown first commit 9b86127 · 2 months ago

34 lines (30 loc) · 1019 Bytes

```xml
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maver
        <modelVersion>4.0.0</modelVersion>
        <groupId>DevOps.B3.Jenkins</groupId>
        <artifactId>DevOps.B3.Jenkins</artifactId>
        <version>0.0.1-SNAPSHOT</version>

        <properties>
                <maven.compiler.source>17</maven.compiler.source>
                <maven.compiler.target>17</maven.compiler.target>
        </properties>


        <build>
                <finalName>My-B3-CALC</finalName>
                <plugins>
                        <plugin>
                                <!-- Build an executable JAR test ABC-->
                                <groupId>org.apache.maven.plugins</groupId>
                                <artifactId>maven-jar-plugin</artifactId>
                                <version>3.1.0</version>
                                <configuration>
                                        <archive>
                                                <manifest>
                                                        <addClasspath>true</addClasspath>
                                                        <classpathPrefix>lib/</classpathPrefix>
                                                        <mainClass>mypkg.MyCalc</mainClass>
                                                </manifest>
                                        </archive>
                                </configuration>
                        </plugin>
                </plugins>
        </build>

</project>
```

Configuring the Pipeline in Jenkins:

- In Jenkins, create a new pipeline job.
- Link the job to your version control repository (e.g., provide the repository URL).
- Choose the option to use a Jenkinsfile from the repository and specify the path to your Jenkinsfile (usually the root directory).


Dashboard > CICD_exp2 > Configuration

Configure

Pipeline

Definition: Pipeline script from SCM

SCM: Git

Repositories

Repository URL: https://github.com/phantom339/CICD-DevOps-1.git

Please enter Git repository.

Credentials: - none -

Branches to build

Running the Pipeline:

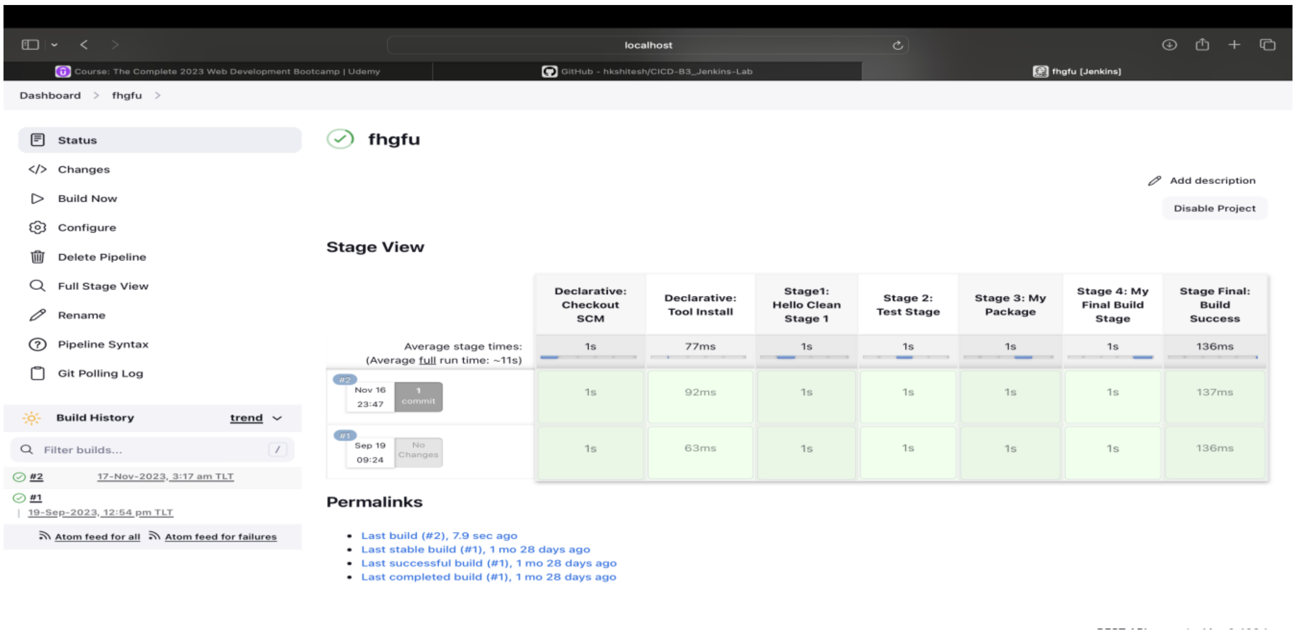
- Trigger the pipeline manually or set up a webhook to trigger it automatically on repository changes.

Observing the Results:

- Observe the pipeline execution on the Jenkins dashboard.

- Check the console output of each stage for any errors or issues.

This lab experiment will give you hands-on experience in creating a Jenkins pipeline using a Jenkinsfile. You can extend this experiment by adding more stages, integrating with other tools, and handling more complex build and deployment scenarios.



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Stage View

	Declarative: Checkout SCM	Declarative: Tool Install	Stage1: Hello Clean Stage 1	Stage 2: Test Stage	Stage 3: My Package	Stage 4: My Final Build Stage	Stage Final: Build Success
Average stage times: (Average full run time: ~11s)	1s	77ms	1s	1s	1s	1s	136ms
#2 Nov 16 23:47 1 commit	1s	92ms	1s	1s	1s	1s	137ms
#1 Sep 19 09:24 No Changes	1s	63ms	1s	1s	1s	1s	136ms

Build History trend

Filter builds...

#2 17-Nov-2023, 3:17 am TLT

#1 19-Sep-2023, 12:54 pm TLT

Atom feed for all Atom feed for failures

Permalinks

- Last build (#2), 7.9 sec ago
- Last stable build (#1), 1 mo 28 days ago
- Last successful build (#1), 1 mo 28 days ago
- Last completed build (#1), 1 mo 28 days ago