

EXP NO:

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Create CI Pipeline Using Jenkins

AIM:

To set up a Continuous Integration (CI) pipeline in Jenkins to automate the build process for a Maven project.

PREREQUISITES:

- **Jenkins Installed:** Ensure Jenkins is installed and accessible.
- **Jenkins Plugins:** Install necessary plugins (e.g., Git, Maven).
- **Source Code Repository:** Code should be stored in a version control system like GitHub, GitLab, or Bitbucket. Here:

`https://github.com/MADHAVAN-BE-2003/Maven_Project_Test.git`

PROCEDURE:

1. Set Up Jenkins

- a. **Log in to Jenkins:** Open your Jenkins instance in a web browser

`http://localhost:8080/`

- b. **Install Required Plugins:**

- i. Navigate to Manage Jenkins > Manage Plugins.
- ii. Under the Available tab, search for and install plugins such as:
 1. **Git Plugin** (default installed)
 2. **Pipeline** (default installed)
 3. **Maven Integration**
- iii. Restart Jenkins if required.

- c. **Check Maven Path:**

- i. Go to Manage Jenkins > Global Tool Configuration.
- ii. Ensure that the Maven section is configured with Maven installation.

2. Create a New Pipeline Job

a. Create a New Item:

- i. Click "New Item" on the Jenkins dashboard.
- ii. Enter a name for your pipeline (e.g., My-CI-Pipeline) and select Pipeline. Click OK.

b. Configure the Pipeline:

- i. General Tab: Optionally, add a description.
- ii. Pipeline Tab:
 1. Choose Pipeline script from SCM if you are using the Jenkinsfile stored in the repository.

3. Configure Source Code Management (SCM)

If using a Jenkinsfile stored in SCM:

a. Pipeline Tab:

- i. Select Pipeline script from SCM.
- ii. Choose Git (or your SCM type) and enter the repository URL:

`https://github.com/MADHAVAN-BE-2003/Maven_Project_Test.git`

- iii. Change the Branch Specifier, from master to main.
- iv. Specify the Script Path (usually Jenkinsfile).

4. Save and Run the Pipeline

- a. Click "Save" to create the pipeline.
- b. Click "Build Now" to run the pipeline manually or set up triggers to run automatically.

5. Monitor Pipeline Execution

- a. Go to the pipeline job page to monitor the build process, view logs, test results, and build artifacts.

CONSOLE OUTPUT:

```
Started by user Madhavan V
Obtained Jenkinsfile from git https://github.com/MADHAVAN-BE-2003/Maven_Project_Test.git
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in C:\ProgramData\Jenkins\.jenkins\workspace\My-CI-Pipeline

C:\ProgramData\Jenkins\.jenkins\workspace\My-CI-Pipeline>mvn clean install
[INFO] Scanning for projects...
[INFO] -----< com.example.crudapp:crud-app >-----
[INFO] Building crud-app 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] --- clean:3.1.0:clean (default-clean) @ crud-app ---
[INFO] --- resources:3.0.2:resources (default-resources) @ crud-app ---
[INFO] --- compiler:3.8.1:compile (default-compile) @ crud-app ---
[INFO] --- resources:3.0.2:testResources (default-testResources) @ crud-app ---
[INFO] --- compiler:3.8.1:testCompile (default-testCompile) @ crud-app ---
[INFO] --- surefire:2.22.1:test (default-test) @ crud-app ---
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running com.example.crudapp.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.042 s - in
com.example.crudapp.AppTest
[INFO] Results:
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO] --- jar:3.0.2:jar (default-jar) @ crud-app ---
[INFO] Building jar: C:\ProgramData\Jenkins\.jenkins\workspace\My-CI-Pipeline\target\crud-app-1.0-SNAPSHOT.jar
[INFO] --- install:2.5.2:install (default-install) @ crud-app ---
[INFO] Installing C:\ProgramData\Jenkins\.jenkins\workspace\My-CI-Pipeline\target\crud-app-1.0-SNAPSHOT.jar to C:\WINDOWS\system32\config\systemprofile\.m2\repository\com\example\crudapp\crud-app\1.0-SNAPSHOT\crud-app-1.0-SNAPSHOT.jar
[INFO] Installing C:\ProgramData\Jenkins\.jenkins\workspace\My-CI-Pipeline\pom.xml to C:\WINDOWS\system32\config\systemprofile\.m2\repository\com\example\crudapp\crud-app\1.0-SNAPSHOT\crud-app-1.0-SNAPSHOT.pom
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 5.775 s
[INFO] Finished at: 2024-11-12T03:03:08+05:30
[INFO] -----
[Pipeline] echo
Build completed successfully.

C:\ProgramData\Jenkins\.jenkins\workspace\My-CI-Pipeline>mvn test
[INFO] Scanning for projects...
[INFO] -----< com.example.crudapp:crud-app >-----
[INFO] Building crud-app 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] --- resources:3.0.2:resources (default-resources) @ crud-app ---
[INFO] --- compiler:3.8.1:compile (default-compile) @ crud-app ---
[INFO] --- resources:3.0.2:testResources (default-testResources) @ crud-app ---
[INFO] --- compiler:3.8.1:testCompile (default-testCompile) @ crud-app ---
[INFO] --- surefire:2.22.1:test (default-test) @ crud-app ---
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running com.example.crudapp.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.059 s - in
com.example.crudapp.AppTest
[INFO] Results:
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 3.153 s
[INFO] Finished at: 2024-11-12T03:03:14+05:30
[INFO] -----
[Pipeline] echo
Tests executed successfully.
[Pipeline] echo
Cleaning up workspace post-build.
[Pipeline] node
Running on Jenkins in C:\ProgramData\Jenkins\.jenkins\workspace\My-CI-Pipeline@2
Build and test stages completed successfully.
[Pipeline] End of Pipeline
Finished: SUCCESS
```

RESULT:

Thus, the CI pipeline was successfully established in Jenkins, automating the Maven build process and enabling efficient management of code integration and deployment within the software development lifecycle.