Lab Experiment 1: Setting Up a Jenkins Job for Maven Build

Objective: Create a Jenkins job that builds a Maven project using Jenkins and triggers the build on changes in the version control repository.

Prerequisites:

- Jenkins server up and running.
- Maven installed on the Jenkins server.
- A Maven project hosted in a version control repository (e.g., Git).

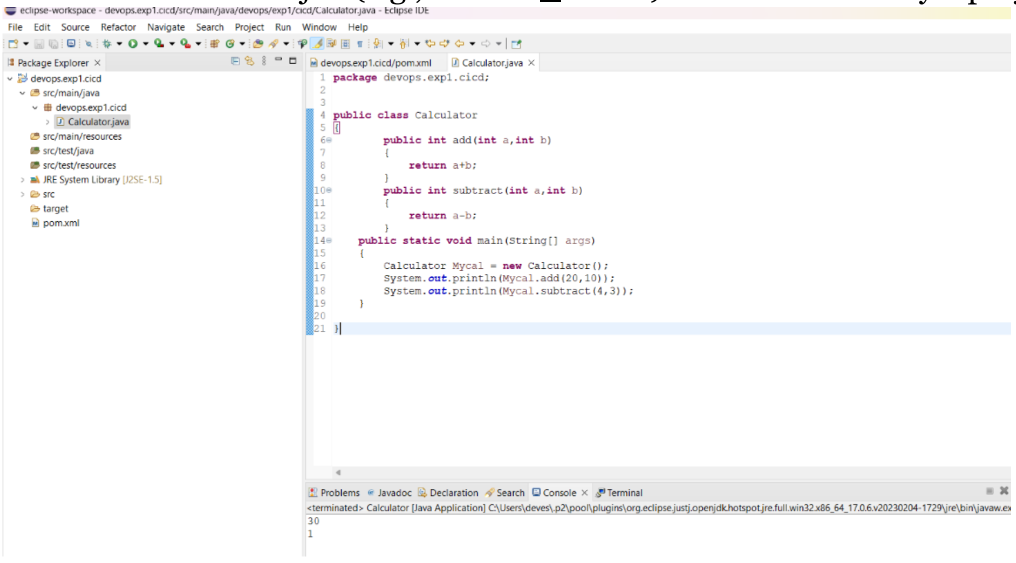
Steps:

Jenkins Configuration:

- Ensure that Jenkins is installed and accessible.
- Install necessary plugins: Maven Integration Plugin.

Creating a Jenkins Job:

- Log in to your Jenkins instance.
- Click on "New Item" to create a new Jenkins job.
- Enter a name for the job (e.g., "Maven_Build") and select "Freestyle project."

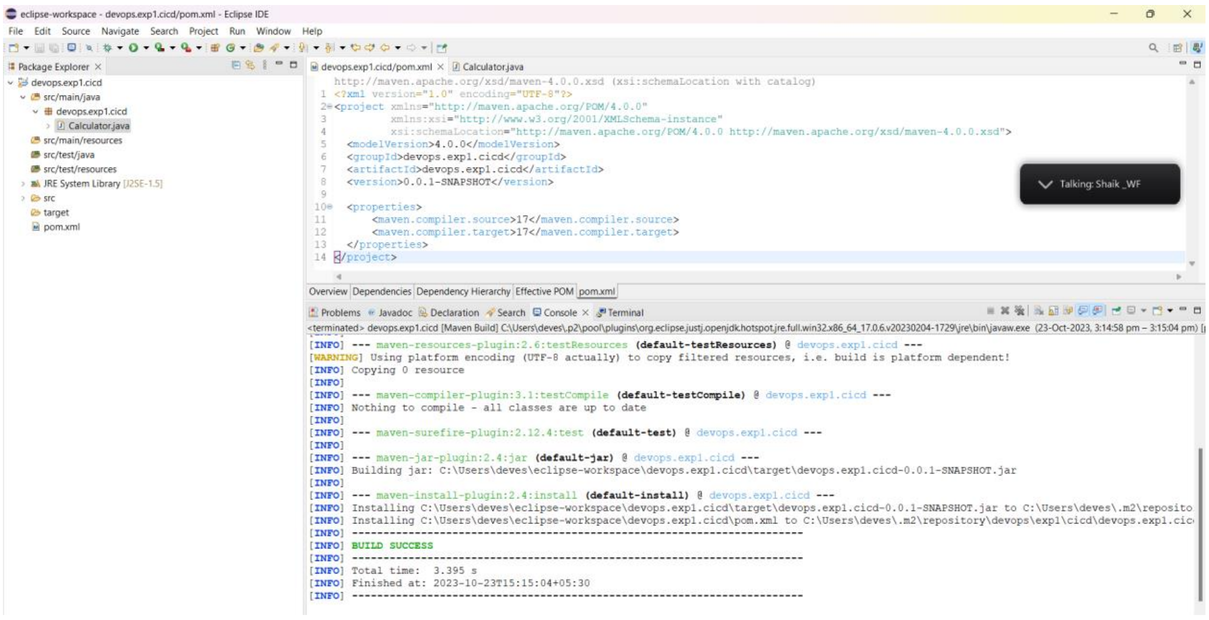

eclipse-workspace - devops.exp1.cicd/src/main/java/devops/exp1/cicd/Calculator.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
devops.exp1.cicd
src/main/java
devops.exp1.cicd
Calculator.java
src/main/resources
src/test/java
src/test/resources
JRE System Library [J2SE-1.5]
src
target
pom.xml
devops.exp1.cicd/pom.xml
Calculator.java
Problems Javadoc Declaration Search Console Terminal

```
package devops.exp1.cicd;


public class Calculator
{
        public int add(int a,int b)
        {
            return a+b;
        }
        public int subtract(int a,int b)
        {
            return a-b;
        }
    public static void main(String[] args)
    {
        Calculator Mycal = new Calculator();
        System.out.println(Mycal.add(20,10));
        System.out.println(Mycal.subtract(4,3));
    }

}
```

```
<terminated> Calculator [Java Application] C:\Users\deves\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.6.v20230204-1729\jre\bin\javaw.ex
30
1
```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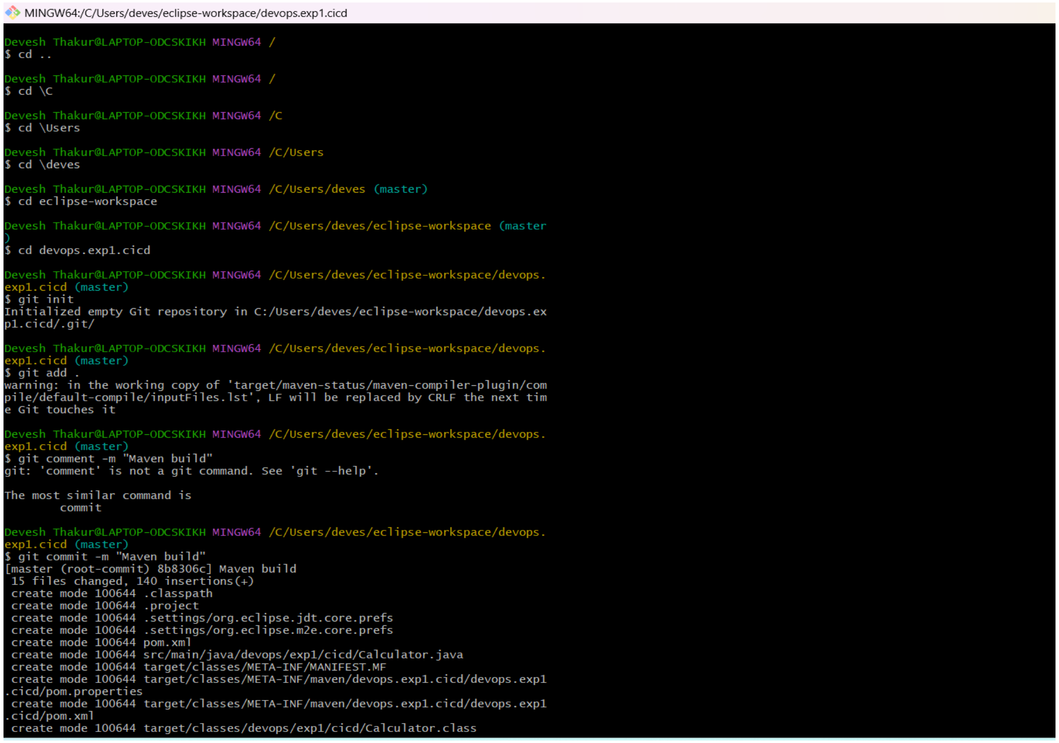
Calculator.java
Talking: Shaik _WF
Overview Dependencies Dependency Hierarchy Effective POM pom.xml
Problems Javadoc Declaration Search Console Terminal

```
http://maven.apache.org/xsd/maven-4.0.0.xsd (xsi:schemaLocation with catalog)
<?xml version="1.0" encoding="UTF-8"?>
<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 http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>devops.exp1.cicd</groupId>
  <artifactId>devops.exp1.cicd</artifactId>
  <version>0.0.1-SNAPSHOT</version>

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

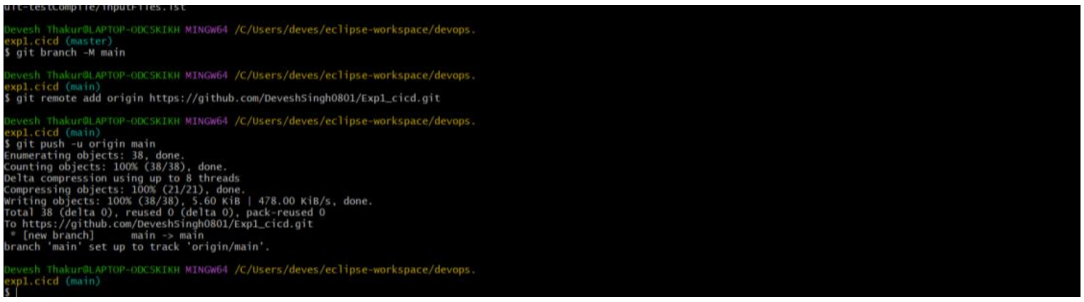
```
<terminated> devops.exp1.cicd [Maven Build] C:\Users\deves\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.6.v20230204-1729\jre\bin\javaw.exe (23-Oct-2023, 3:14:58 pm – 3:15:04 pm) [
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ devops.exp1.cicd ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] Copying 0 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.1:testCompile (default-testCompile) @ devops.exp1.cicd ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-surefire-plugin:2.12.4:test (default-test) @ devops.exp1.cicd ---
[INFO]
[INFO] --- maven-jar-plugin:2.4:jar (default-jar) @ devops.exp1.cicd ---
[INFO] Building jar: C:\Users\deves\eclipse-workspace\devops.exp1.cicd\target\devops.exp1.cicd-0.0.1-SNAPSHOT.jar
[INFO]
[INFO] --- maven-install-plugin:2.4:install (default-install) @ devops.exp1.cicd ---
[INFO] Installing C:\Users\deves\eclipse-workspace\devops.exp1.cicd\target\devops.exp1.cicd-0.0.1-SNAPSHOT.jar to C:\Users\deves\.m2\reposito
[INFO] Installing C:\Users\deves\eclipse-workspace\devops.exp1.cicd\pom.xml to C:\Users\deves\.m2\repository\devops\exp1\cicd\devops.exp1.cic
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  3.395 s
[INFO] Finished at: 2023-10-23T15:15:04+05:30
[INFO] ------------------------------------------------------------------------
```

Configuring Source Code Management:

- Under the "Source Code Management" section, choose your version control system (e.g., Git).
- Provide the repository URL and credentials if needed.



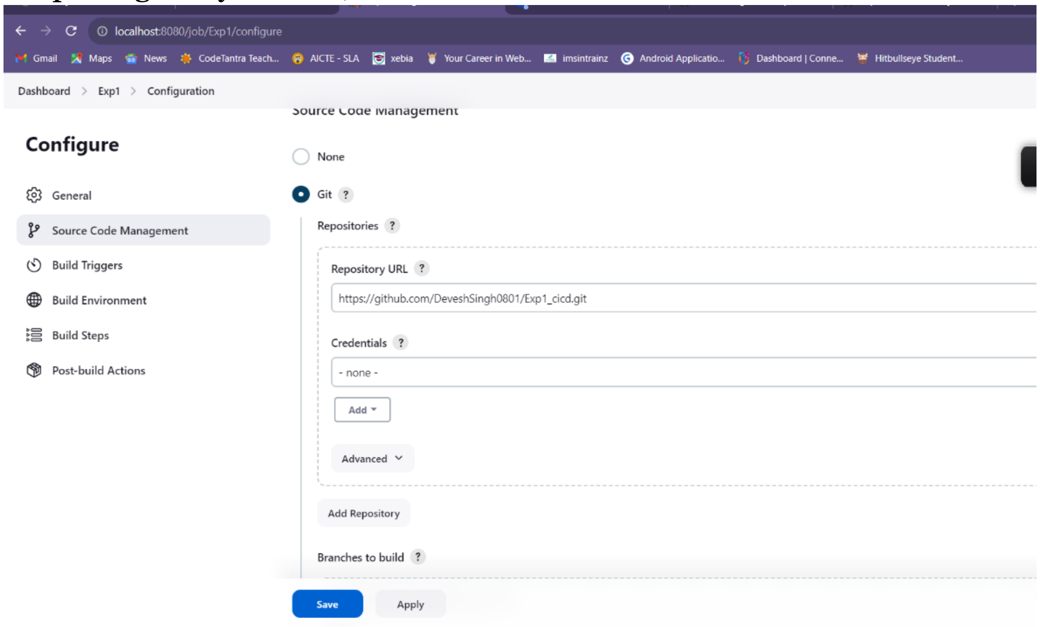
```
Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /
$ cd ..

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /
$ cd \C

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C
$ cd \Users

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users
$ cd \deves

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves (master)
$ cd eclipse-workspace

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves/eclipse-workspace (master
)
$ cd devops.exp1.cicd

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves/eclipse-workspace/devops.
exp1.cicd (master)
$ git init
Initialized empty Git repository in C:/Users/deves/eclipse-workspace/devops.ex
p1.cicd/.git/

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves/eclipse-workspace/devops.
exp1.cicd (master)
$ git add .
warning: in the working copy of 'target/maven-status/maven-compiler-plugin/com
pile/default-compile/inputFiles.lst', LF will be replaced by CRLF the next tim
e Git touches it

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves/eclipse-workspace/devops.
exp1.cicd (master)
$ git comment -m "Maven build"
git: 'comment' is not a git command. See 'git --help'.

The most similar command is
        commit

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves/eclipse-workspace/devops.
exp1.cicd (master)
$ git commit -m "Maven build"
[master (root-commit) 8b8306c] Maven build
 15 files changed, 140 insertions(+)
 create mode 100644 .classpath
 create mode 100644 .project
 create mode 100644 .settings/org.eclipse.jdt.core.prefs
 create mode 100644 .settings/org.eclipse.m2e.core.prefs
 create mode 100644 pom.xml
 create mode 100644 src/main/java/devops/exp1/cicd/Calculator.java
 create mode 100644 target/classes/META-INF/MANIFEST.MF
 create mode 100644 target/classes/META-INF/maven/devops.exp1.cicd/devops.exp1
.cicd/pom.properties
 create mode 100644 target/classes/META-INF/maven/devops.exp1.cicd/devops.exp1
.cicd/pom.xml
 create mode 100644 target/classes/devops/exp1/cicd/Calculator.class
```



```
uit-testCompile/inputFiles.lst

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves/eclipse-workspace/devops.
expl.cicd (master)
$ git branch -M main

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves/eclipse-workspace/devops.
expl.cicd (main)
$ git remote add origin https://github.com/DeveshSingh0801/Exp1_cicd.git

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves/eclipse-workspace/devops.
expl.cicd (main)
$ git push -u origin main
Enumerating objects: 38, done.
Counting objects: 100% (38/38), done.
Delta compression using up to 8 threads
Compressing objects: 100% (21/21), done.
Writing objects: 100% (38/38), 5.60 KiB | 478.00 KiB/s, done.
Total 38 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/DeveshSingh0801/Exp1_cicd.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.

Devesh Thakur@LAPTOP-ODCSKIKH MINGW64 /C/Users/deves/eclipse-workspace/devops.
expl.cicd (main)
$ 
```

Configuring the Build:

- In the "Build" section, click on "Add build step" and select "Invoke top-level Maven targets."
- In the "Goals" field, enter the Maven goals you want to execute (e.g., "clean install").
- Setting Up Polling for Changes:
- Scroll down to the "Build Triggers" section.
- Choose the option "Poll SCM" and specify the polling schedule (e.g., "* * * * *" for polling every minute).



Source Code Management

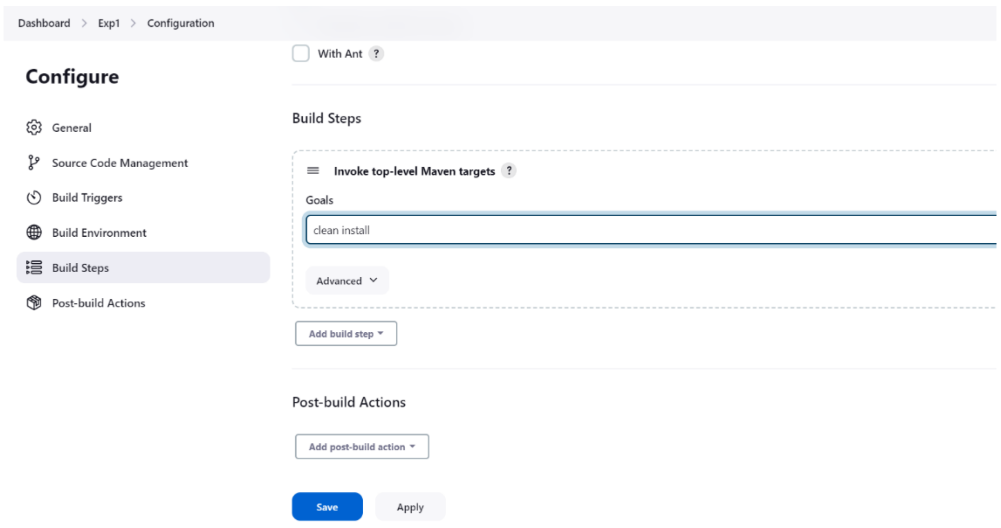
None [✓ Git]

Repositories

Repository URL: https://github.com/DeveshSingh0801/Exp1_cicd.git

Credentials: - none -

Branches to build

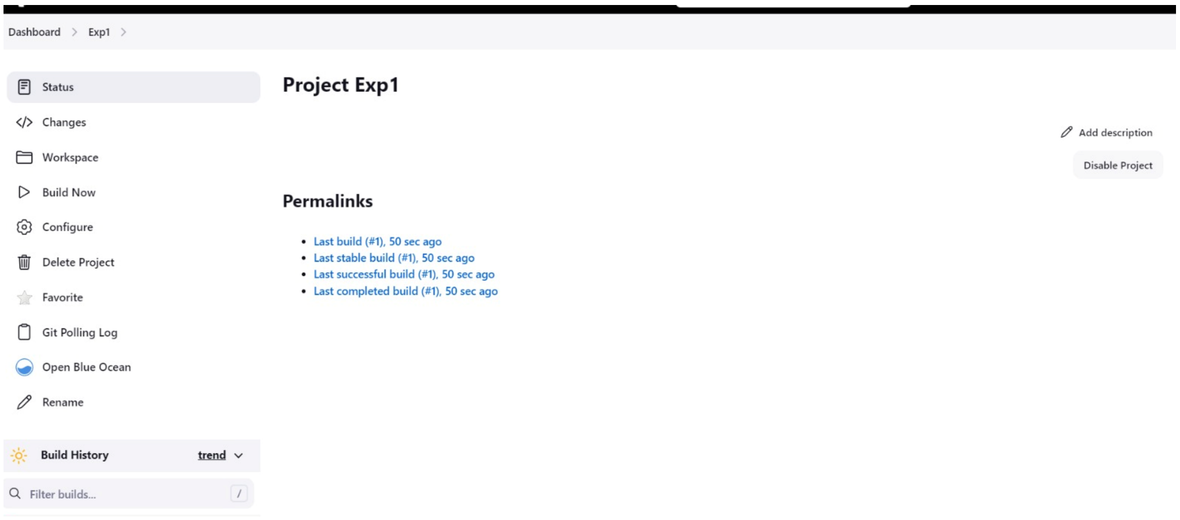


Save and Run the Job:

- Click on "Save" to save the job configuration.
- Click on "Build Now" to manually trigger the job initially.

Observing the Results:

- Monitor the job's console output to see the Maven build process.
- Check the build status (success/failure) on the Jenkins dashboard.



- Last build (#1), 50 sec ago
- Last stable build (#1), 50 sec ago
- Last successful build (#1), 50 sec ago
- Last completed build (#1), 50 sec ago