

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).

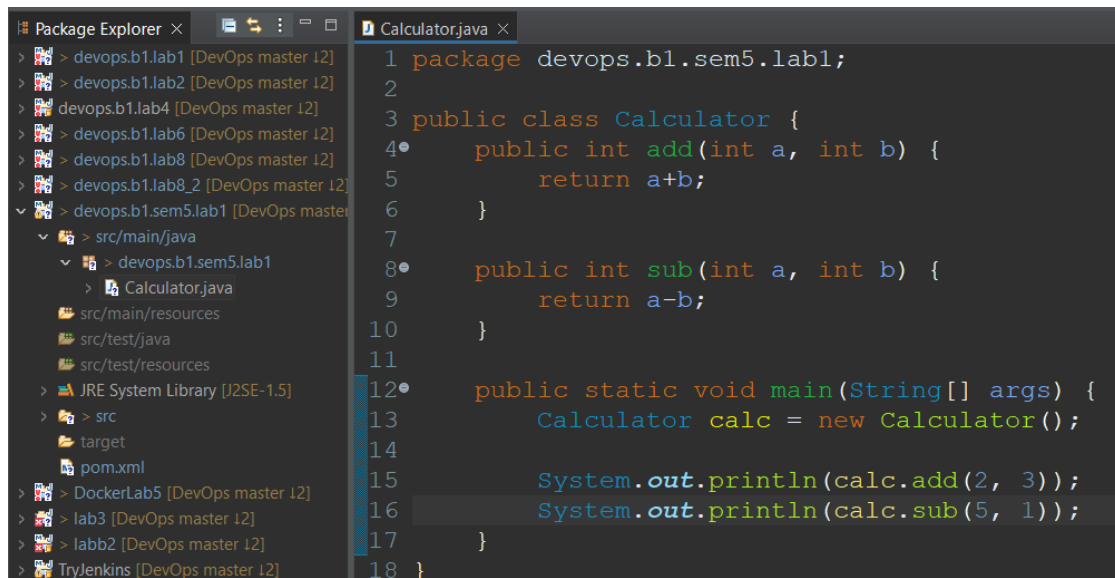
Steps:

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."



The screenshot shows an IDE with two panels. The left panel, 'Package Explorer', displays a project structure for 'devops.b1.sem5.lab1'. It includes a 'src/main/java' directory containing 'devops.b1.sem5.lab1' and 'Calculator.java', and a 'src/test/java' directory. The right panel, 'Calculator.java', shows the following code:

```
1 package devops.b1.sem5.lab1;
2
3 public class Calculator {
4     public int add(int a, int b) {
5         return a+b;
6     }
7
8     public int sub(int a, int b) {
9         return a-b;
10    }
11
12    public static void main(String[] args) {
13        Calculator calc = new Calculator();
14
15        System.out.println(calc.add(2, 3));
16        System.out.println(calc.sub(5, 1));
17    }
18 }
```

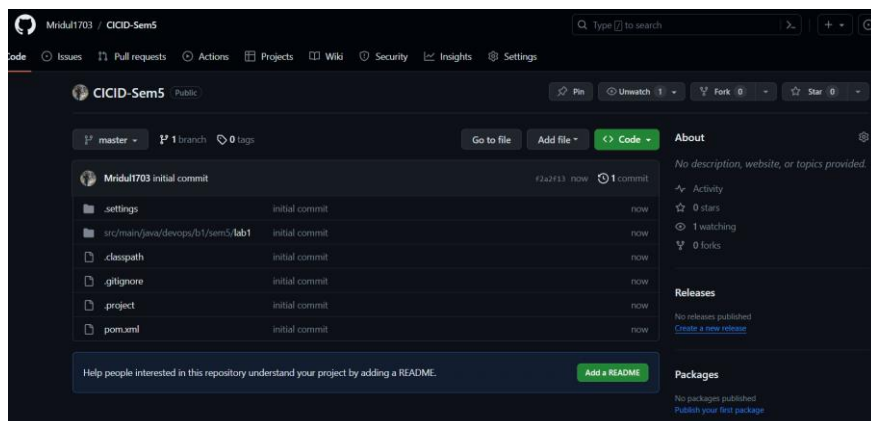
```
Calculator.java x
1 package devops.b1.sem5.lab1;
2
3 public class Calculator {
4     public int add(int a, int b) {
5         return a+b;
6     }
7
8     public int sub(int a, int b) {
9
10    }
11 }

Console x
terminated> CICD_Lab (2) [Maven Build] C:\Program Files\Java\jdk-18.0.1\bin\javaw.exe (Oct 26, 2023, 11:43:14 PM - 11:43:16 PM) [pid: 13272]
[INFO] Scanning for projects...
[INFO]
[INFO] -----< upes_devops:devops.b1.sem5.lab1 >-----
[INFO] Building devops.b1.sem5.lab1 0.0.1-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-clean-plugin:2.5:clean (default-clean) @ devops.b1.sem5.lab1 ---
[INFO] Deleting C:\Users\Dell\OneDrive\Desktop\DevOps\CICD\CICD_Lab\target
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 0.287 s
[INFO] Finished at: 2023-10-26T23:43:16+05:30
[INFO]
[WARNING] The requested profile "test" could not be activated because it does not exist.
```

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.

```
dell@mridul1 MINGW64 ~/OneDrive/Desktop/DevOps/CICD/CICD_Lab (master)
$ git push -u origin master
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 8 threads
Compressing objects: 100% (9/9), done.
Writing objects: 100% (17/17), 2.15 KiB | 735.00 KiB/s, done.
Total 17 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/Mridul1703/CICD-Sem5.git
 * [new branch]      master -> master
branch 'master' set up to track 'origin/master'.
```



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).

☐ Discard old builds ?

☒ GitHub project

Project url ?

Advanced...

☐ This project is parameterized ?

☐ Throttle builds ?

☐ Execute concurrent builds if necessary ?

Advanced...

Build Triggers

☐ Trigger builds remotely (e.g., from scripts) ?

☐ Build after other projects are built ?

☐ Build periodically ?

☐ GitHub hook trigger for GITScm polling ?

☒ Poll SCM ?

Schedule ?

⚠ Do you really mean "every minute" when you say "* * * * *"? Perhaps you meant "H * * * *" to poll once per hour

Would last have run at Thursday, 26 October, 2023 at 11:57:44 pm India Standard Time; would next run at Thursday, 26 October, 2023 at 11:57:44 pm India Standard Time.

☐ Ignore post-commit hooks ?

Build Steps

Invoke top-level Maven targets ?

Maven Version

(Default) ▾

Goals

clean install ▾

Advanced...

Add build step ▾

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.

The screenshot shows the Jenkins dashboard for a job named 'Maven_Build'. The top navigation bar includes the Jenkins logo, a search bar, and user information for 'Mridul Vasudeva'. The main content area shows the build status as 'Build #1 (Oct 27, 2023, 12:00:31 AM)' with a green checkmark icon. A sidebar on the left lists various actions: Status, Changes, Console Output, Edit Build Information, Delete build '#1', Git Build Data, and Next Build. The main area also displays 'No changes' with a code icon, 'Started by user Mridul Vasudeva' with a clock icon, and 'Revision: f2a2f13c81a301ce567ac9bb46d52b9d28ced542' with a git icon. The repository URL is 'https://github.com/Mridul703/CICD-Sem5.git'. A 'Keep this build forever' button is visible in the top right corner.

Automated Builds on Repository Changes:

- Make changes to your Maven project and push them to the version control repository.
- Observe that Jenkins automatically triggers the job based on the polling schedule.

```

1 package devops.b1.sem5.lab1;
2
3 public class Calculator {
4     public int add(int a, int b) {
5         return a+b;
6     }
7
8     public int sub(int a, int b) {
9         return a-b;
10    }
11
12    public int mul(int a, int b) {
13        return a*b;
14    }
15
16    public static void main(String[] args) {
17        Calculator calc = new Calculator();
18
19        System.out.println(calc.add(2, 3));
20        System.out.println(calc.sub(5, 1));
21        System.out.println(calc.mul(5, 8));
22    }
23 }

```

```

Dell@mridul1 MINGW64 ~/OneDrive/Desktop/DevOps/CICD/CICD_Lab (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   src/main/java/devops/b1/sem5/lab1/Calculator.java

no changes added to commit (use "git add" and/or "git commit -a")

Dell@mridul1 MINGW64 ~/OneDrive/Desktop/DevOps/CICD/CICD_Lab (master)
$ git add .

Dell@mridul1 MINGW64 ~/OneDrive/Desktop/DevOps/CICD/CICD_Lab (master)
$ git commit -m "change to trigger auto build"
[master e803c8a] change to trigger auto build
 1 file changed, 5 insertions(+)

Dell@mridul1 MINGW64 ~/OneDrive/Desktop/DevOps/CICD/CICD_Lab (master)
$ git push -u origin master
Enumerating objects: 19, done.
Counting objects: 100% (19/19), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (10/10), 631 bytes | 631.00 KiB/s, done.
Total 10 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/Mridul1703/CICD-Sem5.git
   f2a2f13..e803c8a  master -> master
branch 'master' set up to track 'origin/master'.

```

Jenkins

Mridul Vasudeva
 [log out](#)

Dashboard > Maven_Build > #3

Status

</> Changes

Console Output

Edit Build Information

Delete build '#3'

Polling Log

Git Build Data

Previous Build

Build #3 (Oct 27, 2023, 12:07:08 AM)

[Keep this build forever](#)

Changes

1 change to trigger auto build (commit: e803c8a) (details / githubweb)

Started by an SCM change

Revision: e803c8a43eeeb1c50d9a34a06700902a46edc8

Repository: https://github.com/Mridul1703/CICD-Sem5.git

Git

• refs/remotes/origin/master

Started 39 sec ago
 Took 6.4 sec

[Add description](#)