



Assignment-2

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COURSE – B. Tech CSE- DevOps Batch 1

SUBJECT – Continuous Integration and Deployment

SEMESTER – 5th semester

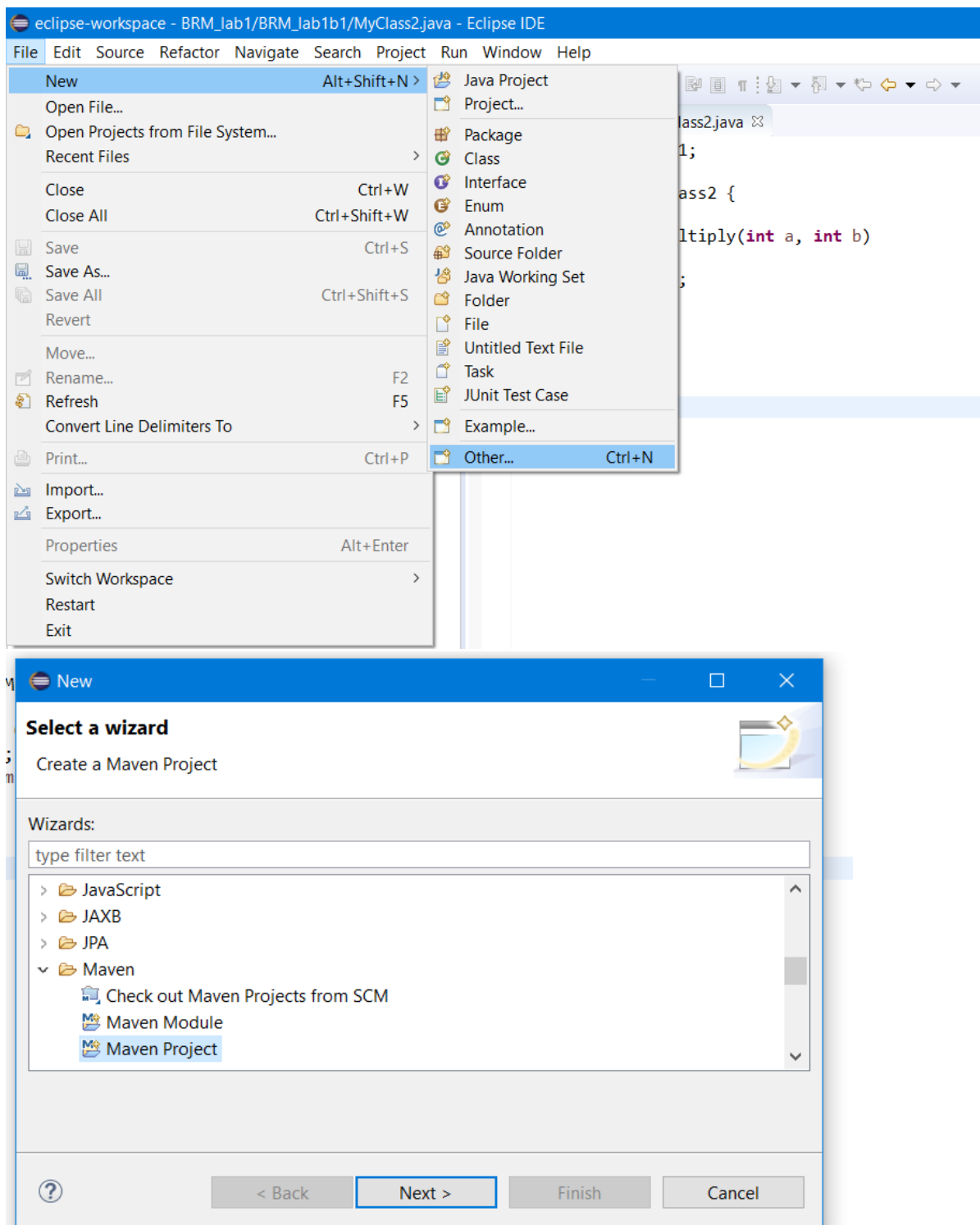
Submitted To:

Dr. Hitesh Kumar Sir

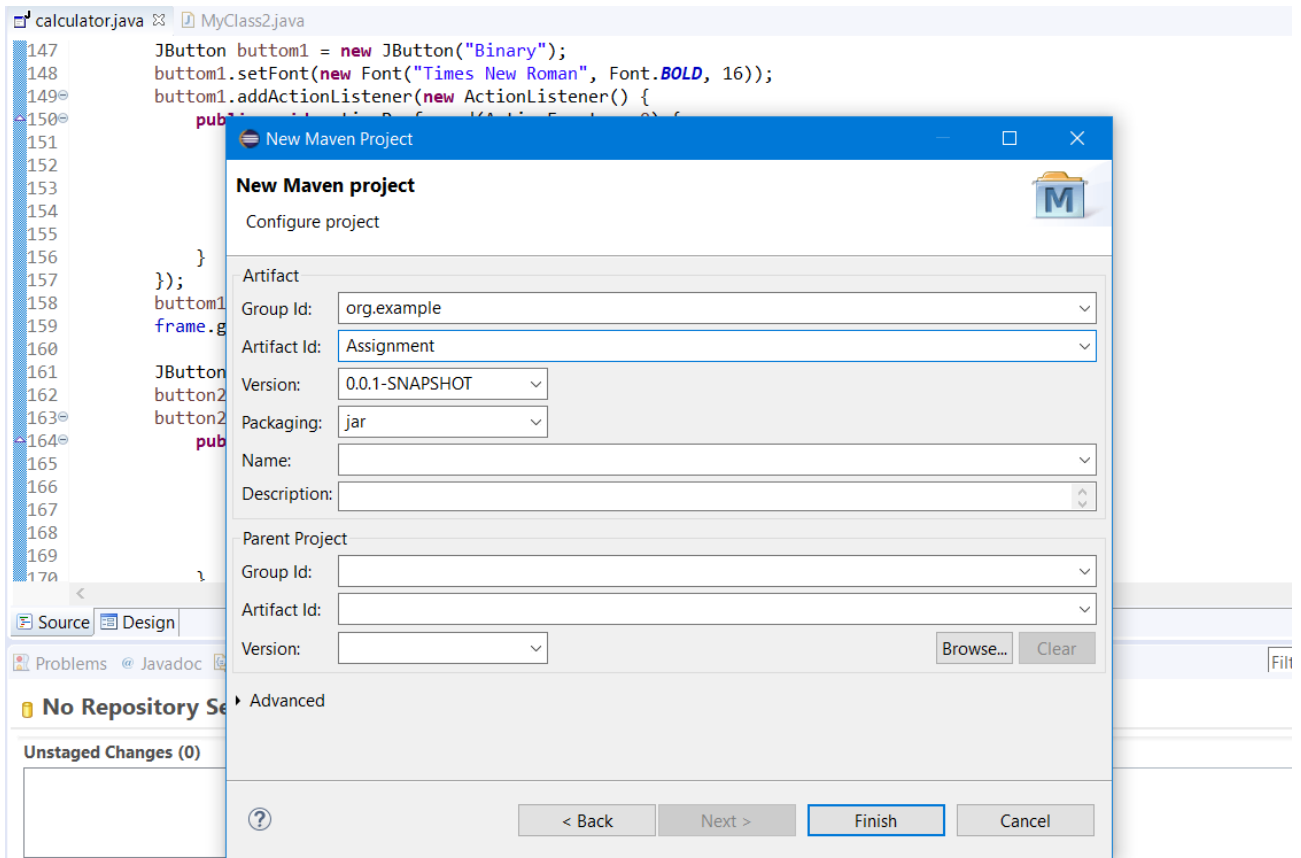
Perform following steps using Git, Jenkins, Maven and Nexus and create a pdf file including step by step screenshots.

Step 1: Create a Maven project using Eclipse.

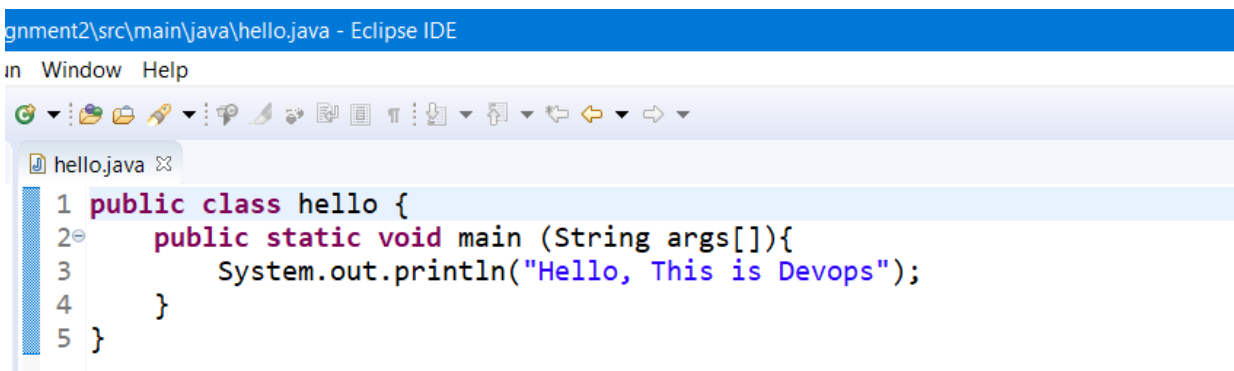
- Open an IDE or Eclipse to create a Maven Project.



- Give the groupId and artifactId to your Maven project, in this case, groupId is “org.example” and artifactId is “Assignment2”.

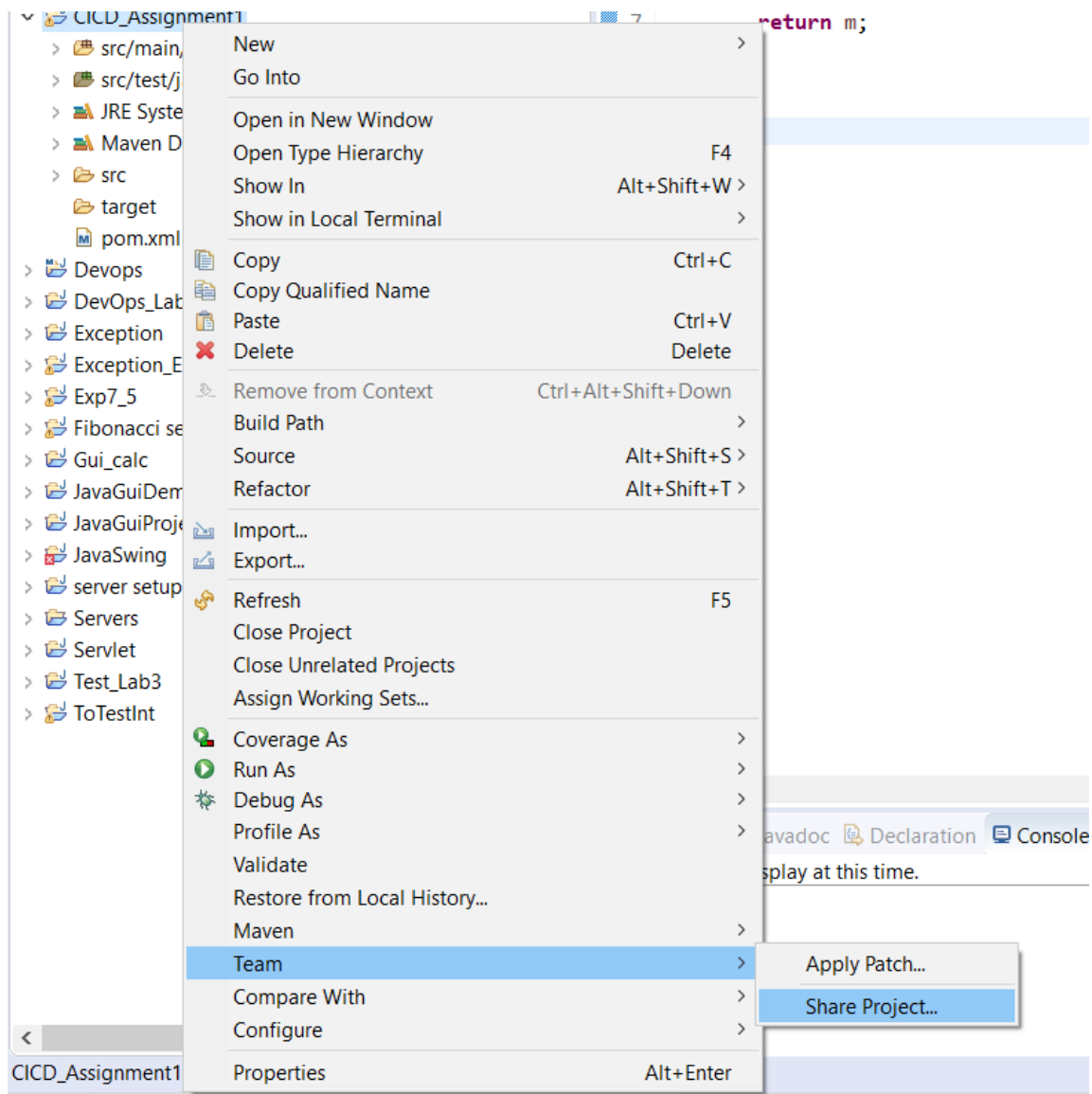


- Write the Java code for your Maven Project.

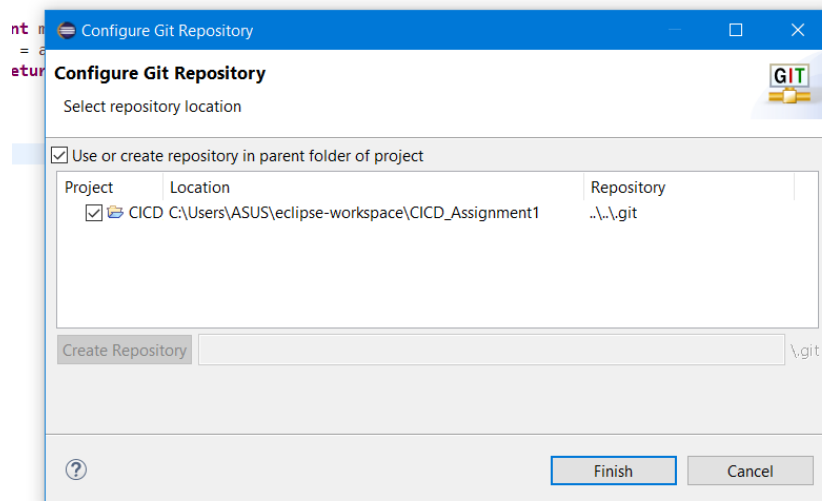


Step2: Push the same running project on GitHub using Eclipse or IDE.

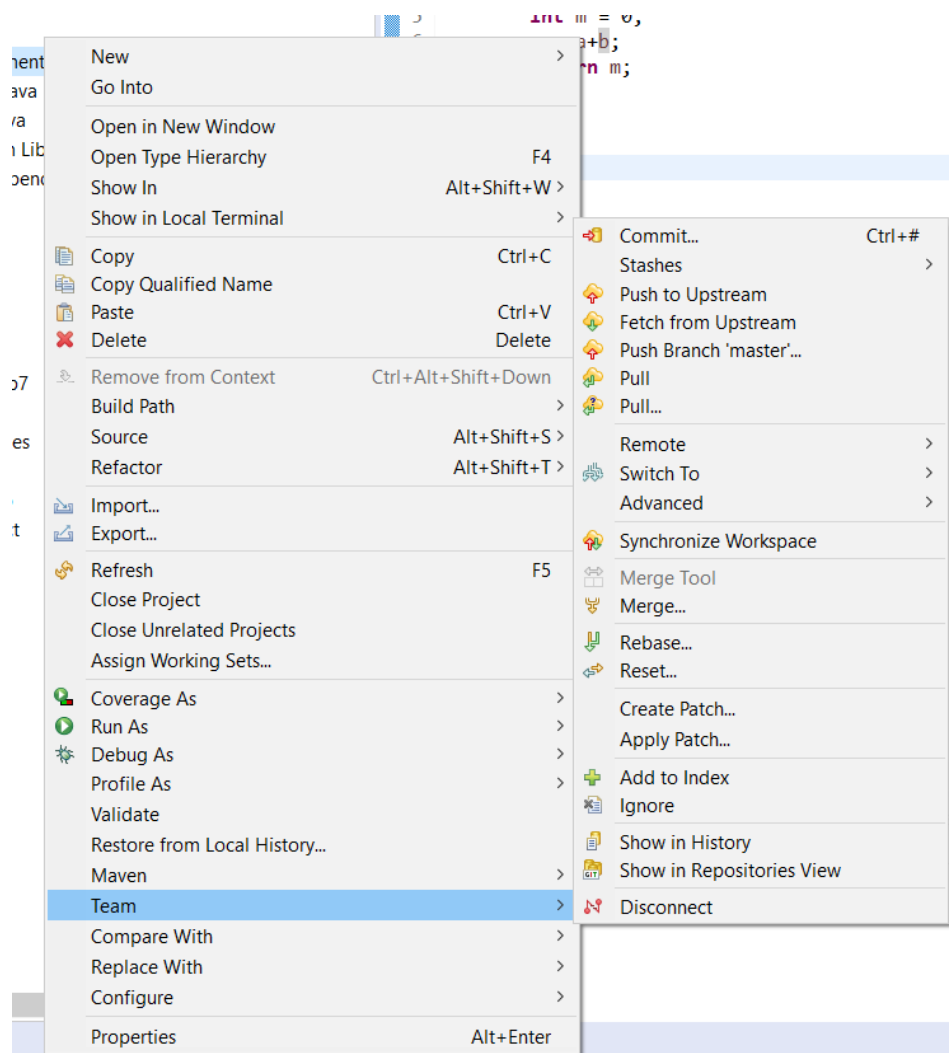
- Now, from the Eclipse IDE, we have to push this project to GitHub in a specific repository. Doing right click on the project, go to team and then click on “Share Project”.



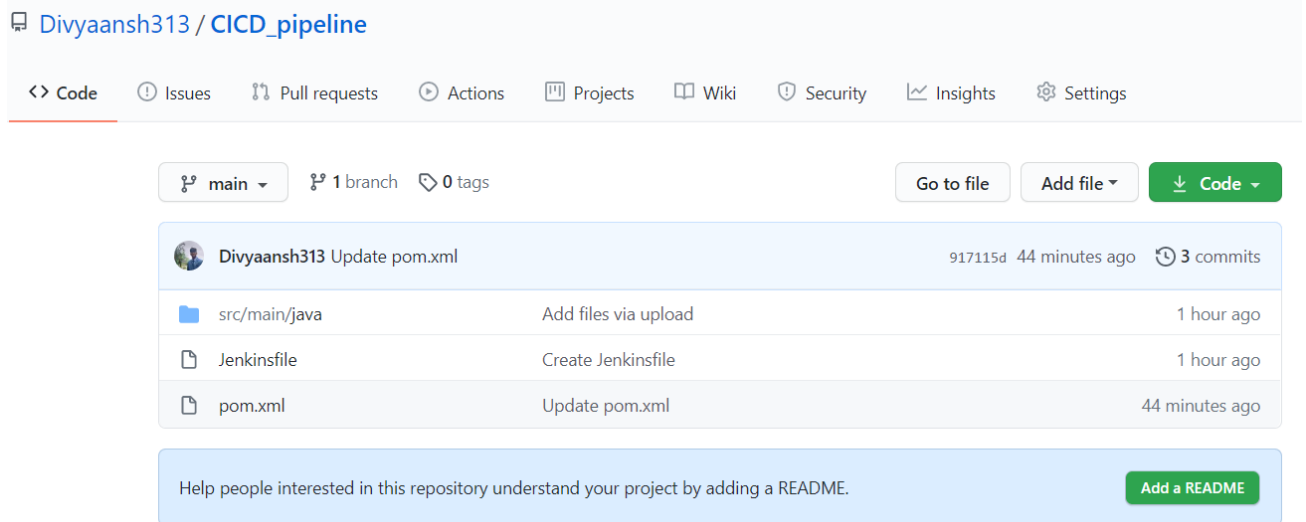
- Configure the Git repository for the local system.



- Do right click on the project, go to Team again and then there is an option to commit the project.



- In this case, the repository link is https://github.com/Divyaansh313/CICD_pipeline.git.



Step 3: Create a Jenkins Pipeline to generate build and push the generated build on Nexus Server using Jenkinsfile in GitHub.

- Open your command prompt, go to the Jenkins folder and start the Jenkins server on localhost:8080.

```
Directory of C:\Program Files\Jenkins

28-08-2020 11:43 <DIR> .
28-08-2020 11:43 <DIR> ..
18-11-2020 23:54 6,115 jenkins.err.log
25-08-2020 10:36 620,544 jenkins.exe
25-08-2020 12:31 228 jenkins.exe.config
28-08-2020 11:43 0 jenkins.out.log
25-08-2020 12:30 67,074,367 Jenkins.war
18-11-2020 23:54 9,896 jenkins.wrapper.log
28-08-2020 11:43 3,007 jenkins.xml
7 File(s) 67,714,157 bytes
2 Dir(s) 235,266,854,912 bytes free

C:\Program Files\Jenkins>java -jar jenkins.war
Running from: C:\Program Files\Jenkins\Jenkins.war
webroot: $user.home/.jenkins
2020-11-19 07:03:14.914+0000 [id=1] INFO org.eclipse.jetty.util.log.Log#initialized: Logging initialized @1129ms to org.eclip
2020-11-19 07:03:15.245+0000 [id=1] INFO winstone.Logger#logInternal: Beginning extraction from war file
2020-11-19 07:03:15.377+0000 [id=1] WARNING o.e.j.s.handler.ContextHandler#setContextPath: Empty contextPath
2020-11-19 07:03:15.628+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: jetty-9.4.30.v20200611; built: 2020-06-11T1
2020-11-19 07:03:20.890+0000 [id=1] INFO o.e.j.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find
2020-11-19 07:03:21.157+0000 [id=1] INFO o.e.j.s.s.DefaultSessionIdManager#doStart: DefaultSessionIdManager workerName=node0
2020-11-19 07:03:21.158+0000 [id=1] INFO o.e.j.s.s.DefaultSessionIdManager#doStart: No SessionScavenger set, using defaults
2020-11-19 07:03:21.167+0000 [id=1] INFO o.e.j.server.session.HouseKeeper#startScavenging: node0 Scavenging every 60000ms
2020-11-19 07:03:22.531+0000 [id=1] INFO hudson.WebAppMain#contextInitialized: Jenkins home directory: C:\Users\ASUS\.jenkins
2020-11-19 07:03:23.025+0000 [id=1] INFO o.e.j.s.handler.ContextHandler#doStart: Started w.@3e2055d6{Jenkins v2.254.1,file://
2020-11-19 07:03:23.100+0000 [id=1] INFO o.e.j.server.AbstractConnector#doStart: Started ServerConnector@5d624da6{HTTP/1.1.0
```

- Along with the Jenkins server, open another command prompt (as administrator) and start the nexus server on localhost:8081.


```
Administrator: Command Prompt - nexus.exe /run

C:\Program Files\nexus-3.18.1-01\bin>nexus.exe /run
2020-11-19 12:37:31,423+0530 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.pax.logging.NexusLogActivat
2020-11-19 12:37:37,700+0530 WARN [FelixStartLevel] *SYSTEM uk.org.lidalia.sysoutslf4j.context.SysOutOver
it needs access to the standard println methods on the console you will need to register it by calling reg
2020-11-19 12:37:37,701+0530 INFO [FelixStartLevel] *SYSTEM uk.org.lidalia.sysoutslf4j.context.SysOutOver
e allowed to print to System.out and System.err
2020-11-19 12:37:37,715+0530 INFO [FelixStartLevel] *SYSTEM uk.org.lidalia.sysoutslf4j.context.SysOutOver
2020-11-19 12:37:37,723+0530 INFO [FelixStartLevel] *SYSTEM uk.org.lidalia.sysoutslf4j.context.SysOutOver
2020-11-19 12:37:37,779+0530 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.bootstrap.ConfigurationBui
2020-11-19 12:37:37,781+0530 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.bootstrap.ConfigurationBui
2020-11-19 12:37:37,781+0530 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.bootstrap.ConfigurationBui
2020-11-19 12:37:37,782+0530 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.bootstrap.ConfigurationBui
2020-11-19 12:37:37,783+0530 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.bootstrap.ConfigurationBui
2020-11-19 12:37:37,784+0530 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.bootstrap.ConfigurationBui
```


- Now, create a Pipeline in the Jenkins, in this case CICD_Assignment2.

Enter an item name


» Required field

**Freestyle project**


This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something oth

**Maven project**

Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

**Pipeline**

Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing co

**Multi-configuration project**

Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

- Now in the Pipeline, pull the Jenkinsfile from the GitHub repository and save the job.

GeneralBuild TriggersAdvanced Project OptionsPipeline

Pipeline

Definition Pipeline script from SCM

SCM Git

Repositories

Repository URL https://github.com/Divyaansh313/CI-CD_pipeline.git

Credentials - none - Add

Advanced...
Add Repository

Branches to build

Branch Specifier (blank for 'any') */master

Add Branch

Repository browser (Auto)

Additional Behaviours Add

Script Path Jenkinsfile

Save Apply Cancel

- In the Jenkinsfile, the following content is written.

```
pipeline {
  agent any
  stages
  {
    stage('Clean') {
      steps {
        bat 'mvn clean'
      }
    }
    stage('Install') {
      steps {
        bat 'mvn install'
      }
    }
    stage('Deploy') {
      steps {
        bat 'mvn deploy'
      }
    }
  }
}
```

- Now build the job in the Jenkins. It will run the Jenkinsfile and do the job, asked. It will show the following output on success.

Console Output

```
Started by user Divyaansh Jain
Checking out git https://github.com/Divyaansh313/CICD_pipeline.git into C:\Users\ASUS\.jenkins\workspace\CICD_Assignment2@script to read Jenkinsfile
The recommended git tool is: NONE
No credentials specified
> git.exe rev-parse --is-inside-work-tree # timeout=10
Fetching changes from the remote Git repository
> git.exe config remote.origin.url https://github.com/Divyaansh313/CICD_pipeline.git # timeout=10
Fetching upstream changes from https://github.com/Divyaansh313/CICD_pipeline.git
> git.exe --version # timeout=10
> git --version # 'git version 2.24.0.windows.2'
> git.exe fetch --tags --force --progress -- https://github.com/Divyaansh313/CICD_pipeline.git +refs/heads/*:refs/remotes/origin/* # timeout=10
Seen branch in repository origin/main
Seen 1 remote branch
> git.exe show-ref --tags -d # timeout=10
Checking out Revision 917115d56c3619400e1c8b4b8fc24c050c822e17 (origin/main)
> git.exe config core.sparsecheckout # timeout=10
> git.exe checkout -f 917115d56c3619400e1c8b4b8fc24c050c822e17 # timeout=10
Commit message: "Update pom.xml"
> git.exe rev-list --no-walk 917115d56c3619400e1c8b4b8fc24c050c822e17 # timeout=10
Running in Durability level: MAX_SURVIVABILITY
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in C:\Users\ASUS\.jenkins\workspace\CICD_Assignment2
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
The recommended git tool is: NONE
No credentials specified
> git.exe rev-parse --is-inside-work-tree # timeout=10
Fetching changes from the remote Git repository
> git.exe config remote.origin.url https://github.com/Divyaansh313/CICD_pipeline.git # timeout=10
Fetching upstream changes from https://github.com/Divyaansh313/CICD_pipeline.git
> git.exe --version # timeout=10
> git --version # 'git version 2.24.0.windows.2'
> git.exe fetch --tags --force --progress -- https://github.com/Divyaansh313/CICD_pipeline.git +refs/heads/*:refs/remotes/origin/* # timeout=10
Seen branch in repository origin/main
Seen 1 remote branch
[INFO] --- maven-jar-plugin:2.4:jar (default-jar) @ Assignment2 ---
[INFO] --- maven-install-plugin:2.4:install (default-install) @ Assignment2 ---
[INFO] Installing C:\Users\ASUS\.jenkins\workspace\CICD_Assignment2\target\Assignment2-1.0-SNAPSHOT.jar to C:\Users\ASUS\.m2\repository\org\example\Assignment2\1.0-SNAPSHOT\Assignment2-1.0-SNAPSHOT.jar
[INFO] Installing C:\Users\ASUS\.jenkins\workspace\CICD_Assignment2\pom.xml to C:\Users\ASUS\.m2\repository\org\example\Assignment2\1.0-SNAPSHOT\Assignment2-1.0-SNAPSHOT.pom
[INFO] --- maven-deploy-plugin:2.7:deploy (default-deploy) @ Assignment2 ---
Downloading from Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/1.0-SNAPSHOT/maven-metadata.xml
Uploading to Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/1.0-SNAPSHOT/Assignment2-1.0-20201119.144847-1.jar
Progress (1): 2.0 kB

Uploaded to Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/1.0-SNAPSHOT/Assignment2-1.0-20201119.144847-1.jar (2.0 kB at 3.5 kB/s)
Uploading to Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/1.0-SNAPSHOT/Assignment2-1.0-20201119.144847-1.pom
Progress (1): 797 B

Uploaded to Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/1.0-SNAPSHOT/Assignment2-1.0-20201119.144847-1.pom (797 B at 1.8 kB/s)
Downloading from Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/maven-metadata.xml
Uploading to Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/1.0-SNAPSHOT/maven-metadata.xml
Progress (1): 766 B

Uploaded to Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/1.0-SNAPSHOT/maven-metadata.xml (766 B at 3.5 kB/s)
Uploading to Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/maven-metadata.xml
Progress (1): 280 B


Uploaded to Assignment2: http://localhost:8081/repository/Assignment2/org/example/Assignment2/maven-metadata.xml (280 B at 2.0 kB/s)
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 3.477 s
[INFO] Finished at: 2020-11-19T20:18:49+05:30
[INFO] -----
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```



- Go to the Nexus server, you will see the build artifact of your project.

CICD-LAB-FILE-FOLDERS/R17121 × Sumyak-Jain/Assignment2 × CICD_pipeline/pom.xml at main ×

localhost:8081/#browse/browse:Assignment2

Apps Compete

 **Sonatype Nexus Repository Manager**
OSS 3.18.1-01

Browse

Welcome

▼ Search



Custom

Maven

NuGet

Browse

Upload

 **Browse** /  Assignment2

HTML View

org

example

Assignment2

1.0-SNAPSHOT

maven-metadata.xml

maven-metadata.xml.md5

maven-metadata.xml.sha1