

School of Computer Science

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
DEHRADUN, UTTARAKHAND**



**Continuous Integration and Continuous Delivery
Lab**

**Lab File
(2023-2024)**

for

5th Semester

Submitted To:

Dr. Hitesh Kumar Sharma

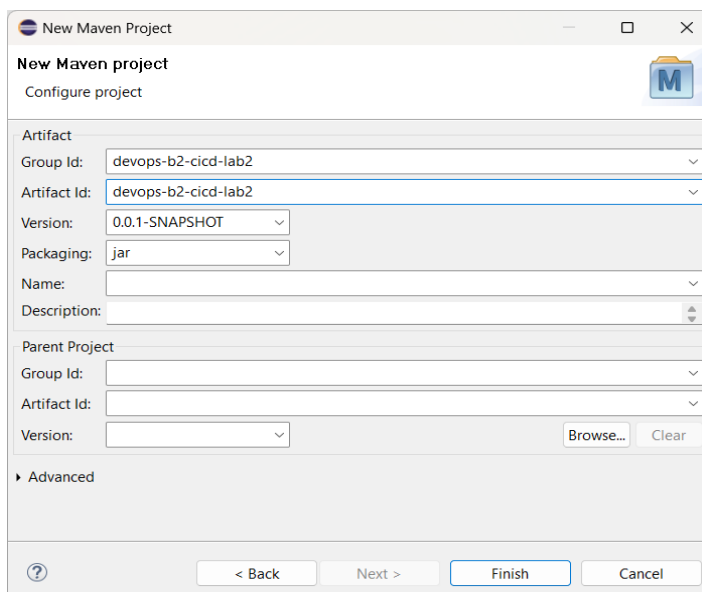
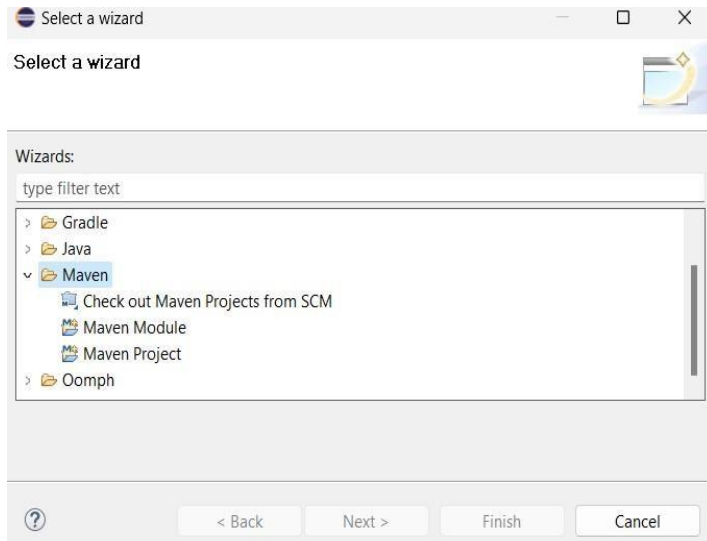
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B2- Devops (Non-Hons)

EXPERIMENT – 2

Aim: Creating a Jenkins Pipeline with a Jenkins file.

1] Create a Maven Project in eclipse.



New Java Class

Java Class

Create a new Java class.

Source folder:

Package:

☐ Enclosing type:

Name:

Modifiers: ☒ public ☐ package ☐ private ☐ protected
☐ abstract ☐ final ☐ static

Superclass:

Interfaces:

Which method stubs would you like to create?

☒ public static void main(String[] args)
☐ Constructors from superclass
☒ Inherited abstract methods

Do you want to add comments? (Configure templates and default value [here](#))
☐ Generate comments

```

1 package mypkg;
2
3 import java.util.Scanner;
4
5 public class MyCalc {
6     public int sum(int a, int b)
7     {
8         return (a+b);
9     }
10    public int diff(int a, int b)
11    {
12        return (a-b);
13    }
14    public static void main(String[] args) {
15        int num1, num2;
16        MyCalc calc = new MyCalc();
17        Scanner sc = new Scanner(System.in);
18        System.out.println("Enter num1 : ");
19        num1 = sc.nextInt();
20        System.out.println("Enter num2 : ");
21        num2 = sc.nextInt();
22        System.out.println("Sum is : "+calc.sum(num1, num2) );
23        System.out.println("Diff is : "+calc.diff(num1, num2) );
24    }
25 }

```

Console ×

```

<terminated> MyCalc [Java Application] C:\Users\kamdi\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jr
Enter num1 :
20
Enter num2 :
30
Sum is : 50
Diff is : -10





```

```

1 <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w
2     <modelVersion>4.0.0</modelVersion>
3     <groupId>devops-b2-cicd-lab2</groupId>
4     <artifactId>devops-b2-cicd-lab2</artifactId>
5     <version>0.0.1-SNAPSHOT</version>
6
7     <properties>
8         <maven.compiler.source>17</maven.compiler.source>
9         <maven.compiler.target>17</maven.compiler.target>
10    </properties>
11
12
13 </project>

```

2] Make a repo name as “CICD-Lab2_Jenkinsfile” and Push project on github.

 .settings	first commit
 src/main/java/mypkg	first commit
 target/classes/mypkg	first commit
 .classpath	first commit
 .project	first commit
 pom.xml	first commit

3] Add Maven integration and Git plugin in Jenkins , configure repo and make a build

Maven Integration 3.20

This plugin provides a deep integration between Jenkins and Maven. It adds support for automatic triggers between projects depending on SNAPSHOTS as well as the automated configuration of various Jenkins publishers such as Junit.

[Report an issue with this plugin](#)



Git 5.0.0

This plugin integrates Git with Jenkins.

[Report an issue with this plugin](#)



```
kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse workspce/devops-b2-cicd-lab2
$ ls
pom.xml  src/  target/

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse workspce/devops-b2-cicd-lab2
$ git init
Initialized empty Git repository in C:/Users/kamdi/eclipse Workspce/devops-b2-ci
cd-lab2/.git/

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse workspce/devops-b2-cicd-lab2 (master)
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .classpath
        .project
        .settings/
        pom.xml
        src/
        target/

nothing added to commit but untracked files present (use "git add" to track)

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse workspce/devops-b2-cicd-lab2 (master)
$ git add .

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse workspce/devops-b2-cicd-lab2 (master)
$ git commit -m "first commit"
[master (root-commit) 5e73fb2] first commit
7 files changed, 111 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/mypkg/MyCalc.java
create mode 100644 target/classes/mypkg/MyCalc.class

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse workspce/devops-b2-cicd-lab2 (master)
$ git remote add abc https://github.com/kamdishashwat-17/CICD-Lab2_Jenkinsfile.git

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse workspce/devops-b2-cicd-lab2 (master)
$ git push -u abc master
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 12 threads
Compressing objects: 100% (10/10), done.
Writing objects: 100% (17/17), 2.76 KiB | 1.38 MiB/s, done.
Total 17 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/kamdishashwat-17/CICD-Lab2_Jenkinsfile.git
 * [new branch]      master -> master
branch 'master' set up to track 'abc/master'.
```

Maven
Name
MAVEN_HOME

☒ Install automatically ?

Install from Apache
Version
3.9.2
Add Installer

```

[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-archi
520 kB/s)
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compr
1.2 MB/s)
[INFO] Building jar: C:\ProgramData\Jenkins\.jenkins\workspace\cicd-b2-lab2\target\devops-b2-cicd-lab
[INFO]
[INFO] --- install:3.1.0:install (default-install) @ devops-b2-cicd-lab2 ---
[INFO] Installing C:\ProgramData\Jenkins\.jenkins\workspace\cicd-b2-lab2\pom.xml to C:\WINDOWS\system
b2-cicd-lab2\devops-b2-cicd-lab2\0.0.1-SNAPSHOT\devops-b2-cicd-lab2-0.0.1-SNAPSHOT.pom
[INFO] Installing C:\ProgramData\Jenkins\.jenkins\workspace\cicd-b2-lab2\target\devops-b2-cicd-lab2-0
C:\WINDOWS\system32\config\systemprofile\.m2\repository\devops-b2-cicd-lab2\devops-b2-cicd-lab2\0.0.1
SNAPSHOT.jar
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 10.193 s

```

4] edit the code ,add mul funcion and add poll scm in jenkins configuration then again commit and push it.

☒ 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 Friday, 6 October, 2023 at 7:15:16 am India Standard Time; would next run at Friday, 6 October, 2023 at 7:15:16 am India Standard Time.
(show details)

```

public int mul(int a, int b){
{
    return(a*b);
}

```

```

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse Workspce/devops-b2-cicd-lab2 (master)
$ git status
On branch master
Your branch is up to date with 'abc/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/mypkg/MyCalc.java
        modified:   target/classes/mypkg/MyCalc.class

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

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse Workspce/devops-b2-cicd-lab2 (master)
$ git add .

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse Workspce/devops-b2-cicd-lab2 (master)
$ git commit -m "mul added"
[master 0f79c39] mul added
 2 files changed, 4 insertions(+)

kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse Workspce/devops-b2-cicd-lab2 (master)
$ git push
Enumerating objects: 21, done.
Counting objects: 100% (21/21), done.
Delta compression using up to 12 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (11/11), 1.12 KiB | 381.00 KiB/s, done.
Total 11 (delta 3), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
To https://github.com/kamdishashwat-17/CICD-Lab2_Jenkinsfile.git
 5e73fb2..0f79c39  master -> master

```

- ✓ #2 Oct 6, 2023, 7:18 AM
- ✓ #1 Oct 6, 2023, 7:10 AM

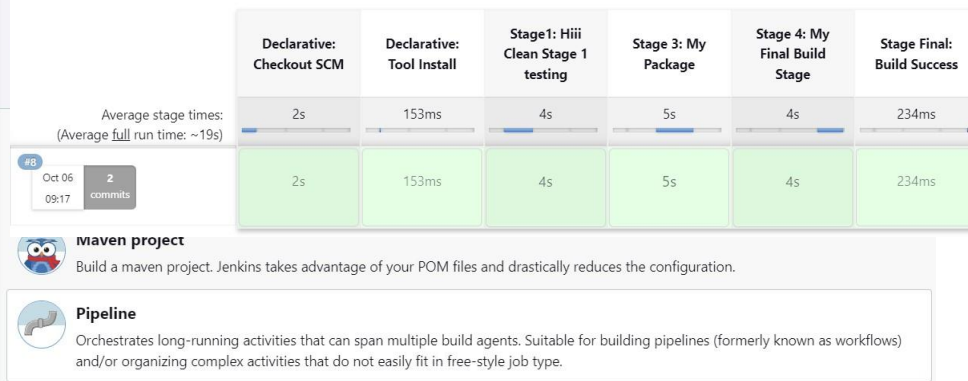
5] Add Jenkins file then commit and push it , In Jenkins make pipeline add configure it. When you create a pipeline. The pipeline will start.

```

devops-b2-cicd-lab2/pom.xml  MyCalc.java  *Jenkinsfile x
1 pipeline {
2   agent any
3   tools {
4     maven 'MAVEN_HOME'
5   }
6   stages {
7     stage('Stage1: Hello Clean Stage 1') {
8       steps {
9         bat 'mvn clean'
10      }
11    }
12    stage ('Stage 2: Test Stage') {
13      steps {
14        bat 'mvn test'
15      }
16    }
17    stage ('Stage 3: My Package'){
18      steps {
19        bat 'mvn package'
20      }
21    }
22    stage ('Stage 4: My Final Build Stage'){
23      steps {
24        bat 'mvn install'
25      }
26    }
27    stage ('Stage Final: Build Success'){
28      steps {
29        echo 'Build Success!'
30      }
31    }
32  }
33 }

```

Stage View



Pipeline

Definition

Pipeline script from SCM

SCM ?

Git

Repositories ?

Repository URL ?

https://github.com/kamdishashwat-17/CICD-Lab2_Jenkinsfile.git

```
kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse Workspce/devops-b2-cicd-lab2 (master)
$ git status
On branch master
Your branch is up to date with 'abc/master'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    Jenkinsfile

nothing added to commit but untracked files present (use "git add" to track)
kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse Workspce/devops-b2-cicd-lab2 (master)
$ git add .
kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse Workspce/devops-b2-cicd-lab2 (master)
$ git commit -m "jenkinsfile"
[master b098ade] jenkinsfile
1 file changed, 33 insertions(+)
create mode 100644 Jenkinsfile
kamdi@DESKTOP-P4AQHPQ MINGW64 ~/eclipse Workspce/devops-b2-cicd-lab2 (master)
$ git push
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 473 bytes | 473.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/kamdishashwat-17/CICD-Lab2_Jenkinsfile.git
0f79c39..b098ade master -> master
```

