

LAB ASSIGNMENT 5

AIM: To build a Java program using Jenkins.

LAB OUTCOME:

LO1, LO3 Mapped.

THEORY:

Building programs using Jenkins involves automating the development workflow, particularly for Java applications. Through Jenkins, developers create a structured process that automatically manages tasks such as code compilation, testing, and potential deployment.

When a Jenkins job is established, it constructs a framework that guides the progression of software development activities. Jenkins can be configured to monitor version control repositories, subsequently triggering a build each time code changes are committed. This preemptive identification of errors during automated builds aids in identifying and addressing issues before they propagate further within the development cycle.

Steps to build Java Programs using Jenkins:

1. Install Jenkins: Install Jenkins on the system.
2. Create Job: Make a new job in Jenkins.
3. Setup Code: Configure version control (e.g., Git) for your job.
4. Build Steps: Add steps to compile your Java program, e.g., use "Execute shell" with javac.
5. Post-Build: Optionally, add post-build actions like archiving artefacts.
6. Save and Build: Save the job and trigger a build.
7. Check Results: Review build results, including console output and test reports.
8. Test Steps: If applicable, add test steps using tools like JUnit.
9. Automate: Set up auto-build triggers for continuous integration.

localhost:8080/new/job

Gmail YouTube Maps

Dashboard >

Enter an item name

shreya

» 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 other than software build.

Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

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

Folder
A container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a namespace, so you can have multiple things of the same name as long as they are in different folders.

OK

Type here to search

Search (CTRL+K)

admin log out

10:26 PM IN 8/20/2023

Jenkins

Search (CTRL+K)

admin log out

Dashboard > shreya > Configuration

Configure

General

Enabled

General

Description

DevOps Lab
Simple Java Program on Jenkins
Date: 21st August, 2023

Plain text [Preview](#)

Discard old builds [?](#)

This project is parameterized [?](#)

Execute concurrent builds if necessary [?](#)

Advanced [▼](#)

Save Apply

Type here to search

10:27 PM IN 8/20/2023

Dashboard > shreya > Configuration

Configure

- General
- Source Code Management
- Build Triggers
- Build Environment
- Build Steps**
- Post-build Actions

Execute Windows batch command

Command
See the list of available environment variables

```
javac Helloworld.java
java Helloworld
```

Advanced ▾

Add build step ▾

Post-build Actions

Add post-build action ▾

Save Apply

Type here to search 10:27 PM IN 8/20/2023

Helloworld.java - Notepad

```
public class Helloworld
{
    public static void main(String[] args)
    {
        System.out.println("Hello World!");
    }
}
```

Ln 7, Col 2 100% Windows (CRLF) UTF-8

Jenkins

Dashboard > shreya >

Status

shreya

</> Changes

Workspace

Build Now

Configure

Delete Project

Rename

Build History trend

No builds

Search (CTRL+K) ② admin log out

DevOps Lab
Simple Java Program on Jenkins
Date: 21st August, 2023

Edit description

Disable Project

Type here to search 10:31 PM IN 8/20/2023

The screenshot shows the Jenkins interface for build #2 of the 'shreya' project. The top navigation bar includes a search bar, user status (admin), and a log out link. The main content area displays the build status as 'Success' (green checkmark), the build number (#2), the date (Aug 20, 2023, 10:33:34 PM), and a note to 'Keep this build forever'. It also shows the start time (6.4 sec ago) and duration (1.2 sec). On the left, there are links for Status, Changes, Console Output, Edit Build Information, and Delete build '#2'. A note indicates 'No changes.' Below the status bar, it says 'Started by user admin'. A backlink to 'Previous Build' is present.

The screenshot shows the Jenkins interface for the 'Console Output' of build #2. The top navigation bar is identical to the previous screenshot. The main content area is titled 'Console Output' with a green checkmark. It shows the command line logs from the build process:

```
Started by user admin
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\jenkins\workspace\shreya
[shreya] $ cmd /c call C:\WINDOWS\TEMP\jenkins7542321336702794327.bat

C:\ProgramData\Jenkins\jenkins\workspace\shreya>javac Helloworld.java

C:\ProgramData\Jenkins\jenkins\workspace\shreya>java Helloworld
Hello World!

C:\ProgramData\Jenkins\jenkins\workspace\shreya>exit 0
Finished: SUCCESS
```

The screenshot shows the Jenkins interface for the 'shreya' project configuration. The top navigation bar is identical. The main content area is titled 'shreya' with a green checkmark. It displays the project details: 'DevOps Lab', 'Simple Java Program on Jenkins', and 'Date: 21st August, 2023'. On the left, there are links for Status, Changes, Workspace, Build Now, Configure, Delete Project, and Rename. On the right, there are links for 'Edit description' and 'Disable Project'. A note at the bottom indicates 'Last build (#2), 44 sec ago'. A 'Build History' section shows a single entry for build #2. A 'Permalinks' section lists various build-related URLs. A timestamp at the bottom left shows 'Aug 20, 2023, 10:33 PM'.



Dashboard > shreya > Configuration

Configure

- General
- Source Code Management
- Build Triggers
- Build Environment
- Build Steps**
- Post-build Actions

Execute Windows batch command

Command

See the list of available environment variables

```
javac Helloworld.java  
java Helloworld  
javac Forloop.java  
java Forloop
```

Advanced ▾

Add build step ▾

Post-build Actions

Add post-build action ▾

Save Apply

Forloop.java - Notepad

```
File Edit Format View Help  
public class Forloop{  
    public static void main(String[] args){  
        for(int i=0; i<5; i++){  
            System.out.println(i);  
        }  
    }  
}
```

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Jenkins

Dashboard > shreya > #5

Status #5 (Aug 20, 2023, 10:39:00 PM)

Keep this build forever

</> Changes

Add description Started 6.4 sec ago Took 1.3 sec

Console Output </> No changes.

Edit Build Information

Delete build '#5'

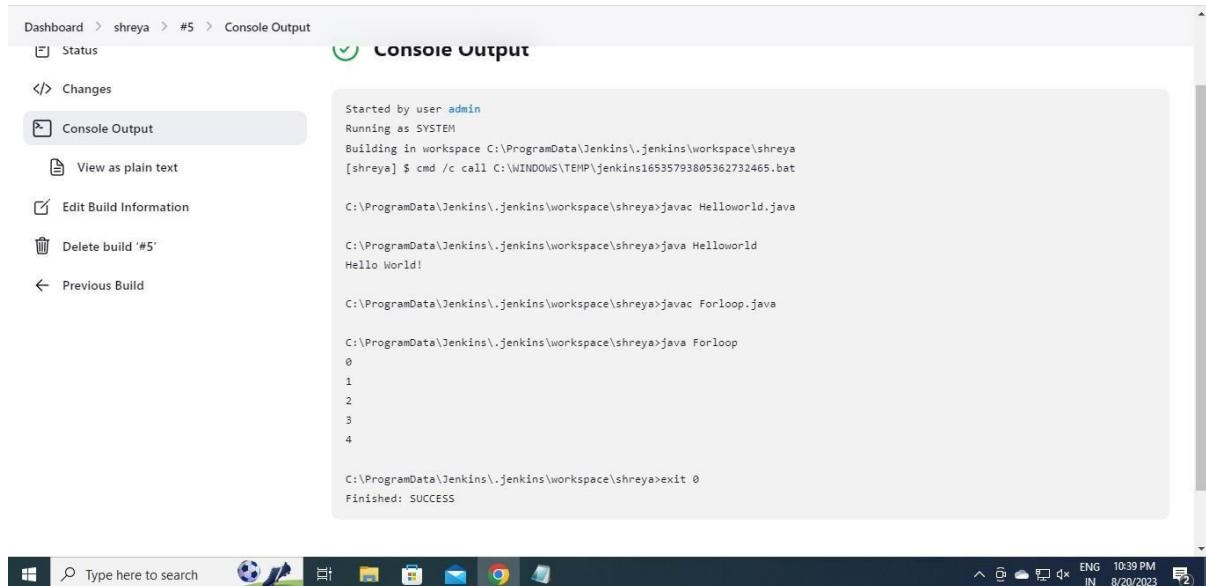
Started by user admin

Previous Build

REST API Jenkins 2.417

Type here to search Microsoft Store

ENG IN 10:39 PM 8/20/2023



The screenshot shows the Jenkins interface for a build named 'shreya' under job '#5'. The 'Console Output' tab is selected. The log output is as follows:

```
Started by user admin
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\jenkins\workspace\shreya
[shreya] $ cmd /c call C:\WINDOWS\TEMP\jenkins16535793805362732465.bat

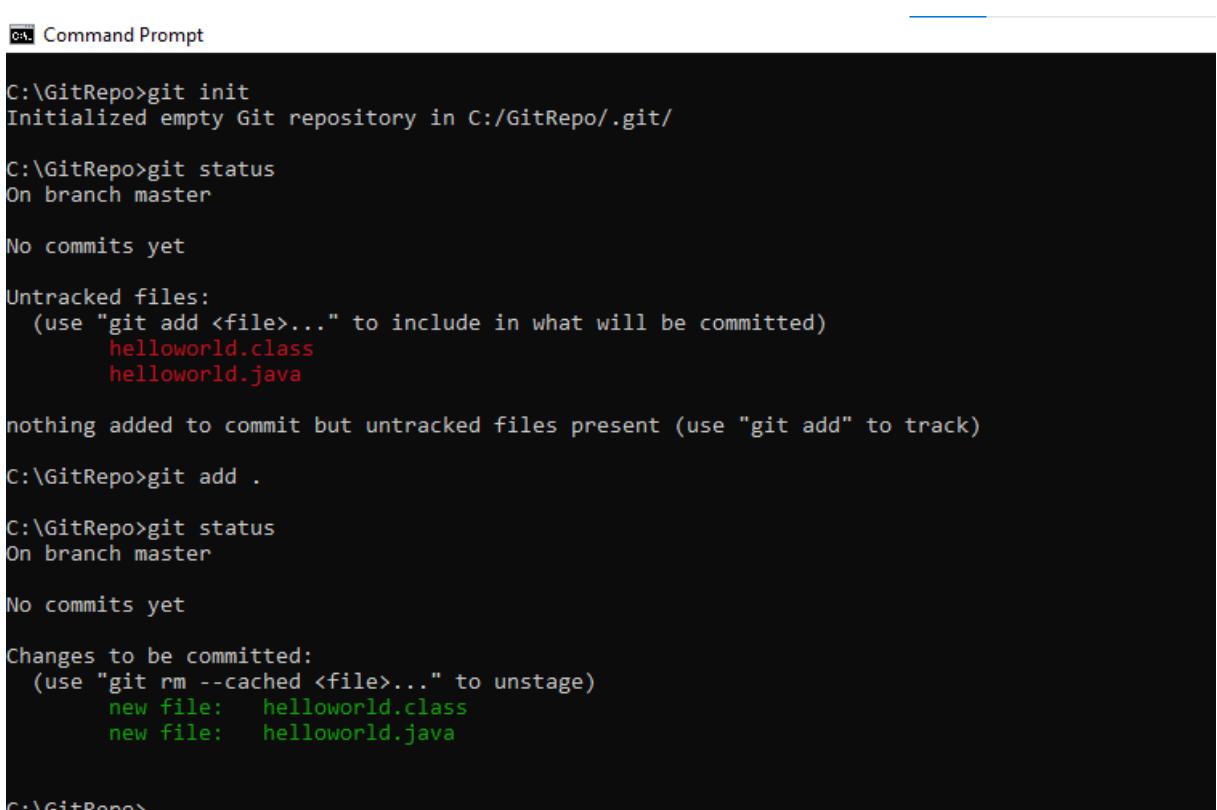
C:\ProgramData\Jenkins\jenkins\workspace\shreya>javac HelloWorld.java

C:\ProgramData\Jenkins\jenkins\workspace\shreya>java HelloWorld
Hello World!

C:\ProgramData\Jenkins\jenkins\workspace\shreya>javac Forloop.java

C:\ProgramData\Jenkins\jenkins\workspace\shreya>java Forloop
0
1
2
3
4

C:\ProgramData\Jenkins\jenkins\workspace\shreya>exit 0
Finished: SUCCESS
```



The screenshot shows a Windows Command Prompt window titled 'Command Prompt'. The command history and output are as follows:

```
C:\GitRepo>git init
Initialized empty Git repository in C:/GitRepo/.git/

C:\GitRepo>git status
On branch master

No commits yet

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

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

C:\GitRepo>git add .

C:\GitRepo>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file:   helloworld.class
    new file:   helloworld.java

C:\GitRepo>
```

CONCLUSION:

Hence, through this assignment, I have successfully built a Hello World and a program with for loops in Java using Jenkins.