



PARSHVANATH CHARITABLE TRUST'S
A. P. SHAH INSTITUTE OF TECHNOLOGY
Department of Information Technology
(NBA Accredited)



Department of Information Technology

Academic Year: 2025-26

Semester: V

Class / Branch: TEIT/Div C

Subject: DevOps Lab

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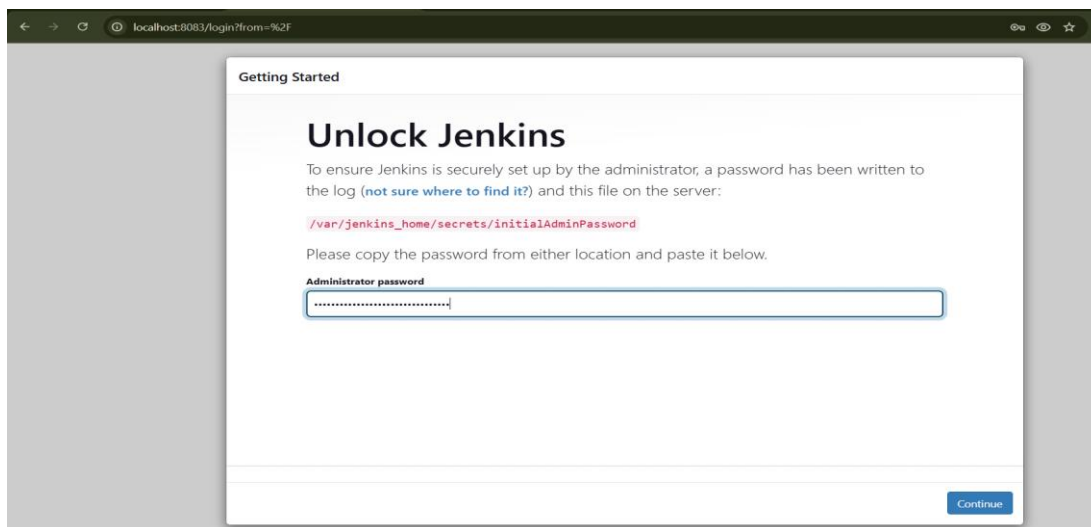
Date of Performance: 3/9/25

Date of Submission: 3/9/25

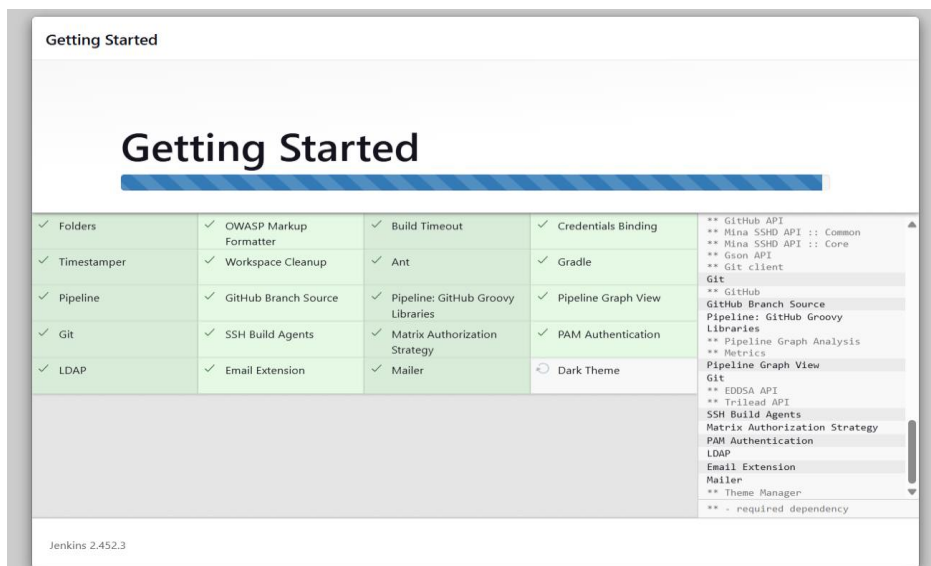
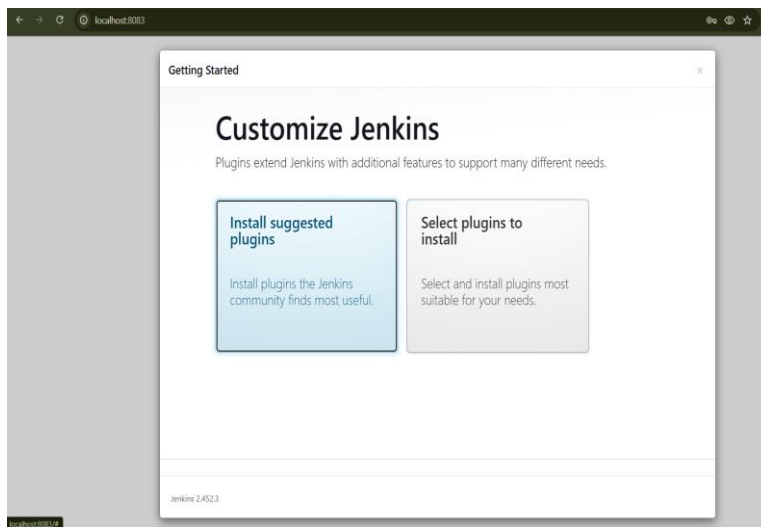
Experiment No. 4

Aim:- To install and configure Jenkins to test and deploy an application with Maven also configure parallel jobs for building pipeline.

Part 1 :- Installing Jenkins and Configuring:



Install Suggested Plugins



Setup Jenkins Username and password

Getting Started

Create First Admin User

Username

apsit

Password

.....

Confirm password

.....

Full name

Vedant

E-mail address

Apsit@1234.com

Jenkins 2.452.3

[Skip and continue as admin](#)

Save and Continue

Getting Started

Instance Configuration

Jenkins URL:

http://localhost:8083/

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD_URL environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.452.3

[Not now](#)

Save and Finish

1) Create and run a job in Jenkins for simple HelloWorld in Java

Enter an item name

helloworld

Required field

Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

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

OK

Cancel

Branch Pipeline

```
J Simple.java x
J Simple.java
1 public class Simple {
2     public static void main(String[] args) {
3         System.out.println("Hello, World!");
4     }
5 }
```


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
• @vedantterse01 →/workspaces/jenkins-testing (main) $ touch Simple.java
• @vedantterse01 →/workspaces/jenkins-testing (main) $ javac Simple.java
• @vedantterse01 →/workspaces/jenkins-testing (main) $ java Simple
Hello, World!
○ @vedantterse01 →/workspaces/jenkins-testing (main) $
```


```
• @vedantterse01 →/workspaces/jenkins-testing (main) $ git status
On branch main
Your branch is up to date with 'origin/main'.


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:   Simple.class


no changes added to commit (use "git add" and/or "git commit -a")
• @vedantterse01 →/workspaces/jenkins-testing (main) $ git add .
• @vedantterse01 →/workspaces/jenkins-testing (main) $ git commit -m "hello world"
[main 3b38df0] hello world
 1 file changed, 0 insertions(+), 0 deletions(-)
• @vedantterse01 →/workspaces/jenkins-testing (main) $ git push origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 2 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 614 bytes | 614.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/vedantterse01/jenkins-testing
 1895cdd..3b38df0  main -> main
○ @vedantterse01 →/workspaces/jenkins-testing (main) $
```


jenkins-testing


Public

Pin

Watch


main

1 Branch

0 Tags

Add file




<> Code

vedantterse01

hello world

3b38df0 · 1 minute ago

3 Commits

 README.md	Initial commit	2 days ago
 Simple.class	hello world	1 minute ago
 Simple.java	added files	2 days ago

Git

Repositories

Repository URL

Credentials

- none -

+ Add

Advanced

Build Steps


Execute shell

Command

See [the list of available environment variables](#)


```
javac Simple.java
java Simple
```

Advanced

 Status

helloworld

</> Changes

 Workspace Build Now Configure Delete Project Rename

Permalinks

- [Last build \(#2\), 51 sec ago](#)
- [Last stable build \(#2\), 51 sec ago](#)
- [Last successful build \(#2\), 51 sec ago](#)
- [Last failed build \(#1\), 1 min 37 sec ago](#)
- [Last unsuccessful build \(#1\), 1 min 37 sec ago](#)
- [Last completed build \(#2\), 51 sec ago](#)

 Build History



trend ▾

 Filter... #2

05-Sep-2025, 12:51 PM

 Status

</> Changes

 Console Output View as plain text Edit Build Information Delete build '#2' Timings Git Build Data Previous BuildConsole Output 

```
Started by user Vedant
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/helloworld
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/jenkins_home/workspace/helloworld/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/vedantterse01/jenkins-testing # timeout=10
Fetching upstream changes from https://github.com/vedantterse01/jenkins-testing
> git --version # timeout=10
> git --version # 'git version 2.39.2'
> git fetch --tags --force --progress -- https://github.com/vedantterse01/jenkins-testing +refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/main^{commit} # timeout=10
Checking out Revision 3b38df012584611b1c1044cc0c47e8447f880393 (refs/remotes/origin/main)
> git config core.sparsecheckout # timeout=10
> git checkout -f 3b38df012584611b1c1044cc0c47e8447f880393 # timeout=10
Commit message: "hello world"
First time build. Skipping changelog.
[helloworld] $ /bin/sh -xe /tmp/jenkins6973406858266088718.sh
+ javac Simple.java
+ java Simple
Hello, World!
Finished: SUCCESS
```

PART 2) configure parallel jobs for building pipeline.

Create 3 jobs: Test , Staging and Production

I)Test→Freestyle→Ok

Build Steps

≡ Execute shell ?

Command

See [the list of available environment variables](#)

```
sleep 3
echo "THIS IS TEST STAGE "
```

II)Staging→freestyle→Ok

Build Steps

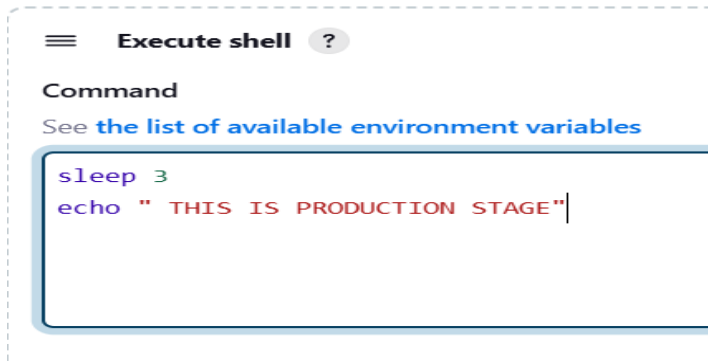
≡ Execute shell ?

Command

See [the list of available environment variables](#)

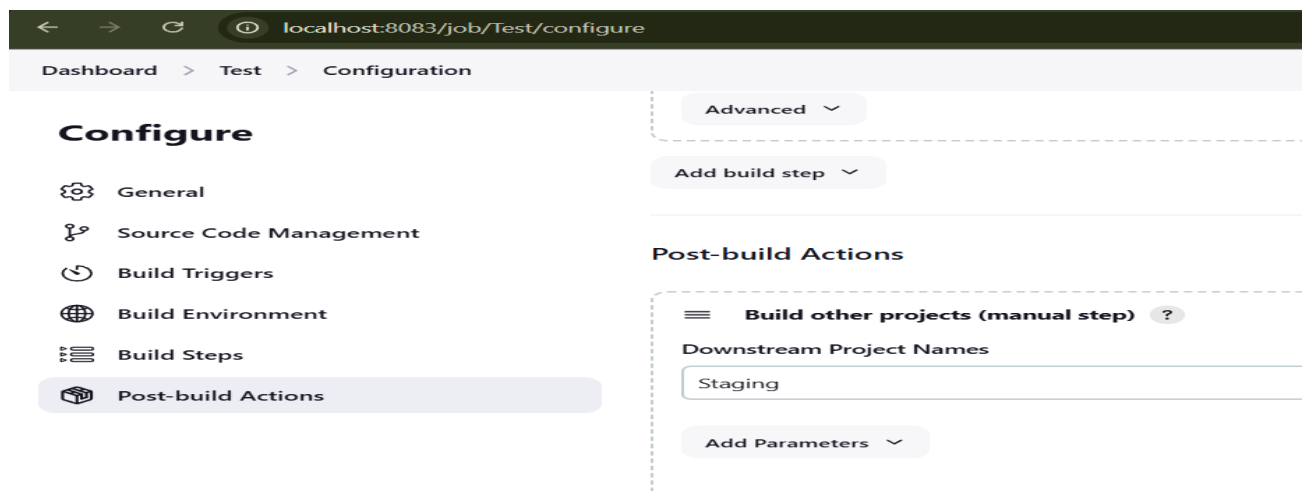
```
sleep 3
echo "THIS IS STAGING phase| "
```

III) Production→freestyle→ok



*** NOW Add post build action .**







Test→Configure→Post-Build Actions → Build other projects (manual step)→Staging



Staging→Configure→Add post build action→build other project →production

Add build step ▾

Configure

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

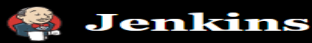
Post-build Actions








Build other projects ?


Projects to build

Production

- ☒ Trigger only if build is stable
- ☐ Trigger even if the build is unstable
- ☐ Trigger even if the build fails



-  Status
-  Changes
-  Workspace
-  Build Now
-  Configure
-  Delete Project
-  Rename

 Build History trend ▾

Staging

Upstream Projects

 Test

Downstream Projects

 Production

Permalinks

Dashboard > New view

+ New Item

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

New view

Name

CICD-demo

Type

☒ Build Pipeline View

Shows the jobs in a build pipeline view. The complete pipeline of jobs that a version propagates through are shown as a row in the view.

☐ List View

Shows items in a simple list format. You can choose which jobs are to be displayed in which view.

☐ My View

This view automatically displays all the jobs that the current user has an access to.

Create

Dashboard > CICD-demo > Configure

1 Idle

2 Idle

Pipeline Flow

Layout

Based on upstream/downstream relationship

This layout mode derives the pipeline structure based on the upstream/downstream trigger relationship between jobs. This is the only out-of-the-box supported layout i but is open for extension.

Upstream / downstream config

Select Initial Job ?

Test

Jenkins

Search (CTRL+K)

Dashboard > CICD-demo >

Build Pipeline

Run

History

Configure

Add Step

Delete

Manage

Pipeline #2

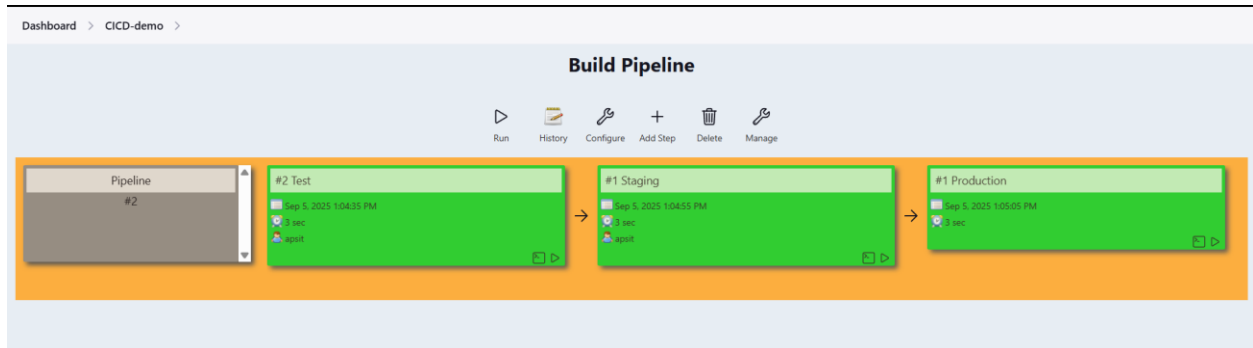
#2 Test
Sep 5, 2023 1:04:35 PM
9 sec
agent

→

Staging
N/A
N/A

→

Production
N/A
N/A



IV) QA-Test→freestyle→ok

Build Steps

≡ **Execute shell** ?

Command

See [the list of available environment variables](#)

```
echo "QA-Testing"
```

Parallel Jobs in Jenkins Build Pipeline

Post-build Actions

≡ **Build other projects** ?

Projects to build

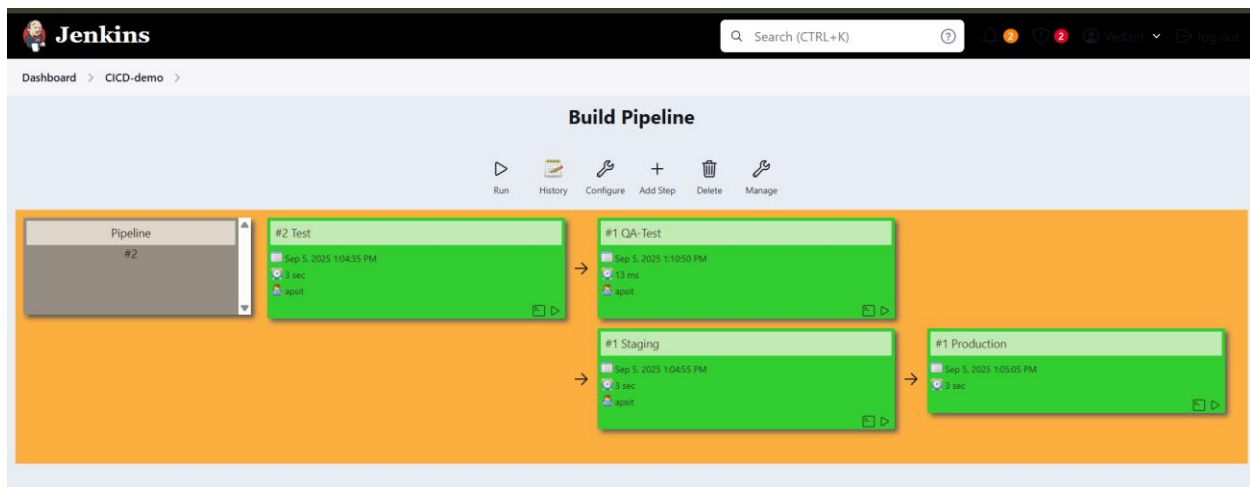
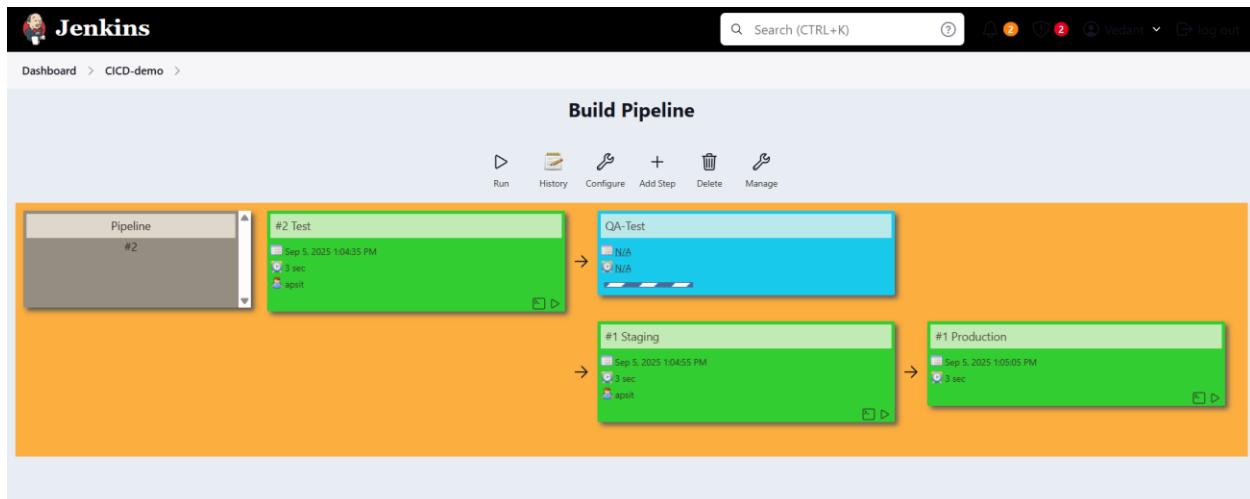
Production , QA-Test|

❗ No such project 'Q'. Did you mean 'Test'?

☒ Trigger only if build is stable

☐ Trigger even if the build is unstable

☐ Trigger even if the build fails



Conclusion:- In this experiment, we successfully installed Jenkins and explored its integration with version control systems. We also implemented parallel jobs in a pipeline, which significantly enhances CI/CD efficiency. This approach enables faster feedback cycles, quicker releases, and better resource utilization. With proper pipeline configuration, teams can achieve high productivity while maintaining software quality.