Name: Tushit Palamkar

Batch: T-13

Roll No: 69

Software Engineering and Project Management

EXPERIMENT – 4

AIM: To To understand Continuous Integration, install and configure Jenkins with Maven/Ant/Gradle to setup a build Job.

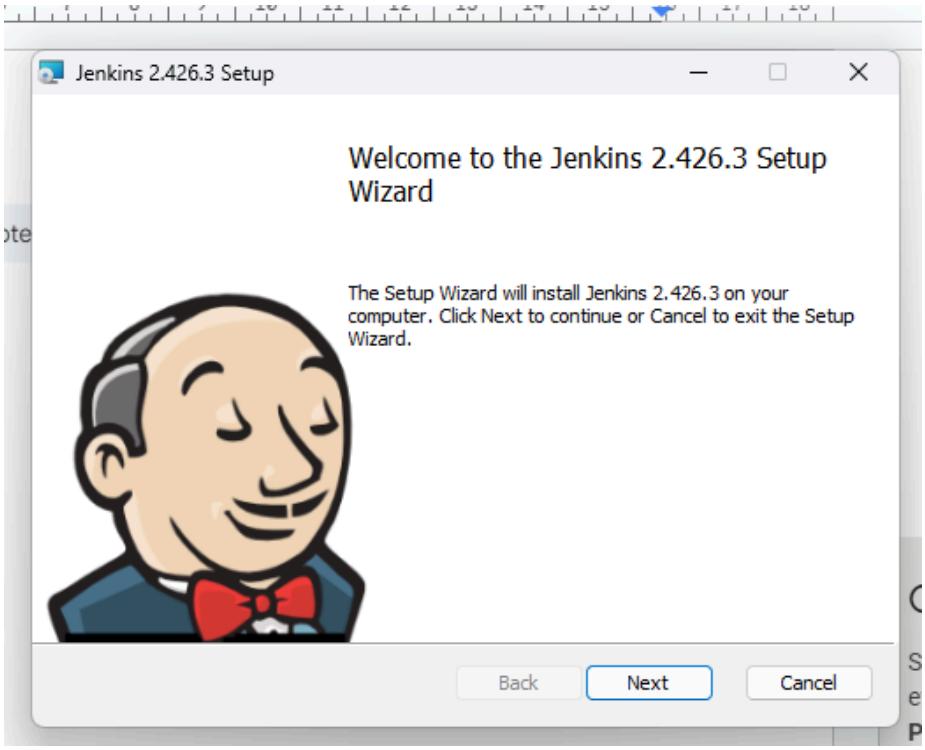
THEORY:

Jenkins is an open-source automation tool written in Java with plugins built for Continuous Integration purpose. Jenkins is used to build and test your software projects continuously making it easier for developers to integrate changes to the project and making it easier for users to obtain a fresh build. It also allows you to continuously deliver your software by integrating with many testing and deployment technologies.

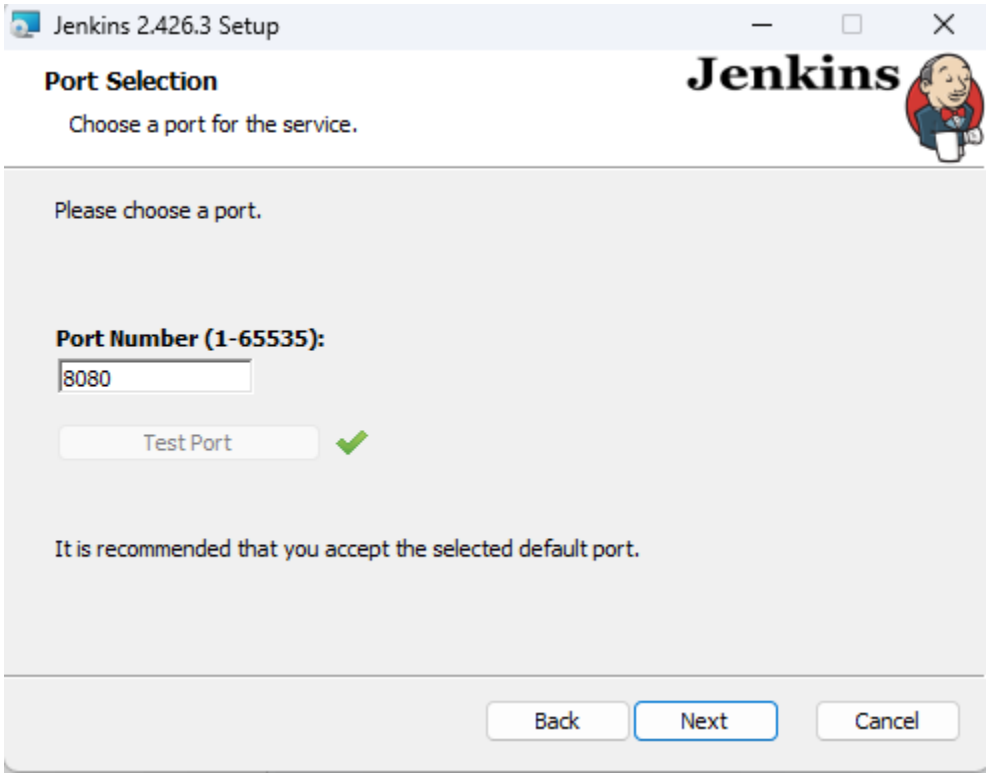
Jenkins simplifies and accelerates the software development lifecycle. By automating repetitive tasks, it reduces the chance of errors, provides faster feedback to developers, and enables more frequent software releases. This automation helps teams to deliver software more quickly and with higher quality. It is a valuable tool for any team looking to improve their software development workflow.

The Steps to install Jenkins and implement the jobs are given below as:

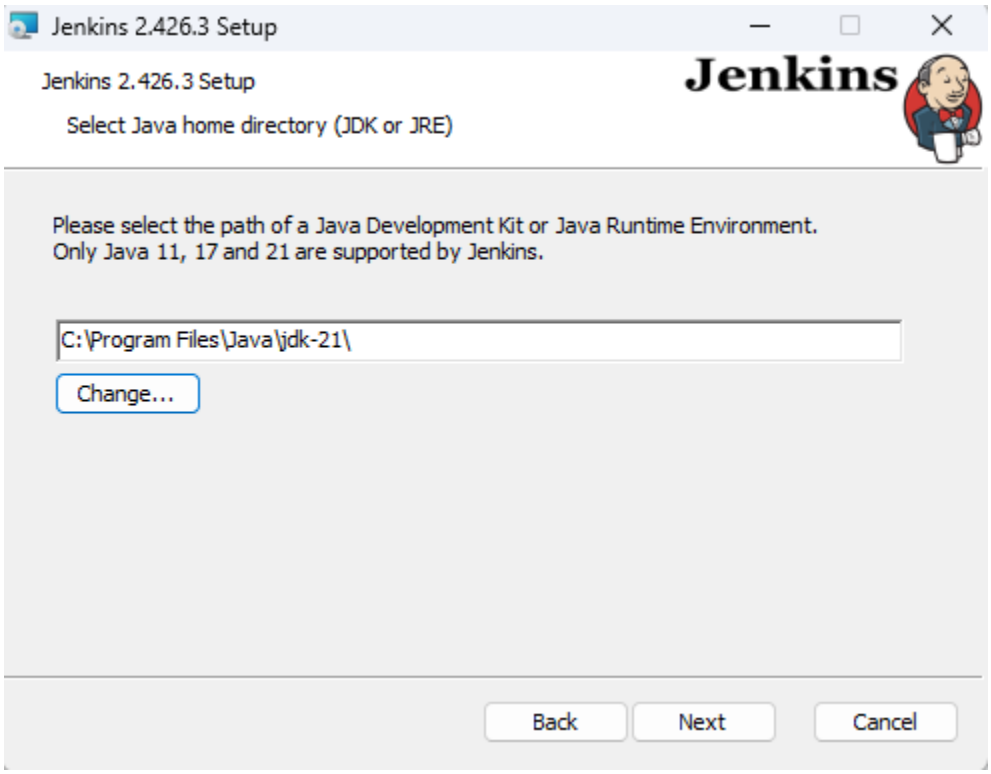
Step 1:


Jenkins 2.426.3 Setup
Welcome to the Jenkins 2.426.3 Setup Wizard
The Setup Wizard will install Jenkins 2.426.3 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Back
Next
Cancel

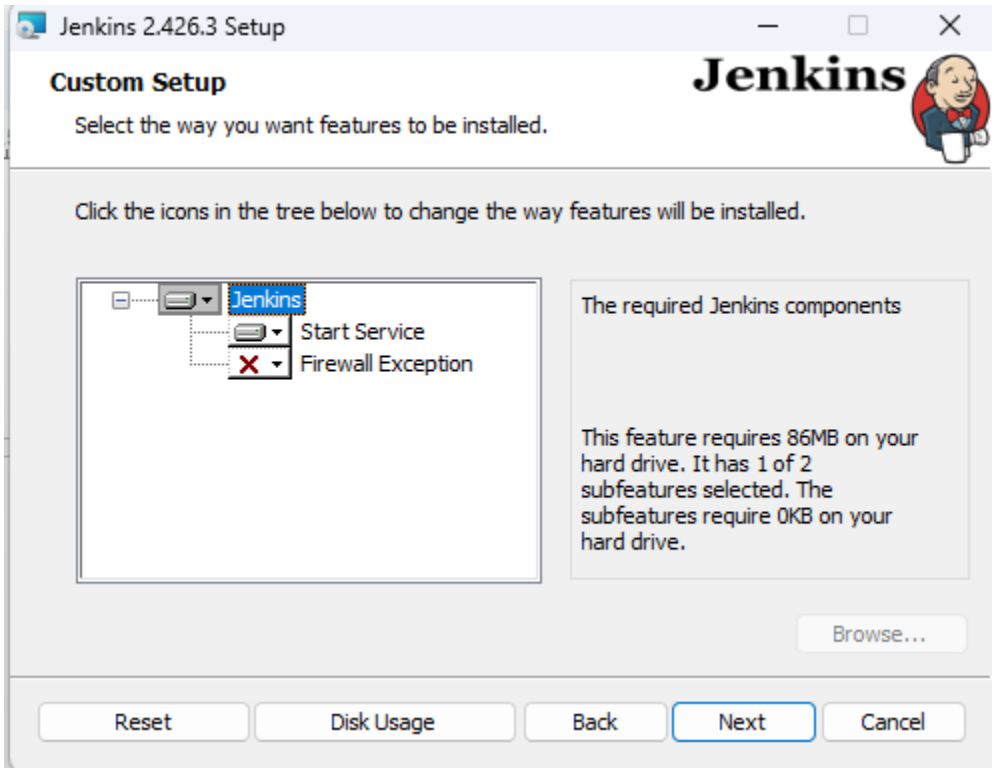
Step 2:


Jenkins 2.426.3 Setup
Port Selection
Choose a port for the service.
Jenkins
Please choose a port.
Port Number (1-65535):
8080
Test Port
It is recommended that you accept the selected default port.
Back
Next
Cancel

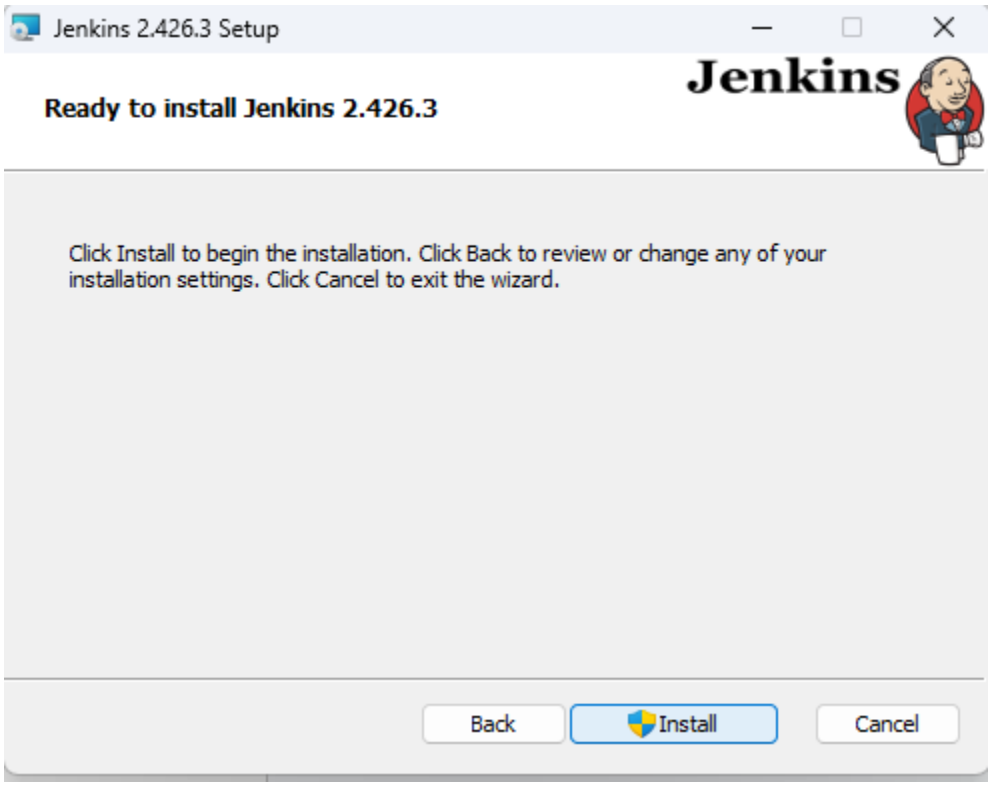
Step 3:


Jenkins 2.426.3 Setup
Jenkins 2.426.3 Setup
Select Java home directory (JDK or JRE)
Jenkins
Please select the path of a Java Development Kit or Java Runtime Environment.
Only Java 11, 17 and 21 are supported by Jenkins.
C:\Program Files\Java\jdk-21\
Change...
Back
Next
Cancel

Step 4:


Jenkins 2.426.3 Setup
Custom Setup
Select the way you want features to be installed.
Jenkins
Click the icons in the tree below to change the way features will be installed.
Jenkins
Start Service
Firewall Exception
The required Jenkins components
This feature requires 86MB on your hard drive. It has 1 of 2 subfeatures selected. The subfeatures require 0KB on your hard drive.
Browse...
Reset
Disk Usage
Back
Next
Cancel

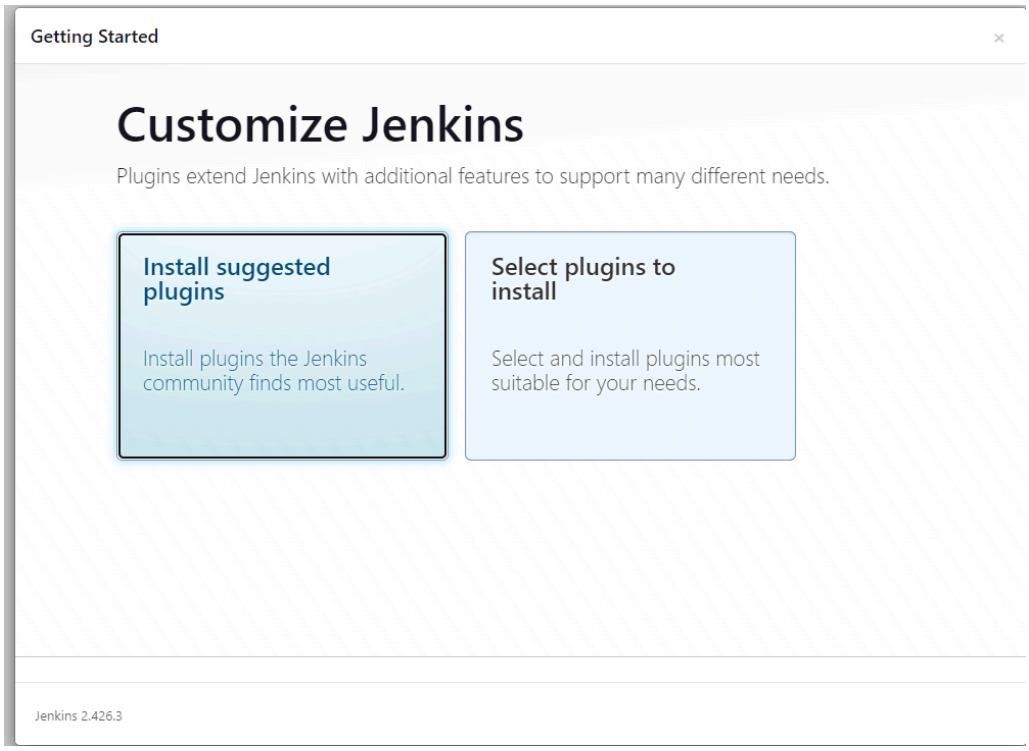
Step 5:


Jenkins 2.426.3 Setup
Ready to install Jenkins 2.426.3
Jenkins
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

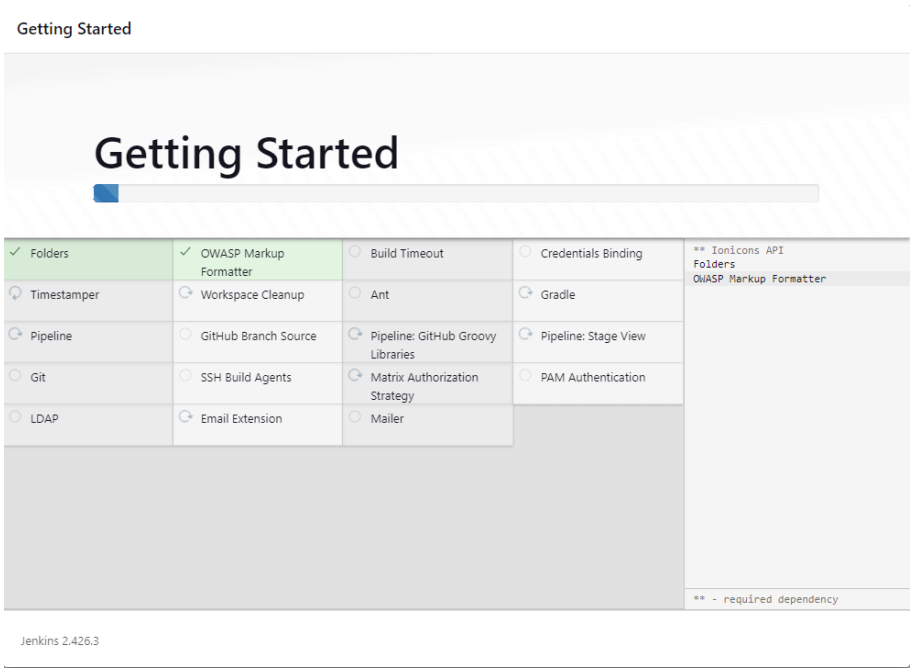
Step 6:


Jenkins 2.426.3 Setup
Completed the Jenkins 2.426.3 Setup Wizard
Click the Finish button to exit the Setup Wizard.
Back
Finish
Cancel

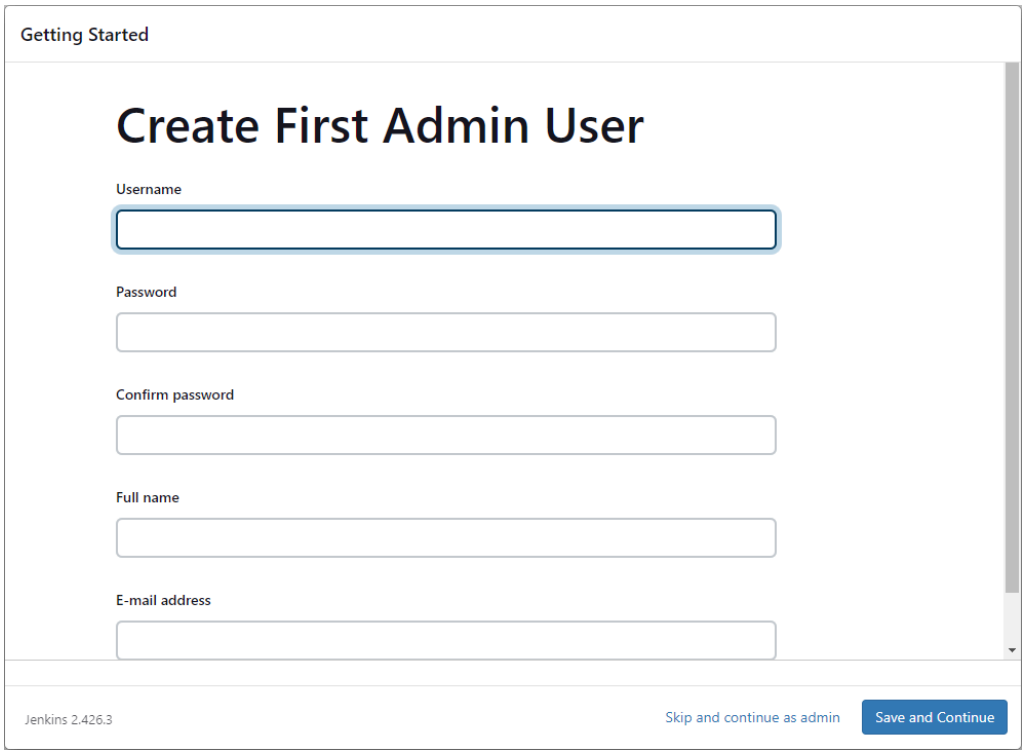
Step 7:


Getting Started
Customize Jenkins
Plugins extend Jenkins with additional features to support many different needs.
Install suggested plugins
Install plugins the Jenkins community finds most useful.
Select plugins to install
Select and install plugins most suitable for your needs.
Jenkins 2.426.3

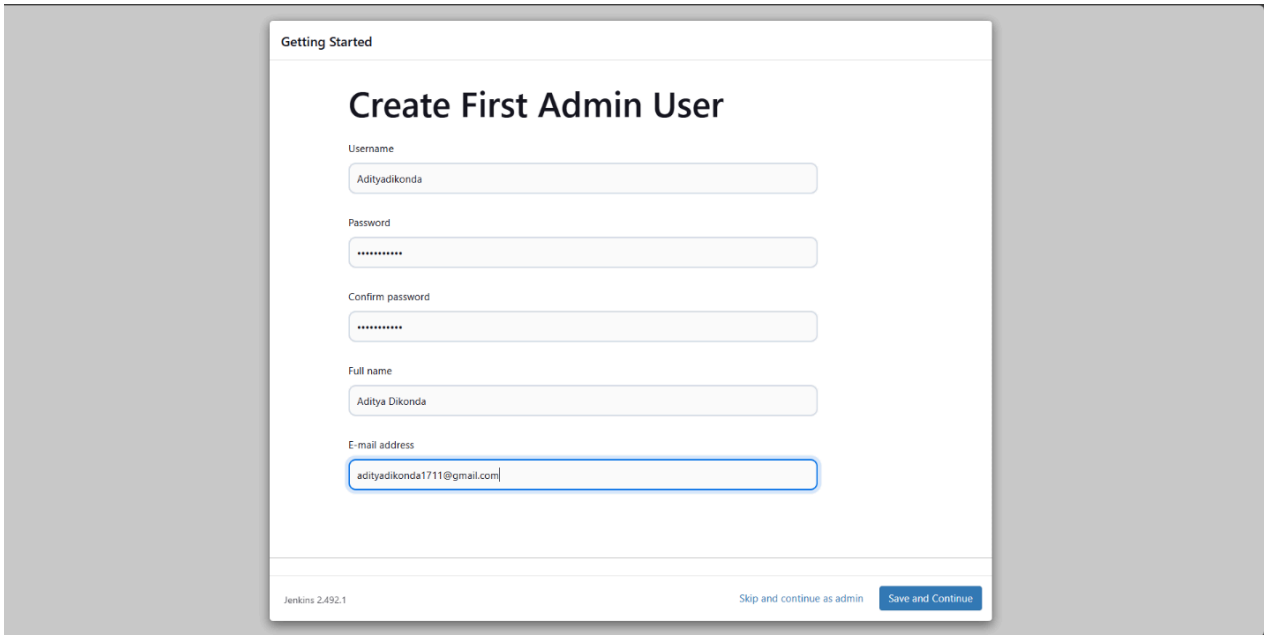
Step 8:


Getting Started
Getting Started
Folders
OWASP Markup Formatter
Build Timeout
Credentials Binding
Timestamper
Workspace Cleanup
Ant
Gradle
Pipeline
GitHub Branch Source
Pipeline: GitHub Groovy Libraries
Pipeline: Stage View
Git
SSH Build Agents
Matrix Authorization Strategy
PAM Authentication
LDAP
Email Extension
Mailer
** Ionicons API
Folders
OWASP Markup Formatter
** - required dependency
Jenkins 2.426.3

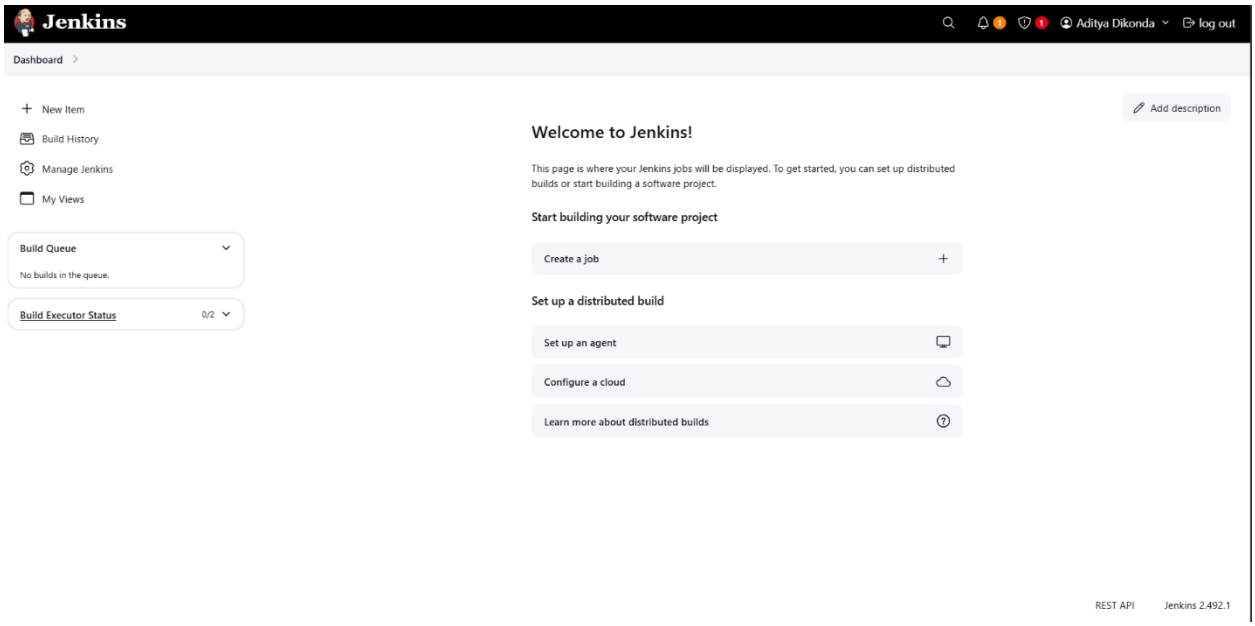
Step 9:



Step 10:



Step 11:



CONCLUSION: Jenkins with Maven simplifies Continuous Integration, automating builds and improving project efficiency for faster development cycles and higher software quality.