

## Experiment-04

**AIM:** Jenkins Installation and Setup: Explore the Environment

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**Objective:** To install Jenkins, perform initial setup, and explore the Jenkins environment for automation tasks.

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### Software Requirements

- Java installed (JDK 11 or higher)
  - Jenkins package (<https://www.jenkins.io/download/>)
  - Web browser
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### Lab Procedure

1. Install Java (If Not Installed)

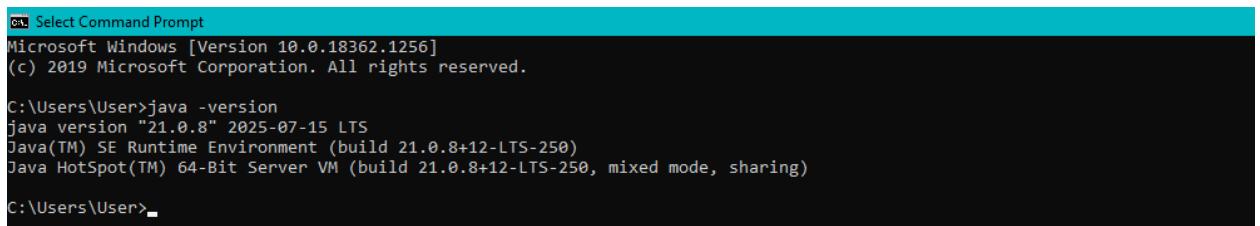
sudo apt update

sudo apt install openjdk-11-jdk

java –version

#### Steps to install jdk

- search for jdk download
- go to the first link of oracle and click jdk 21 and download x64 installer
- give the permissions and install it
- go to command prompt and click java –version to know the version of java



```
cmd Select Command Prompt
Microsoft Windows [Version 10.0.18362.1256]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\User>java -version
java version "21.0.8" 2025-07-15 LTS
Java(TM) SE Runtime Environment (build 21.0.8+12-LTS-250)
Java HotSpot(TM) 64-Bit Server VM (build 21.0.8+12-LTS-250, mixed mode, sharing)

C:\Users\User>
```

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### 2. Install Jenkins

**For Ubuntu/Debian:**

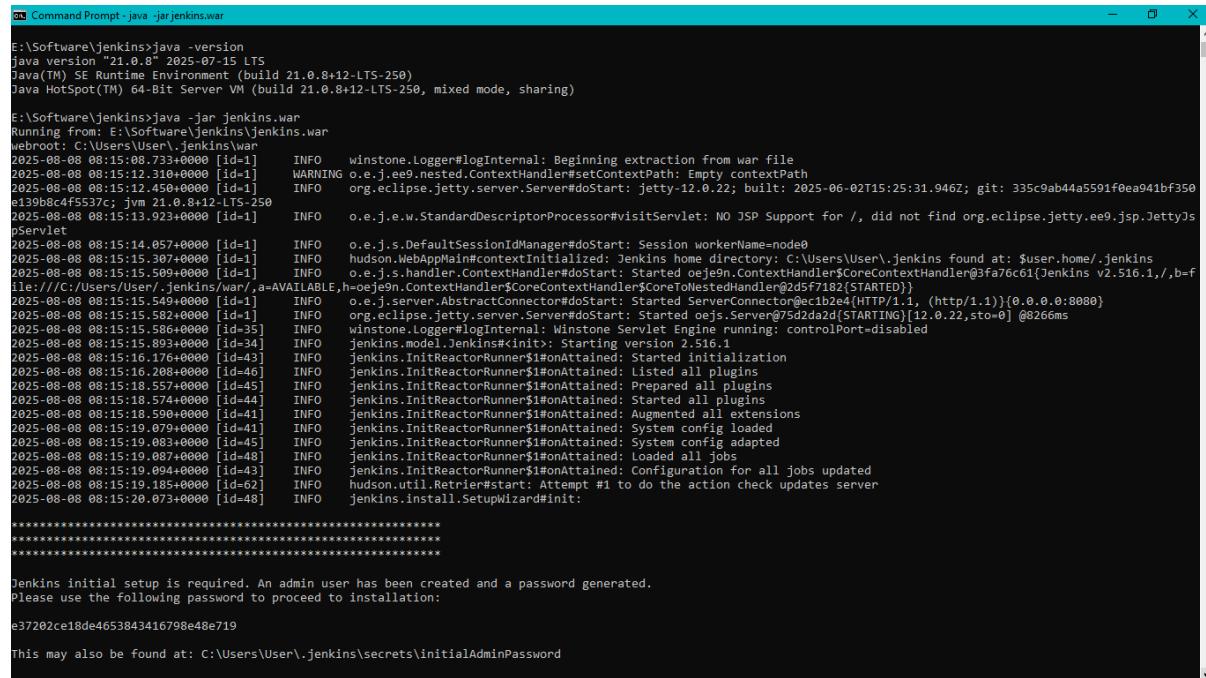
```
wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add -
sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ > /etc/apt/sources.list.d/jenkins.list'
sudo apt update
sudo apt install Jenkins
```

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## Steps to install and setup Jenkins

1. search for Jenkins download
2. go to the first link ([Download and deploy \(jenkins.io\)](#))
3. now click on java generic package and download it
4. Now to run Jenkins go to command prompt and navigate to the folder where generic java package.war (Jenkins.war) is downloaded
5. Now run this command

```
java -jar jenkins.war
```



The screenshot shows a Windows Command Prompt window with the title 'Command Prompt - java -jar jenkins.war'. The command 'java -jar jenkins.war' is entered and executed. The output log shows the Java runtime environment details, the extraction of the war file, and the Jenkins startup process. It includes logs from various components like Winstone, Hudson, and Jenkins, detailing the initialization of the application, loading of plugins, and configuration of reactor runners. A message at the end indicates that Jenkins initial setup is required and provides the generated password.

```
E:\Software\jenkins>java -version
java version "21.0.8" 2025-07-15 LTS
Java(TM) SE Runtime Environment (build 21.0.8+12-LTS-250)
Java HotSpot(TM) 64-Bit Server VM (build 21.0.8+12-LTS-250, mixed mode, sharing)

E:\Software\jenkins>java -jar jenkins.war
Running from: E:\Software\jenkins\jenkins.war
webroot: C:\Users\User\.jenkins\war
2025-08-08 08:15:08.733+0000 [id=1] INFO  winstone.Logger#logInternal: Beginning extraction from war file
2025-08-08 08:15:12.310+0000 [id=1] WARNING o.e.j.e9.nested.ContextHandler#setContextPath: Empty contextPath
2025-08-08 08:15:12.456+0000 [id=1] INFO  org.eclipse.jetty.server.Server#doStart: jetty-12.0.22; built: 2025-06-02T15:25:31.946Z; git: 335c9ab44a5591f0ea941bf350e1398c4f5537c; jvm 21.0.8+12-LTS-250
2025-08-08 08:15:13.923+0000 [id=1] INFO  o.e.j.e.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclipse.jetty.ee9.jsp.JettyJspServlet
2025-08-08 08:15:14.057+0000 [id=1] INFO  o.e.j.s.DefaultSessionIdManager#doStart: Session workerName=node0
2025-08-08 08:15:15.307+0000 [id=1] INFO  hudson.WebAppMain#contextInitialized: Jenkins home directory: C:\Users\User\.jenkins found at: $user.home/.jenkins
2025-08-08 08:15:15.509+0000 [id=1] INFO  o.e.j.s.handler.ContextHandler#doStart: Started oej9n.ContextHandler$CoreTolestedHandler@3fa76c61{Jenkins v2.516.1., ,b=16 // C:/Users/User/.jenkins/war/, a=AVAILABLE,h=oej9n.ContextHandler$CoreTolestedHandler@2d5f1182[STARTED]}
2025-08-08 08:15:15.549+0000 [id=1] INFO  o.e.j.s.server.AbstractConnector#doStart: Started ServerConnector@ec1be4{HTTP/1.1, (http/1.1)}{0.0.0.0:8080}
2025-08-08 08:15:15.582+0000 [id=1] INFO  org.eclipse.jetty.Server#doStart: Started oejs.Server@5d2da2d{STARTING}[12.0.22,sto=0] @8266ms
2025-08-08 08:15:15.586+0000 [id=35] INFO  winstone.Logger#logInternal: Winstone Servlet Engine running; controlPort=disabled
2025-08-08 08:15:15.893+0000 [id=34] INFO  jenkins.model.Jenkins#init(): Starting version 2.516.1
2025-08-08 08:15:16.176+0000 [id=43] INFO  jenkins.InitReactorRunner$1#onAttained: Started Initialization
2025-08-08 08:15:16.288+0000 [id=46] INFO  jenkins.InitReactorRunner$1#onAttained: Listed all plugins
2025-08-08 08:15:18.357+0000 [id=45] INFO  jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
2025-08-08 08:15:18.574+0000 [id=44] INFO  jenkins.InitReactorRunner$1#onAttained: Started all plugins
2025-08-08 08:15:18.596+0000 [id=41] INFO  jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
2025-08-08 08:15:19.079+0000 [id=41] INFO  jenkins.InitReactorRunner$1#onAttained: System config loaded
2025-08-08 08:15:19.083+0000 [id=45] INFO  jenkins.InitReactorRunner$1#onAttained: System config adapted
2025-08-08 08:15:19.087+0000 [id=48] INFO  jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
2025-08-08 08:15:19.094+0000 [id=43] INFO  jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
2025-08-08 08:15:19.185+0000 [id=62] INFO  hudson.util.Retrier#start: Attempt #1 to do the action check updates server
2025-08-08 08:15:20.073+0000 [id=48] INFO  jenkins.install.SetupWizard#init:
*****
***** Jenkins initial setup is required. An admin user has been created and a password generated.
***** Please use the following password to proceed to installation:
***** e37202ce18de4653843416798e48e719
***** This may also be found at: C:\Users\User\.jenkins\secrets\initialAdminPassword
```

## For RedHat/CentOS:

Follow instructions from the official Jenkins website.

## Start Jenkins Service

```
sudo systemctl start jenkins  
sudo systemctl enable jenkins  
sudo systemctl status jenkins
```

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- Now a password will be generated, Copy that password
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## 7. Access Jenkins Web Interface

- Open a web browser and navigate to:

<http://localhost:8080>

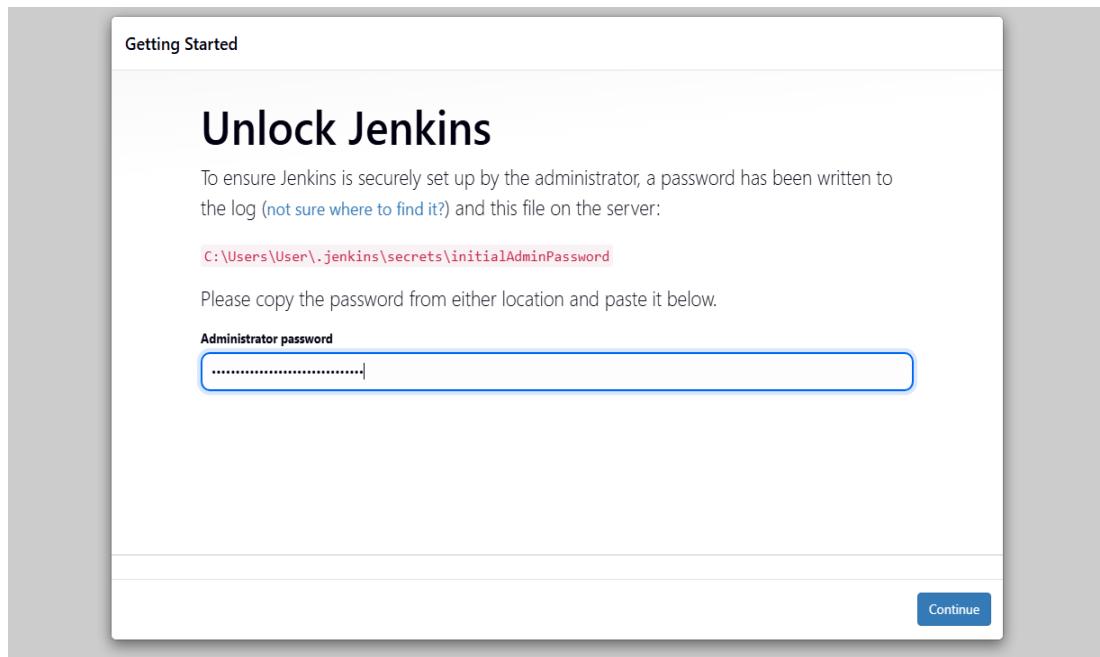
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## 8. Unlock Jenkins

- Retrieve the administrator password:

```
sudo cat /var/lib/jenkins/secrets/initialAdminPassword
```

- Paste the password into the Jenkins setup wizard.

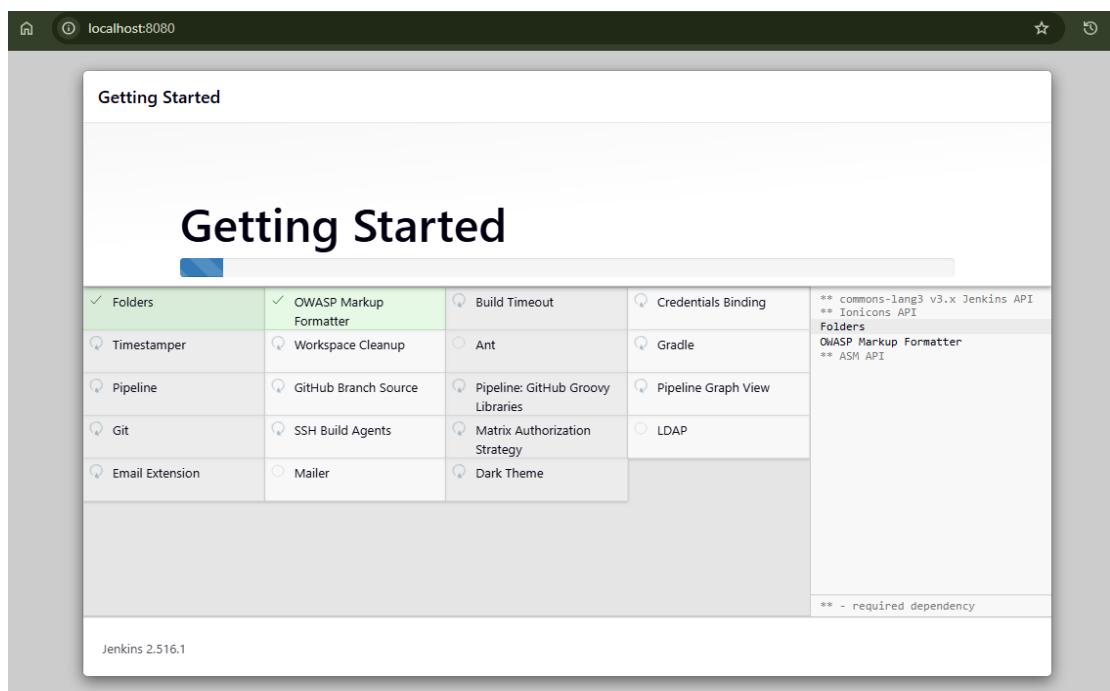
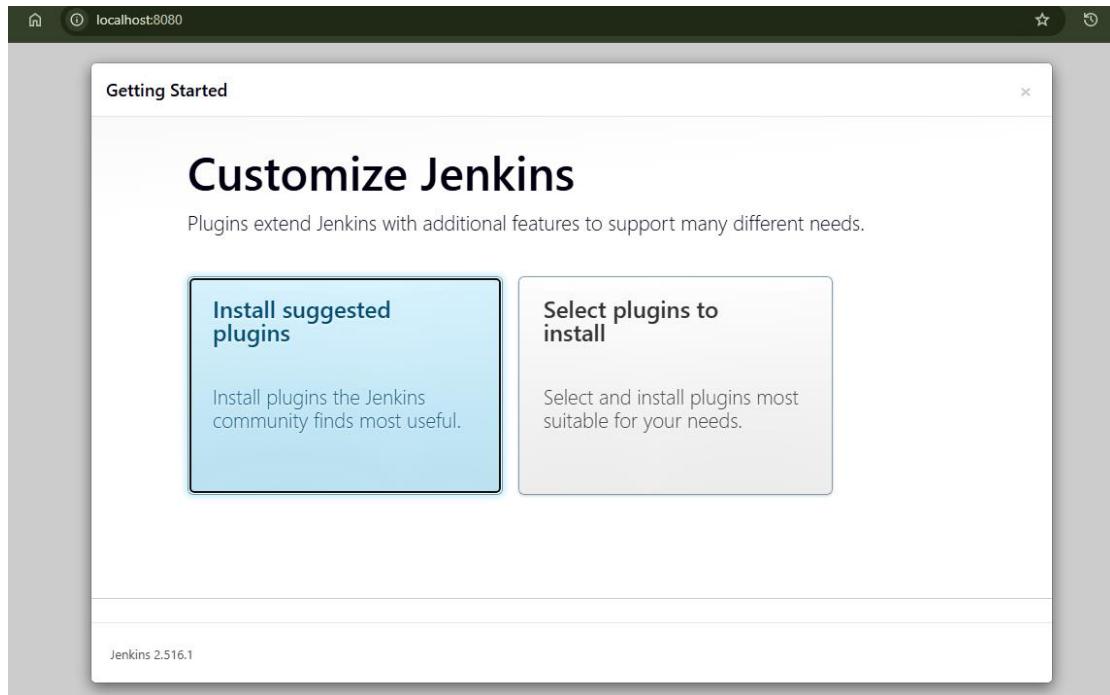


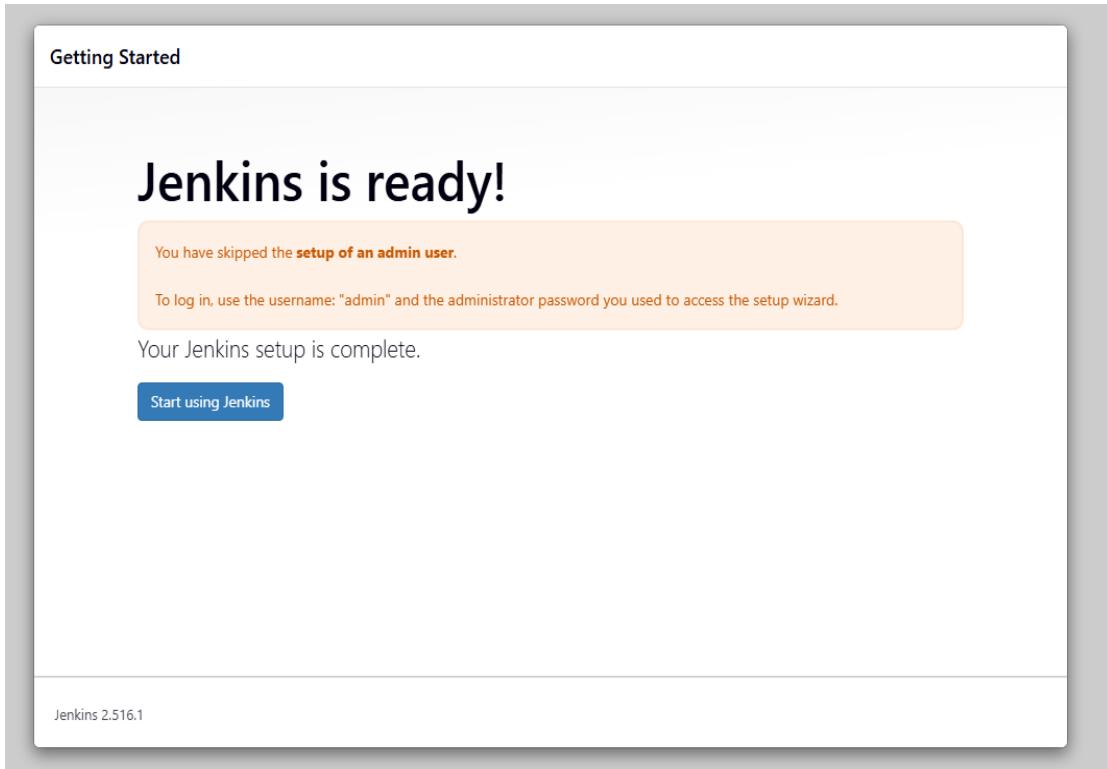
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## 9. Install Suggested Plugins

- Choose **Install suggested plugins** when prompted.

- Wait for installation to complete.





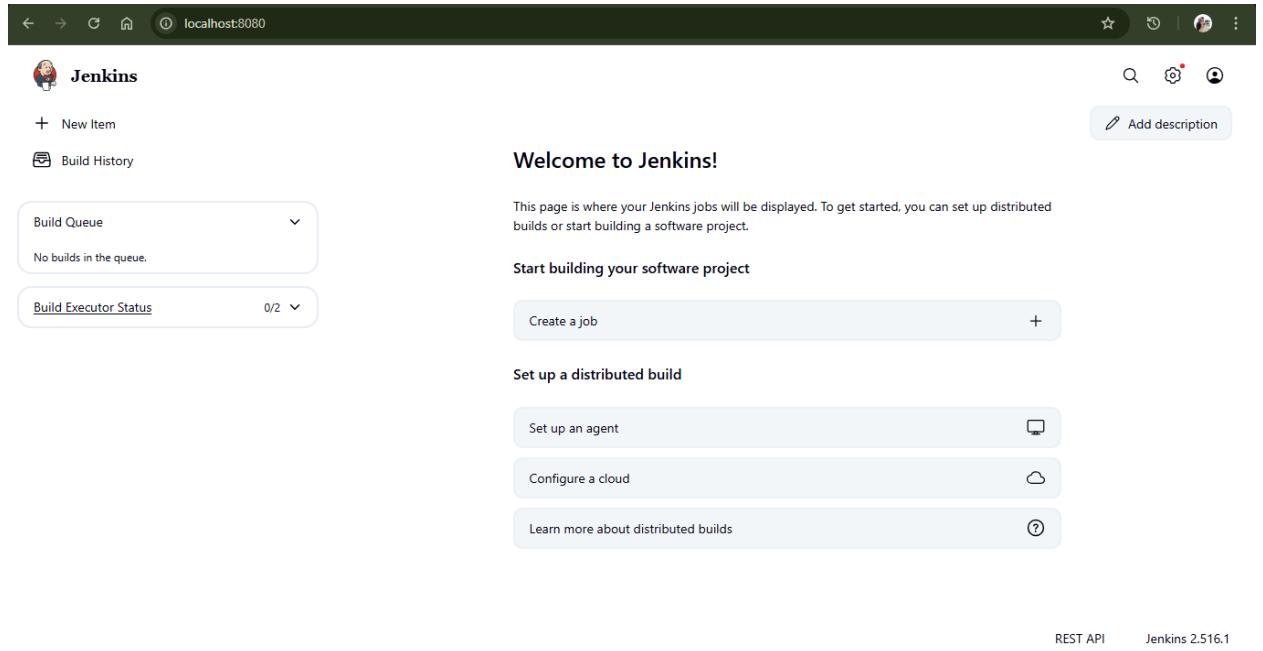
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## 10. Create First Admin User

- Enter details like username, password, full name, and email address.
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## 11. Explore Jenkins Dashboard

- View Jenkins dashboard interface.
  - Explore options like **New Item**, **Manage Jenkins**, **Build History**, and **Credentials**.
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## 12. Verify Installation

- Create a simple freestyle project.
- Run the project to verify Jenkins build functionality.

## Conclusion

- Students should be able to install and configure Jenkins.
- Explore the Jenkins environment for automating builds and tasks.
- Understand Jenkins dashboard and management interface.