Experiment 07

Roll No.	70
Name	MAYURI SHRIDATTA YERANDE
Class	D15-B
Subject	DevOps Lab
LO Mapped	LO1: To understand the fundamentals of DevOps engineering and be fully proficient with DevOps terminologies, concepts, benefits, and deployment options to meet your business requirements LO2: To obtain complete knowledge of the "version control system" to effectively track changes augmented with Git and GitHub

Aim: To understand Jenkins Master- Slave Architecture and scale your Jenkins standalone implementation by implementing slave nodes.

Theory:

Jenkins Master

Your main Jenkins server is the Master.

The Master's job is to handle:

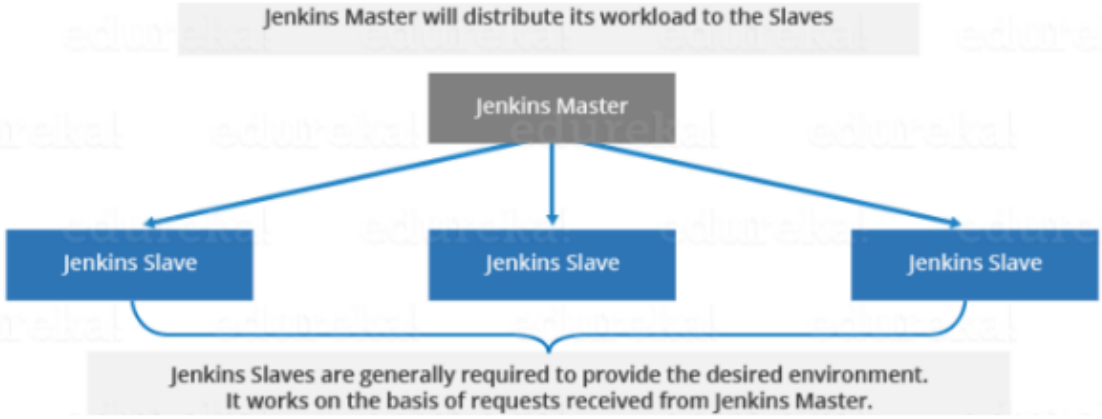
- Scheduling build jobs.
- Dispatching builds to the slaves for the actual execution.
- Monitor the slaves (possibly taking them online and offline as required).
- Recording and presenting the build results.
- A Master instance of Jenkins can also execute build jobs directly.

Jenkins Slave

A Slave is a Java executable that runs on a remote machine.

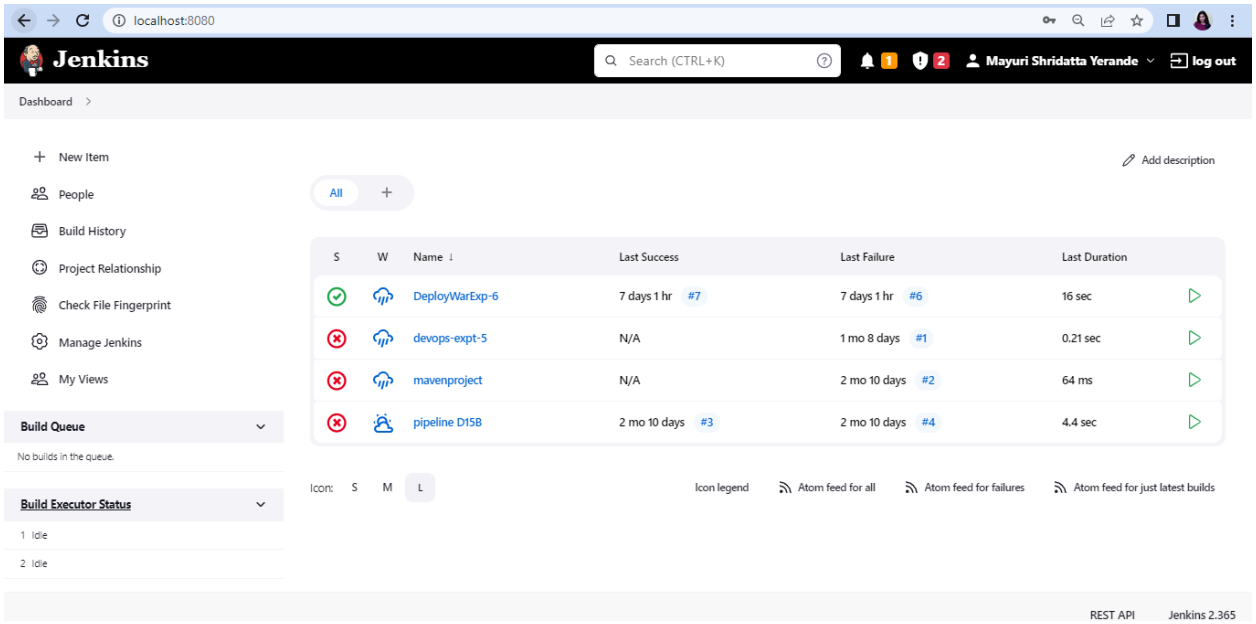
Following are the characteristics of Jenkins Slaves:

- It hears requests from the Jenkins Master instance.
- Slaves can run on a variety of operating systems.
- The job of a Slave is to do as they are told to, which involves executing build jobs dispatched by the Master.
- You can configure a project to always run on a particular Slave machine or a particular type of Slave machine, or simply let Jenkins pick the next available Slave.

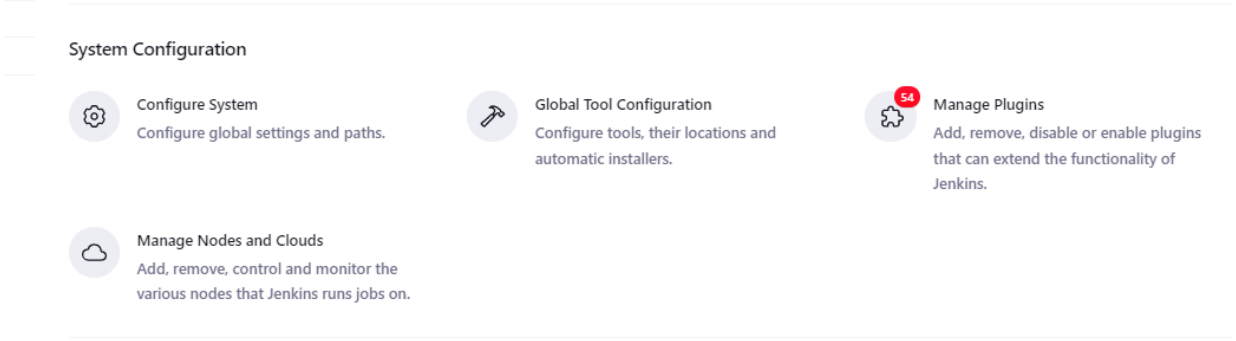


Implementation:

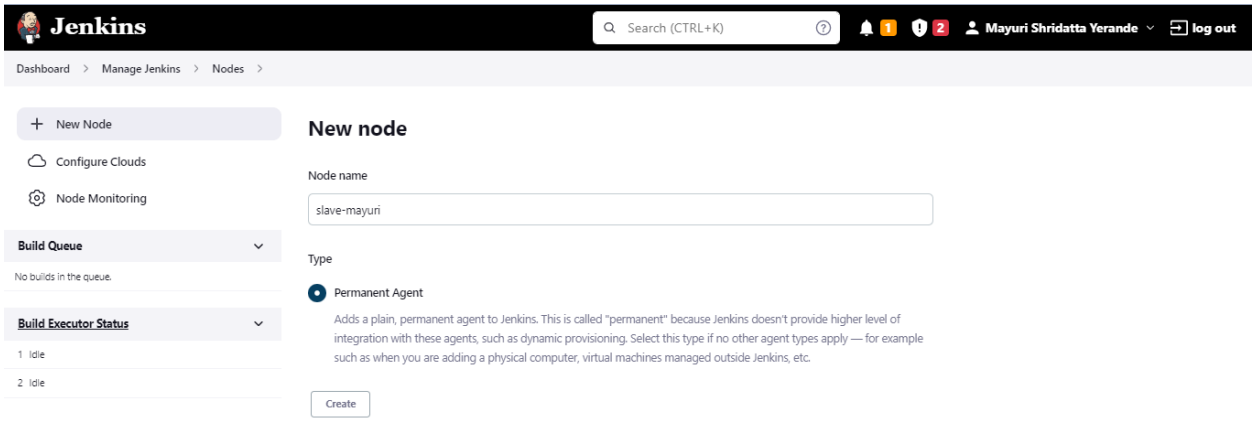
- **Open your jenkins dashboard**



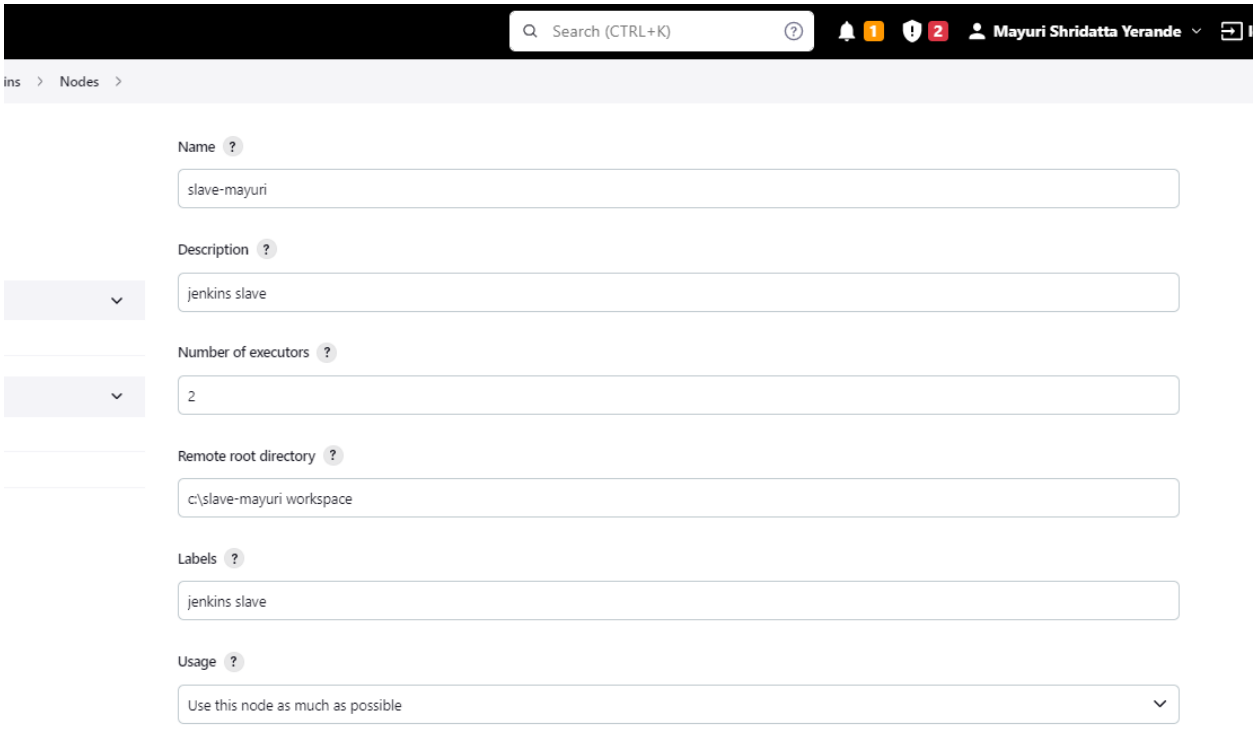
- **Go to “manage jenkins”**
- **Go to “manage nodes and clouds”**



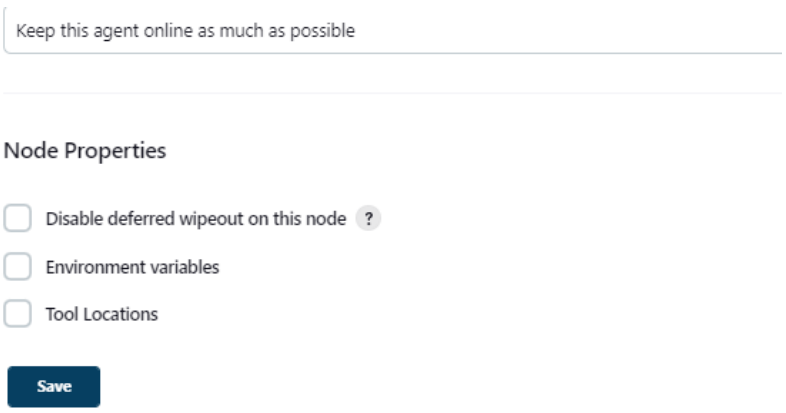
- **Click on new node**
- **Name your node (like slave-mayuri)**

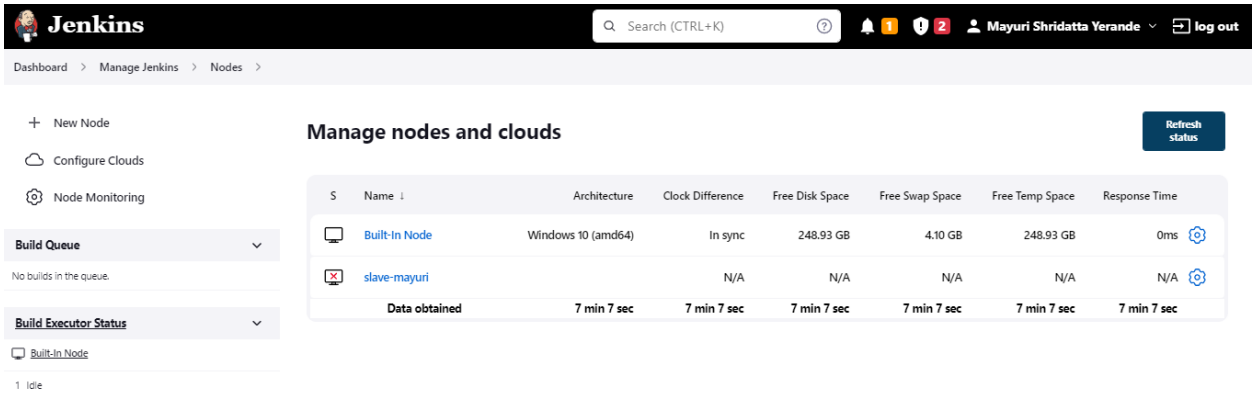


- **Fill the given details**

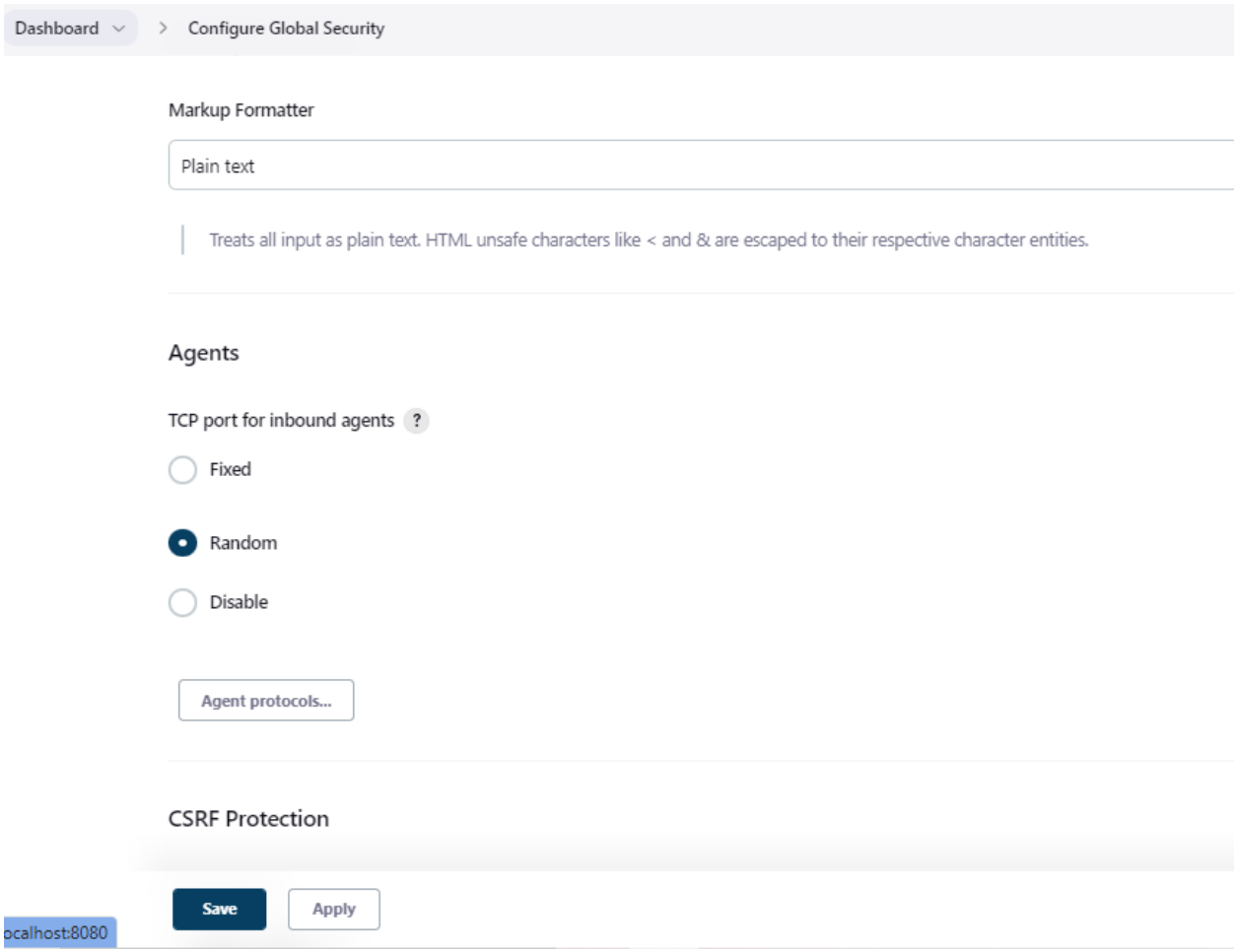


- **Click on save**

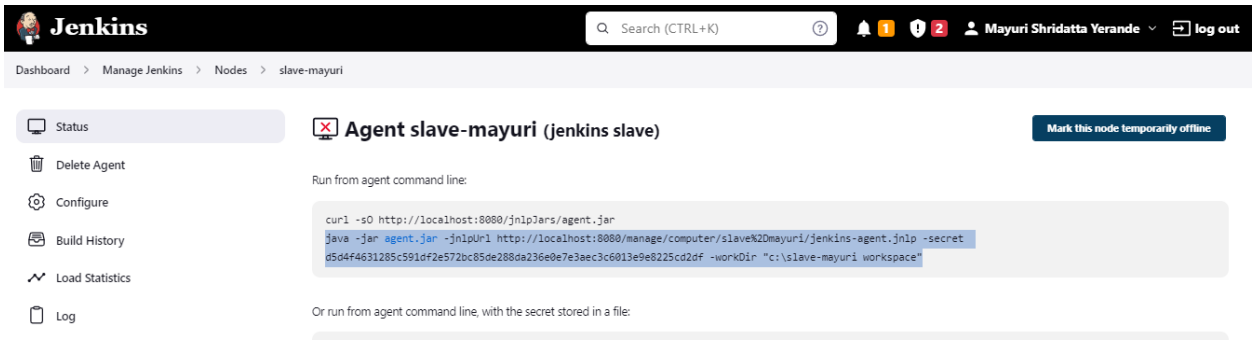




- **Go to “configure global security” and do the following changes (after that, apply and save it)**



- **Go and check your node now**
- **Copy this line**



- **Go to command prompt and paste the copied line**

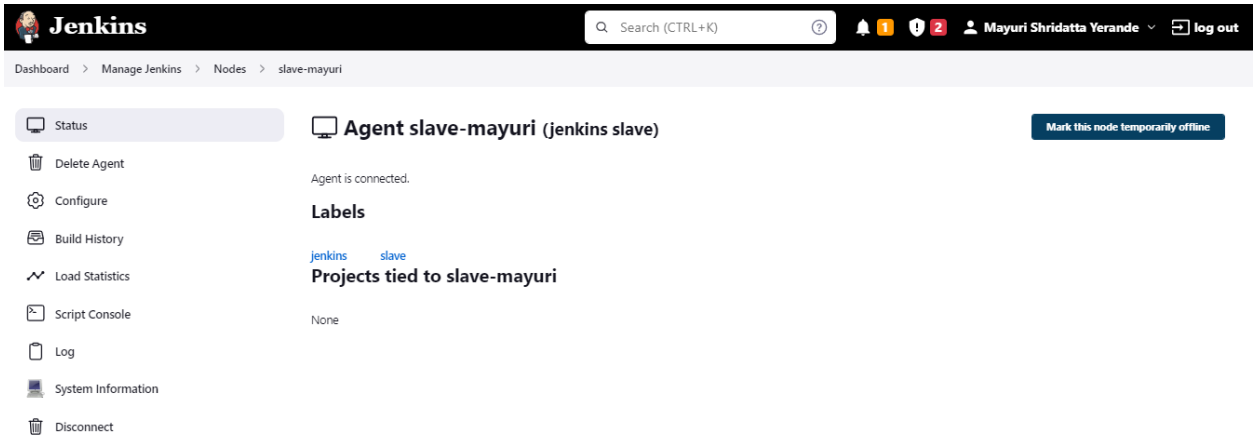
```
Microsoft Windows [Version 10.0.19044.2006]
(c) Microsoft Corporation. All rights reserved.

C:\Users\mayuri>java -jar agent.jar -jnlpUrl http://localhost:8080/manage/computer/slave%2Dmayuri/jenkins-agent.jnlp -se
cret d5d4f4631285c591df2e572bc85de288da236e0e7e3aec3c6013e9e8225cd2df -workDir "c:\slave-mayuri workspace
```

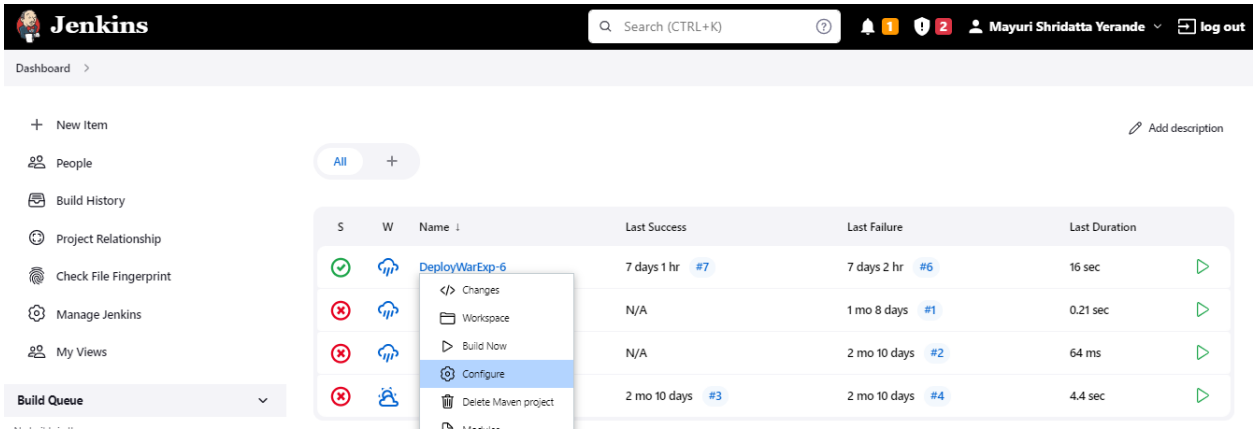
```
C:\Users\mayuri\Downloads>java -jar agent.jar -jnlpUrl http://localhost:8080/manage/computer/slave%2Dmayuri/jenkins-agen
t.jnlp -secret d5d4f4631285c591df2e572bc85de288da236e0e7e3aec3c6013e9e8225cd2df -workDir "c:\slave-mayuri workspace"
Oct 07, 2022 8:26:32 PM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using c:\slave-mayuri workspace\remoting as a remoting work directory
Oct 07, 2022 8:26:32 PM org.jenkinsci.remoting.engine.WorkDirManager setupLogging
INFO: Both error and output logs will be printed to c:\slave-mayuri workspace\remoting
Oct 07, 2022 8:26:33 PM hudson.remoting.jnlp.Main createEngine
INFO: Setting up agent: slave-mayuri
Oct 07, 2022 8:26:33 PM hudson.remoting.Engine startEngine
INFO: Using Remoting version: 3046.v38db_38a_b_7a_86
Oct 07, 2022 8:26:33 PM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using c:\slave-mayuri workspace\remoting as a remoting work directory
```

```
Select C:\Windows\System32\cmd.exe - java -jar agent.jar -jnlpUrl http://localhost:8080/manage/computer/slave%2Dmayuri/jenkins-agent.jnlp -secre...
Oct 07, 2022 8:26:32 PM org.jenkinsci.remoting.engine.WorkDirManager setupLogging
INFO: Both error and output logs will be printed to c:\slave-mayuri workspace\remoting
Oct 07, 2022 8:26:33 PM hudson.remoting.jnlp.Main createEngine
INFO: Setting up agent: slave-mayuri
Oct 07, 2022 8:26:33 PM hudson.remoting.Engine startEngine
INFO: Using Remoting version: 3046.v38db_38a_b_7a_86
Oct 07, 2022 8:26:33 PM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using c:\slave-mayuri workspace\remoting as a remoting work directory
Oct 07, 2022 8:26:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Locating server among [http://localhost:8080/]
Oct 07, 2022 8:26:33 PM org.jenkinsci.remoting.engine.JnlpAgentEndpointResolver resolve
INFO: Remoting server accepts the following protocols: [JNLP4-connect, Ping]
Oct 07, 2022 8:26:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Agent discovery successful
  Agent address: localhost
  Agent port:    18860
  Identity:      91:3b:8a:f4:58:67:1f:b3:f4:c9:2b:e8:89:bd:8e:34
Oct 07, 2022 8:26:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Handshaking
Oct 07, 2022 8:26:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connecting to localhost:18860
Oct 07, 2022 8:26:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Trying protocol: JNLP4-connect
Oct 07, 2022 8:26:33 PM org.jenkinsci.remoting.protocol.impl.BIONetworkLayer$Reader run
INFO: Waiting for ProtocolStack to start.
Oct 07, 2022 8:26:34 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Remote identity confirmed: 91:3b:8a:f4:58:67:1f:b3:f4:c9:2b:e8:89:bd:8e:34
Oct 07, 2022 8:26:34 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connected
```

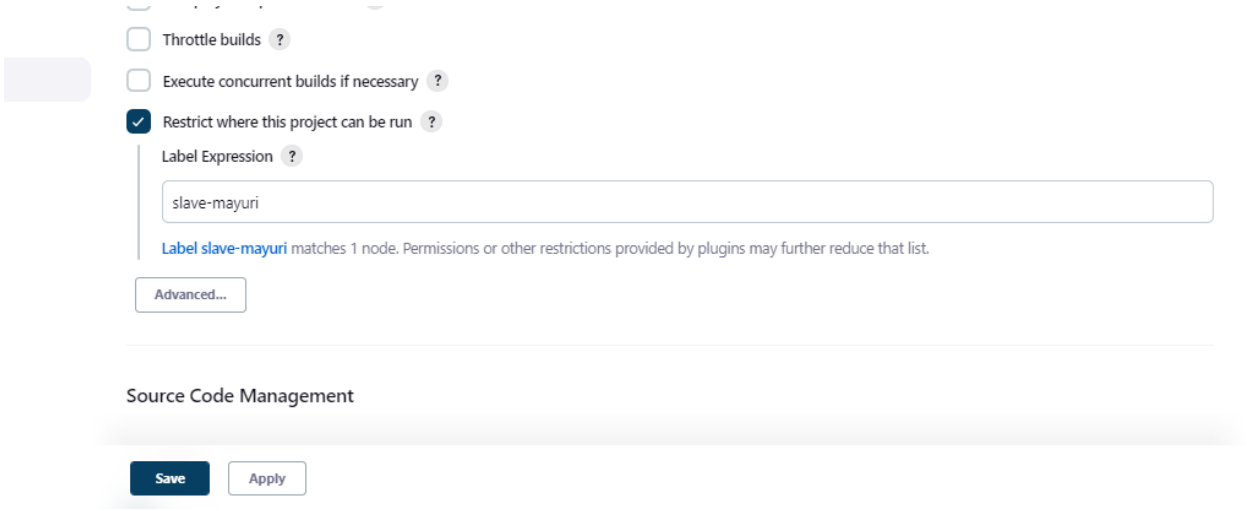
- **Thus now the agent is connected.**



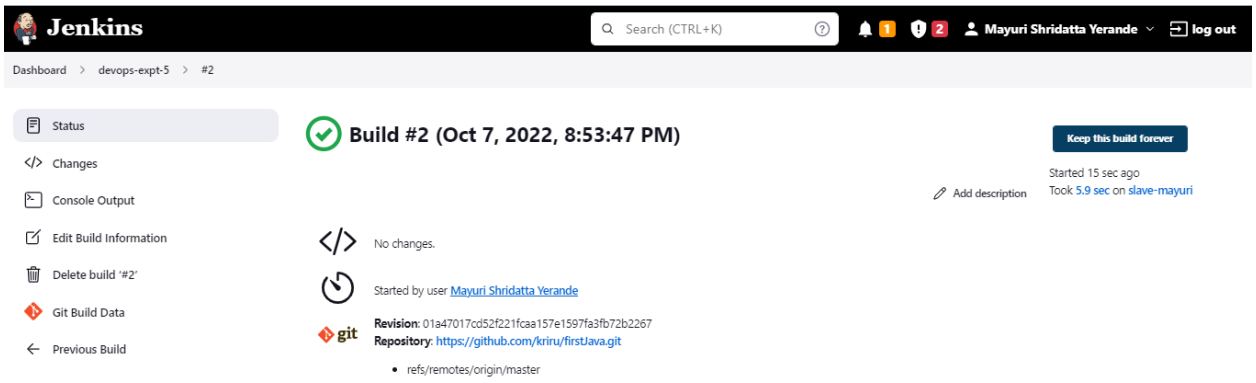
- **Now configure one of your project**



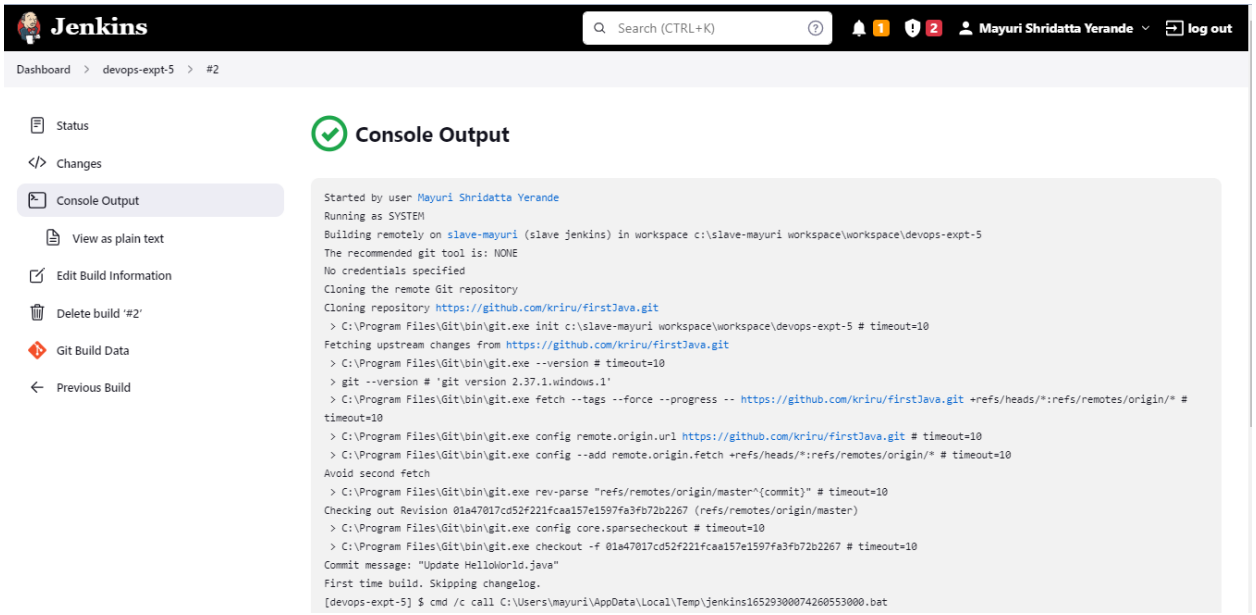
- **Restrict your slave from that project**
- **(apply and save after that)**



- **Click on build now**



- **Go to console output:**




```
> C:\Program Files\Git\bin\git.exe rev-parse "refs/remotes/origin/master^{commit}" # timeout=10
Checking out Revision 01a47017cd52f221fcaa157e1597fa3fb72b2267 (refs/remotes/origin/master)
 > C:\Program Files\Git\bin\git.exe config core.sparsecheckout # timeout=10
 > C:\Program Files\Git\bin\git.exe checkout -f 01a47017cd52f221fcaa157e1597fa3fb72b2267 # timeout=10
Commit message: "Update HelloWorld.java"
First time build. Skipping changelog.
[devops-expt-5] $ cmd /c call C:\Users\mayuri\AppData\Local\Temp\jenkins16529300074260553000.bat

c:\slave-mayuri workspace\workspace\devops-expt-5>javac HelloWorld.java

c:\slave-mayuri workspace\workspace\devops-expt-5>java HelloWorld
Hello, World

c:\slave-mayuri workspace\workspace\devops-expt-5>exit 0
Finished: SUCCESS
```

Conclusion: We successfully understood Jenkins Master- Slave Architecture and scaled our Jenkins standalone implementation by implementing slave nodes.