

# UE22CS351B – Cloud Computing

## Lab 8: Jenkins

Siri N Shetty: PES2UG22CS556

### Task -1: Set up Jenkins using Docker.

```
siri@DESKTOP-F9UMPIJU: ~/cc-lab8/Dockerfile
2025-03-10 09:56:56.401+0000 [id=44] INFO jenkins.InitReactorRunner$1#onAttained: System config adapted
2025-03-10 09:56:56.402+0000 [id=44] INFO jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
2025-03-10 09:56:56.408+0000 [id=33] INFO jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
2025-03-10 09:56:56.446+0000 [id=60] INFO hudson.util.Retrier#start: Attempt #1 to do the action check updates server
2025-03-10 09:56:57.245+0000 [id=40] 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:

2300582b77bb4fa99a01493965dc3d52

This may also be found at: /var/jenkins_home/secrets/initialAdminPassword

*****
*****
*****

2025-03-10 09:57:08.675+0000 [id=40] INFO jenkins.InitReactorRunner$1#onAttained: Completed initialization
2025-03-10 09:57:08.696+0000 [id=25] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
2025-03-10 09:57:11.364+0000 [id=60] INFO h.m.DownloadService$Downloadable#load: Obtained the updated data file for hudson.tasks.Maven.MavenInstaller
2025-03-10 09:57:11.366+0000 [id=60] INFO hudson.util.Retrier#start: Performed the action check updates server successfully at the attempt #1
```

### Task-2: Set up a job in Jenkins to connect to your repository, build C++ hello.cpp.

```
localhost:8080/job/PES2UG22CS556-1/1/console
Jenkins
Dashboard > PES2UG22CS556-1 > #1 > Console Output
Status
Changes
Console Output
Edit Build Information
Delete build '#1'
Timings
Git Build Data
Console Output
Started by user Siri N Shetty
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG22CS556-1
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/jenkins_home/workspace/PES2UG22CS556-1/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins # timeout=10
Fetching upstream changes from https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins
> git --version # timeout=10
> git --version # 'git version 2.39.5'
> git fetch --tags --force --progress -- https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins +refs/heads/*:refs/remotes/origin/* # timeout=10
Seen branch in repository origin/main
Seen 1 remote branch
> git show-ref --tags -d # timeout=10
Checking out Revision 9121289722455d1ee5f7ab9e1367129546f0ec03 (origin/main)
> git config core.sparsecheckout # timeout=10
> git checkout -f 9121289722455d1ee5f7ab9e1367129546f0ec03 # timeout=10
```

localhost:8080/view/all/builds

# Jenkins

Dashboard > All > Build History

+ New Item

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

0/2

## Build History of Jenkins

S	Build	Time Since ↑	Status
✓	PES2UG22CS556-1 #1	2 min 22 sec	stable

Icon: S M L

REST API Jenkins 2.492.2

## Task-3

Aim: Set up a second job that automatically runs after the project builds. This is different from the other job because this will not have a git repository - it doesn't even build anything.

localhost:8080/job/PES2UG22CS556-2/1/console

# Jenkins

Dashboard > PES2UG22CS556-2 > #1 > Console Output

Status

Changes

Console Output

Edit Build Information

Delete build '#1'

Timings

## Console Output

Download Copy View as plain text

```
Started by upstream project "PES2UG22CS556-1" build number 2
originally caused by:
  Started by user Siri N Shetty
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG22CS556-2
[PES2UG22CS556-2] $ /bin/sh -xe /tmp/jenkins2791251280188509602.sh
+ cd /var/jenkins_home/workspace/PES2UG22CS556-1/main/
+ ./hello_exec
Hello, World
Hello, Jenkins
I have successfully built and run this
Finished: SUCCESS
```

REST API Jenkins 2.492.2

localhost:8080

# Jenkins

Dashboard

+ New Item

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

0/2

All

S	W	Name	Last Success	Last Failure	Last Duration
✓	☀	PES2UG22CS556-1	1 min 55 sec #2	N/A	1.2 sec
✓	☀	PES2UG22CS556-2	1 min 45 sec #1	N/A	30 ms

Icon: S M L

localhost:8080/view/all/builds

# Jenkins

Dashboard > All > Build History

+ New Item

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

0/2

## Build History of Jenkins

S	Build	Time Since	Status
✓	PES2UG22CS556-2 #1	2 min 19 sec	stable
✓	PES2UG22CS556-1 #2	2 min 29 sec	stable
✓	PES2UG22CS556-1 #1	15 min	stable

Icon: S M L

## Task-4:

Aim: Add a webhook trigger to your repository in order to automate builds in Jenkin

github.com/siri-n-shetty/PES2UG22CS556\_Jenkins/settings/hooks

# siri-n-shetty / PES2UG22CS556\_Jenkins

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Okay, that hook was successfully created. We sent a ping payload to test it out! Read more about it at <https://docs.github.com/webhooks/#ping-event>.

## Webhooks

Add webhook

Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our [Webhooks Guide](#).

✓ <http://bore.smuz.me:63443/github-...> (push)

Last delivery was successful.

Edit Delete

Status

## Console Output

Download

Copy

View as plain text

Changes

Console Output

Edit Build Information

Delete build '#3'

Timings

Previous Build

```
Started by upstream project "PES2UG22CS556-1" build number 3
originally caused by:
  Started by GitHub push by siri-n-shetty
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG22CS556-2
[PES2UG22CS556-2] $ /bin/sh -xe /tmp/jenkins3568861167518990932.sh
+ cd /var/jenkins_home/workspace/PES2UG22CS556-1/main/
+ ./hello_exec
Hello, World
Hello, Jenkins
I have successfully built and run this
I have added a GitHub Webhook finally please
Finished: SUCCESS
```

Status

## Console Output

Download

Copy

View as plain text

Changes

Console Output

Edit Build Information

Delete build '#3'

Polling Log

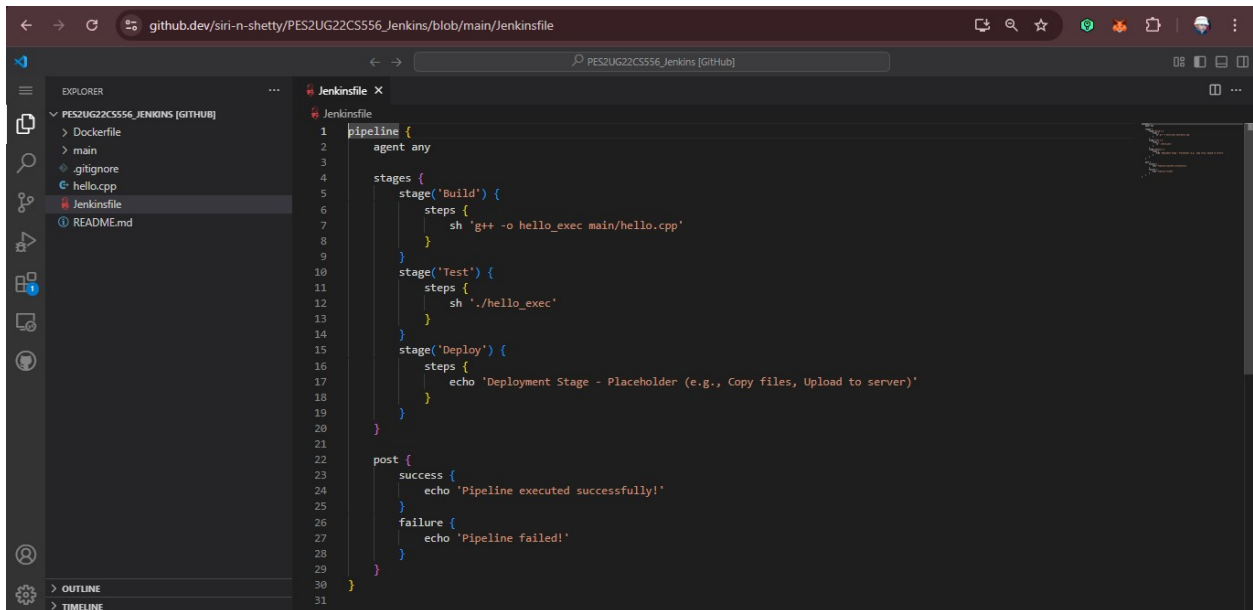
Timings

Git Build Data

Previous Build

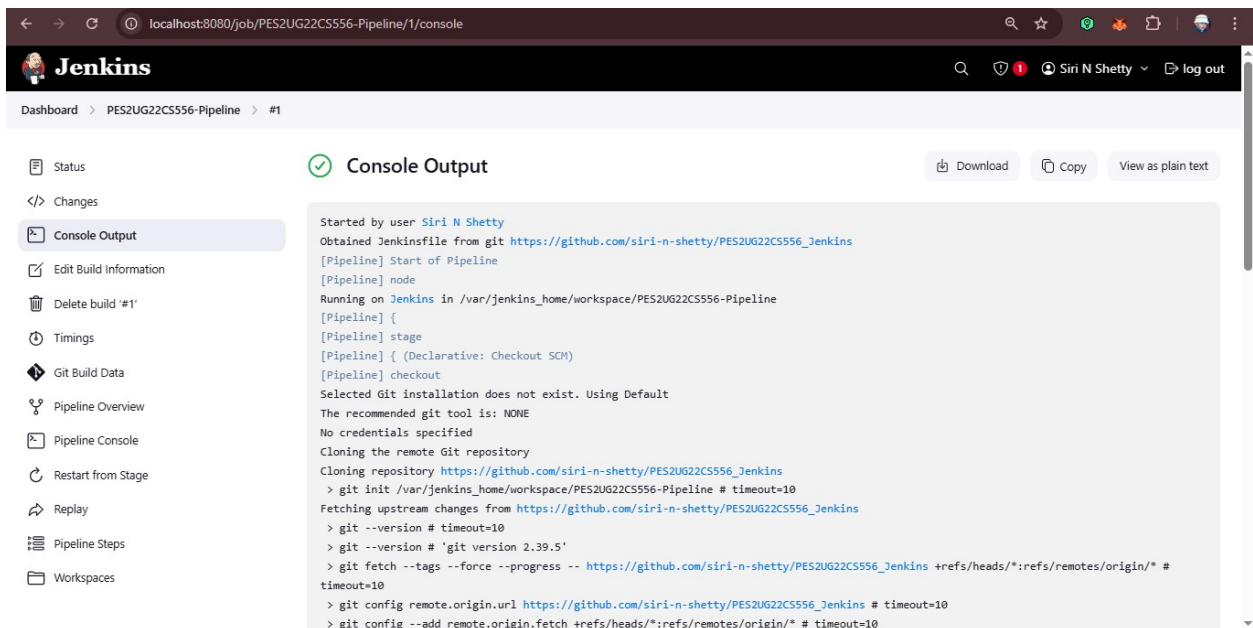
```
Started by GitHub push by siri-n-shetty
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG22CS556-1
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/jenkins_home/workspace/PES2UG22CS556-1/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins # timeout=10
Fetching upstream changes from https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins
> git --version # timeout=10
> git --version # 'git version 2.39.5'
> git fetch --tags --force --progress -- https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins
+refs/heads/*:refs/remotes/origin/* # timeout=10
Seen branch in repository origin/main
Seen 1 remote branch
> git show-ref --tags -d # timeout=10
Checking out Revision d3631dd9e7e2240df6f04ade4e54b305840fdbcdb (origin/main)
> git config core.sparsecheckout # timeout=10
> git checkout -f d3631dd9e7e2240df6f04ade4e54b305840fdbcdb # timeout=10
```

## Task-5: To create a basic Jenkins pipeline.



The screenshot shows a code editor with a file explorer on the left and a code editor on the right. The file explorer shows a project named 'PES2UG22CS556\_JENKINS [GITHUB]' with files like 'Dockerfile', 'main', '.gitignore', 'hello.cpp', 'Jenkinsfile', and 'README.md'. The code editor shows the 'Jenkinsfile' with the following content:

```
1 pipeline {
2   agent any
3
4   stages {
5     stage('Build') {
6       steps {
7         sh 'g++ -o hello_exec main/hello.cpp'
8       }
9     }
10    stage('Test') {
11      steps {
12        sh './hello_exec'
13      }
14    }
15    stage('Deploy') {
16      steps {
17        echo 'Deployment Stage - Placeholder (e.g., Copy files, Upload to server)'
18      }
19    }
20  }
21
22  post {
23    success {
24      echo 'Pipeline executed successfully!'
25    }
26    failure {
27      echo 'Pipeline failed!'
28    }
29  }
30 }
31
```



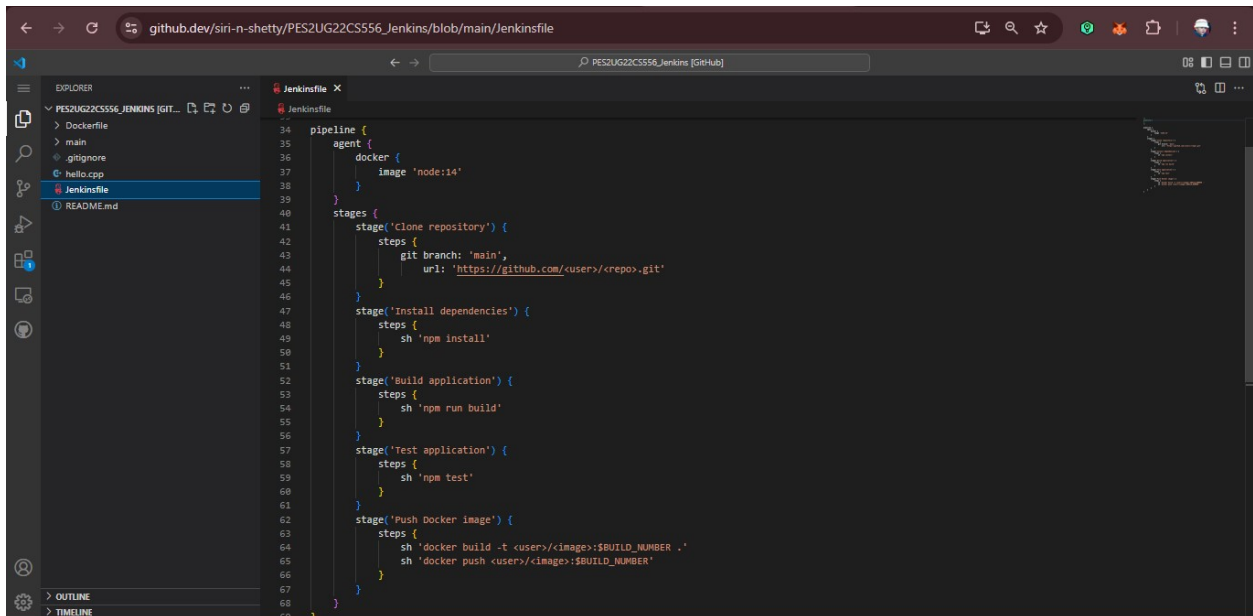
The screenshot shows the Jenkins web interface. The top bar shows the Jenkins logo and the user 'Siri N Shetty'. The main content area shows the 'Console Output' for a pipeline run. The output is as follows:

```
Started by user Siri N Shetty
Obtained Jenkinsfile from git https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/jenkins_home/workspace/PES2UG22CS556-Pipeline
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
Selected Git installation does not exist. Using Default
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins
> git init /var/jenkins_home/workspace/PES2UG22CS556-Pipeline # timeout=10
Fetching upstream changes from https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins
> git --version # timeout=10
> git --version # 'git version 2.39.5'
> git fetch --tags --force --progress -- https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins +refs/heads/*:refs/remotes/origin/* #
timeout=10
> git config remote.origin.url https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins # timeout=10
> git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
```



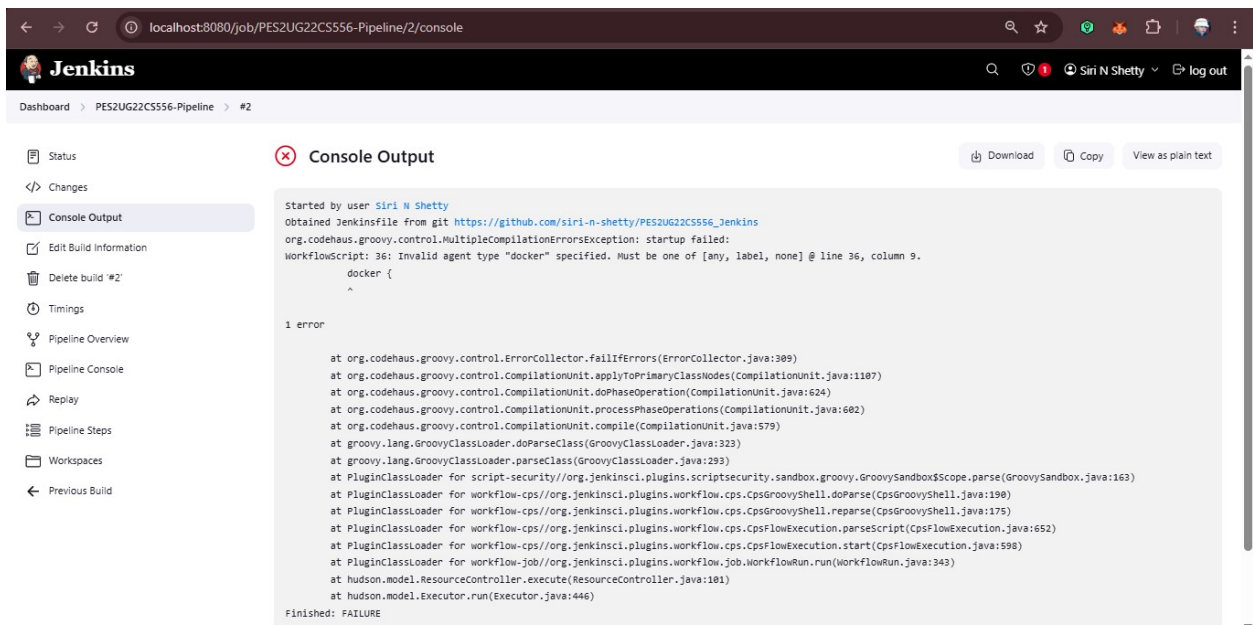


## Task-5: To create an incorrect Jenkins pipeline.



The screenshot shows a GitHub repository for 'PES2UG22CS556\_Jenkins' with a file named 'Jenkinsfile'. The file contains a Jenkins pipeline definition with several stages: 'Clone repository', 'Install dependencies', 'Build application', 'Test application', and 'Push Docker image'. The 'agent' block is configured with 'docker' and 'image: 'node:14''. The pipeline is syntactically incorrect due to a missing closing tag for the 'agent' block.

```
34 pipeline {
35   agent {
36     docker {
37       image 'node:14'
38     }
39   }
40   stages {
41     stage('Clone repository') {
42       steps {
43         git branch: 'main',
44           url: 'https://github.com/<user>/<repo>.git'
45       }
46     }
47     stage('Install dependencies') {
48       steps {
49         sh 'npm install'
50       }
51     }
52     stage('Build application') {
53       steps {
54         sh 'npm run build'
55       }
56     }
57     stage('Test application') {
58       steps {
59         sh 'npm test'
60       }
61     }
62     stage('Push Docker image') {
63       steps {
64         sh 'docker build -t <user>/<image>:$BUILD_NUMBER .'
65         sh 'docker push <user>/<image>:$BUILD_NUMBER'
66       }
67     }
68   }
69 }
```



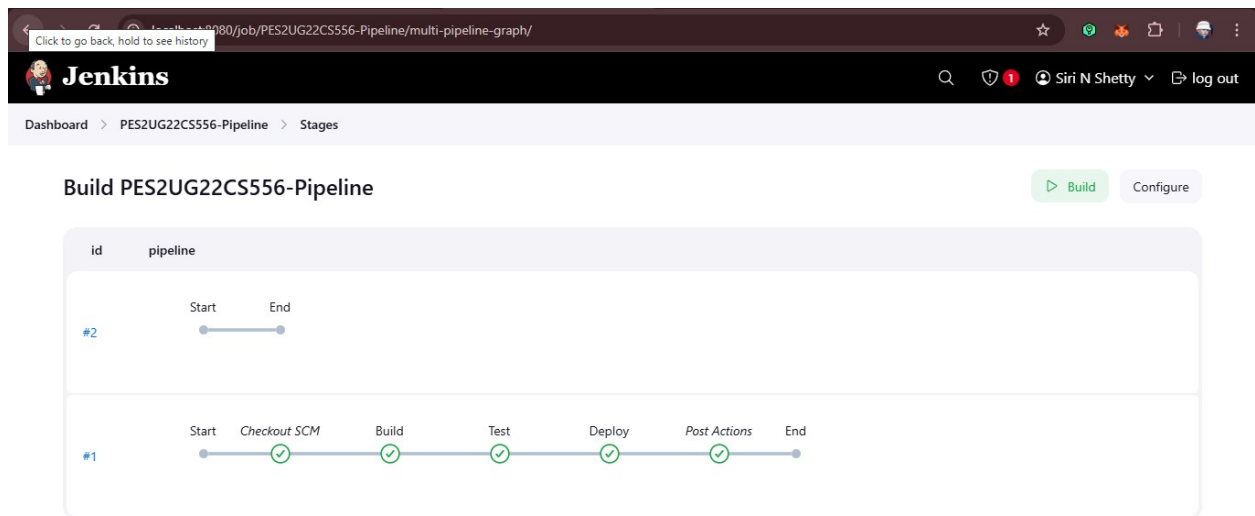
The screenshot shows the Jenkins console output for a build. The output indicates a startup failure due to an invalid agent type 'docker' specified. The error message is: 'WorkflowScript: 36: Invalid agent type "docker" specified. Must be one of [any, label, none] @ line 36, column 9.' The build finished with a FAILURE status.

**Console Output**

Started by user Siri N Shetty  
Obtained Jenkinsfile from git [https://github.com/siri-n-shetty/PES2UG22CS556\\_Jenkins](https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins)  
org.codehaus.groovy.control.MultipleCompilationErrorsException: startup failed:  
WorkflowScript: 36: Invalid agent type "docker" specified. Must be one of [any, label, none] @ line 36, column 9.  
^

1 error

at org.codehaus.groovy.control.ErrorCollector.failIfErrors(ErrorCollector.java:389)  
at org.codehaus.groovy.control.CompilationUnit.applyToPrimaryClassNodes(CompilationUnit.java:1107)  
at org.codehaus.groovy.control.CompilationUnit.doPhaseOperation(CompilationUnit.java:624)  
at org.codehaus.groovy.control.CompilationUnit.processPhaseOperations(CompilationUnit.java:602)  
at org.codehaus.groovy.control.CompilationUnit.compile(CompilationUnit.java:579)  
at groovy.lang.GroovyClassLoader.doParseClass(GroovyClassLoader.java:323)  
at groovy.lang.GroovyClassLoader.parseClass(GroovyClassLoader.java:293)  
at PluginClassLoader for script-security/org.jenkinsci.plugins.scriptsecurity.sandbox.groovy.GroovySandboxScope.parse(GroovySandbox.java:163)  
at PluginClassLoader for workflow-cps/org.jenkinsci.plugins.workflow.cps.CpsGroovyShell.doParse(CpsGroovyShell.java:190)  
at PluginClassLoader for workflow-cps/org.jenkinsci.plugins.workflow.cps.CpsGroovyShell.reparse(CpsGroovyShell.java:175)  
at PluginClassLoader for workflow-cps/org.jenkinsci.plugins.workflow.cps.CpsFlowExecution.parseScript(CpsFlowExecution.java:652)  
at PluginClassLoader for workflow-cps/org.jenkinsci.plugins.workflow.cps.CpsFlowExecution.start(CpsFlowExecution.java:598)  
at PluginClassLoader for workflow-job/org.jenkinsci.plugins.workflow.job.WorkflowRun.run(WorkflowRun.java:343)  
at hudson.model.ResourceController.execute(ResourceController.java:101)  
at hudson.model.Executor.run(Executor.java:446)  
Finished: FAILURE



Link to the GitHub Repository:

[https://github.com/siri-n-shetty/PES2UG22CS556\\_Jenkins](https://github.com/siri-n-shetty/PES2UG22CS556_Jenkins)