

SRN : PES1UG20CS825	NAME : PREM SAGAR J S	SEC : 'H'
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Lab Assignment - 2

Assignment 2 - Jenkins (Creating a DevOps Pipeline, CI/CD tool)

Task-1

1. Screenshot of the running Docker Container after installing Jenkins

```
PES1UG20CS825:Prem Sagar J S~/.../Dockerfile
>sudo docker build . -t jenkins:PES1UG20CS825
Sending build context to Docker daemon  2.048kB
Step 1/4 : FROM jenkins/jenkins:ltls
--> f16216f97fcb
Step 2/4 : USER root
--> Using cache
--> e67d887c1e15
Step 3/4 : RUN apt-get update && apt-get install -y make && apt-get install -y g++ --fix-missing
--> Using cache
--> b063b0b49689
Step 4/4 : USER jenkins
--> Using cache
--> 44b47ee19483
Successfully built 44b47ee19483
Successfully tagged jenkins:PES1UG20CS825
PES1UG20CS825:Prem Sagar J S~/.../Dockerfile
>
```

```
PES1UG20CS825:Prem Sagar J S~/.../Dockerfile
>sudo docker run -p 8080:8080 -p 50000:50000 -it jenkins:PES1UG20CS825
Running from: /usr/share/jenkins/jenkins.war
webroot: EnvVars.masterEnvVars.get("JENKINS_HOME")
2023-02-18 14:32:27.090+0000 [id=1] INFO winstone.Logger#logInternal: Beginning extraction from war file
2023-02-18 14:32:41.335+0000 [id=1] WARNING o.e.j.s.handler.ContextHandler#setContextPath: Empty contextPath
2023-02-18 14:32:41.871+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: jetty-10.0.12; built: 2022-09-14T01:54:40.076Z; git: 408d0139887e27a57b54ed52e2d92a36731a7e88; jvm 11.0.18+10
2023-02-18 14:32:44.087+0000 [id=1] INFO o.e.j.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclips
se.jetty.jsp.JettyJspServlet
2023-02-18 14:32:44.510+0000 [id=1] INFO o.e.j.s.s.DefaultSessionIdManager#doStart: Session workerName=node0
2023-02-18 14:32:47.769+0000 [id=1] INFO hudson.WebAppMain#contextInitialized: Jenkins home directory: /var/jenkins_home found at: EnvV
ars.masterEnvVars.get("JENKINS_HOME")
2023-02-18 14:32:49.058+0000 [id=1] INFO o.e.j.s.handler.ContextHandler#doStart: Started w.@6cd56321{Jenkins v2.375.3./,file:///var/jen
kins_home/war/,AVAILABLE}{/var/jenkins_home/war}
2023-02-18 14:32:49.172+0000 [id=1] INFO o.e.j.server.AbstractConnector#doStart: Started ServerConnector@2e9fda69{HTTP/1.1, (http/1.1)}
{0.0.0.0:8080}
2023-02-18 14:32:49.314+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: Started Server@40f70521{STARTING}{10.0.12,sto=0} @249
89ms
2023-02-18 14:32:49.340+0000 [id=24] INFO winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
2023-02-18 14:32:51.136+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: Started initialization
2023-02-18 14:32:51.500+0000 [id=32] INFO jenkins.InitReactorRunner$1#onAttained: Listed all plugins
2023-02-18 14:32:55.990+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
2023-02-18 14:32:56.053+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: Started all plugins
2023-02-18 14:32:56.103+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
2023-02-18 14:32:57.559+0000 [id=33] INFO jenkins.InitReactorRunner$1#onAttained: System config loaded
2023-02-18 14:32:57.562+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: System config adapted
2023-02-18 14:32:57.569+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
2023-02-18 14:32:57.592+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
2023-02-18 14:32:58.061+0000 [id=49] INFO hudson.util.Retrier#start: Attempt #1 to do the action check updates server
```

```
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.codehaus.groovy.vmplugin.v7.Java7$1 (file:/var/jenkins_home/war/WEB-INF/lib/groovy-all-2.4.21.jar) t
o constructor java.lang.invoke.MethodHandles$Lookup(java.lang.Class,int)
WARNING: Please consider reporting this to the maintainers of org.codehaus.groovy.vmplugin.v7.Java7$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
2023-02-18 14:33:02.056+0000 [id=29] 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:

6323b0d5068e4e86826d1d0842507f31

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

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

2023-02-18 14:35:48.841+0000 [id=33] INFO jenkins.InitReactorRunner$1#onAttained: Completed initialization
2023-02-18 14:35:49.099+0000 [id=23] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
2023-02-18 14:35:51.381+0000 [id=49] INFO h.m.DownloadService$Downloadable#load: Obtained the updated data file for hudson.tasks.Maven.M
avenInstaller
2023-02-18 14:35:51.383+0000 [id=49] INFO hudson.util.Retrier#start: Performed the action check updates server successfully at the attem
pt #1
```

← → ↻ 🏠 localhost:8080/login?from=%2F ... 📄 ⚙️ 🔍

Getting Started

Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server:

`/var/jenkins_home/secrets/initialAdminPassword`

Please copy the password from either location and paste it below.

Administrator password

.....

Continue

← → ↻ 🏠 localhost:8080 ... 📄 ⚙️ 🔍

Getting Started

Organization and Administration

Build Features

Build Tools

Build Analysis and Reporting

Pipelines and Continuous Delivery

Source Code Management

Distributed Builds

User Management and Security

Notifications and Publishing

Languages

All | None | Suggested

github

Selected (20/54)

Note that the full list of plugins is not shown here. Additional plugins can be installed in the **Plugin Manager** once the initial setup is complete. [See the documentation for more information.](#)

Pipelines and Continuous Delivery (4/8)

✓ GitHub Branch Source ↗

Multibranch projects and organization folders from GitHub. Maintained by CloudBees, Inc.

35 ⌵

✓ Pipeline: GitHub Groovy Libraries ↗

Allows Pipeline Groovy libraries to be loaded on the fly from GitHub.

31 ⌵

Source Code Management (2/10)

✓ GitHub ↗

This plugin integrates [GitHub](#) to Jenkins.

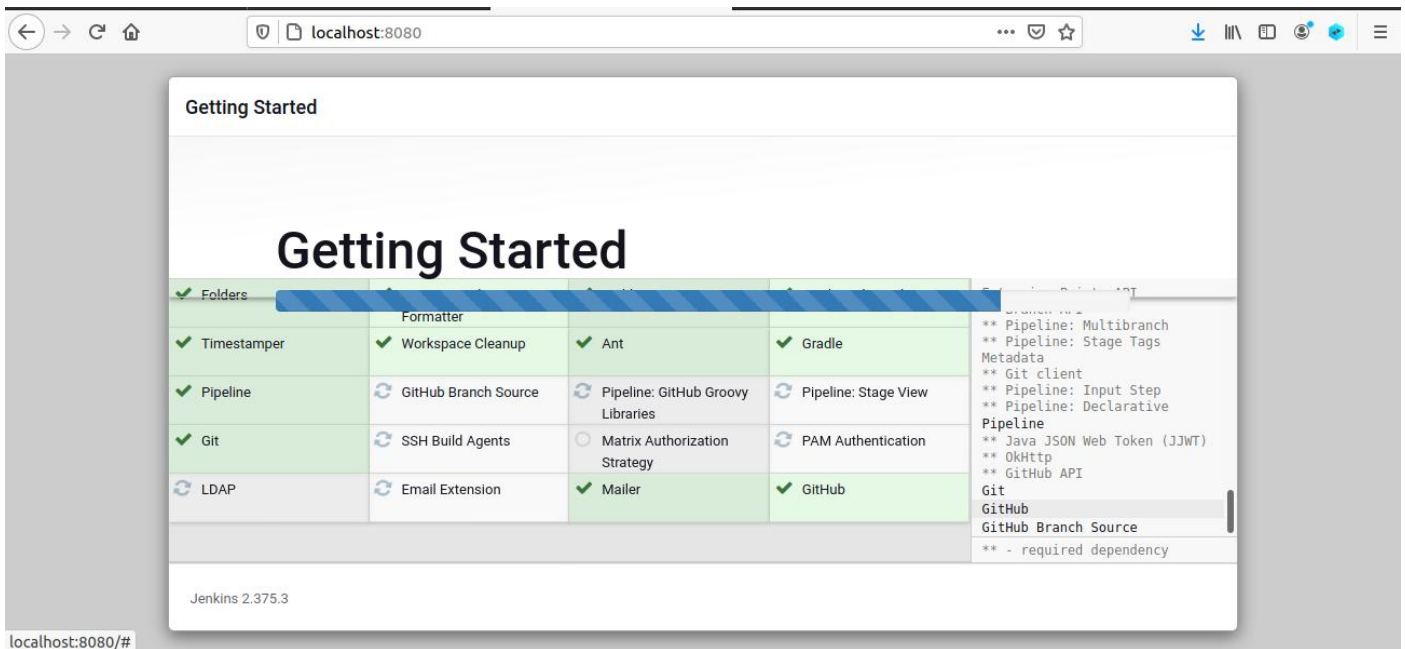
31 ⌵

Jenkins 2.375.3

Back

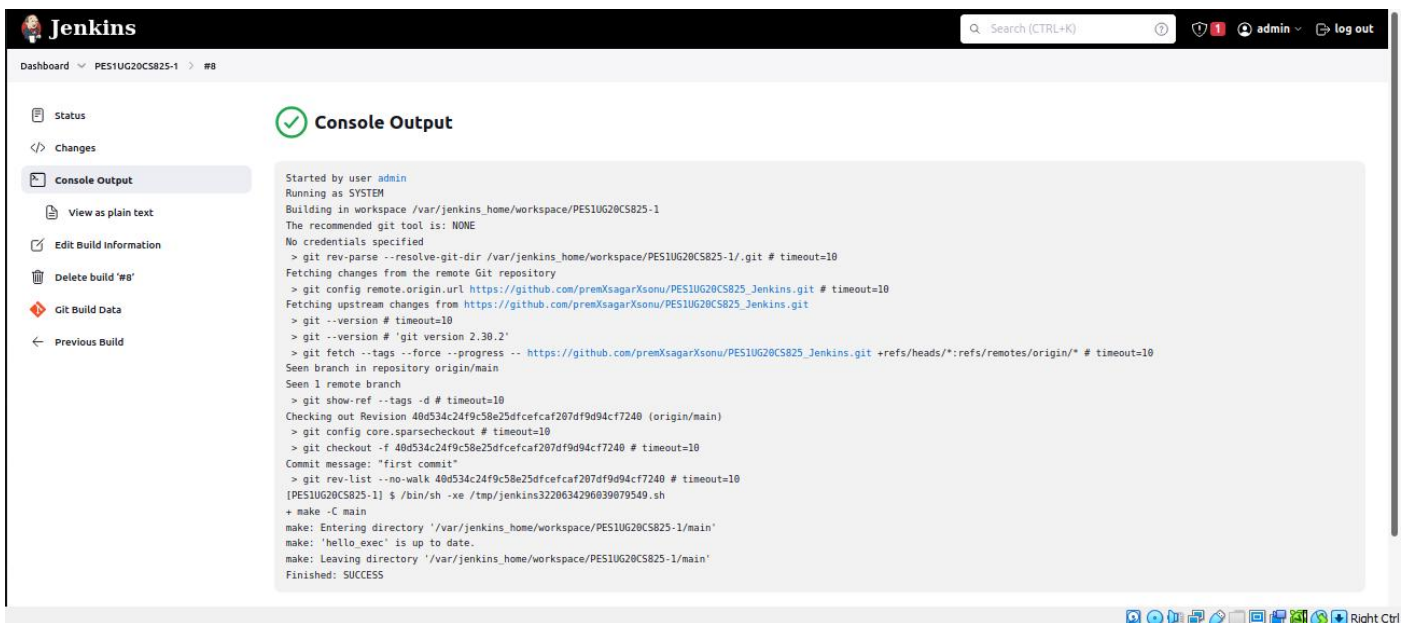
Install

localhost:8080/#



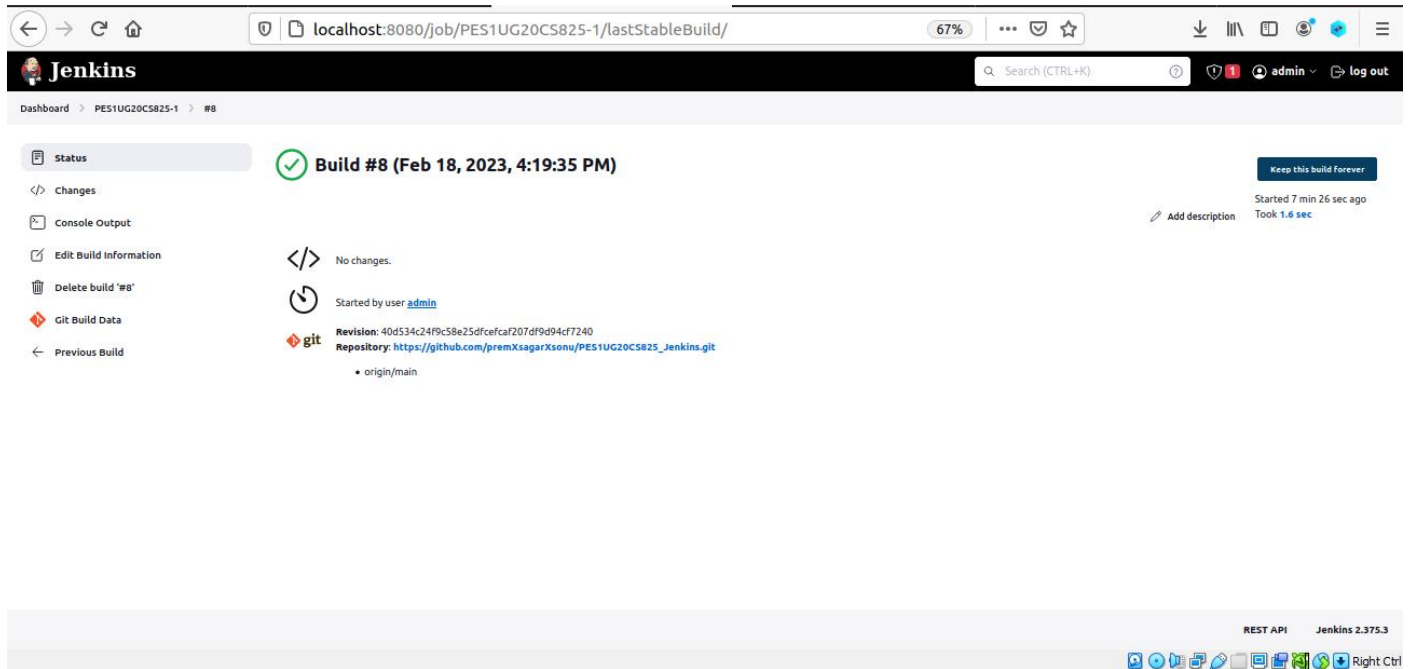
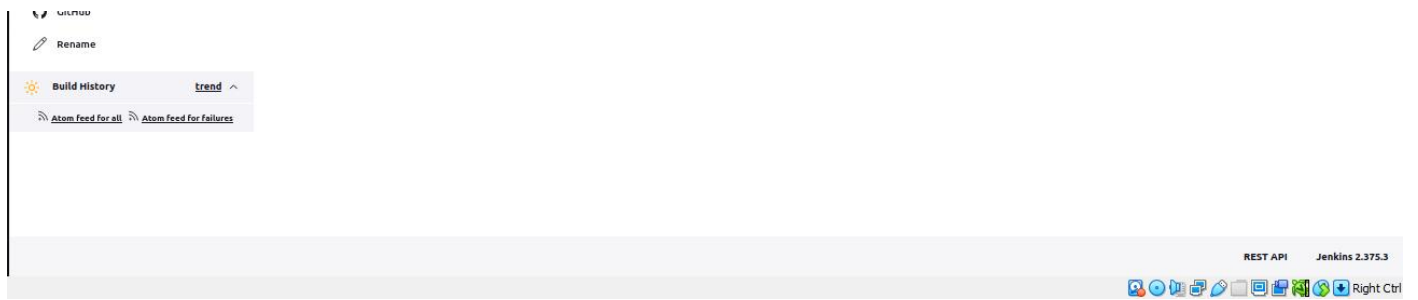
Task-2

1. Picture showing the console output after the build is successful



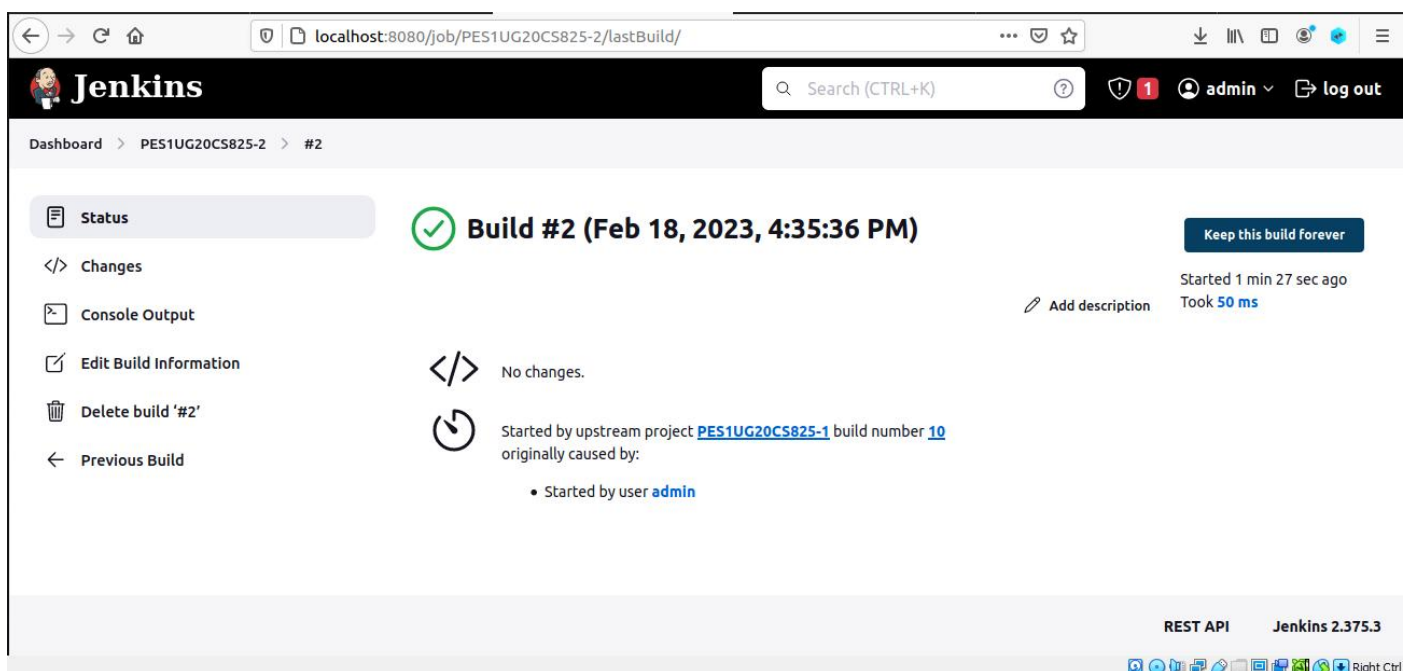
2. Picture showing the Stable state of the task in Build History of Jenkins





Task-3

➤ Console output of second job



localhost:8080/job/PES1UG20CS825-2/lastBuild/console

Jenkins

Search (CTRL+K) admin log out

Dashboard > PES1UG20CS825-2 > #2

- Status
- Changes
- Console Output**
 - View as plain text
 - Edit Build Information
 - Delete build '#2'
 - Previous Build

Console Output

```
Started by upstream project "PES1UG20CS825-1" build number 10
originally caused by:
  Started by user admin
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES1UG20CS825-2
[PES1UG20CS825-2] $ /bin/sh -xe /tmp/jenkins5910595212684519027.sh
+ /var/jenkins_home/workspace/PES1UG20CS825-1/main/hello_exec
Hello, World
Hello, Jenkins
I have successfully built and run
Finished: SUCCESS
```

➤ Status page of first job

localhost:8080/job/PES1UG20CS825-1/

Jenkins

Search (CTRL+K) admin log out

Dashboard > PES1UG20CS825-1 >

- Status**
- Changes
- Workspace
- Build Now
- Configure
- Delete Project
- Git Polling Log
- GitHub
- Rename

Project PES1UG20CS825-1

Add description

Disable Project

Downstream Projects

PES1UG20CS825-2

Permalinks

- Last build (#10), 2 min 5 sec ago
- Last stable build (#10), 2 min 5 sec ago
- Last successful build (#10), 2 min 5 sec ago
- Last completed build (#10), 2 min 5 sec ago

➤ Build History of Jenkins

localhost:8080/view/all/builds

Jenkins

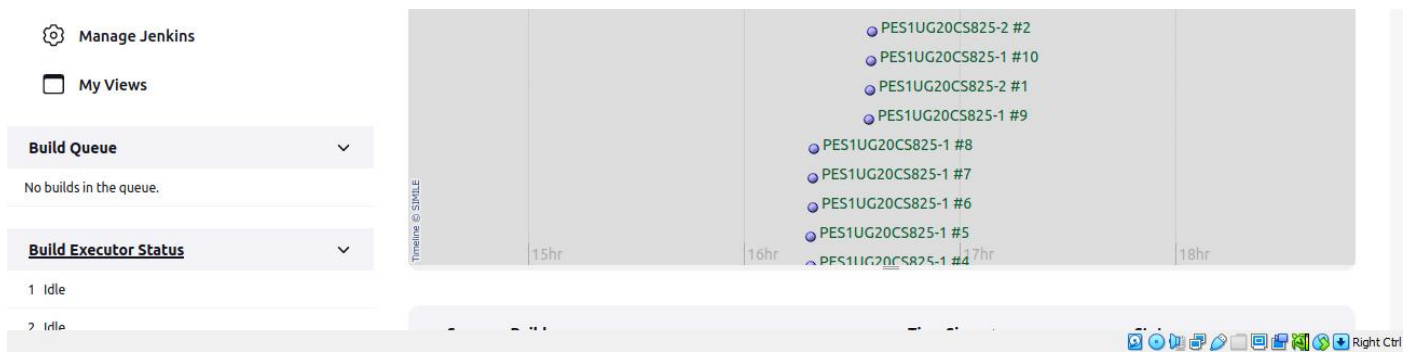
Search (CTRL+K) admin log out

Dashboard > All >

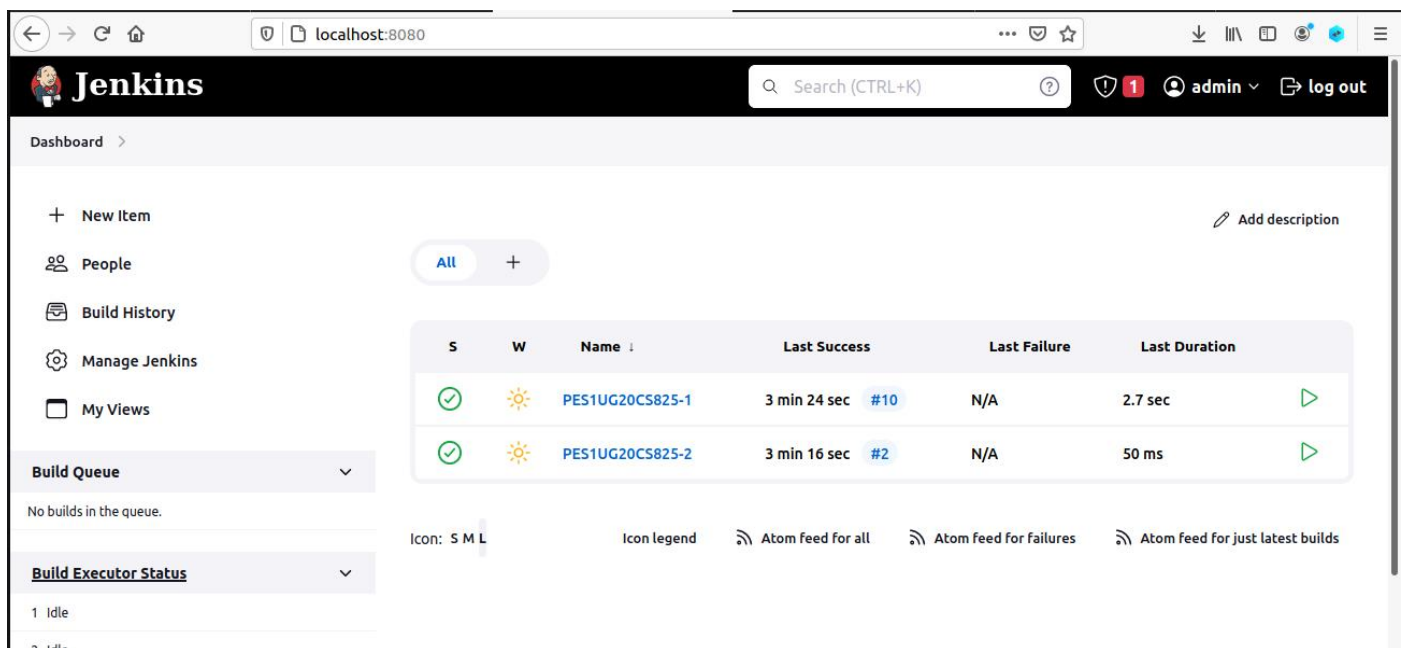
- New Item
- People
- Build History**

Build History of Jenkins

Feb 17	Feb 18	Feb 19	Feb 20

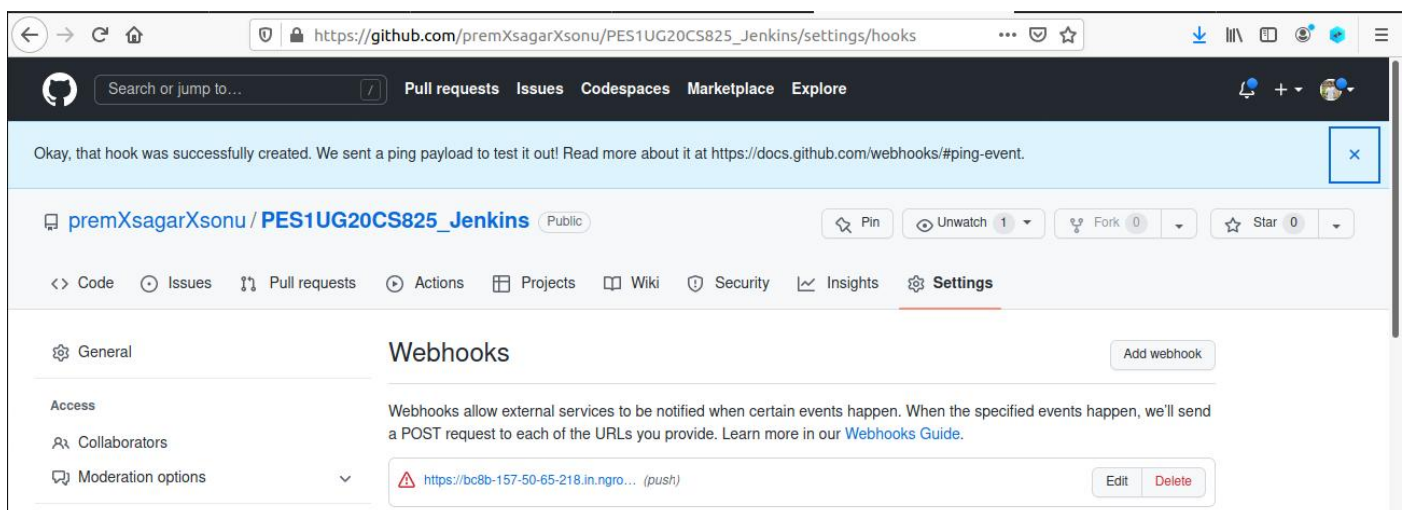


➤ Jenkins Dashboard



Task-4

➤ 1. Webhook added to your GitHub repository



- 2. Console Output of second job displaying the change made in hello.cpp file.

```
1//File: hello.cpp
2#include <iostream>
3using namespace std;
4
5int main(void) {
6    cout << "Hello, World\n";
7    cout << "Hello, Jenkins\n";
8    cout << "I have successfully built and run\n";
9    cout << "PES1UG20CS825\n";
10    return 0;
11}
```

The screenshot shows the Jenkins web interface. The top navigation bar includes the Jenkins logo, a search bar, and user information (admin). The breadcrumb trail is Dashboard > PES1UG20CS825-2 > #3. On the left sidebar, the 'Console Output' tab is selected. The main content area displays the console output for build #3, which is a successful build. The output text is as follows:

```
Started by upstream project "PES1UG20CS825-1" build number 11
originally caused by:
  Started by an SCM change
  Started by user admin
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES1UG20CS825-2
[PES1UG20CS825-2] $ /bin/sh -xe /tmp/jenkins7749693703400376731.sh
+ /var/jenkins_home/workspace/PES1UG20CS825-1/main/hello_exec
Hello, World
Hello, Jenkins
I have successfully built and run
PES1UG20CS825
Finished: SUCCESS
```

Task-5

- Code/script written to create basic pipeline using GitHub repository
- Jenkins file :

The screenshot shows a GitHub repository page for 'PES1UG20CS825_Jenkins'. The file 'Jenkinsfile' is selected, showing its content. The file is 631 bytes and contains 28 lines of code. The code defines a pipeline with an agent 'any' and a stages block. The visible code is:

```
1 pipeline{
2   agent any
3   stages{
```

```

4      stage('Build'){
5          steps{
6              sh 'g++ -c PES1UG20CS825.cpp'
7              sh 'g++ -o PES1UG20CS825 PES1UG20CS825.cpp'
8              echo 'Build Stage Completed Successfully'
9          }
10     }
11     stage('Test'){
12         steps{
13             sh './PES1UG20CS825'
14             echo 'Test Stage Successfully Executed '
15         }
16     }
17     stage('Deploy'){
18         steps{
19             echo 'Deployment was Successfull'
20         }
21     }
22 }
23 post{
24     failure{
25         echo 'Pipeline Failed'
26     }
27 }
28 }

```

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PES1UG20CS825.ccp file :

premXsagarXsonu / PES1UG20CS825_Jenkins Public

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main PES1UG20CS825_Jenkins / PES1UG20CS825.cpp Go to file

premXsagarXsonu Create PES1UG20CS825.cpp Latest commit ea8ae7e 18 minutes ago History

1 contributor

9 lines (8 sloc) 174 Bytes Raw Blame

```

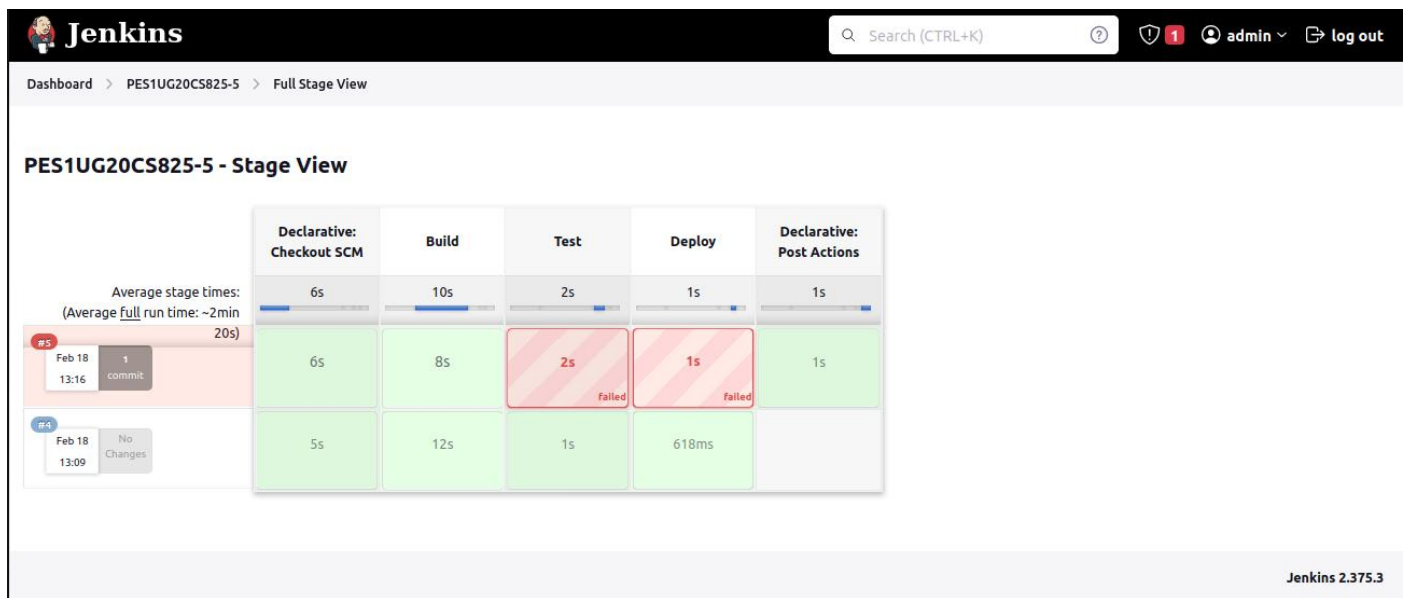
1 #include <iostream>
2 using namespace std;
3
4 int main(void) {
5     cout << "Hello, Jenkins\n";
6     cout << "Hello World\n";
7     cout << "Prem Sagar J S: PES1UG20CS825";
8     return 0;
9 }

```

https://github.com/premXsagarXsonu

➤ Output of working created pipeline, the screenshot should include

- Stage view / Execution status of pipeline with all stages succeeded
- Verify Declarative: Post Actions stage succeed for handling failures.



➤ Console Output of the Pipeline

Jenkins

Dashboard > PES1UG20CS825-5 > #6

Status

Changes

Console Output

View as plain text

Edit Build Information

Delete build '#6'

Git Build Data

Restart from Stage

Replay

Pipeline Steps

Console Output

```
Started by user admin
Lightweight checkout support not available, falling back to full checkout.
Checking out git https://github.com/premXsagarXsonu/PES1UG20CS825_Jenkins into /var/jenkins_home/workspace/PES1UG20CS825-5@script/df16b0793e19b04dc74a82f95b78858698d0b7529d46ae42bf000471381af0af to read Jenkinsfile
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/jenkins_home/workspace/PES1UG20CS825-5@script/df16b0793e19b04dc74a82f95b78858698d0b7529d46ae42bf000471381af0af/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/premXsagarXsonu/PES1UG20CS825_Jenkins # timeout=10
Fetching upstream changes from https://github.com/premXsagarXsonu/PES1UG20CS825_Jenkins
> git --version # timeout=10
> git --version # 'git version 2.30.2'
> git fetch --tags --force --progress -- https://github.com/premXsagarXsonu/PES1UG20CS825_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

[Pipeline] 
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Test)
[Pipeline] sh
+ ./PES1UG20CS825
Hello, Jenkins
Hello World
Prem Sagar J S: PES1UG20CS825
[Pipeline] echo
Test Stage Successfully Executed
[Pipeline] 
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Deploy)
[Pipeline] echo
Deployment was Successfull
[Pipeline] 
[Pipeline] // stage
[Pipeline] 
[Pipeline] // withEnv
[Pipeline] 
[Pipeline] 
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

➤ Link to the created GitHub repository

https://github.com/premXsagarXsonu/PES1UG20CS825_Jenkins

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