

CC - assignment 2

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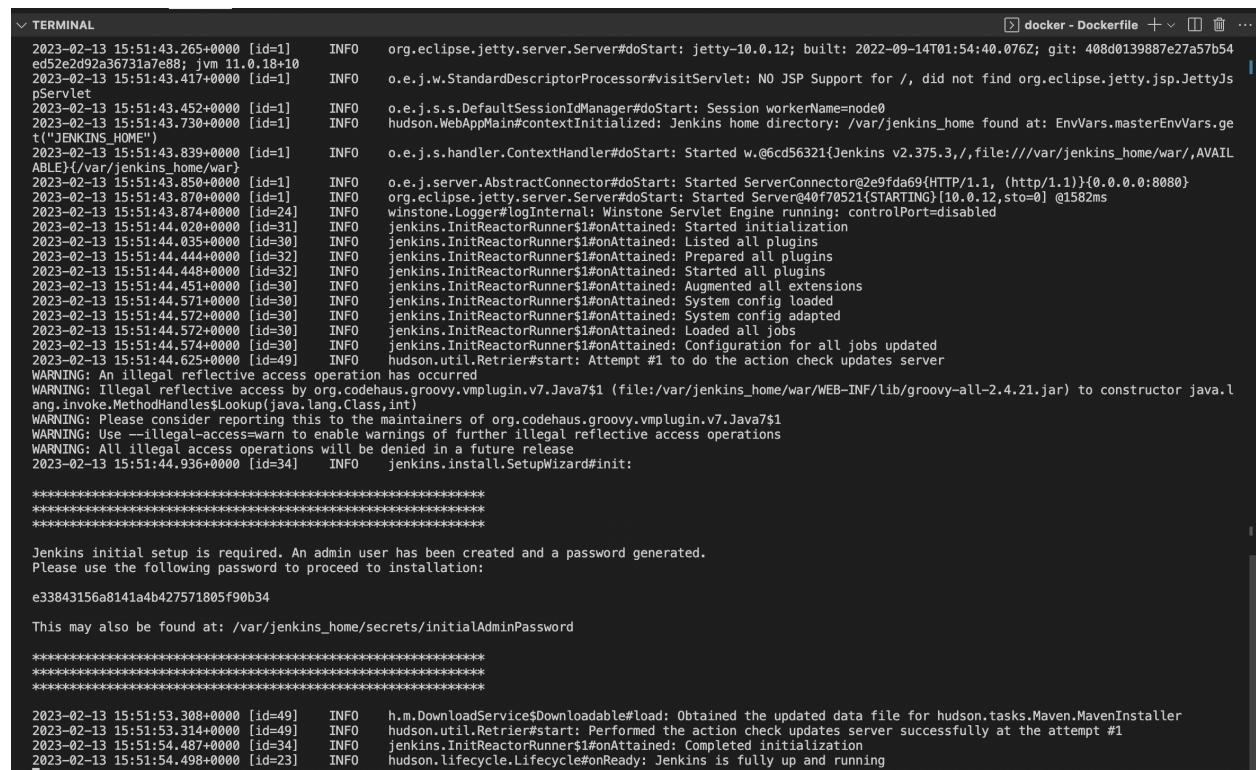
SRN: PES2UG20CS038

SECTION: A

Task-1

Aim: Set up Jenkins using Docker.

1. Screenshot of the running Docker Container after installing Jenkins

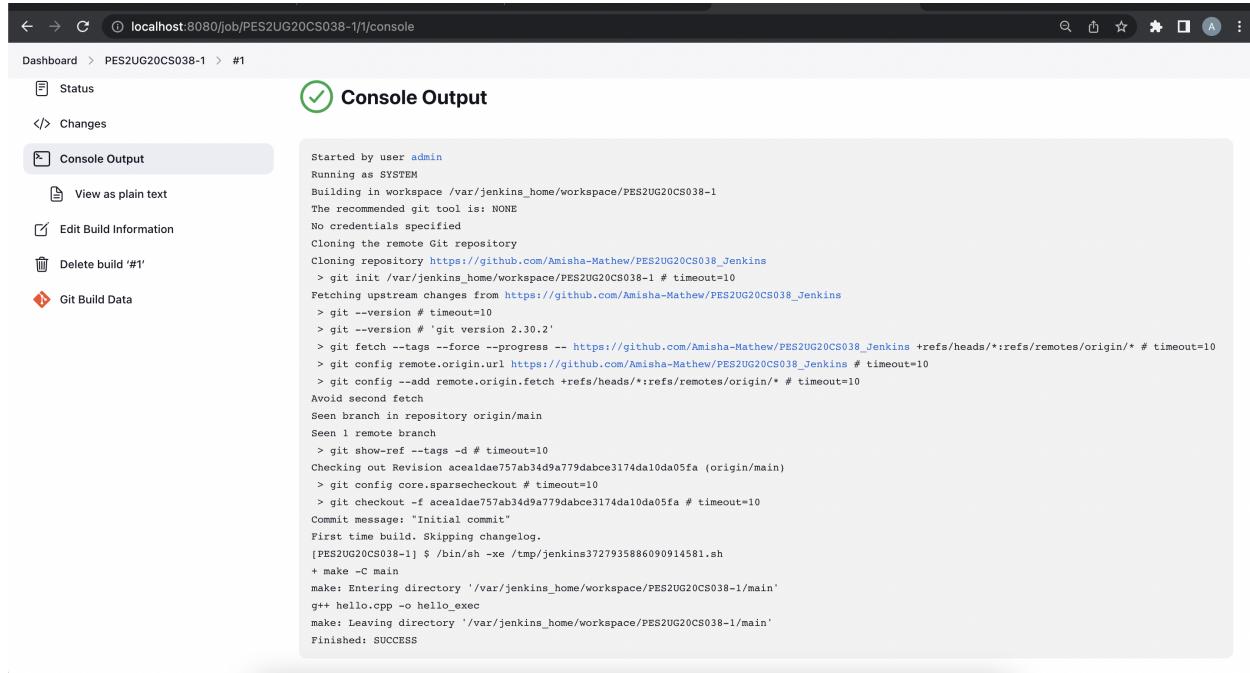


```
✓ TERMINAL docker - Dockerfile + ~ □ 🗑 ...  
2023-02-13 15:51:43.265+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: jetty-10.0.12; built: 2022-09-14T01:54:40.076Z; git: 408d0139887e27a57b54  
ed52ed92a36731a7e88; jvm 11.0.18+10  
2023-02-13 15:51:43.417+0000 [id=1] INFO o.e.j.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclipse.jsp.JettyJsp  
pServlet  
2023-02-13 15:51:43.452+0000 [id=1] INFO o.e.j.s.s.DefaultSessionIdManager#doStart: Session workerName=node0  
2023-02-13 15:51:43.730+0000 [id=1] INFO hudson.WebAppMain#contextInitialized: Jenkins home directory: /var/jenkins_home found at: EnvVars.masterEnvVars.get("JENKINS_HOME")  
2023-02-13 15:51:43.839+0000 [id=1] INFO o.e.j.s.handler.ContextHandler#doStart: Started w.@6cd56321{Jenkins v2.375.3,,file:///var/jenkins_home/war/,AVAILABLE}{/var/jenkins_home/war}  
2023-02-13 15:51:43.850+0000 [id=1] INFO o.e.j.server.AbstractConnector#doStart: Started ServerConnector@2e9fda69{HTTP/1.1, (http/1.1){0.0.0:8080}}  
2023-02-13 15:51:43.870+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: Started Server@40f70521{STARTING} [10.0.12,sto=0] @1582ms  
2023-02-13 15:51:43.874+0000 [id=24] INFO winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled  
2023-02-13 15:51:44.020+0000 [id=31] INFO jenkins.InitReactorRunner$1@onAttained: Started initialization  
2023-02-13 15:51:44.035+0000 [id=30] INFO jenkins.InitReactorRunner$1@onAttained: Listed all plugins  
2023-02-13 15:51:44.444+0000 [id=32] INFO jenkins.InitReactorRunner$1@onAttained: Prepared all plugins  
2023-02-13 15:51:44.448+0000 [id=32] INFO jenkins.InitReactorRunner$1@onAttained: Started all plugins  
2023-02-13 15:51:44.451+0000 [id=30] INFO jenkins.InitReactorRunner$1@onAttained: Augmented all extensions  
2023-02-13 15:51:44.571+0000 [id=30] INFO jenkins.InitReactorRunner$1@onAttained: System config loaded  
2023-02-13 15:51:44.572+0000 [id=30] INFO jenkins.InitReactorRunner$1@onAttained: System config adapted  
2023-02-13 15:51:44.572+0000 [id=30] INFO jenkins.InitReactorRunner$1@onAttained: Loaded all jobs  
2023-02-13 15:51:44.574+0000 [id=30] INFO jenkins.InitReactorRunner$1@onAttained: Configuration for all jobs updated  
2023-02-13 15:51:44.625+0000 [id=49] INFO hudson.util.Retriger#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$1 (file:/var/jenkins_home/war/WEB-INF/lib/groovy-all-2.4.21.jar) to constructor java.lang.invoke.MethodHandle$Lookup(java.lang.Class,int)  
WARNING: Please consider reporting this to the maintainers of org.codehaus.groovy.vmplugin.v7.Java7$1  
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations  
WARNING: All illegal access operations will be denied in a future release  
2023-02-13 15:51:44.936+0000 [id=34] INFO jenkins.install.SetupWizard#init:  
*****  
*****  
*****  
*****  
*****  
Jenkins initial setup is required. An admin user has been created and a password generated.  
Please use the following password to proceed to installation:  
e33843156a8141a4b427571805f90b34  
This may also be found at: /var/jenkins_home/secrets/initialAdminPassword  
*****  
*****  
*****  
*****  
*****  
2023-02-13 15:51:53.308+0000 [id=49] INFO h.m.DownloadService$Downloadable#load: Obtained the updated data file for hudson.tasks.Maven.MavenInstaller  
2023-02-13 15:51:53.314+0000 [id=49] INFO hudson.util.Retriger#start: Performed the action check updates server successfully at the attempt #1  
2023-02-13 15:51:54.487+0000 [id=34] INFO jenkins.InitReactorRunner$1@onAttained: Completed initialization  
2023-02-13 15:51:54.498+0000 [id=23] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
```

Task-2

Aim: Set up a job in Jenkins to connect to your repository and build C++ hello.cpp.

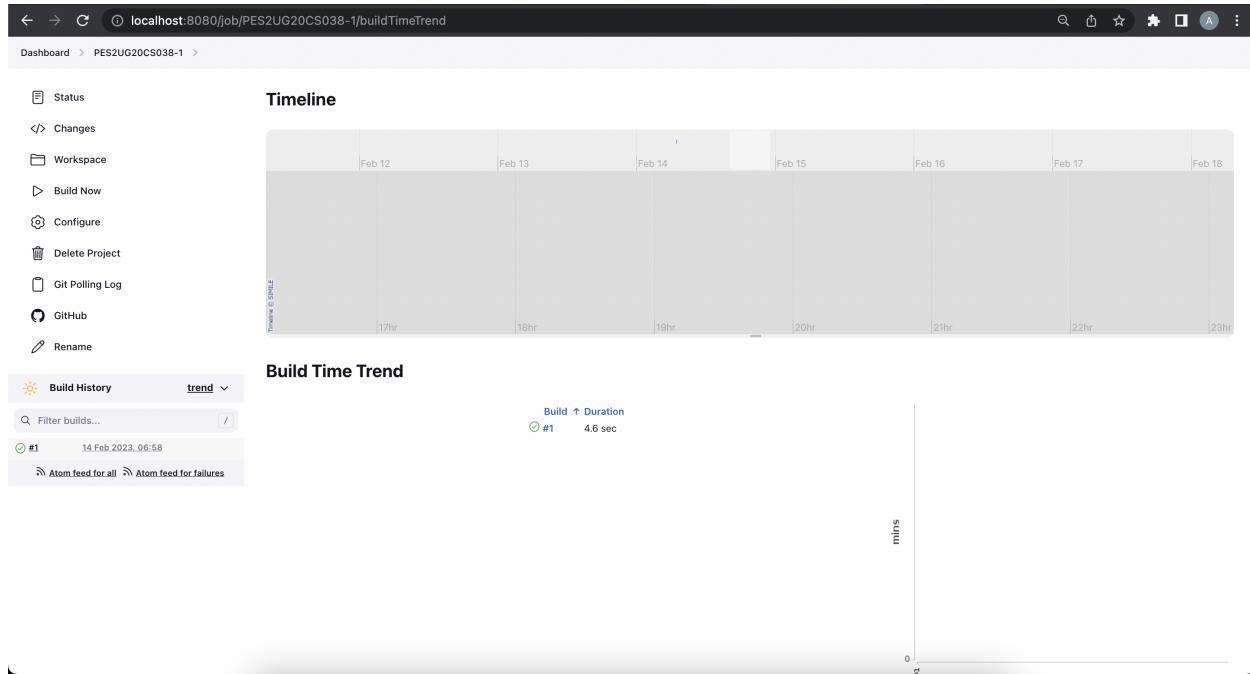
1. Picture showing the console output after the build is successful



The screenshot shows the Jenkins 'Console Output' page for a job named 'PES2UG20CS038-1'. The page has a sidebar on the left with links like Status, Changes, Console Output (which is selected), View as plain text, Edit Build Information, Delete build '#1', and Git Build Data. The main content area is titled 'Console Output' with a green checkmark icon. It displays the command-line log of the build process:

```
Started by user admin
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG20CS038-1
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins
> git init /var/jenkins_home/workspace/PES2UG20CS038-1 # timeout=10
Fetching upstream changes from https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins
> git --version # timeout=10
> git --version # 'git version 2.30.2'
> git fetch --tags --force --progress -- https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins +refs/heads/*:refs/remotes/origin/* # timeout=10
> git config remote.origin.url https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins # timeout=10
> git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
Seen branch in repository origin/main
Seen 1 remote branch
> git show-ref --tags -d # timeout=10
Checking out Revision acea1daec757ab34d9a779dabce3174dal0da05fa (origin/main)
> git config core.sparsecheckout # timeout=10
> git checkout -f acea1daec757ab34d9a779dabce3174dal0da05fa # timeout=10
Commit message: "Initial commit"
First time build. Skipping changelog.
[PES2UG20CS038-1] $ ./bin/sh -xe /tmp/jenkins3727935886090914581.sh
+ make -C main
make: Entering directory '/var/jenkins_home/workspace/PES2UG20CS038-1/main'
g++ hello.cpp -o hello_exec
make: Leaving directory '/var/jenkins_home/workspace/PES2UG20CS038-1/main'
Finished: SUCCESS
```

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

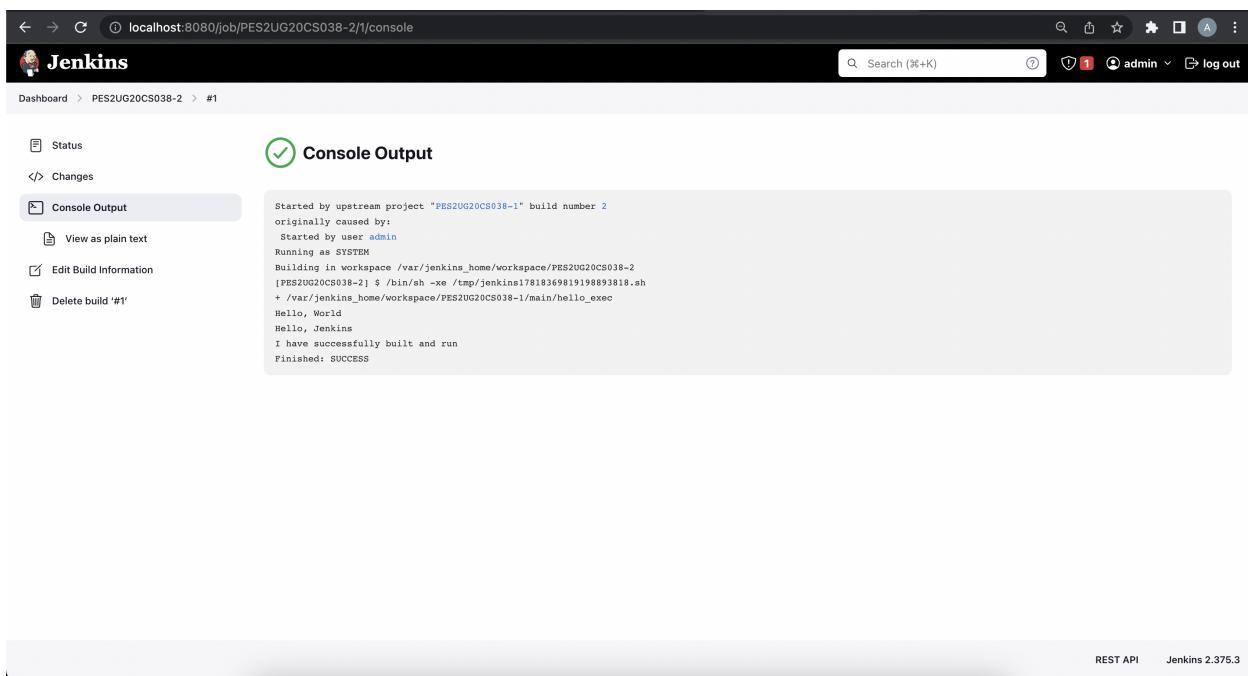


Task-3

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.

Deliverables

1. Console output of second job



The screenshot shows the Jenkins interface for a build named "PES2UG20CS038-2". The "Console Output" tab is selected, displaying the following log:

```
Started by upstream project "PES2UG20CS038-1" build number 2
originally caused by:
    Started by user admin
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG20CS038-2
[ PES2UG20CS038-2 ] $ /bin/sh -xe /tmp/jenkins17818369819198893818.sh
+ /var/jenkins_home/workspace/PES2UG20CS038-1/main/hello_exec
Hello, World
Hello, Jenkins
I have successfully built and run
Finished: SUCCESS
```

2. Status page of first job

The screenshot shows the Jenkins interface for the job 'PES2UG20CS038-1'. The top navigation bar includes links for 'Dashboard', 'PES2UG20CS038-1', 'Status' (selected), 'Changes', 'Workspace', 'Build Now', 'Configure', 'Delete Project', 'Git Polling Log', 'GitHub', and 'Rename'. On the right, there are buttons for 'Add description' and 'Disable Project'. The main content area displays the project name 'Project PES2UG20CS038-1' and a section titled 'Downstream Projects' showing 'PES2UG20CS038-2'. Below this are sections for 'Permalinks' and 'Build History'. The 'Build History' section lists two builds: '#2' (14 Feb 2023, 07:17) and '#1' (14 Feb 2023, 06:58). At the bottom, there are links for 'Atom feed for all', 'Atom feed for failures', and 'Atom feed for just latest builds'. The footer indicates 'REST API' and 'Jenkins 2.375.3'.

3. Build History of Jenkins

The screenshot shows the Jenkins interface for the 'Build History of Jenkins' page. The top navigation bar includes links for 'Dashboard', 'All', 'New Item', 'People', 'Build History' (selected), 'Manage Jenkins', and 'My Views'. On the left, there are sections for 'Build Queue' (No builds in the queue) and 'Build Executor Status' (1 Idle, 2 Idle). The main content area features a timeline from Feb 11 to Feb 17. A tooltip 'Time in SMTL' is shown above the timeline. The timeline highlights activity on Feb 14, showing three builds: 'PES2UG20CS038-2 #1', 'PES2UG20CS038-1 #2', and 'PES2UG20CS038-1 #1'. Below the timeline, a table lists these builds with columns for 'S' (Status), 'Build', 'Time Since ↑', and 'Status'. The table shows three stable builds: 'PES2UG20CS038-2 #1' (2 min 51 sec), 'PES2UG20CS038-1 #2' (2 min 57 sec), and 'PES2UG20CS038-1 #1' (21 min). At the bottom, there are icons for 'Icon: S M L', 'Icon legend', and links for 'Atom feed for all', 'Atom feed for failures', and 'Atom feed for just latest builds'. The footer indicates 'REST API' and 'Jenkins 2.375.3'.

4. Jenkins Dashboard

The screenshot shows the Jenkins dashboard at localhost:8080. The left sidebar includes links for New Item, People, Build History, Manage Jenkins, My Views, Build Queue (empty), and Build Executor Status (1 idle). The main area displays a table of builds with columns: S (Status), W (Waiting), Name (PES2UG20CS038-1, PES2UG20CS038-2), Last Success (3 min 18 sec, #2, 3 min 12 sec, #1), Last Failure (N/A), and Last Duration (0.87 sec, 27 ms). A 'Build History' section below shows 1 idle build. At the bottom right are links for REST API and Jenkins 2.375.3.

S	W	Name	Last Success	Last Failure	Last Duration
Green checkmark	Yellow sun	PES2UG20CS038-1	3 min 18 sec #2	N/A	0.87 sec
Green checkmark	Yellow sun	PES2UG20CS038-2	3 min 12 sec #1	N/A	27 ms

Task-4

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

Deliverables:

1. Webhook added to your GitHub repository

The screenshot shows the GitHub settings page for a repository named 'Amisha-Mathew / PES2UG20CS038_Jenkins'. The 'Webhooks' tab is selected. A single webhook is listed with the URL [https://6d3f-1-6-180-187.in.ngrok... \(push\)](https://6d3f-1-6-180-187.in.ngrok.io/). There are 'Edit' and 'Delete' buttons next to it. The left sidebar shows navigation options like General, Access, Collaborators, Moderation options, Code and automation, Branches, Tags, Actions, Webhooks (which is highlighted), and Environments.

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

The screenshot shows the Jenkins console output for a build step. The title is 'Console Output'. The log output is as follows:

```

Started by an SCM change
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG20CS038-1
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/jenkins_home/workspace/PES2UG20CS038-1/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins # timeout=10
Fetching upstream changes from https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins
> git --version # timeout=10
> git --version # git version 2.30.2
> git fetch --tags --force --progress -- https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins +refs/heads/*:refs/remotes/origin/* # timeout=10
Seen 1 remote branch
Seen 1 remote branch
> git show-ref --tags -d # timeout=10
Checking out Revision 491481eb9a7c4c30b56c10da2c7b922dfaef396c6 (origin/main)
> git config core.sparsecheckout # timeout=10
> git checkout -f 491481eb9a7c4c30b56c10da2c7b922dfaef396c6 # timeout=10
Commit message: "added webhook"
> git rev-list --no-walk acea1dae75ab34d9a779dbce3174dal0da05fa # timeout=10
[PES2UG20CS038-1] $ /bin/sh -xe /tmp/jenkins11660373647634440210.sh
+ make -C main
make: Entering directory '/var/jenkins_home/workspace/PES2UG20CS038-1/main'
g++ hello.cpp -o hello_exec
make: Leaving directory '/var/jenkins_home/workspace/PES2UG20CS038-1/main'
Triggering a new build of PES2UG20CS038-2
Finished: SUCCESS

```

Task-5

Aim: To create a basic Jenkins pipeline

Deliverables:

1. Code/script written to create basic pipeline using GitHub repository

```
pipeline {  
    agent any  
    stages {  
        stage('Build') {  
            steps {  
                sh 'echo "Build Stage Successful"'  
  
            }  
        }  
        stage('Test'){  
            steps {  
                sh 'echo "Test Stage Successful"'  
  
            }  
        }  
        stage('Deploy') {  
            steps {  
                sh 'echo "Deployment Successful"'  
  
            }  
        }  
    }  
    post {  
        failure {  
            echo 'Pipeline failed'  
        }  
    }  
}
```

2. 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.

Stage	Duration
Declarative: Checkout SCM	1s
Build	361ms
Test	135ms
Deploy	124ms
Declarative: Post Actions	65ms

Build	Date	Commits	Duration	Status
#4	16 Feb 2023, 17:04	1 commit	325ms	Passed
#3	16 Feb 2023, 17:02	1 commit	340ms	Failed
#2	16 Feb 2023, 16:51	No Changes	419ms	Failed
#1	16 Feb 2023, 16:39	No Changes	53ms	Passed

3. Console Output of the Pipeline

```

Started by user admin
Lightweight checkout support not available, falling back to full checkout.
Checking out git https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins into
/var/jenkins_home/workspace/PES2UG20CS038@script/f5616b2fccb6a10f1076101eba6c84cca80c9eed9710e6ffbel4d9375edd37fe to read
Jenkinsfile
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir
/var/jenkins_home/workspace/PES2UG20CS038@script/f5616b2fccb6a10f1076101eba6c84cca80c9eed9710e6ffbel4d9375edd37fe/.git
timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins # timeout=10
Fetching upstream changes from https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins
> git --version # timeout=10
> git --version # 'git version 2.30.2'
> git fetch --tags --force --progress -- https://github.com/Amisha-Mathew/PES2UG20CS038_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 5565ff3d6f7309ec3af6e240e17af92ff7ffab3b (origin/main)
> git config core.sparsecheckout # timeout=10
> git checkout -f 5565ff3d6f7309ec3af6e240e17af92ff7ffab3b # timeout=10

```

The screenshot shows a Jenkins job console window. The URL in the address bar is `localhost:8080/view/all/job/PES2UG20CS038/4/console`. The navigation path is `Dashboard > All > PES2UG20CS038 > #4`. The console output displays a pipeline script with the following log entries:

```
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Build)
[Pipeline] sh
+ echo Build Stage Successful
Build Stage Successful
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Test)
[Pipeline] sh
+ echo Test Stage Successful
Test Stage Successful
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Deploy)
[Pipeline] sh
+ echo Deployment Successful
Deployment Successful
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

4. Link to the created GitHub repository

https://github.com/Amisha-Mathew/PES2UG20CS038_Jenkins