CLOUD COMPUTING LAB UE20CS351

Assignment 2 – Jenkins

(Creating a DevOps Pipeline, CI/CD tool)

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SRN: PES2UG20CS045

Task-1

Aim: Set up Jenkins using Docker.

```
pes2ug20cs045@ananya-VirtualBox:~/Jenkins_lab-main/Dockerfile$ sudo docker run -p 8080:8080 -p 50000:50000 -it jenkins:PES2UG20CS045
Running from: /usr/share/jenkins/jenkins.war
webroot: EnvVars.masterEnvVars.get("JENKINS_HOME")
2023-02-18 09:15:18.685+0000 [id=1]     INFO    winstone.Logger#logInternal: Beginning extraction from war file
2023-02-18 09:15:22.548+0000 [id=1]     WARNING o.e.j.s.handler.ContextHandler#setContextPath: Empty contextPath
2023-02-18 09:15:23.000+0000 [id=1]     INFO    org.eclipse.jetty.server.Server#doStart: jetty-10.0.12; built: 2022-09-14T01:54:40.076Z; git: 408d0139887e27a57b54ed52e2d92a3673
1a7e88; jvm 11.0.18+10
2023-02-18 09:15:24.583+0000 [id=1]     INFO    o.e.j.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclipse.jetty.jsp.JettyJspServlet
2023-02-18 09:15:24.964+0000 [id=1]     INFO    o.e.j.s.s.DefaultSessionIdManager#doStart: Session workerName=node0
2023-02-18 09:15:27.476+0000 [id=1]     INFO    hudson.WebAppMain#contextInitialized: Jenkins home directory: /var/jenkins_home found at: EnvVars.masterEnvVars.get("JENKINS_HOM
E")
2023-02-18 09:15:28.639+0000 [id=1]     INFO    o.e.j.s.handler.ContextHandler#doStart: Started w.@34acbc60{Jenkins v2.375.3,/,file:///var/jenkins_home/war/,AVAILABLE}{/var/jen
kins_home/war}
2023-02-18 09:15:28.878+0000 [id=1]     INFO    o.e.j.server.AbstractConnector#doStart: Started ServerConnector@17cdf2d0{HTTP/1.1, (http/1.1)}{0.0.0.0:8080}
2023-02-18 09:15:29.103+0000 [id=1]     INFO    org.eclipse.jetty.server.Server#doStart: Started Server@774698ab[STARTING][10.0.12,sto=0] @13765ms
2023-02-18 09:15:29.138+0000 [id=23]    INFO    winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
2023-02-18 09:15:30.332+0000 [id=29]    INFO    jenkins.InitReactorRunner$1#onAttained: Started initialization
2023-02-18 09:15:30.487+0000 [id=28]    INFO    jenkins.InitReactorRunner$1#onAttained: Listed all plugins
2023-02-18 09:15:33.815+0000 [id=29]    INFO    jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
2023-02-18 09:15:33.830+0000 [id=29]    INFO    jenkins.InitReactorRunner$1#onAttained: Started all plugins
2023-02-18 09:15:33.968+0000 [id=29]    INFO    jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
2023-02-18 09:15:34.986+0000 [id=29]    INFO    jenkins.InitReactorRunner$1#onAttained: System config loaded
2023-02-18 09:15:35.019+0000 [id=29]    INFO    jenkins.InitReactorRunner$1#onAttained: System config adapted
2023-02-18 09:15:35.030+0000 [id=28]    INFO    jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
2023-02-18 09:15:35.050+0000 [id=29]    INFO    jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
2023-02-18 09:15:35.332+0000 [id=42]    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$1 (file:/var/jenkins_home/war/WEB-INF/lib/groovy-all-2.4.21.jar) to constructor java.lang.invoke.Met
hodHandles$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 09:15:37.808+0000 [id=28]    INFO    jenkins.install.SetupWizard#init:
```

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

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

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

2023-02-18 13:59:11.946+0000 [id=42]    INFO    h.m.DownloadService$Downloadable#load: Obtained the updated data file for hudson.tasks.Maven.MavenInstaller
2023-02-18 13:59:11.948+0000 [id=42]    INFO    hudson.util.Retrier#start: Performed the action check updates server successfully at the attempt #1
2023-02-18 13:59:12.335+0000 [id=28]    INFO    jenkins.InitReactorRunner$1#onAttained: Completed initialization
2023-02-18 13:59:12.399+0000 [id=22]    INFO    hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
```

✅ Console Output

```
Started by user ANANYA NARAYAN BHAT
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG20CS045-1
The recommended git tool is: NONE
No credentials specified
 > git rev-parse --resolve-git-dir /var/jenkins_home/workspace/PES2UG20CS045-1/.git # timeout=10
Fetching changes from the remote Git repository
 > git config remote.origin.url https://github.com/Ananya207/PES2UG20CS045_Jenkins # timeout=10
Fetching upstream changes from https://github.com/Ananya207/PES2UG20CS045_Jenkins
 > git --version # timeout=10
 > git --version # 'git version 2.30.2'
 > git fetch --tags --force --progress -- https://github.com/Ananya207/PES2UG20CS045_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 68b7b46f2743fabc9d0e9d218a5760434d2eeb33 (origin/main)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f 68b7b46f2743fabc9d0e9d218a5760434d2eeb33 # timeout=10
Commit message: "Add files via upload"
 > git rev-list --no-walk 886470bc6526ad3675a9ee92471344f6ca32051e # timeout=10
[PES2UG20CS045-1] $ /bin/sh -xe /tmp/jenkins8665249883523509872.sh
+ make -C main
make: Entering directory '/var/jenkins_home/workspace/PES2UG20CS045-1/main'
g++ PES2UG20CS045_AnanyaBhat.cpp -o PES2UG20CS045_AnanyaBhat_exec
make: Leaving directory '/var/jenkins_home/workspace/PES2UG20CS045-1/main'
Finished: SUCCESS
```

2. Picture showing the Stable state of the task in Build History of Jenkins
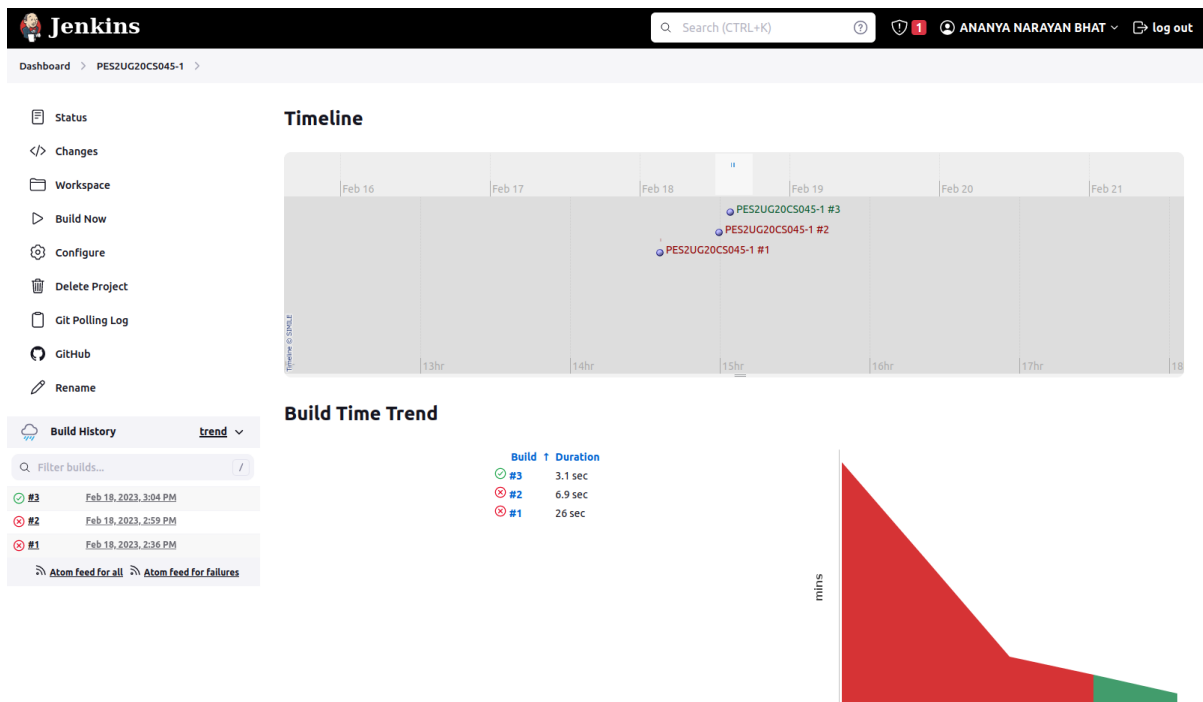
TASK 3:

1.Console output of second job

Jenkins

Search (CTRL+K) | ANANYA NARAYAN BHAT | log out

- Status
- Changes
- Console Output
  - View as plain text
- Edit Build Information
- Delete build '#3'
- ← Previous Build

✓ Console Output

```
Started by user ANANYA NARAYAN BHAT
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG20CS045-2
[PES2UG20CS045-2] $ /bin/sh -xe /tmp/jenkins17010510136476468570.sh
+ /var/jenkins_home/workspace/PES2UG20CS045-1/main/PES2UG20CS045_AnanyaBhat_exec
Hello, World
Hello, Jenkins
I have successfully built and run
SRN : PES2UG20CS045, NAME: Ananya Bhat
 Executing Task4 to see if job is updated automatically
Finished: SUCCESS
```

2. Status page of first job

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

Project PES2UG20CS045-1

✏ Add description

Disable Project

Downstream Projects

✓ **PES2UG20CS045-2**

Permalinks

- **Last build (#4), 6 min 10 sec ago**
- **Last stable build (#4), 6 min 10 sec ago**
- **Last successful build (#4), 6 min 10 sec ago**
- **Last failed build (#2), 21 min ago**
- **Last unsuccessful build (#2), 21 min ago**
- **Last completed build (#4), 6 min 10 sec ago**

☁ **Build History**   trend ⌄

Filter builds...

- ✓ **#4**   Feb 18, 2023, 3:15 PM
- ✓ **#3**   Feb 18, 2023, 3:04 PM

3. Build History of Jenkins
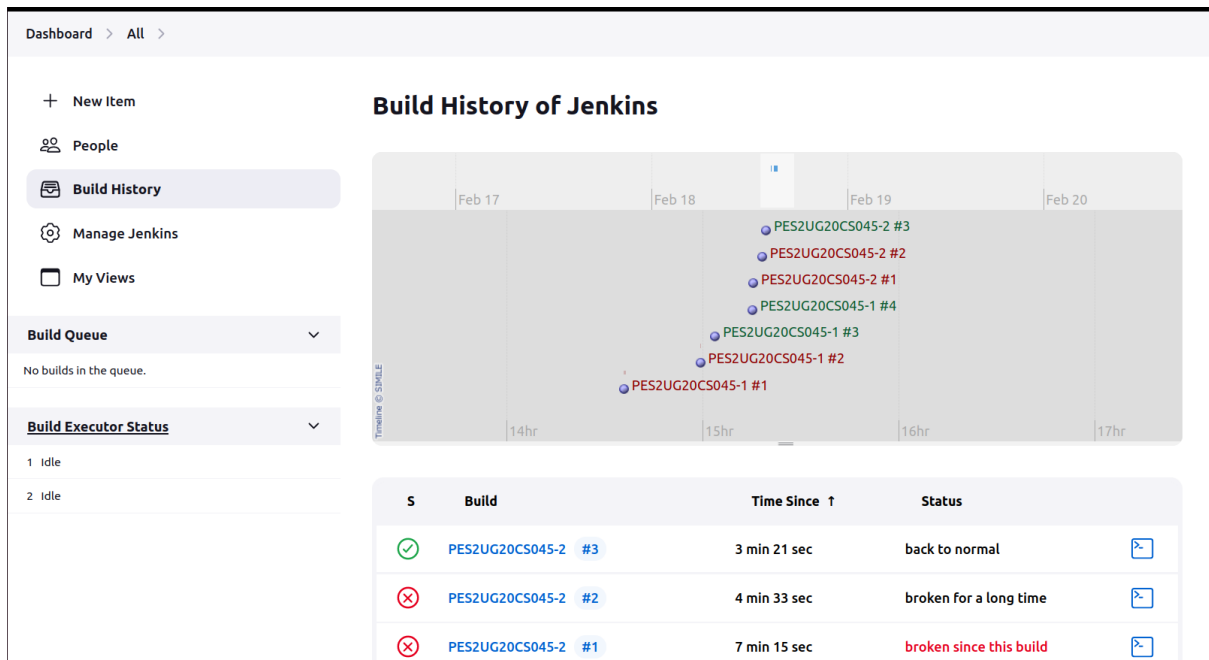
Build History of Jenkins

S	Build	Time Since ↑	Status	
✓	PES2UG20CS045-2 #3	3 min 21 sec	back to normal	▣
✕	PES2UG20CS045-2 #2	4 min 33 sec	broken for a long time	▣
✕	PES2UG20CS045-2 #1	7 min 15 sec	broken since this build	▣

4. Jenkins Dashboard

Task-4

1.Webhook added to your GitHub repository
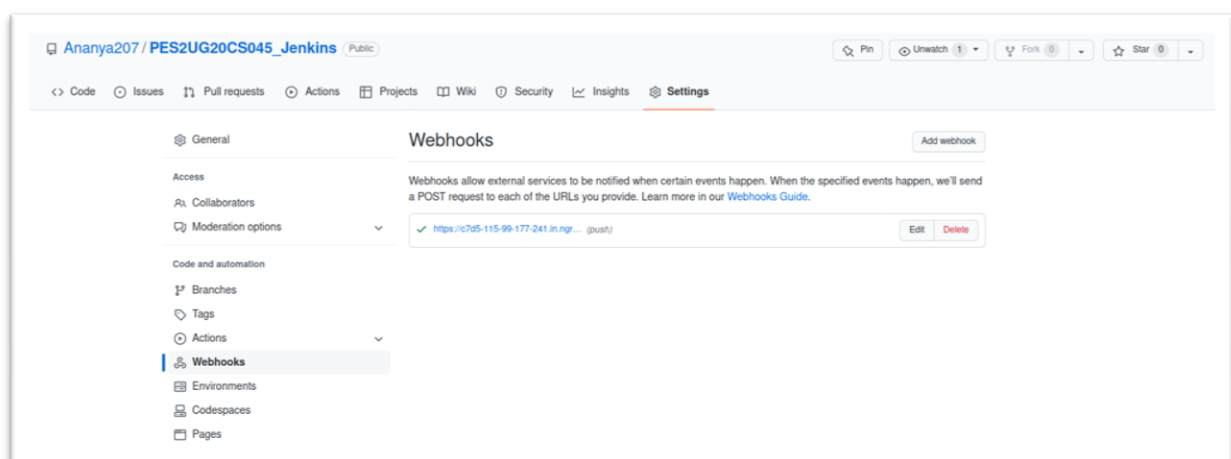
2. Console Output of second job displaying the change made in hello.cpp file

Status

Changes

Console Output

View as plain text

Edit Build Information

Delete build '#7'

← **Previous Build**

✓ **Console Output**

```
Started by user ANANYA NARAYAN BHAT
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/PES2UG20CS045-2
[PES2UG20CS045-2] $ /bin/sh -xe /tmp/jenkins5777720673391114964.sh
+ /var/jenkins_home/workspace/PES2UG20CS045-1/main/PES2UG20CS045_AnanyaBhat_exec
Hello, World
Hello, Jenkins
I have successfully built and run
SRN : PES2UG20CS045, NAME: Ananya Bhat
 Executing Task4 to see if job is updated automatically
Finished: SUCCESS
```

TASK 5:

Aim: To create a basic Jenkins pipeline.

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

⑂ main ▾   **PES2UG20CS045_Jenkins** / **Jenkinsfile**   Go to file   ⋯

Ananya207 Add files via upload   Latest commit 2a13ff6 1 hour ago   ⏱ History

⚥ 1 contributor

31 lines (28 sloc) | 437 Bytes   Raw   Blame   ✎ ▾ 🗑

```
1   pipeline {
2       agent any
3
4   stages{
5     stage('Build') {
6       steps{
7           sh 'g++ -o PES2UG20CS045 PES2UG20CS045.cpp'
8       }
9     }
10
11    stage('Test') {
12      steps{
13          sh './PES2UG20CS045'
14      }
15    }
16
17    stage('Deploy') {
18      steps{
19        echo 'DEPLOYMENT SUCCESSFUL FROM GITHUB REPO - PES2UG20CS045_Jenkins'
20      }
21    }
22  }
23  post {
24      always {
25        echo 'Pipeline was completed'
26      }
27      failure {
28          echo 'Pipeline has Failed'
29      }
30    }
31  }
```

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

Status

Changes

Build Now

Configure

Delete Pipeline

Full Stage View

Rename

Pipeline Syntax

Build History   trend ⌄

Filter builds...   /

⊗ #2   Feb 18, 2023, 4:10 PM

⊘ #1   Feb 18, 2023, 4:04 PM

Atom feed for all   Atom feed for failures

Pipeline PES2UG20CS045

✎ Add description

Disable Project

Stage View

	Build	Test	Deploy	Declarative: Post Actions
Average stage times:	1s	420ms	251ms	466ms
#2 Feb 18 21:40 — No Changes	1s failed	420ms failed	251ms failed	466ms

Permalinks

- **Last build (#2), 2.4 sec ago**
- **Last stable build (#1), 6 min 12 sec ago**
- **Last successful build (#1), 6 min 12 sec ago**
- **Last completed build (#1), 6 min 12 sec ago**

3.Console Output of the Pipeline

▶_ **Console Output**

📄 View as plain text

✎ Edit Build Information

🗑 Delete build '#2'

🔄 Restart from Stage

↪ Replay

≣ Pipeline Steps

📁 Workspaces

← Previous Build

```
Started by user ANANYA NARAYAN BHAT
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/jenkins_home/workspace/PES2UG20CS045
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Build)
[Pipeline] sh
+ g++ -o PES2UG20CS045 PES2UG20CS045.cpp
g++: error: PES2UG20CS045.cpp: No such file or directory
g++: fatal error: no input files
compilation terminated.
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Test)
Stage "Test" skipped due to earlier failure(s)
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Deploy)
Stage "Deploy" skipped due to earlier failure(s)
```

4. Link to the created GitHub repository

https://github.com/Ananya207/PES2UG20CS045_Jenkins