St. Francis Institute of Technology, Mumbai-400 103
Department Of Information Technology

A.Y. 2023-2024
Class: TE-ITA/B, Semester: V

Subject: **DevOps Lab**

Experiment – 4: To understand Continuous Integration, install and configure Jenkins with Maven/Ant/Gradle to setup a build Job
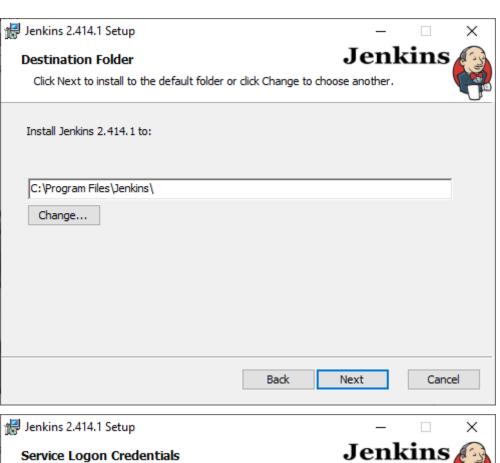
List of screenshots to be included in this experiment
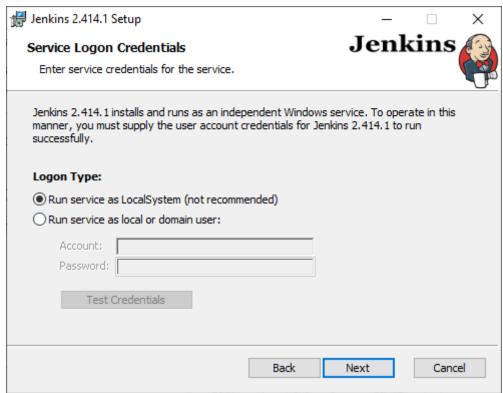
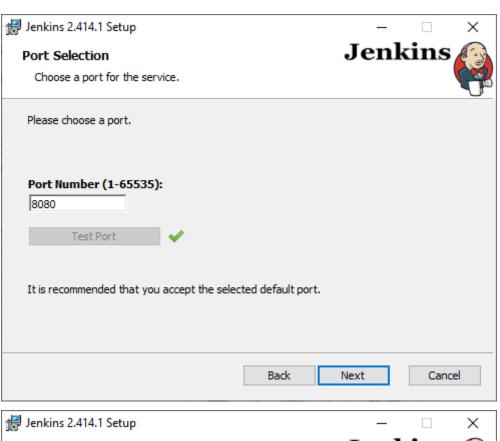**7b. Execute following (Refer the shared material) and attach screenshots:**

• Install Jenkins
 Step 1: Install the installer.exe file from preferred browser
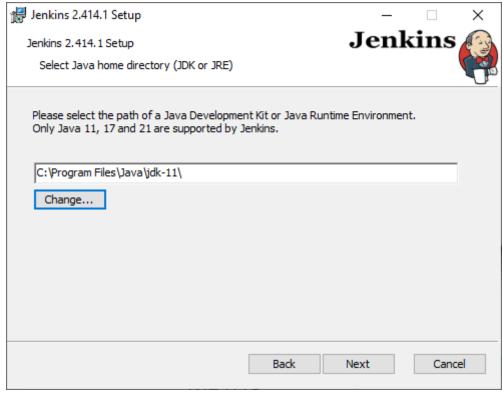
Jenkins 2.414.1 Setup

Port Selection
Choose a port for the service.

Please choose a port.

Port Number (1-65535):
8080

Test Port ✔

It is recommended that you accept the selected default port.

Back   Next   Cancel

Jenkins 2.414.1 Setup

Jenkins 2.414.1 Setup
Select Java home directory (JDK or JRE)

Please select the path of a Java Development Kit or Java Runtime Environment.
Only Java 11, 17 and 21 are supported by Jenkins.

C:\Program Files\Java\jdk-11\

Change...

Back   Next   Cancel
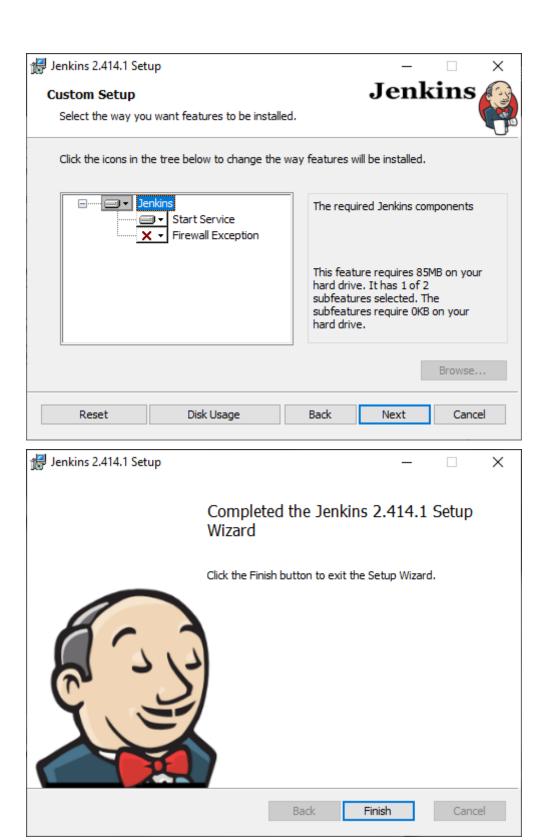
Unlock Jenkins

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:

`C:\ProgramData\Jenkins\.jenkins\secrets\initialAdminPassword`

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

Administrator password

```
··························
```

Instance Configuration

Jenkins URL:

```
http://localhost:8080/
```

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD_URL environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Manage Jenkins

System Configuration

System
Configure global settings and paths.
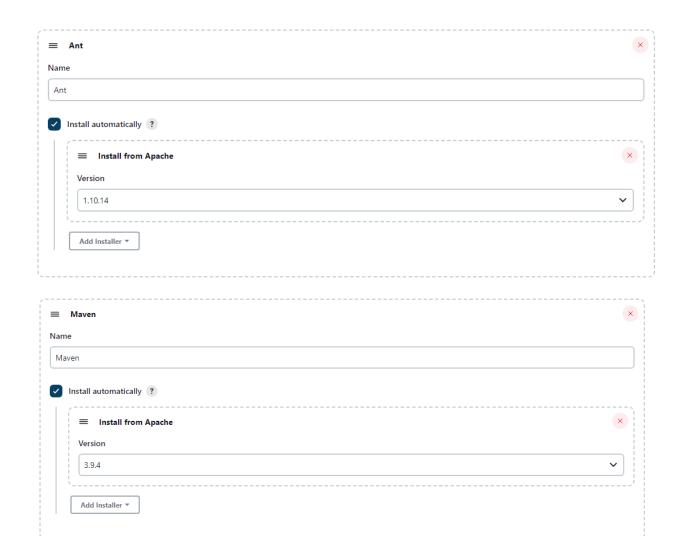
Tools
Configure tools, their locations and automatic installers.
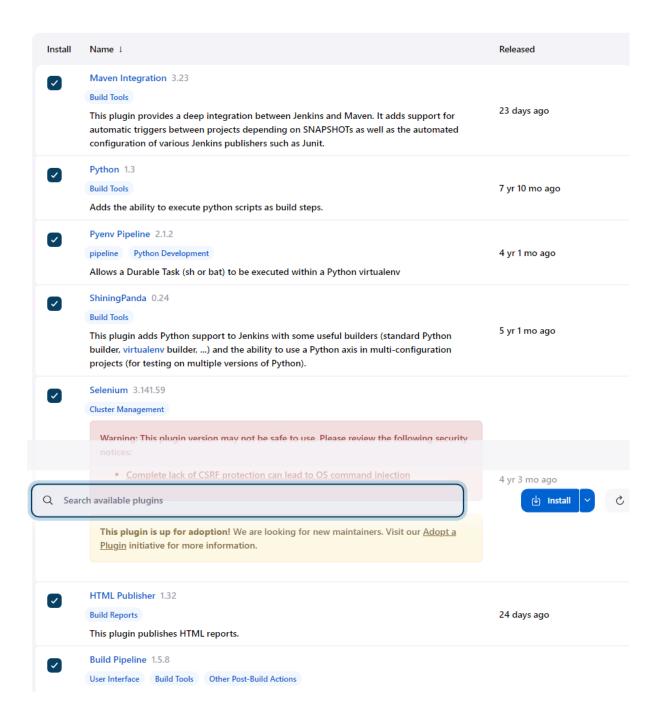
• Configure Jenkins with Maven/Ant/Gradle – Global tool configuration, manage plugins
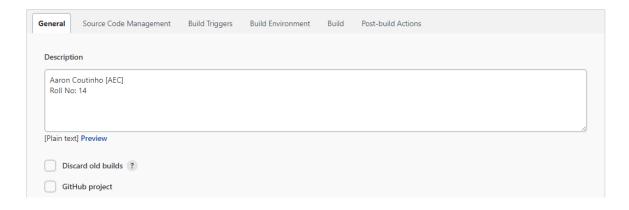
Tools

Maven Configuration

Default settings provider

Use default maven settings ⌄

Default global settings provider

Use default maven global settings ⌄

JDK installations

Add JDK

≡ **JDK** ✕

Name

JDK

JAVA_HOME

C:\Program Files\Java\jdk-11

☐ Install automatically ?

≡ **Gradle** ✕

name ?

Gradle

☑ Install automatically ?

≡ **Install from Gradle.org** ✕

Version

Gradle 8.3 ⌄

Add Installer ▾

-AEC

-EIIR

Ant

Name

Ant

☑ Install automatically ?

Install from Apache

Version

1.10.14 ▾

Add Installer ▾

Maven

Name

Maven

☑ Install automatically ?

Install from Apache

Version

3.9.4 ▾

Add Installer ▾

-AEC

-EIIR

Plugins

Install	Name ↓	Released
☑	**Maven Integration** 3.23 `Build Tools` This plugin provides a deep integration between Jenkins and Maven. It adds support for automatic triggers between projects depending on SNAPSHOTs as well as the automated configuration of various Jenkins publishers such as Junit.	23 days ago
☑	**Python** 1.3 `Build Tools` Adds the ability to execute python scripts as build steps.	7 yr 10 mo ago
☑	**Pyenv Pipeline** 2.1.2 `pipeline` `Python Development` Allows a Durable Task (sh or bat) to be executed within a Python virtualenv	4 yr 1 mo ago
☑	**ShiningPanda** 0.24 `Build Tools` This plugin adds Python support to Jenkins with some useful builders (standard Python builder, virtualenv builder, ...) and the ability to use a Python axis in multi-configuration projects (for testing on multiple versions of Python).	5 yr 1 mo ago
☑	**Selenium** 3.141.59 `Cluster Management` Warning: This plugin version may not be safe to use. Please review the following security notices: • Complete lack of CSRF protection can lead to OS command injection This plugin is up for adoption! We are looking for new maintainers. Visit our Adopt a Plugin initiative for more information.	4 yr 3 mo ago
☑	**HTML Publisher** 1.32 `Build Reports` This plugin publishes HTML reports.	24 days ago
☑	**Build Pipeline** 1.5.8 `User Interface` `Build Tools` `Other Post-Build Actions`	

🔍 Search available plugins

⬇ Install ⌄   ↻

• Build jobs in Jenkins

1. Freestyle project (Simple Windows batch command) – echo

-AEC

General   Source Code Management   Build Triggers   Build Environment   Build   Post-build Actions

Description

Aaron Coutinho [AEC]
Roll No: 14

[Plain text] Preview

☐ Discard old builds ?

☐ GitHub project

Build

≡ **Execute Windows batch command** ?   ✕

Command
See the list of available environment variables

echo "God Save The King"

Advanced...

Console Output

```
Started by user admin
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T1
[AEC_T1] $ cmd /c call C:\Windows\TEMP\jenkins5348602653358885669.bat

C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T1>echo "God Save The King"
"God Save The King"

C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T1>exit 0
Finished: SUCCESS
```
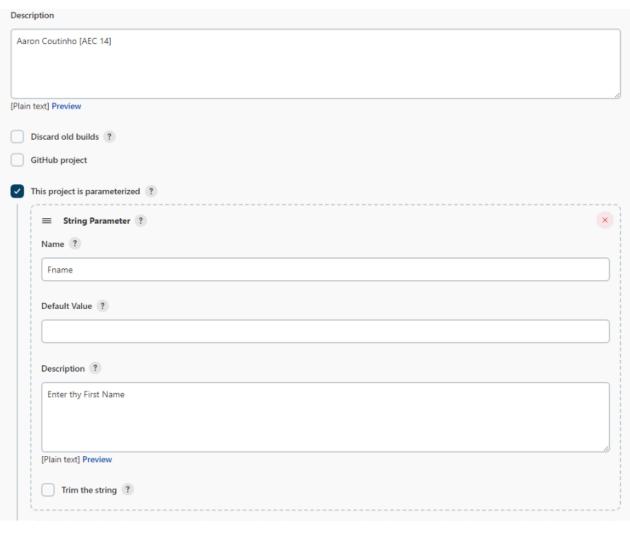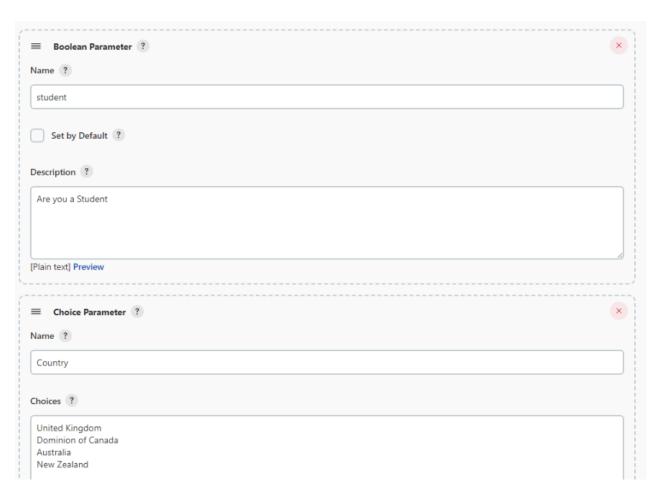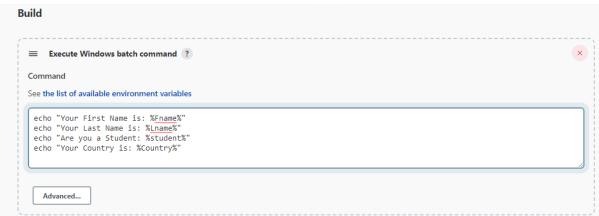
2. Freestyle parameterized project (Windows batch command) –string, Boolean and choice parameters with echo

-AEC

Description

Aaron Coutinho [AEC 14]

[Plain text] Preview

☐ Discard old builds ?

☐ GitHub project

☑ This project is parameterized ?

≡ **String Parameter** ? ✕

Name ?

Fname

Default Value ?

Description ?

Enter thy First Name

[Plain text] Preview

☐ Trim the string ?

≡ **String Parameter** ? ✕

Name ?

Lname

Default Value ?

Description ?

Enter thy Last Name

[Plain text] Preview

☐ Trim the string ?

-AEC

-EIIR

Boolean Parameter ?

Name ?

```
student
```

☐ **Set by Default** ?

Description ?

```
Are you a Student
```

[Plain text] Preview

Choice Parameter ?

Name ?

```
Country
```

Choices ?

```
United Kingdom
Dominion of Canada
Australia
New Zealand
```

Build

Execute Windows batch command ?

Command

See the list of available environment variables

```
echo "Your First Name is: %Fname%"
echo "Your Last Name is: %Lname%"
echo "Are you a Student: %student%"
echo "Your Country is: %Country%"
```

Advanced...

-AEC

-EIIR

Project AEC_T2

This build requires parameters:

Fname

Enter thy First Name

Aaron

Lname

Enter thy Last Name

Coutinho

☑ **student**

Are you a Student

Country

Select one of the Country

United Kingdom ▾

Build

-AEC

-EIIR

```
Started by user admin
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T2
[AEC_T2] $ cmd /c call C:\Windows\TEMP\jenkins2355531767055500390.bat

C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T2>echo "Your First Name is: Aaron"
"Your First Name is: Aaron"

C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T2>echo "Your Last Name is: Coutinho"
"Your Last Name is: Coutinho"

C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T2>echo "Are you a Student: true"
"Are you a Student: true"

C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T2>echo "Your Country is: United Kingdom"
"Your Country is: United Kingdom"

C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T2>exit 0
Finished: SUCCESS
```
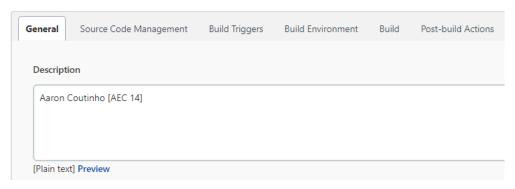
3. Java freestyle project -Hello world

AEC_14 > AEC_T3 >

| General | Source Code Management | Build Triggers | Build Environment | Build | Post-build Actions |

Description

Aaron Coutinho [AEC 14]

[Plain text] **Preview**

-AEC

Build

Execute Windows batch command ?   ✕

Command

See the list of available environment variables

```
cd C:\AEC
javac DL_Exp4.java
java DL_Exp4
```

Advanced...

Add build step ▾

Dashboard > Global Tool Configuration

JDK

JDK installations

List of JDK installations on this system

Add JDK

JDK
Name

java

JAVA_HOME

C:\Program Files\Java\jdk1.8.0_281

☐ Install automatically ?

Add JDK

-AEC

-EIIR

✓ Console Output

```
Started by user admin
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T3
[AEC_T3] $ cmd /c call C:\Windows\TEMP\jenkins37042991392745696481.bat


C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T3>cd C:\AEC


C:\AEC>javac DL_Exp4.java


C:\AEC>java DL_Exp4
Hello World


C:\AEC>exit 0
Finished: SUCCESS
```
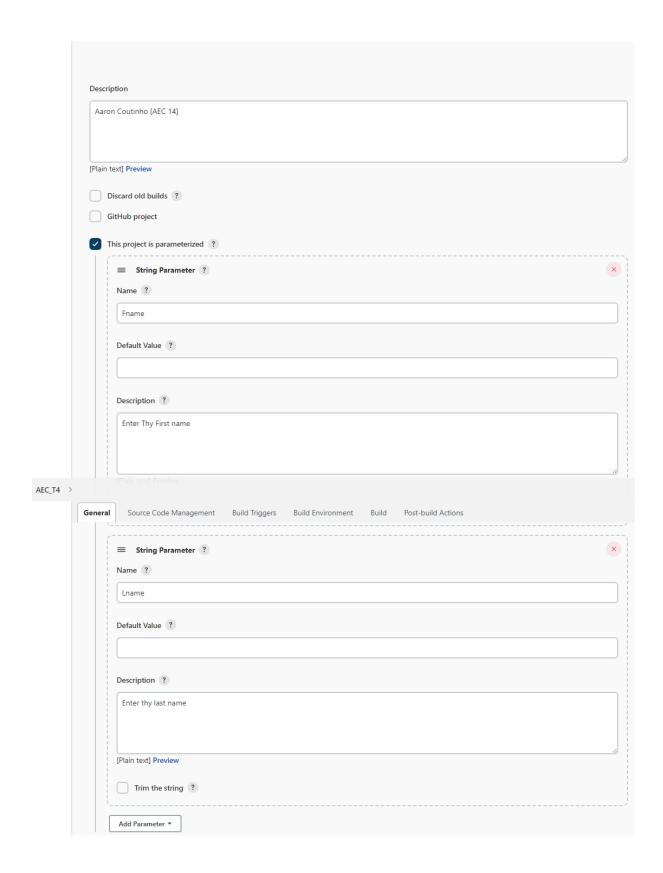
4. Java freestyle project (parameterized) – 2 String parameter

Description

Aaron Coutinho [AEC 14]

[Plain text] Preview

☐ Discard old builds ?

☐ GitHub project ?

☑ This project is parameterized ?

≡ **String Parameter** ?   ✕

Name ?

Fname

Default Value ?

Description ?

Enter Thy First name

[Plain text] Preview

AEC_T4 ›

| General | Source Code Management | Build Triggers | Build Environment | Build | Post-build Actions |

≡ **String Parameter** ?   ✕

Name ?

Lname

Default Value ?

Description ?

Enter thy last name

[Plain text] Preview

☐ Trim the string ?

Add Parameter ▾

-AEC

-EIIR

Build

≡ **Execute Windows batch command** ?   ✕

Command

See the list of available environment variables

```
cd C:\AEC
javac DL_Exp4_2.java
java DL_Exp4_2 %Fname% %Lname%s
```

Advanced...

✅ Console Output

```
Started by user admin
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T4
[AEC_T4] $ cmd /c call C:\Windows\TEMP\jenkins494099556611770575.bat

C:\ProgramData\Jenkins\.jenkins\workspace\AEC_T4>cd C:\AEC

C:\AEC>javac DL_Exp4_2.java

C:\AEC>java DL_Exp4_2 Aaron Coutinho
Your Name is: Aaron
Your Surname is: Coutinho

C:\AEC>exit 0
Finished: SUCCESS
```
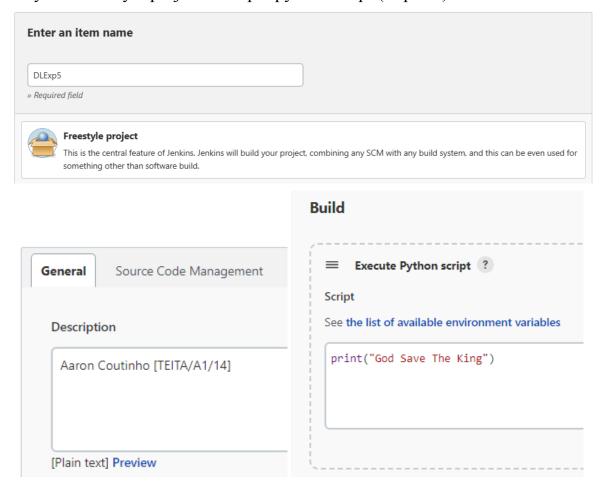
-AEC

-EIIR

A.Y. 2023-2024
Class: TE-ITA/B, Semester: V

Subject: **DevOps Lab**

Experiment – 5: To implement continuous integration with Jenkins

List of screenshots to be included in this experiment

7b. **Execute following (Refer the shared material) and attach screenshots:**

• Build jobs in Jenkins

1. Python freestyle project – simple python script (implicit)

Console Output

```
Started by user admin
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\.jenkins\workspace\DLExp5
[DLExp5] $ python C:\Windows\TEMP\jenkins6730611628927847643.py
God Save The King
Finished: SUCCESS
```

AEC_14 > DLEXP5T2 >

General   Source Code Management

Description

Aaron Coutinho [TEITA/A1/14]

```python
num = 21

if num < 0:
  print("Enter a positive number")
else:
  sum = 0
  # use while loop to iterate until zero
  while(num > 0):
    sum += num
    num -= 1
  print("The sum is",sum)
```

-AEC

Build

≡ Execute Python script ?
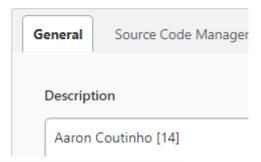
Script

See the list of available environment variables

```python
num = 21

if num < 0:
    print("Enter a positive number")
```

✓ Console Output

```
Started by user admin
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T2
[DLEXP5T2] $ python C:\Windows\TEMP\jenkins3119013285235892378.py
The sum is 231
Finished: SUCCESS
```

2. Python freestyle project – simple python file (explicit)

```python
num = 21
factorial = 1
if num < 0:
    print(" Factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
    for i in range(1,num + 1):
        factorial = factorial*i
    print("The factorial of",num,"is",factorial)
```

-AEC

General   Source Code Manager

Description

Aaron Coutinho [14]

Build

≡   **Execute Windows batch command**   ?

Command

See **the list of available environment variables**

```
cd C:\AEC
python DLEXP5T3.py
```
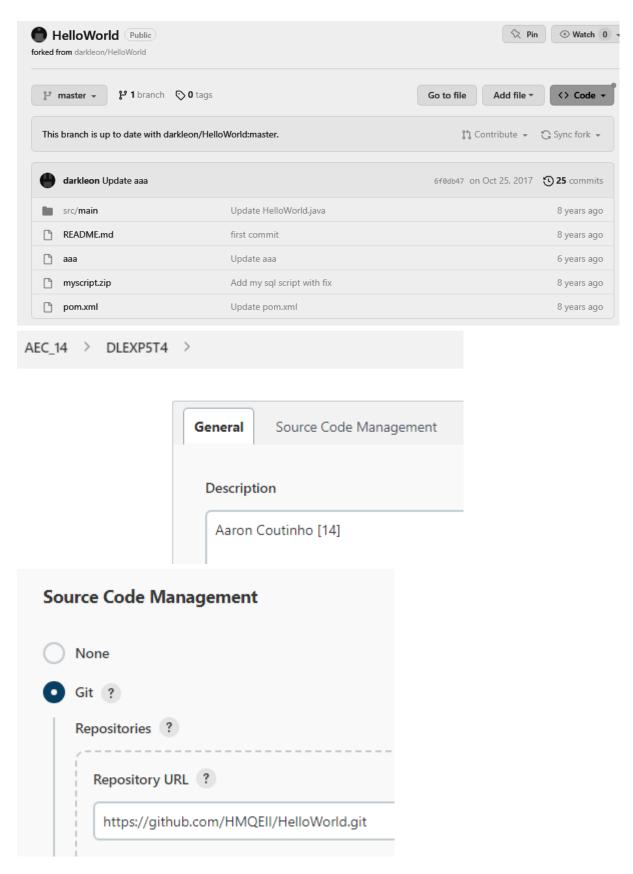
✅ Console Output

```
Started by user admin
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T3
[DLEXP5T3] $ cmd /c call C:\Windows\TEMP\jenkins2561549165796234835.bat

C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T3>cd C:\AEC

C:\AEC>python DLEXP5T3.py
The factorial of 21 is 51090942171709440000

C:\AEC>exit 0
Finished: SUCCESS
```
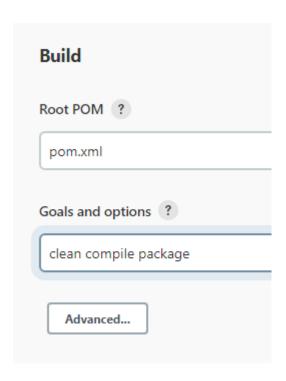
3. Maven freestyle project – Fork repository and Build goals, verify creation of jar/war

HelloWorld `Public`

forked from darkleon/HelloWorld

master ▾	1 branch	0 tags	Go to file · Add file ▾ · <> Code ▾

This branch is up to date with darkleon/HelloWorld:master.   ⇅ Contribute ▾   ↻ Sync fork ▾

darkleon Update aaa   6f0db47 on Oct 25, 2017   ⏱ 25 commits

src/main	Update HelloWorld.java	8 years ago
README.md	first commit	8 years ago
aaa	Update aaa	6 years ago
myscript.zip	Add my sql script with fix	8 years ago
pom.xml	Update pom.xml	8 years ago

AEC_14 > DLEXP5T4 >

General   Source Code Management

Description

Aaron Coutinho [14]

Source Code Management

○ None

● Git ?

Repositories ?

Repository URL ?

https://github.com/HMQEII/HelloWorld.git

-AEC

Build

Root POM ?

pom.xml

Goals and options ?

clean compile package

Advanced...

```
[INFO] Processing war project
[INFO] Copying webapp resources [C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T4\src\main\webapp]
[INFO] Building war: C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T4\target\HelloWorld.war
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  3.836 s
[INFO] Finished at: 2023-08-29T16:45:33+05:30
[INFO] ------------------------------------------------------------------------
Waiting for Jenkins to finish collecting data
[JENKINS] Archiving C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T4\pom.xml to hello/HelloWorld/1.0-
[JENKINS] Archiving C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T4\target\HelloWorld.war to hello/H
channel stopped
Finished: SUCCESS
```

```
C:\Windows\system32\cmd.exe

C:\Users\Lenovo>dir C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T4\target\HelloWorld.war
 Volume in drive C has no label.
 Volume Serial Number is 50D5-6323

 Directory of C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T4\target

29/08/2023  16:45             2,418 HelloWorld.war
               1 File(s)          2,418 bytes
               0 Dir(s)  93,639,737,344 bytes free
```

4. Ant freestyle project - Fork repository and Build goals, verify creation of jar/war

-AEC

rps-ant Public

forked from suparna-khamaru/rps-ant

master | 1 branch | 0 tags

Go to file | Add file | <> Code

This branch is up to date with suparna-khamaru/rps-ant:master.

Contribute | Sync fork

suparna-khamaru Create ant.yml   02f88a3 on Mar 20, 2021   8 commits

.github/workflows   Create ant.yml   2 years ago

src   test names demo   3 years ago

AEC_14 > DLEXP5T5 >

General | Source Code Management

Description

Aaron Coutinho [14]

Build

≡ Invoke Ant ?

Ant Version

Ant

Targets ?

clean compile package

Advanced...

-AEC

-EIIR

```
    [junit] Testsuite: com.mcnz.rps.GameSummaryTest
    [junit] Tests run: 6, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.067 sec
    [junit] Tests run: 6, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.067 sec
    [junit]
    [junit] Testcase: testGetClientGesture took 0 sec
    [junit] Testcase: testGetServerGesture took 0 sec
    [junit] Testcase: testGetDate took 0 sec
    [junit] Testcase: demoTest1 took 0 sec
    [junit] Testcase: demoTest2 took 0 sec
    [junit] Testcase: testGetResult took 0 sec

package:
    [mkdir] Created dir: C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T5\target\roshambo\WEB-INF\lib
      [war] Building war: C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T5\target\roshambo.war

BUILD SUCCESSFUL
Total time: 4 seconds
Finished: SUCCESS
```

```
Microsoft Windows [Version 10.0.22000.1098]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Lenovo>C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T5\target\roshambo.war

C:\Users\Lenovo>dir C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T5\target\roshambo.war
 Volume in drive C has no label.
 Volume Serial Number is 50D5-6323

 Directory of C:\ProgramData\Jenkins\.jenkins\workspace\DLEXP5T5\target

29/08/2023  16:33             9,710 roshambo.war
               1 File(s)          9,710 bytes
               0 Dir(s)  93,639,979,008 bytes free
```

Git

Git installations

≡ **Git**

Name

Git

Path to Git executable ?

C:\Program Files\Git\bin\git.exe

☐ Install automatically ?

-AEC

-EIIR

Ant

Ant installations

List of Ant installations on this system

Add Ant

Ant
Name

Ant

ANT_HOME

C:\apache-ant-1.10.14

Maven

Maven installations

List of Maven installations on this system

Add Maven

Maven
Name

Maven

MAVEN_HOME

C:\apache-maven-3.9.4-bin\apache-maven-3.9.4

☐ **Install automatically** ?

Experiment– 9: To understand Docker Architecture and Container Life Cycle, install Docker and execute docker commands to manage images and interact with containers.
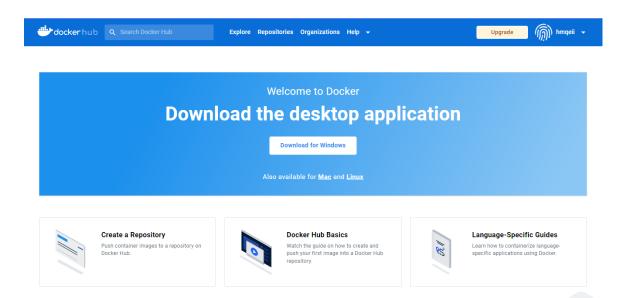
7b.   **Execute following (Refer the shared material) and attach screenshots:**
●   Create Docker Hub account – screenshot of steps related to account creation

- Download and install Docker Desktop – screenshots of installation steps
- Execute following docker commands and take screenshots
1. Docker version

```
C:\Users\Lenovo>docker version
Client:
 Cloud integration: v1.0.22
 Version:           20.10.12
 API version:       1.41
 Go version:        go1.16.12
 Git commit:        e91ed57
 Built:             Mon Dec 13 11:44:07 2021
 OS/Arch:           windows/amd64
 Context:           default
 Experimental:      true

Server: Docker Desktop 4.5.1 (74721)
 Engine:
  Version:          20.10.12
  API version:      1.41 (minimum version 1.12)
  Go version:       go1.16.12
  Git commit:       459d0df
  Built:            Mon Dec 13 11:43:56 2021
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
  Version:          1.4.12
  GitCommit:        7b11cfaabd73bb80907dd23182b9347b4245eb5d
 runc:
  Version:          1.0.2
  GitCommit:        v1.0.2-0-g52b36a2
 docker-init:
  Version:          0.19.0
  GitCommit:        de40ad0
```

```
C:\Users\Lenovo>docker --version
Docker version 20.10.12, build e91ed57
```

-AEC

-EIIR

2.   Docker login

```
C:\Users\Lenovo>docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub
.docker.com to create one.
Username: hmqeii
Password:
Login Succeeded

Logging in with your password grants your terminal complete access to your account.
```

3.   Docker images

```
C:\Users\Lenovo>docker images
REPOSITORY            TAG        IMAGE ID       CREATED         SIZE
hmqeii/new            latest     6f614140837f   6 minutes ago   77.8MB
ubuntu                latest     c6b84b685f35   5 weeks ago     77.8MB
ubuntu                rolling    21098a29e034   5 weeks ago     70.3MB
neandra/nean_img      1          d5d7b9c964f6   10 months ago   77.8MB
ubuntu                <none>     a8780b506fa4   10 months ago   77.8MB
docker/getting-started latest    cb90f98fd791   17 months ago   28.8MB
```

4.   Docker pull image

```
C:\Users\Lenovo>docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
445a6a12be2b: Pull complete
Digest: sha256:aabed3296a3d45cede1dc866a24476c4d7e093aa806263c27ddaadbdce3c1054
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
```

5.   Docker pull image-tag

```
C:\Users\Lenovo>docker pull ubuntu:rolling
rolling: Pulling from library/ubuntu
10fb01f4f619: Pull complete
Digest: sha256:f1090cfa89ab321a6d670e79652f61593502591f2fc7452fb0b7c6da575729c4
Status: Downloaded newer image for ubuntu:rolling
docker.io/library/ubuntu:rolling
```

6.   Docker images help

```
C:\Users\Lenovo>docker images --help

Usage:  docker images [OPTIONS] [REPOSITORY[:TAG]]

List images

Options:
  -a, --all            Show all images (default hides intermediate images)
      --digests        Show digests
  -f, --filter filter  Filter output based on conditions provided
      --format string  Pretty-print images using a Go template
      --no-trunc       Don't truncate output
  -q, --quiet          Only show image IDs
```

```
C:\Users\Lenovo>docker images -a
REPOSITORY              TAG       IMAGE ID       CREATED         SIZE
ubuntu                  latest    c6b84b685f35   5 weeks ago     77.8MB
neandra/nean_img        1         d5d7b9c964f6   10 months ago   77.8MB
ubuntu                  <none>    a8780b506fa4   10 months ago   77.8MB
docker/getting-started  latest    cb90f98fd791   17 months ago   28.8MB

C:\Users\Lenovo>docker images -q
c6b84b685f35
d5d7b9c964f6
a8780b506fa4
cb90f98fd791

C:\Users\Lenovo>docker images -f
flag needs an argument: 'f' in -f
See 'docker images --help'.

C:\Users\Lenovo>docker images -f "dangling=true"
REPOSITORY   TAG       IMAGE ID   CREATED   SIZE

C:\Users\Lenovo>docker images -f "dangling=false"
REPOSITORY              TAG       IMAGE ID       CREATED         SIZE
ubuntu                  latest    c6b84b685f35   5 weeks ago     77.8MB
neandra/nean_img        1         d5d7b9c964f6   10 months ago   77.8MB
ubuntu                  <none>    a8780b506fa4   10 months ago   77.8MB
docker/getting-started  latest    cb90f98fd791   17 months ago   28.8MB
```

7.   Docker run commands

```
C:\Users\Lenovo>docker run ubuntu

C:\Users\Lenovo>docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS   PORTS   NAMES

C:\Users\Lenovo>docker ps -a
CONTAINER ID   IMAGE                   COMMAND                  CREATED          STATUS                      PORTS              NAMES
c58aa744cc97   ubuntu                  "/bin/bash"              49 seconds ago   Exited (0) 47 seconds ago                      compassionate_elgamal
3de50e0fed80   ubuntu                  "/bin/bash"              57 seconds ago   Exited (0) 55 seconds ago                      amazing_satoshi
be84f11b88b4   a8780b506fa4            "bash"                   10 months ago    Exited (255) 10 months ago                     neandraa
4c27cced0cb3   a8780b506fa4            "bash"                   10 months ago    Exited (0) 10 months ago                       nean
7f378c80d79d   a8780b506fa4            "bash"                   10 months ago    Exited (0) 10 months ago                       sharp_hamilton
046d7b27852c   a8780b506fa4            "bash"                   10 months ago    Exited (137) 10 months ago                     neandra
6eacf50d7abc   a8780b506fa4            "bash"                   10 months ago    Exited (0) 10 months ago                       youthful_hugle
b82ff36ab678   docker/getting-started  "/docker-entrypoint.…"   10 months ago    Exited (255) 10 months ago  0.0.0.0:80->80/tcp elastic_stonebraker

C:\Users\Lenovo>docker run --name Aaron -it ubuntu bash
root@4330036613ac:/# ls
bin  boot  dev  etc  home  lib  lib32  lib64  libx32  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  usr  var
root@4330036613ac:/# mkdir QEII
root@4330036613ac:/# ls
QEII  bin  boot  dev  etc  home  lib  lib32  lib64  libx32  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  usr  var
```

8.   Docker ps

```
C:\Users\Lenovo>docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED         STATUS         PORTS   NAMES
4330036613ac   ubuntu    "bash"    3 minutes ago   Up 3 minutes           Aaron
```

9.   Docker start container

```
C:\Users\Lenovo>docker start compassionate_elgamal
compassionate_elgamal
```

-AEC

10. Docker pause container

```
C:\Users\Lenovo>docker pause Aaron
Aaron
```

Aaron ubuntu
PAUSED

11. Docker stop container

```
C:\Users\Lenovo>docker stop Aaron
Aaron
```

Aaron ubuntu
EXITED (137)

12. Docker top container

```
C:\Users\Lenovo>docker top Aaron
UID           PID           PPID          C             STIME         TTY           TIME          CMD
root          1366          1346          0             10:58         ?             00:00:00      bash
```

13. Docker stats container

```
C:\Users\Lenovo>docker stats Aaron
CONTAINER ID    NAME     CPU %     MEM USAGE / LIMIT    MEM %     NET I/O        BLOCK I/O    PIDS
4330036613ac    Aaron    0.00%     920KiB / 7.646GiB    0.01%     1.12kB / 0B    0B / 0B      1
CONTAINER ID    NAME     CPU %     MEM USAGE / LIMIT    MEM %     NET I/O        BLOCK I/O    PIDS
4330036613ac    Aaron    0.00%     920KiB / 7.646GiB    0.01%     1.12kB / 0B    0B / 0B      1
CONTAINER ID    NAME     CPU %     MEM USAGE / LIMIT    MEM %     NET I/O        BLOCK I/O    PIDS
4330036613ac    Aaron    0.00%     920KiB / 7.646GiB    0.01%     1.12kB / 0B    0B / 0B      1
CONTAINER ID    NAME     CPU %     MEM USAGE / LIMIT    MEM %     NET I/O        BLOCK I/O    PIDS
4330036613ac    Aaron    0.00%     920KiB / 7.646GiB    0.01%     1.12kB / 0B    0B / 0B      1
CONTAINER ID    NAME     CPU %     MEM USAGE / LIMIT    MEM %     NET I/O        BLOCK I/O    PIDS
4330036613ac    Aaron    0.00%     920KiB / 7.646GiB    0.01%     1.12kB / 0B    0B / 0B      1
```

14. Docker rm container

```
C:\Users\Lenovo>docker rm compassionate_elgamal
compassionate_elgamal

C:\Users\Lenovo>docker ps -a
CONTAINER ID    IMAGE                  COMMAND                CREATED          STATUS                   PORTS               NAMES
4330036613ac    ubuntu                 "bash"                 11 minutes ago   Up 11 minutes                                Aaron
3de50e0fed80    ubuntu                 "/bin/bash"            15 minutes ago   Exited (0) 15 minutes ago                    amazing_satoshi
be84f11b88b4    a8780b506fa4           "bash"                 10 months ago    Exited (255) 10 months ago                   neandraa
4c27cced0cb3    a8780b506fa4           "bash"                 10 months ago    Exited (0) 10 months ago                     nean
7f378c80d79d    a8780b506fa4           "bash"                 10 months ago    Exited (0) 10 months ago                     sharp_hamilton
046d7b27852c    a8780b506fa4           "bash"                 10 months ago    Exited (137) 10 months ago                   neandra
6eacf50d7abc    a8780b506fa4           "bash"                 10 months ago    Exited (0) 10 months ago                     youthful_hugle
b82ff36ab678    docker/getting-started "/docker-entrypoint…." 10 months ago    Exited (255) 10 months ago 0.0.0.0:80->80/tcp elastic_stonebraker
```

15. Docker inspect

```
C:\Users\Lenovo>docker inspect ubuntu
[
    {
        "Id": "sha256:c6b84b685f35f1a5d63661f5d4aa662ad9b7ee4f4b8c394c022f25023c907b65",
        "RepoTags": [
            "ubuntu:latest"
        ],
        "RepoDigests": [
            "ubuntu@sha256:aabed3296a3d45cede1dc866a24476c4d7e093aa806263c27ddaadbdce3c1054"
        ],
        "Parent": "",
        "Comment": "",
        "Created": "2023-08-16T06:01:54.322918183Z",
        "Container": "ccf77fc533a6d0610b8f9f15b47d1b42172a8feedf293e1c5bc8c1a37bbf2f37",
        "ContainerConfig": {
            "Hostname": "ccf77fc533a6",
            "Domainname": "",
            "User": "",
```

```
GraphDriver : {
        "Data": {
            "MergedDir": "/var/lib/docker/overlay2/7c8efa62386951d3fdeb6fd12c97dfd87c30
rged",
            "UpperDir": "/var/lib/docker/overlay2/7c8efa62386951d3fdeb6fd12c97dfd87c30
f",
            "WorkDir": "/var/lib/docker/overlay2/7c8efa62386951d3fdeb6fd12c97dfd87c30d
"
        },
        "Name": "overlay2"
    },
    "RootFS": {
        "Type": "layers",
        "Layers": [
            "sha256:dc0585a4b8b71f7f4eb8f2e028067f88aec780d9ab40c948a8d431c1aeadeeb5"
        ]
    },
    "Metadata": {
        "LastTagTime": "0001-01-01T00:00:00Z"
    }
  }
]
```

16.   Docker rmi

```
C:\Users\Lenovo>docker rmi c6b84b685f35
Untagged: ubuntu:latest
Untagged: ubuntu@sha256:aabed3296a3d45cede1dc866a24476c4d7e093aa806263c27ddaadbdce3c1054
Deleted: sha256:c6b84b685f35f1a5d63661f5d4aa662ad9b7ee4f4b8c394c022f25023c907b65
Deleted: sha256:dc0585a4b8b71f7f4eb8f2e028067f88aec780d9ab40c948a8d431c1aeadeeb5
```

```
C:\Users\Lenovo>docker images -f "dangling=false"
REPOSITORY              TAG        IMAGE ID        CREATED          SIZE
neandra/nean_img        1          d5d7b9c964f6    10 months ago    77.8MB
ubuntu                  <none>     a8780b506fa4    10 months ago    77.8MB
docker/getting-started  latest     cb90f98fd791    17 months ago    28.8MB
```

17.   Docker commit

```
C:\Users\Lenovo>docker commit Aaron hmqeii/new:latest
sha256:6f614140837f187c063482f2ae156564f523666de3dfb428bd3ed97b9410cdfa
```

```
C:\Users\Lenovo>docker images
REPOSITORY              TAG        IMAGE ID        CREATED          SIZE
hmqeii/new              latest     6f614140837f    52 seconds ago   77.8MB
ubuntu                  latest     c6b84b685f35    5 weeks ago      77.8MB
neandra/nean_img        1          d5d7b9c964f6    10 months ago    77.8MB
ubuntu                  <none>     a8780b506fa4    10 months ago    77.8MB
docker/getting-started  latest     cb90f98fd791    17 months ago    28.8MB
```

18.   Docker push
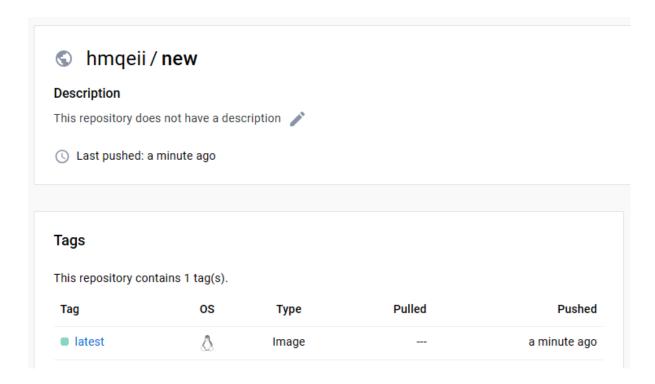
```
C:\Users\Lenovo>docker push hmqeii/new:latest
The push refers to repository [docker.io/hmqeii/new]
b064f945d41f: Pushed
dc0585a4b8b7: Mounted from library/ubuntu
latest: digest: sha256:e6069ab058b9daef048355257fd14e19d5d5172e63aa8b8611d52cffc1422e06 size: 736
```
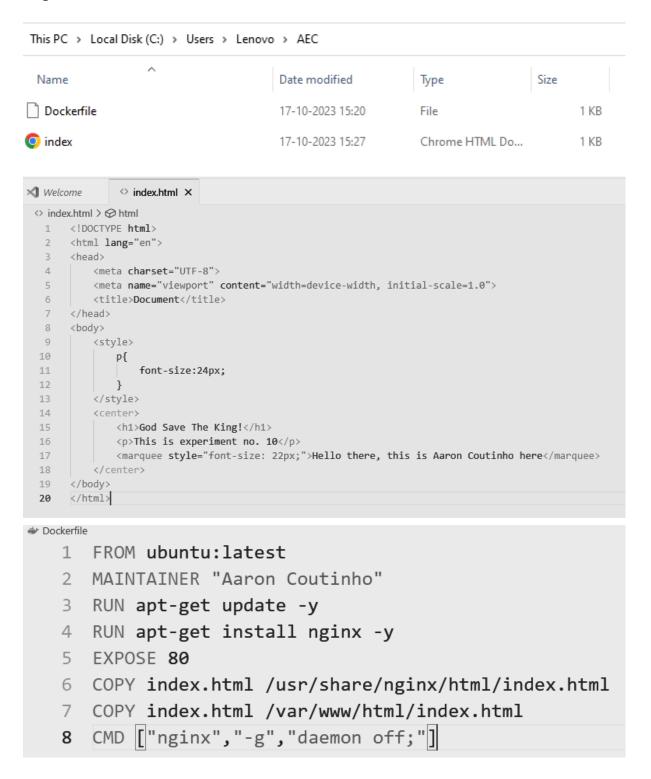
-AEC

-EIIR

19. Docker history image

```
C:\Users\Lenovo>docker history ubuntu
IMAGE          CREATED        CREATED BY                                      SIZE      COMMENT
c6b84b685f35   5 weeks ago    /bin/sh -c #(nop)  CMD ["/bin/bash"]            0B
<missing>      5 weeks ago    /bin/sh -c #(nop) ADD file:aa9b51e9f0067860c…   77.8MB
<missing>      5 weeks ago    /bin/sh -c #(nop)  LABEL org.opencontainers.…   0B
<missing>      5 weeks ago    /bin/sh -c #(nop)  LABEL org.opencontainers.…   0B
<missing>      5 weeks ago    /bin/sh -c #(nop)  ARG LAUNCHPAD_BUILD_ARCH     0B
<missing>      5 weeks ago    /bin/sh -c #(nop)  ARG RELEASE                  0B
```

Experiment 10

This PC > Local Disk (C:) > Users > Lenovo > AEC

Name	Date modified	Type	Size
Dockerfile	17-10-2023 15:20	File	1 KB
index	17-10-2023 15:27	Chrome HTML Do...	1 KB

Welcome   <> index.html ✕

<> index.html > ⊘ html

```html
1   <!DOCTYPE html>
2   <html lang="en">
3   <head>
4       <meta charset="UTF-8">
5       <meta name="viewport" content="width=device-width, initial-scale=1.0">
6       <title>Document</title>
7   </head>
8   <body>
9       <style>
10          p{
11              font-size:24px;
12          }
13      </style>
14      <center>
15          <h1>God Save The King!</h1>
16          <p>This is experiment no. 10</p>
17          <marquee style="font-size: 22px;">Hello there, this is Aaron Coutinho here</marquee>
18      </center>
19  </body>
20  </html>
```

Dockerfile

```dockerfile
1   FROM ubuntu:latest
2   MAINTAINER "Aaron Coutinho"
3   RUN apt-get update -y
4   RUN apt-get install nginx -y
5   EXPOSE 80
6   COPY index.html /usr/share/nginx/html/index.html
7   COPY index.html /var/www/html/index.html
8   CMD ["nginx","-g","daemon off;"]
```

```
PS C:\Users\Lenovo\AEC> docker build -t aec .
[+] Building 2.3s (11/11) FINISHED
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 276B
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [internal] load metadata for docker.io/library/ubuntu:latest
 => [auth] library/ubuntu:pull token for registry-1.docker.io
 => [1/5] FROM docker.io/library/ubuntu:latest@sha256:2b7412e6465c3c7fc5bb21d3e6f1917c167358449fecac8176c6e496e5c1f05f
 => [internal] load build context
 => => transferring context: 529B
 => CACHED [2/5] RUN apt-get update -y
 => CACHED [3/5] RUN apt-get install nginx -y
 => [4/5] COPY index.html /usr/share/nginx/html/index.html
 => [5/5] COPY index.html /var/www/html/index.html
 => exporting to image
 => => exporting layers
 => => writing image sha256:743ce227d137ae27708811b04673fdea3d46fbe5d6dce33f15b7378528f991b6
 => => naming to docker.io/library/aec

What's Next?
 View a summary of image vulnerabilities and recommendations → docker scout quickview
```

```
PS C:\Users\Lenovo\AEC> docker images
REPOSITORY    TAG       IMAGE ID       CREATED         SIZE
aec           latest    743ce227d137   7 minutes ago   178MB
hari1         latest    9c87e735338e   23 hours ago    178MB
```

```
PS C:\Users\Lenovo\AEC> docker inspect aec
[
    {
        "Id": "sha256:743ce227d137ae27708811b04673fdea3d46fbe5d6dce33f15b7378528f991b6",
        "RepoTags": [
            "aec:latest"
        ],
        "RepoDigests": [],
        "Parent": "",
        "Comment": "buildkit.dockerfile.v0",
        "Created": "2023-10-17T10:12:37.1602103Z",
```

```
        "Layers": [
            "sha256:256d88da41857db513b95b50ba9a9b28491b58c954e25477d5dad8abb465430b",
            "sha256:2bde9e838c4b8d6467875485d54adde08012637750f594fd62d72ed4ee429c9a",
            "sha256:4990b8ed8dcd7588b62291981e1cd06841ebe0031dcd5f4559010a84dd326bf3",
            "sha256:d07370436382222e0dcb10a74b58d3ab35e852fec12fe8d9f7f46023df2ccf8a",
            "sha256:4a4f73f2298cb204a09dc5362c68d9c2a1221dfb27049ea7ef6b540827aa3bd7"
        ]
    },
    "Metadata": {
        "LastTagTime": "2023-10-17T10:12:37.2187199Z"
    }
    }
]
```

-AEC

-EIIR

```
PS C:\Users\Lenovo\AEC> docker history aec
IMAGE           CREATED          CREATED BY                                        SIZE     COMMENT
743ce227d137    10 minutes ago   CMD ["nginx" "-g" "daemon off;"]                  0B       buildkit.dockerfile.v0
<missing>       10 minutes ago   COPY index.html /var/www/html/index.html # b…     490B     buildkit.dockerfile.v0
<missing>       10 minutes ago   COPY index.html /usr/share/nginx/html/index.…     490B     buildkit.dockerfile.v0
<missing>       24 hours ago     EXPOSE map[80/tcp:{}]                             0B       buildkit.dockerfile.v0
<missing>       24 hours ago     RUN /bin/sh -c apt-get install nginx -y # bu…     55.6MB   buildkit.dockerfile.v0
<missing>       24 hours ago     RUN /bin/sh -c apt-get update -y # buildkit       44.7MB   buildkit.dockerfile.v0
<missing>       24 hours ago     MAINTAINER "Aaron Coutinho"                       0B       buildkit.dockerfile.v0
<missing>       12 days ago      /bin/sh -c #(nop)  CMD ["/bin/bash"]              0B
<missing>       12 days ago      /bin/sh -c #(nop) ADD file:63d5ab3ef0aab308c…     77.8MB
<missing>       12 days ago      /bin/sh -c #(nop)  LABEL org.opencontainers.…     0B
<missing>       12 days ago      /bin/sh -c #(nop)  LABEL org.opencontainers.…     0B
<missing>       12 days ago      /bin/sh -c #(nop)  ARG LAUNCHPAD_BUILD_ARCH       0B
<missing>       12 days ago      /bin/sh -c #(nop)  ARG RELEASE                    0B

PS C:\Users\Lenovo\AEC> docker ps
CONTAINER ID  IMAGE    COMMAND              CREATED           STATUS           PORTS                  NAMES
cbc05766e6b6  aec      "nginx -g 'daemon of…" About a minute ago Up About a minute 0.0.0.0:8888->80/tcp  friendly_ramanujan
```

Name

serene_rubin
a08647817ad5 🗗

friendly_ramanujan
cbc05766e6b6 🗗

192.168.1.208:8888

God Save The King!

This is experiment no. 10

Hello there, this is Aaron Coutinho here

```
PS C:\Users\Lenovo\AEC> docker stop friendly_ramanujan
friendly_ramanujan
```

Name

serene_rubin
a08647817ad5 🗗

friendly_ramanujan
cbc05766e6b6 🗗

-AEC

-EIIR

Experiment – 7:

Name ?

Aaron_HMKCIII's_Servent

Description ?

Aaron Coutinho [AEC 14]

Plain text **Preview**

Number of executors ?

2

Remote root directory ?

C:\Aaron

Labels ?

AEC

Usage ?

Use this node as much as possible ⌄

Launch method ?

Launch agent by connecting it to the controller ⌄

☐ Disable WorkDir ?

Custom WorkDir path ?

C:\Aaron

Internal data directory ?

☐ Fail if workspace is missing ?

☐ Use WebSocket ?

Advanced ⌄

Availability ?

Keep this agent online as much as possible ⌄   ?

Agents

○ Fixed

● Random

○ Disable

-AEC

-EIIR

```
C:\Users\Lenovo>curl.exe -sO http://localhost:8080/jnlpJars/agent.jar & java -jar agent.
80/computer/Aaron%5FHMKCIII%27s%5FServent/jenkins-agent.jnlp -secret de82691c220839b9504
3e6ad794c4f81 -workDir "C:\Aaron"
Oct 03, 2023 4:17:10 PM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using C:\Aaron\remoting as a remoting work directory

Oct 03, 2023 4:17:10 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Remote identity confirmed: 33:97:28:03:6a:3b:20:4e:86:6a:78:a3:85:05:70:fa
Oct 03, 2023 4:17:10 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connected
```

Nodes

S	Name ↓
🖥️	Aaron_HMKCIII's_Servent

Taking Aaron_HMKCIII's_Servent Offline

You can optionally explain why you are taking this node offline, so tha

```
Offline due to busy schedule
```

Mark this node temporarily offline

Agent Aaron_HMKCIII's_Servent

Aaron Coutinho [AEC 14]

⚠️ Oct 3, 2023, 4:20:38 PM
   Disconnected by admin : Offline due to busy schedule

Agent is connected.

Labels

AEC

Projects tied to Aaron_HMKCIII's_Servent

None

-AEC

-EIIR

Disconnect the computer 'Aaron_HMKCIII's_Servent'? Yes

You can optionally explain why you are taking this node offline,

out of town

Agent Aaron_HMKCIII's_Servent

Aaron Coutinho [AEC 14]

🛑 Connection was broken

General

DL_Exp7 > Configuration

ure

al

Code Management

riggers

nvironment

teps

uild Actions

Description

Aaron Coutinho[AEC14]

Plain text **Preview**

☐ Discard old builds ?

☐ GitHub project

☐ This project is parameterized ?

☐ Throttle builds ?

☐ Execute concurrent builds if necessary

☑ Restrict where this project can be run

Label Expression ?

AEC

-AEC

-EIIR

Build Steps

≡ Execute Windows batch command ?

Command

See **the list of available environment variables**

```
echo "God Save The King"
```

✓ Console Output

```
Started by user admin
Running as SYSTEM
Building remotely on Aaron_HMKCIII's_Servent (AEC) in workspace C:\Aaron\workspace\DL_Exp7
[DL_Exp7] $ cmd /c call C:\Users\Lenovo\AppData\Local\Temp\jenkins18724749304096649 46.bat

C:\Aaron\workspace\DL_Exp7>echo "God Save The King"
"God Save The King"

C:\Aaron\workspace\DL_Exp7>exit 0
Finished: SUCCESS
```

AEC

🖉 Add description

Nodes

🖥 Aaron_HMKCIII's_Servent

Projects

S	W	Name ↓	Last Success	Last Failure	Last Duration	
✓	☀	DL_Exp7	1 min 9 sec #1	N/A	0.23 sec	▷

Cron command for running the syntax every 2 min

-AEC

-EIIR

Build Triggers

☐ Trigger builds remotely (e.g., from scripts) ?

☐ Build after other projects are built ?

☑ Build periodically ?

    Schedule ?

    H/2 * * * *

✓ #4   Oct 3, 2023, 4:40 PM

✓ #3   Oct 3, 2023, 4:38 PM

✓ #2   Oct 3, 2023, 4:36 PM

✓ #1   Oct 3, 2023, 4:28 PM

-AEC

-EIIR

Experiment – 8:

Home > Extensions > Selenium IDE

Selenium IDE
✓ seleniumhq.org ◎ Featured

★★★★★ 245 ⓘ | Developer Tools | 700,000+ users

Remove from Chrome

Welcome to Selenium IDE!
Version 3.17.2

What would you like to do?

Record a new test in a new project

Open an existing project

Create a new project

Close Selenium IDE

To learn more on Selenium IDE and how to use it visit the the Selenium IDE project page.

Name your new project

Please provide a name for your new project.

PROJECT NAME

AEC

You can change the name of your project at any time by clicking it and entering a new name.

OK   CANCEL

Set your project's base URL

Before you can start recording, you must specify a valid base URL for your project. Your tests will start by navigating to this URL.

BASE URL

https://www.google.com

START RECORDING   CANCEL

Name your new test

Please provide a name for your new test.

TEST NAME

test1

You can change it at any time by clicking the ⋮ icon next to its name in the tests panel.

OK   LATER

The project name was later renamed from AEC to Exp8

-AEC

Selenium IDE - Exp8

Project: Exp8

Executing ▾

✓ test1

https://www.google.com

	Command		Target
1	✓ open		/
2	✓ set window size		1343x720
3	✓ click		id=APjFqb
4	✓ click		css=#jZ2SBf > .wM6W7d > span
5	✓ click		linkText=Images

Command

Target

Value

Description

Runs: 1   Failures: 0

Plugins

🔍 sele   /

Name ↓	Enabled	
Selenium HTML report 1.1 This is an jenkins plugin to visualize the results of selenium tests Report an issue with this plugin	✓	⊗
Selenium Plugin 3.141.59 Report an issue with this plugin Warning: The currently installed plugin version may not be safe to use. Please review the following security notices: • Complete lack of CSRF protection can lead to OS command injection	✓	⊗

This plugin is up for adoption! We are looking for new maintainers. Visit our Adopt a Plugin initiative for more information.

-AEC

-EIIR

Selenium Grid

Dashboard

rations

Output

Hub management

Restart

Configuration

Host: localhost

Port: 4444

Status

Online

Running at `localhost:4444`.

New configuration

Name of the configuration

AEC

Matcher

⦿ Match all nodes ?

◯ Match no nodes ?

◯ Match nodes from a label expression ?

Type

◯ Custom RC node configuration ?

⦿ Custom web driver node configuration ?

Preferred port ?

4445

-AEC

-EIIR

Max node sessions

5

X11 display ?

☰ Internet Explorer

Maximum instances ?

1

Version ?

IE driver path ?

Advanced ⌄

☰ Firefox

Maximum instances ?

5

Version ?

Advanced ⌄

☰ Chrome

Maximum instances ?

5

Version ?

Chromedriver path ?

⚠ Must not be empty unless it is already defined from a previous chrome browser definition or already defined in the path

Add browser ▾

-AEC

-EIIR

Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project. View existing forks.

Required fields are marked with an asterisk (*).

Owner *   Repository name *

👤 HMQEII ▾   /   Selenium-Maven-Templat

✅ Selenium-Maven-Template is available.

By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.
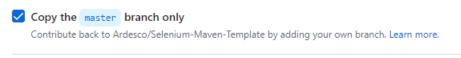
Description (optional)

A maven template for Selenium that will let you check out and go.

✅ Copy the `master` branch only

Contribute back to Ardesco/Selenium-Maven-Template by adding your own branch. Learn more.
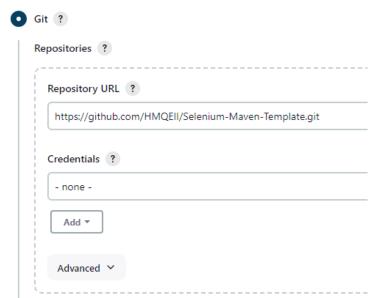
ⓘ You are creating a fork in your personal account.

General

Description

Aaron Coutinho 14

⦿ Git ?

Repositories ?

Repository URL ?

https://github.com/HMQEII/Selenium-Maven-Template.git

Credentials ?

- none -

Add ▾

Advanced ⌄

-AEC

Build Steps

☰ **Invoke top-level Maven targets** ?

Goals

Clean compile test

Advanced ⌄

Add build step ▾
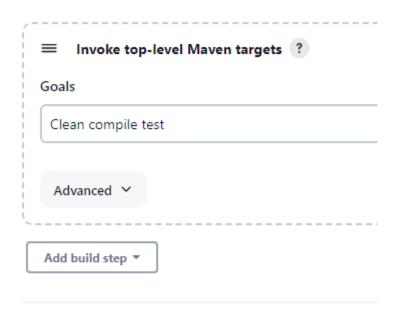
Post-build Actions

Add post-build action ▾

Save   Apply

✓ **Console Output**

Skipping 17 KB.. **Full Log**

```
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/io/opentelemetry/opentelemetry-api/1.9.0/opentelemetry-api-1.9.0.pom (1.8 kB at
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/io/opentelemetry/opentelemetry-context/1.9.0/opentelemetry-context-1.9.0.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/io/opentelemetry/opentelemetry-context/1.9.0/opentelemetry-context-1.9.0.pom (1
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/io/opentelemetry/opentelemetry-exporter-logging/1.9.0/opentelemetry-exporter-l
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/io/opentelemetry/opentelemetry-exporter-logging/1.9.0/opentelemetry-exporter-lo
kB/s)
```

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Build History   trend ⌄

🔍 Filter builds...   /

⊘ #2   Oct 17, 2023, 4:57 PM

⊘ #1   Oct 17, 2023, 4:54 PM

🔊 Atom feed for all   🔊 Atom feed for failures

The Selenium test reports.

Result	Name	Tests total	Tests passes	Tests failures	Commands passes	Commands failures	Commands errors	Duration
	Summen	0	0	0	0	0	0	0 s = 0.0 min and 0 s

-AEC

-EIIR

Experiment – 6: a. To build pipeline of jobs in Jenkins, create a pipeline script to test and deploy an application.
b.To automatically build a job in Jenkins using webhooks
(Topic Beyond Syllabus)
List of screenshots to be attached for Experiment 4

7b. **Execute following (Refer the shared material) and attach screenshots:** 1. Create and build pipeline project with pipeline script

• Project with Hello World pipeline script

Enter an item name

Exp 6 AEC

» Required field

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combin for something other than software build.

Maven project
Build a maven project. Jenkins takes advantage of your POM files and drast

Pipeline
Orchestrates long-running activities that can span multiple build agents. Su and/or organizing complex activities that do not easily fit in free-style job t

Pipeline

Definition
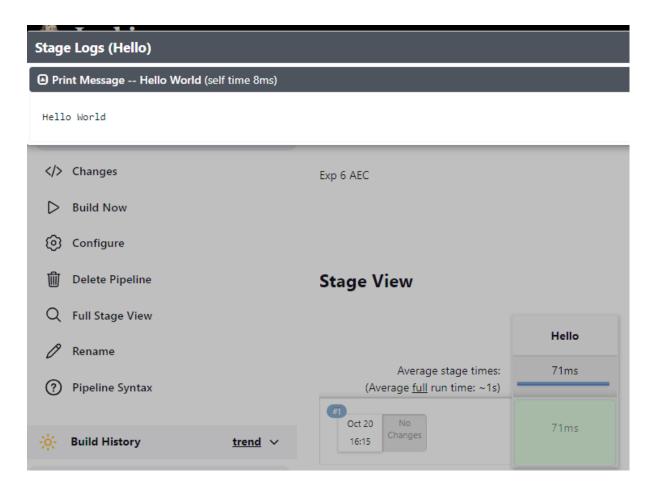
Pipeline script

Script ?

```
1 ▾ pipeline {
2       agent any
3
4 ▾     stages {
5 ▾         stage('Hello') {
6 ▾             steps {
7                   echo 'Hello World'
8               }
9           }
10      }
11  }
12
```

✓ **Use Groovy Sandbox** ?

Stage Logs (Hello)

⏱ **Print Message -- Hello World** (self time 8ms)

```
Hello World
```

</> Changes

▷ Build Now

⚙ Configure

🗑 Delete Pipeline

🔍 Full Stage View

✎ Rename

⑦ Pipeline Syntax

☀ **Build History**   **trend** ⌄

Exp 6 AEC

Stage View

	Hello
Average stage times: (Average <u>full</u> run time: ~1s)	71ms

#1
Oct 20
16:15

No Changes

71ms

General

Description

AEC T1

Plain text **Preview**

Script:
pipeline{
   agent any
   stages{
      stage ('Plan phase'){
         steps{
            echo 'Hi. This is AEC here'
         }

-AEC

```
        }
        stage ('Declaration Phase'){
            steps{
                echo 'GOd Save The King'
            }
        }
        stage ('code phase'){
            steps{
                input('Do you wish to continue?')
            }
        }
        stage ('integrate phase'){
            when{
                not{
                    branch "master"
                }
            }
            steps {
                echo 'You have Successfully passed the Text'
            }
        }
        stage ('testing phase'){
            parallel{
                stage ('unit test'){
                    steps{
                        echo 'Test is running'
                    }

                }
                stage ('Wait Phase'){
                steps{
                    echo 'Kindly be Patient'
                }
            }
            }
        }
    }
}
```

Pipeline

Definition
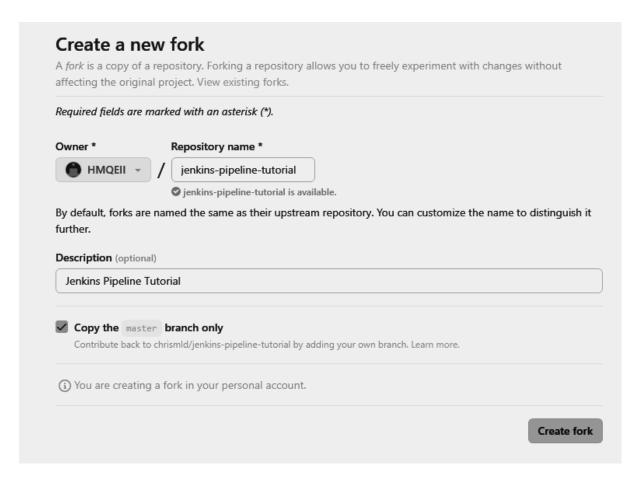
Pipeline script

Script ?

```
 1  Script:
 2  pipeline{
 3      agent any
 4      stages{
 5          stage ('Plan phase'){
 6              steps{
 7                  echo 'Hi. This is AEC here'
 8              }
 9          }
10          stage ('Declaration Phase'){
11              steps{
12                  echo 'GOd Save The King'
13              }
14          }
15          stage ('code phase'){
16              steps{
17                  input('Do you wish to continue?')
18
```

✓ Use Groovy Sandbox ?

Stage View

	Plan phase	Declaration Phase	code phase	integrate phase	testing phase	unit test	Wait Phase
Average stage times: (Average full run time: ~43s)	1s	767ms	798ms	1s	2s	1s	1s
#2 Oct 21 14:03 No Changes	1s	767ms	798ms (paused for 15s)	1s	2s	1s	1s
#1 Oct 21 14:00 No Changes							
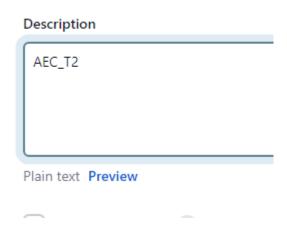
• Project with your own pipeline script

2. Create and build pipeline project with Git

• Fork repository on GitHub

-AEC

Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project. View existing forks.

Required fields are marked with an asterisk (*).

Owner *   **Repository name ***

⬤ HMQEII ▾   /   jenkins-pipeline-tutorial

✔ jenkins-pipeline-tutorial is available.

By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

Description (optional)

Jenkins Pipeline Tutorial

☑ **Copy the** `master` **branch only**

Contribute back to chrismld/jenkins-pipeline-tutorial by adding your own branch. Learn more.

ⓘ You are creating a fork in your personal account.

[**Create fork**]

- Create pipeline project with pipeline script from SCM

General

Description

AEC_T2

Plain text **Preview**

Pipeline

Definition

Pipeline script from SCM

SCM ?

Git

Repositories ?

Repository URL ?

https://github.com/HMQEII/jenkins-pipeline-tutorial.git

Credentials ?

- none -

Add ▾

Advanced ⌄

Add Repository

Branches to build ?

Branch Specifier (blank for 'any') ?

*/master

Add Branch

Repository browser ?

(Auto)

Additional Behaviours

Add ▾

Script Path ?

hello-world/Jenkinsfile

☑ **Lightweight checkout** ?

-AEC

Stage Logs (Declarative: Checkout SCM)

ⓐ Check out from version control (self time 1s)

```
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/HMQEII/jenkins-pipeline-tut
 > C:\Program Files\Git\bin\git.exe init C:\ProgramData\Jenkins\.
Fetching upstream changes from https://github.com/HMQEII/jenkins-
 > C:\Program Files\Git\bin\git.exe --version # timeout=10
 > git --version # 'git version 2.34.1.windows.1'
```

Stage Logs (Compile)
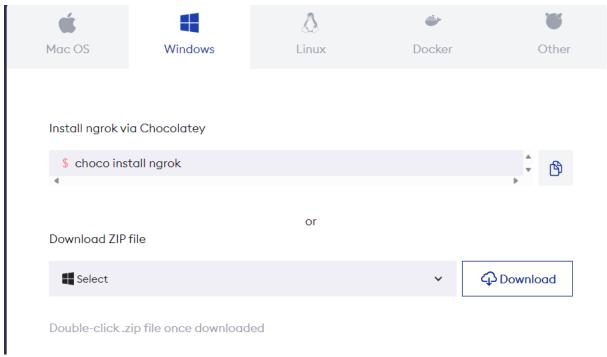
ⓐ Print Message -- Compile the source code (self time 8ms)

```
Compile the source code
```

Stage Logs (Run Unit Tests)

ⓐ Print Message -- Run unit tests from the source code (self time 6ms)

```
Run unit tests from the source code
```

• Add webhooks to the forked repository

Mac OS	Windows	Linux	Docker	Other

Install ngrok via Chocolatey

```
$ choco install ngrok
```

or

Download ZIP file

Select ⌄   ☁ Download

Double-click .zip file once downloaded

-AEC

```
ngrok

Introducing Always-On Global Server Load Balancer: https://ngrok.com/r/gslb

Session Status              online
Session Expires             1 hour, 59 minutes
Terms of Service            https://ngrok.com/tos
Version                     3.3.5
Region                      India (in)
Latency                     3ms
Web Interface               http://127.0.0.1:4040
Forwarding                  https://5caa-139-5-239-162.ngrok.io -> http://localhost:8080

Connections                 ttl      opn      rt1      rt5      p50      p90
                            0        0        0.00     0.00     0.00     0.00
```

Webhooks / **Add webhook**

We'll send a POST request to the URL below with details of any subscribed
format you'd like to receive (JSON, x-www-form-urlencoded, *etc*). More inf
documentation.

Payload URL *

    https://5caa-139-5-239-162.ngrok.io/github-webhook

Content type

    application/json   ⇕

Secret

    [   ]

SSL verification

🔒 By default, we verify SSL certificates when delivering payloads.

◉ **Enable SSL verification**   ◯ Disable (not recommended)

Which events would you like to trigger this webhook?

◉ Just the push event.

◯ Send me **everything.**

◯ Let me select individual events.

☑ **Active**
    We will deliver event details when this hook is triggered.

Add webhook

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- Build pipeline project

  - Add file to forked repository and observe the automated build

- Make changes to Jenkins file on forked repository and observe the automated build

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.

✓ https://1f5c-139-5-239-162.ngrok.i... *(push)*   Edit   Delete

Edit | Preview | Code 55% faster with GitHub Copilot

```
1    pipeline {
2        agent any
3        stages {
4            stage('Static Analysis') {
5                steps {
6                    echo 'God Save The King'
7                }
8            }
9            stage('Compile') {
10               steps {
11                   echo 'Compile the source code'
12               }
13           }
14           stage('Security Check') {
15               steps {
16                   echo 'Run the security check against the application'
```

jenkins-pipeline-tutorial / Monarch.txt   in master

Edit | Preview | Code 55% faster with GitHub Copilot

```
1    God Save King Charles III
```

-AEC

-EIIR

Stage View

	Declarative: Checkout SCM	Static Analysis	Compile	Security Check	Run Unit Tests	Run Integration Tests	Publish Artifacts
Average stage times: (Average full run time: ~4s)	1s	63ms	60ms	61ms	63ms	59ms	56ms
#2 Oct 20 16:58 — 5 commits	1s	66ms	60ms	56ms	71ms	58ms	56ms
#1 Oct 20 16:30 — No Changes	1s	61ms	60ms	66ms	55ms	61ms	56ms

-AEC

-EIIR