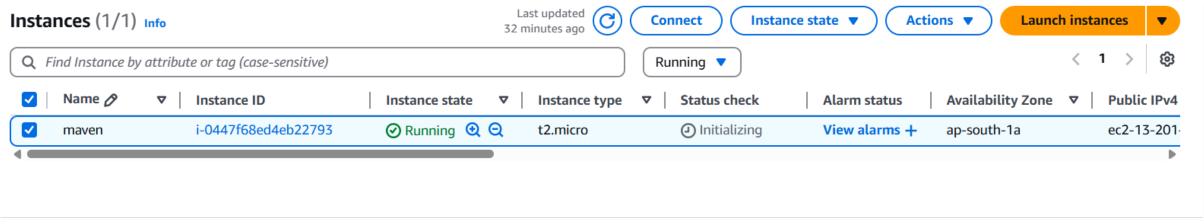
MAVEN:

First create one ec2 instance



Instances (1/1) Info — Last updated 32 minutes ago — Connect | Instance state ▼ | Actions ▼ | Launch instances ▼

Find Instance by attribute or tag (case-sensitive) — Running ▼

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
☑	maven	i-0447f68ed4eb22793	Running	t2.micro	Initializing	View alarms +	ap-south-1a	ec2-13-201

Connect this ec2 instance using putty.

Java installation

apt update -y

apt install openjdk-17-jre -y

find the java path using below command

find / -name java

add it to the environmental path but add below file on /etc/profile file

JAVA_HOME=/usr/lib/jvm/java-17-openjdk-amd64

PATH=$PATH:$JAVA_HOME/bin

export JAVA_HOME

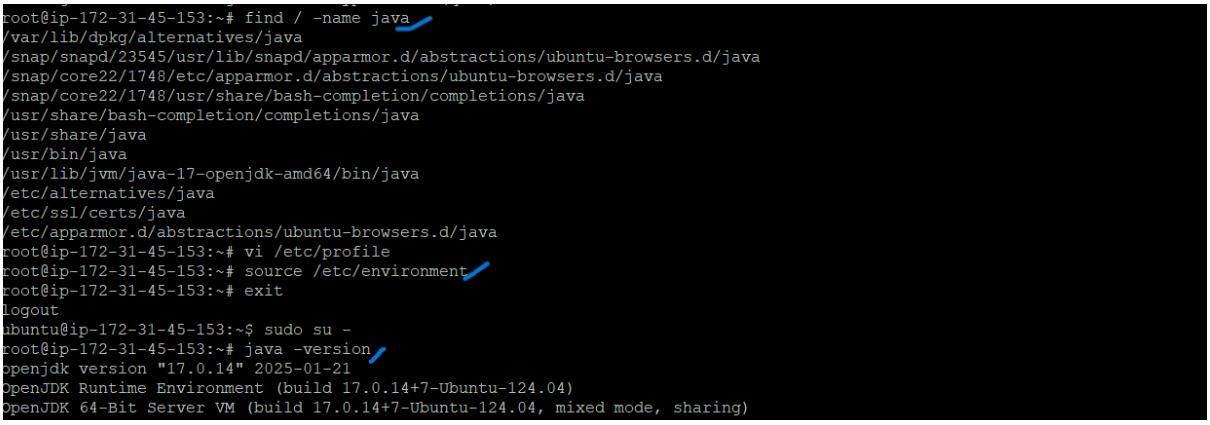
export PATH

next run the command source /etc/environment

exit from the root user and then again login as root use then check java version and path of java by using below commands

java -version

echo $JAVA_HOME



```
root@ip-172-31-45-153:~# find / -name java
/var/lib/dpkg/alternatives/java
/snap/snapd/23545/usr/lib/snapd/apparmor.d/abstractions/ubuntu-browsers.d/java
/snap/core22/1748/etc/apparmor.d/abstractions/ubuntu-browsers.d/java
/snap/core22/1748/usr/share/bash-completion/completions/java
/usr/share/bash-completion/completions/java
/usr/share/java
/usr/bin/java
/usr/lib/jvm/java-17-openjdk-amd64/bin/java
/etc/alternatives/java
/etc/ssl/certs/java
/etc/apparmor.d/abstractions/ubuntu-browsers.d/java
root@ip-172-31-45-153:~# vi /etc/profile
root@ip-172-31-45-153:~# source /etc/environment
root@ip-172-31-45-153:~# exit
logout
ubuntu@ip-172-31-45-153:~$ sudo su -
root@ip-172-31-45-153:~# java -version
openjdk version "17.0.14" 2025-01-21
OpenJDK Runtime Environment (build 17.0.14+7-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 17.0.14+7-Ubuntu-124.04, mixed mode, sharing)
```

Install maven:

For maven installation first we need to to go into /opt

Copy the mvn tar file from the official website and run below command

Wget https://dlcdn.apache.org/maven/maven-3/3.9.9/binaries/apache-maven-3.9.9-bin.tar.gz

tar -xvzf apache-maven-3.9.9-bin.tar.gz

mv apache-maven-3.9.9-bin.tar.gz mavan

check the mvn file using below commands

cd maven/bin

./mvn -version

add maven into the environmental path but add below file on /etc/profile file

JAVA_HOME=/usr/lib/jvm/java-17-openjdk-amd64

M2_HOME=/opt/maven

PATH=$PATH:$JAVA_HOME/bin:$M2_HOME/bin

export JAVA_HOME

export PATH

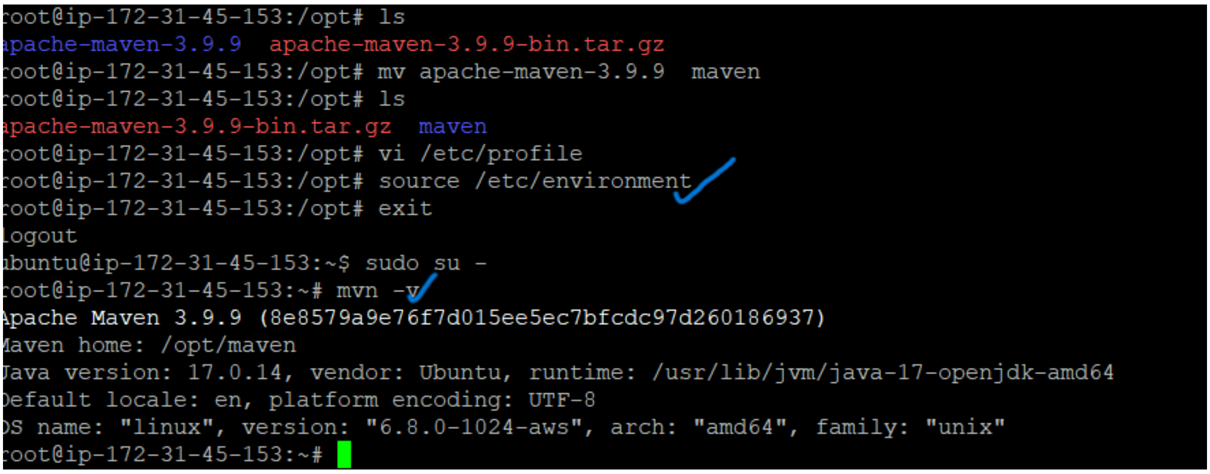
export M2_HOME

source /etc/environment

exit from root user and again login as root user

check the mvn version using below command

mvn -v



```
oot@ip-172-31-45-153:/opt# ls
pache-maven-3.9.9  apache-maven-3.9.9-bin.tar.gz
oot@ip-172-31-45-153:/opt# mv apache-maven-3.9.9  maven
oot@ip-172-31-45-153:/opt# ls
pache-maven-3.9.9-bin.tar.gz  maven
oot@ip-172-31-45-153:/opt# vi /etc/profile
oot@ip-172-31-45-153:/opt# source /etc/environment
oot@ip-172-31-45-153:/opt# exit
ogout
buntu@ip-172-31-45-153:~$ sudo su -
oot@ip-172-31-45-153:~# mvn -v
pache Maven 3.9.9 (8e8579a9e76f7d015ee5ec7bfcdc97d260186937)
aven home: /opt/maven
ava version: 17.0.14, vendor: Ubuntu, runtime: /usr/lib/jvm/java-17-openjdk-amd64
efault locale: en, platform encoding: UTF-8
S name: "linux", version: "6.8.0-1024-aws", arch: "amd64", family: "unix"
oot@ip-172-31-45-153:~#
```

Create a test java application files using below command

mvn archetype:generate

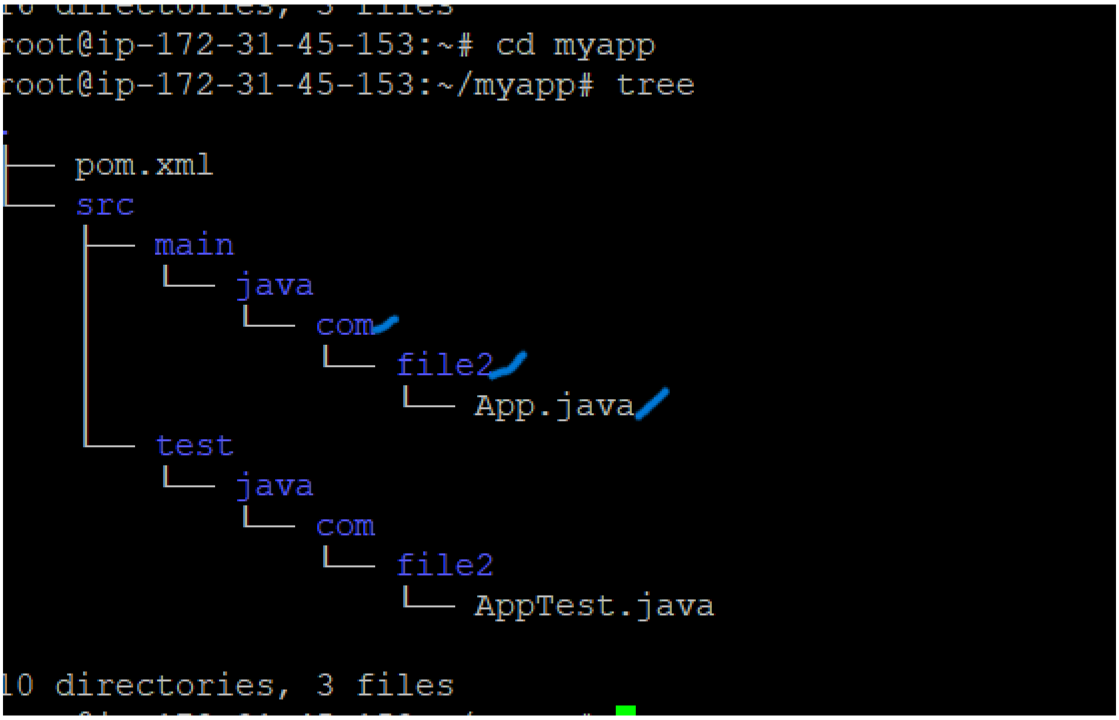
give some details like groupid:com.file1

artifact id:myapp

install tree pakage using below command

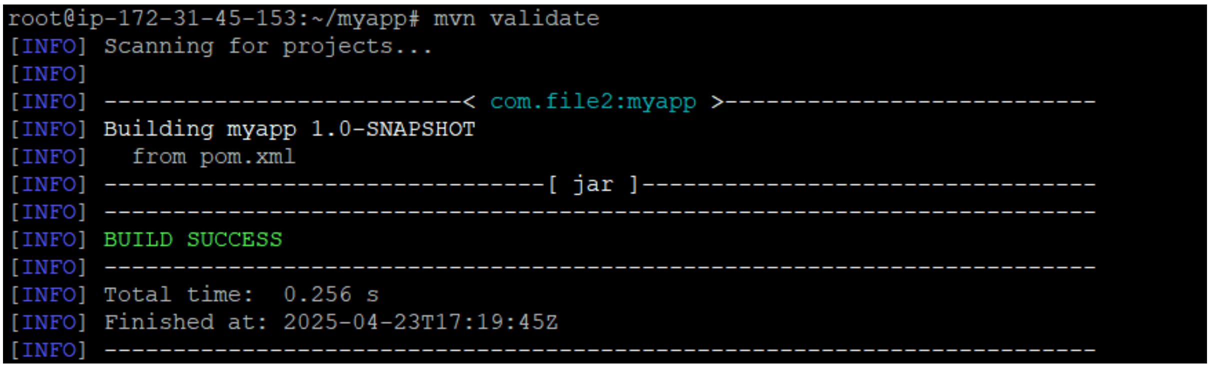
apt install tree

run tree you able to see the below folder structure



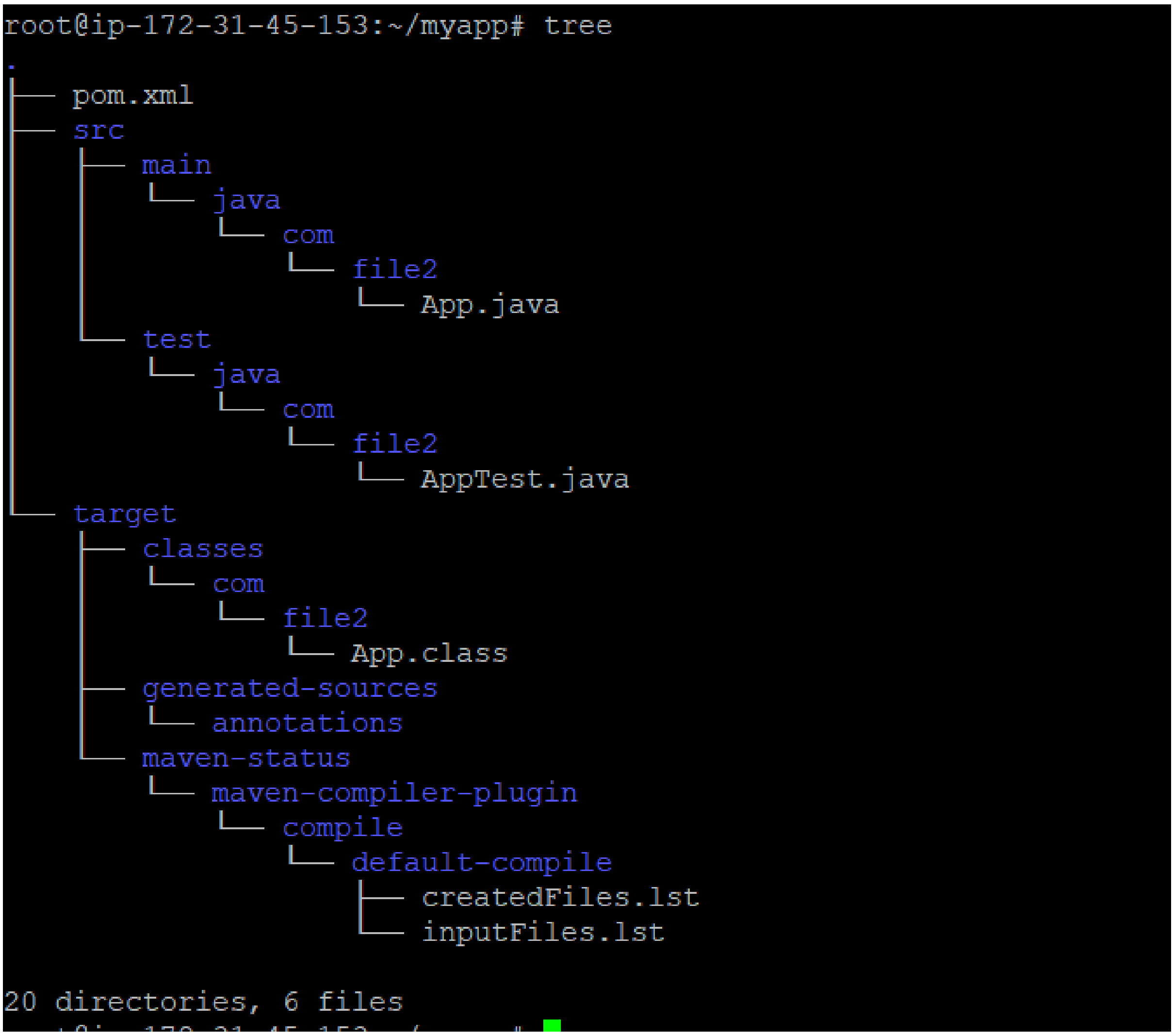
```
root@ip-172-31-45-153:~# cd myapp
root@ip-172-31-45-153:~/myapp# tree
.
├── pom.xml
└── src
    ├── main
    │   └── java
    │       └── com
    │           └── file2
    │               └── App.java
    └── test
        └── java
            └── com
                └── file2
                    └── AppTest.java

10 directories, 3 files
```

Run mvn validate to validate the project is correct and all folder structure are correct.



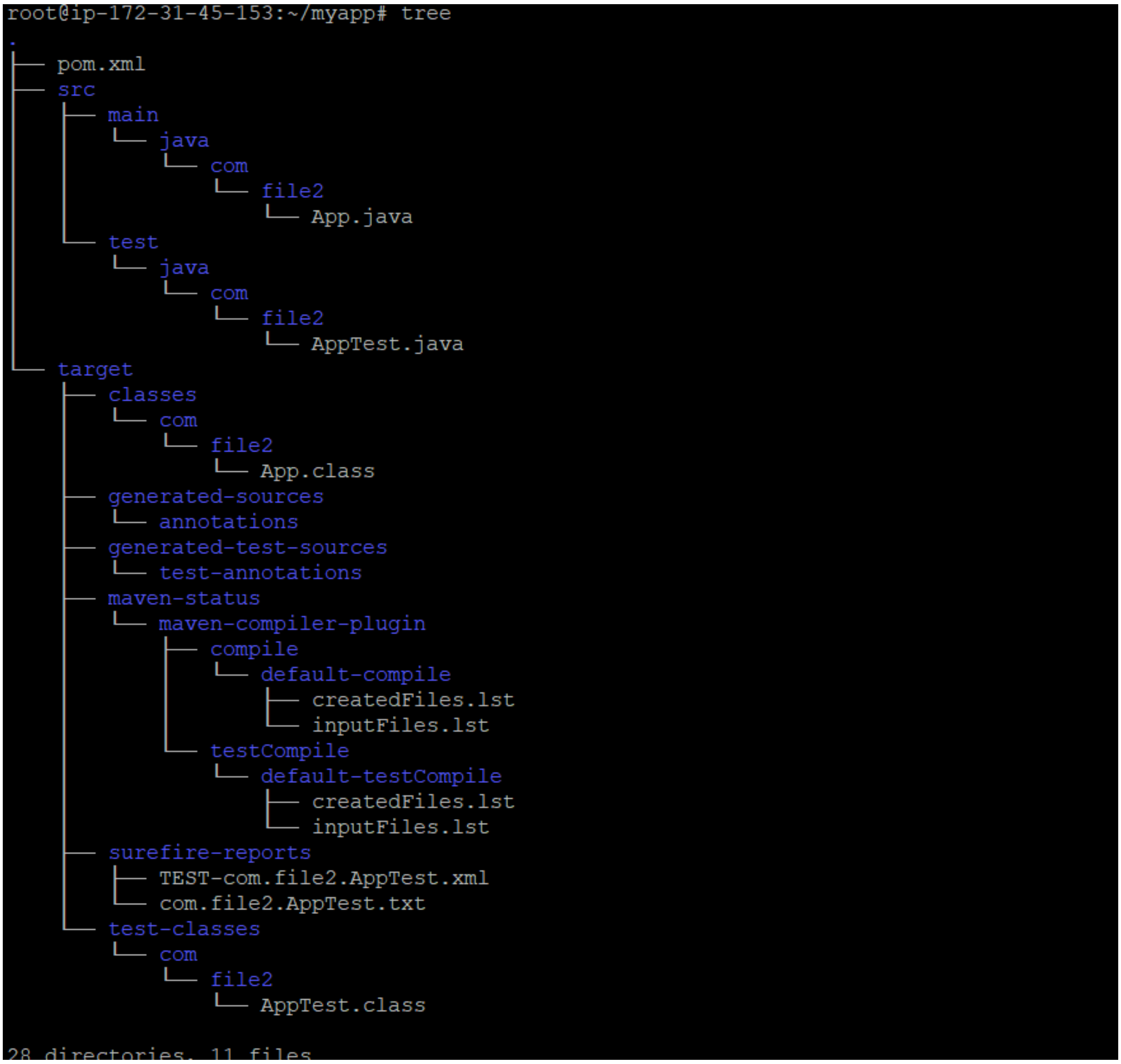
```
root@ip-172-31-45-153:~/myapp# mvn validate
[INFO] Scanning for projects...
[INFO]
[INFO] --------------------------< com.file2:myapp >---------------------------
[INFO] Building myapp 1.0-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.256 s
[INFO] Finished at: 2025-04-23T17:19:45Z
[INFO] ------------------------------------------------------------------------
```

Run mvn compile: it compiles source code and convert .java files into .class files



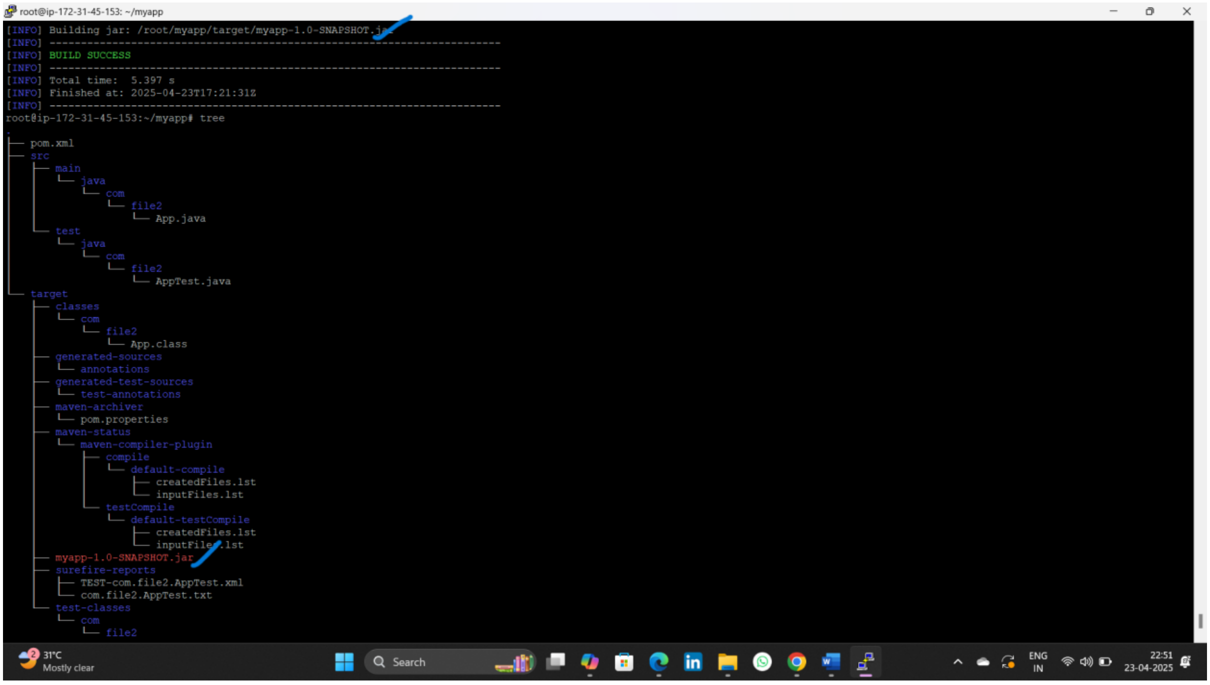
```
root@ip-172-31-45-153:~/myapp# tree
.
├── pom.xml
├── src
│   ├── main
│   │   └── java
│   │       └── com
│   │           └── file2
│   │               └── App.java
│   └── test
│       └── java
│           └── com
│               └── file2
│                   └── AppTest.java
└── target
    ├── classes
    │   └── com
    │       └── file2
    │           └── App.class
    ├── generated-sources
    │   └── annotations
    └── maven-status
        └── maven-compiler-plugin
            └── compile
                └── default-compile
                    ├── createdFiles.lst
                    └── inputFiles.lst

20 directories, 6 files
```

Run mvn test :



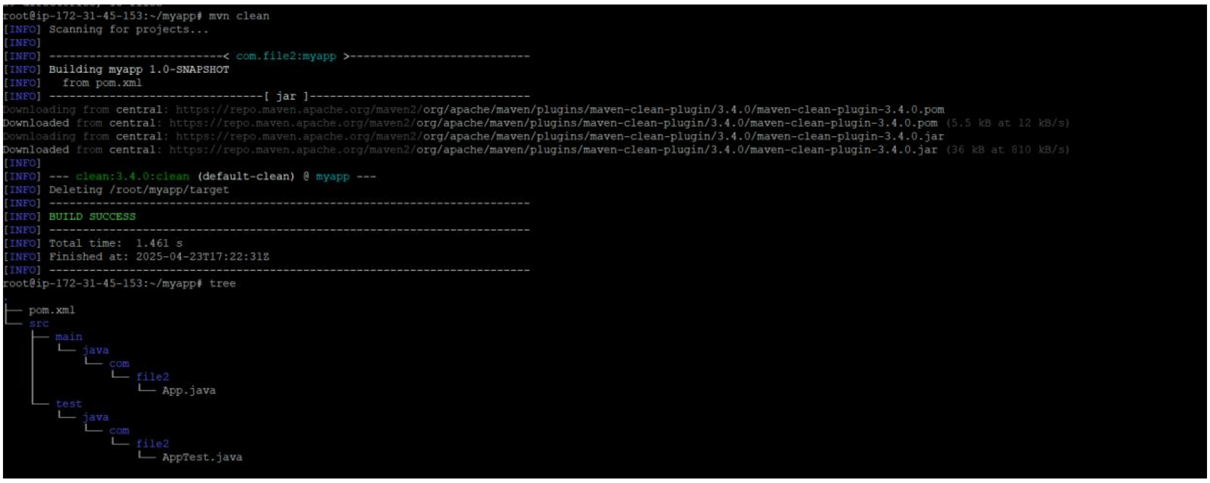
```
root@ip-172-31-45-153:~/myapp# tree
.
├── pom.xml
├── src
│   ├── main
│   │   └── java
│   │       └── com
│   │           └── file2
│   │               └── App.java
│   └── test
│       └── java
│           └── com
│               └── file2
│                   └── AppTest.java
└── target
    ├── classes
    │   └── com
    │       └── file2
    │           └── App.class
    ├── generated-sources
    │   └── annotations
    ├── generated-test-sources
    │   └── test-annotations
    ├── maven-status
    │   └── maven-compiler-plugin
    │       ├── compile
    │       │   └── default-compile
    │       │       ├── createdFiles.lst
    │       │       └── inputFiles.lst
    │       └── testCompile
    │           └── default-testCompile
    │               ├── createdFiles.lst
    │               └── inputFiles.lst
    ├── surefire-reports
    │   ├── TEST-com.file2.AppTest.xml
    │   └── com.file2.AppTest.txt
    └── test-classes
        └── com
            └── file2
                └── AppTest.class

28 directories, 11 files
```

mvn package it create artifact in jar file.



```
[INFO] Building jar: /root/myapp/target/myapp-1.0-SNAPSHOT.jar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  5.397 s
[INFO] Finished at: 2025-04-23T17:21:31Z
[INFO] ------------------------------------------------------------------------
root@ip-172-31-45-153:~/myapp# tree
.
├── pom.xml
├── src
│   ├── main
│   │   └── java
│   │       └── com
│   │           └── file2
│   │               └── App.java
│   └── test
│       └── java
│           └── com
│               └── file2
│                   └── AppTest.java
└── target
    ├── classes
    │   └── com
    │       └── file2
    │           └── App.class
    ├── generated-sources
    │   └── annotations
    ├── generated-test-sources
    │   └── test-annotations
    ├── maven-archiver
    │   └── pom.properties
    ├── maven-status
    │   └── maven-compiler-plugin
    │       ├── compile
    │       │   └── default-compile
    │       │       ├── createdFiles.lst
    │       │       └── inputFiles.lst
    │       └── testCompile
    │           └── default-testCompile
    │               ├── createdFiles.lst
    │               └── inputFiles.lst
    ├── myapp-1.0-SNAPSHOT.jar
    ├── surefire-reports
    │   ├── TEST-com.file2.AppTest.xml
    │   └── com.file2.AppTest.txt
    └── test-classes
        └── com
            └── file2
```

Run mvn clean



```
root@ip-172-31-45-153:~/myapp# mvn clean
[INFO] Scanning for projects...
[INFO]
[INFO] -------------------------< com.file2:myapp >--------------------------
[INFO] Building myapp 1.0-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-clean-plugin/3.4.0/maven-clean-plugin-3.4.0.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-clean-plugin/3.4.0/maven-clean-plugin-3.4.0.pom (5.5 kB at 12 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-clean-plugin/3.4.0/maven-clean-plugin-3.4.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-clean-plugin/3.4.0/maven-clean-plugin-3.4.0.jar (36 kB at 810 kB/s)
[INFO]
[INFO] --- clean:3.4.0:clean (default-clean) @ myapp ---
[INFO] Deleting /root/myapp/target
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  1.461 s
[INFO] Finished at: 2025-04-23T17:22:31Z
[INFO] ------------------------------------------------------------------------
root@ip-172-31-45-153:~/myapp# tree
.
├── pom.xml
└── src
    ├── main
    │   └── java
    │       └── com
    │           └── file2
    │               └── App.java
    └── test
        └── java
            └── com
                └── file2
                    └── AppTest.java
```

If we want to generate a unique build name then add below code in pom.xml file

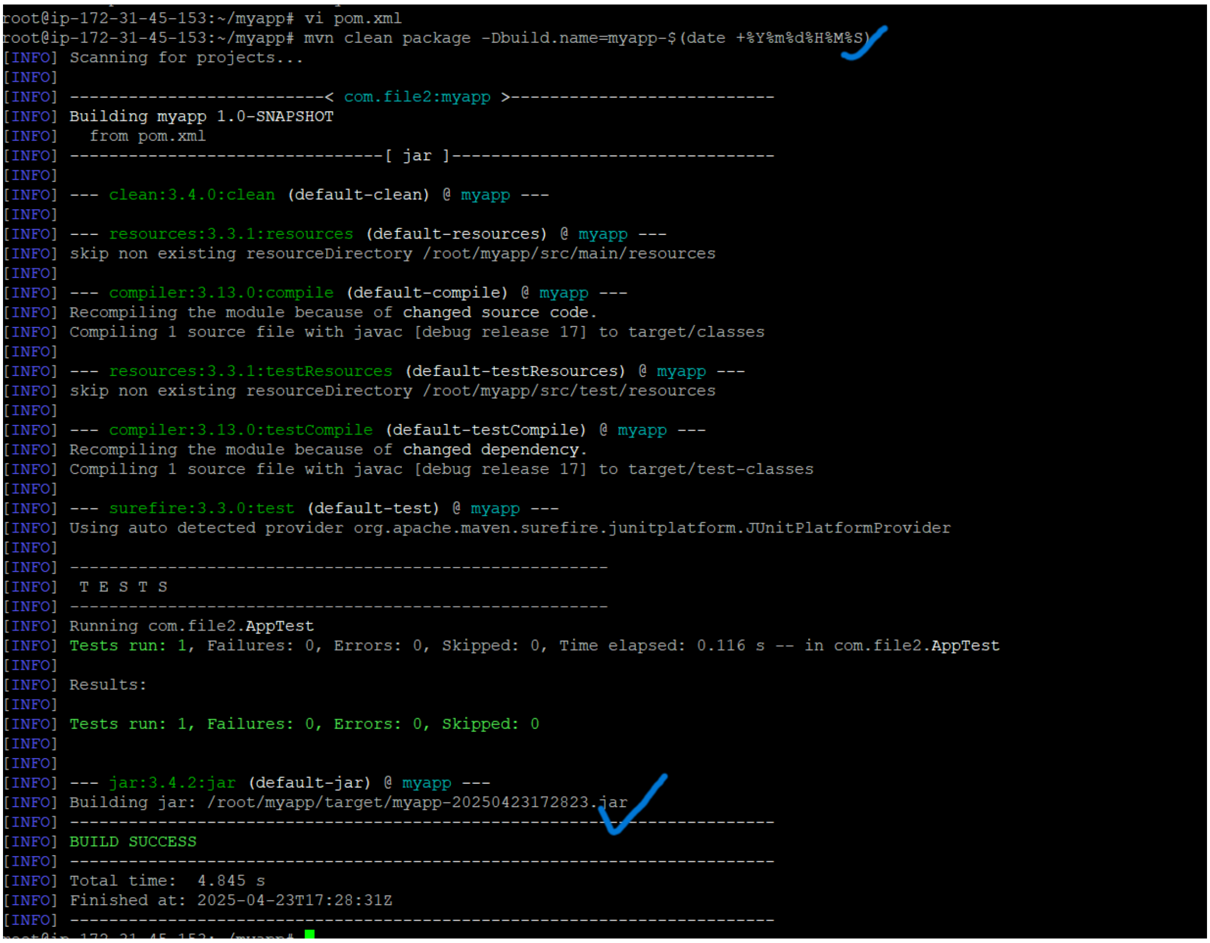
<build>

<finalName>${build name}</finalName>

</build>

And package the file run below command

mvn clean package -Dbuild.name=MyApp-$(date +%Y%m%d%H%M%S)



```
root@ip-172-31-45-153:~/myapp# vi pom.xml
root@ip-172-31-45-153:~/myapp# mvn clean package -Dbuild.name=myapp-$(date +%Y%m%d%H%M%S)
[INFO] Scanning for projects...
[INFO]
[INFO] --------------------------< com.file2:myapp >---------------------------
[INFO] Building myapp 1.0-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO]
[INFO] --- clean:3.4.0:clean (default-clean) @ myapp ---
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ myapp ---
[INFO] skip non existing resourceDirectory /root/myapp/src/main/resources
[INFO]
[INFO] --- compiler:3.13.0:compile (default-compile) @ myapp ---
[INFO] Recompiling the module because of changed source code.
[INFO] Compiling 1 source file with javac [debug release 17] to target/classes
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ myapp ---
[INFO] skip non existing resourceDirectory /root/myapp/src/test/resources
[INFO]
[INFO] --- compiler:3.13.0:testCompile (default-testCompile) @ myapp ---
[INFO] Recompiling the module because of changed dependency.
[INFO] Compiling 1 source file with javac [debug release 17] to target/test-classes
[INFO]
[INFO] --- surefire:3.3.0:test (default-test) @ myapp ---
[INFO] Using auto detected provider org.apache.maven.surefire.junitplatform.JUnitPlatformProvider
[INFO]
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.file2.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.116 s -- in com.file2.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- jar:3.4.2:jar (default-jar) @ myapp ---
[INFO] Building jar: /root/myapp/target/myapp-20250423172823.jar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  4.845 s
[INFO] Finished at: 2025-04-23T17:28:31Z
[INFO] ------------------------------------------------------------------------
root@ip-172-31-45-153:~/myapp#
```