Lesson 01 Demo 01

Creating a Project Using Maven CLI

Objective: To demonstrate the creation and execution of a Maven application project using the Command Line Interface (CLI) to ensure understanding of Maven project setup, packaging, and execution through practical steps

Tools Required: Visual Studio Code and Maven

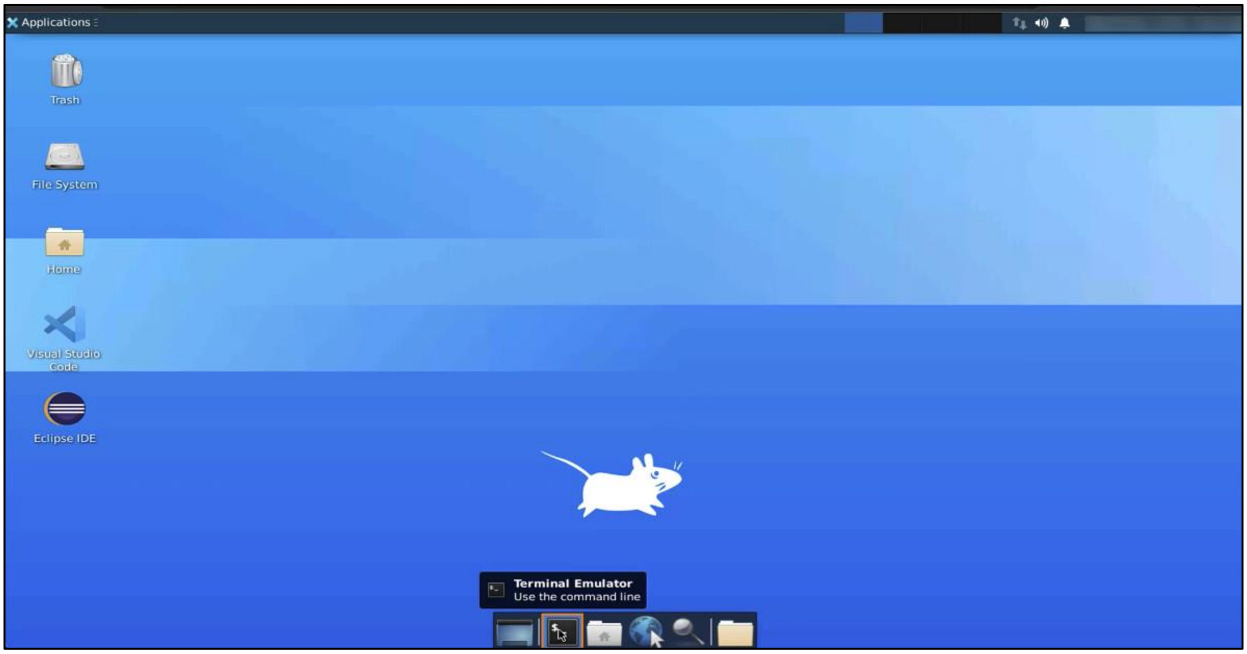
Prerequisites: None

Steps to be followed:

1. Run the mvn package command
2. Open the CMS project

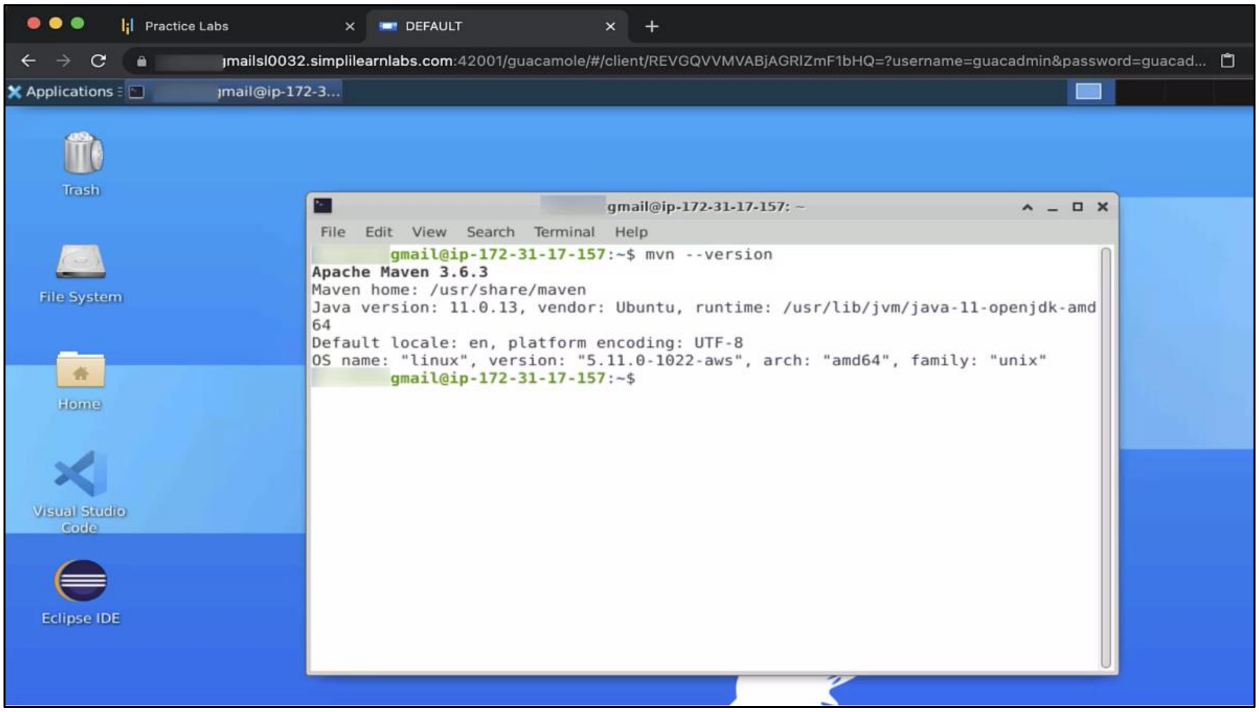
Step 1: Run the mvn package command

1.1 To start, open the Terminal Emulator



1.2 Check if Maven is installed on the system by executing the following command:

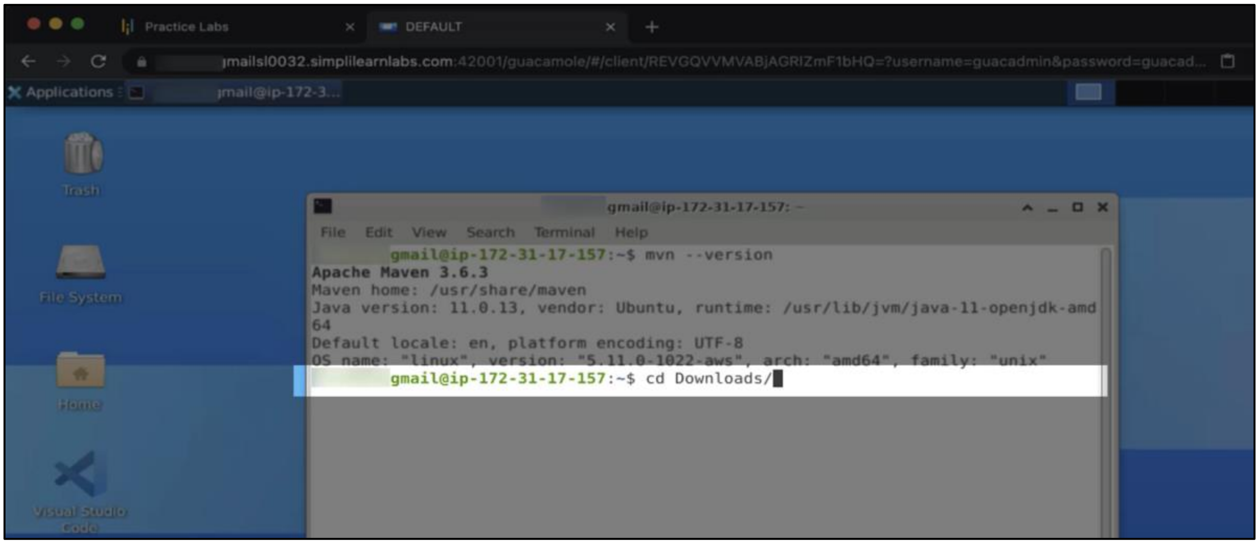
mvn --version


Practice Labs
DEFAULT
[redacted]mailsl0032.simplilearnlabs.com:42001/guacamole/#/client/REVGQVVMVABjAGRlZmF1bHQ=?username=guacadmin&password=guacad...
Applications
[redacted]mail@ip-172-3...
Trash
File System
Home
Visual Studio Code
Eclipse IDE
[redacted]gmail@ip-172-31-17-157: ~
File Edit View Search Terminal Help

```
[redacted]gmail@ip-172-31-17-157:~$ mvn --version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.13, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd
64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "5.11.0-1022-aws", arch: "amd64", family: "unix"
[redacted]gmail@ip-172-31-17-157:~$
```

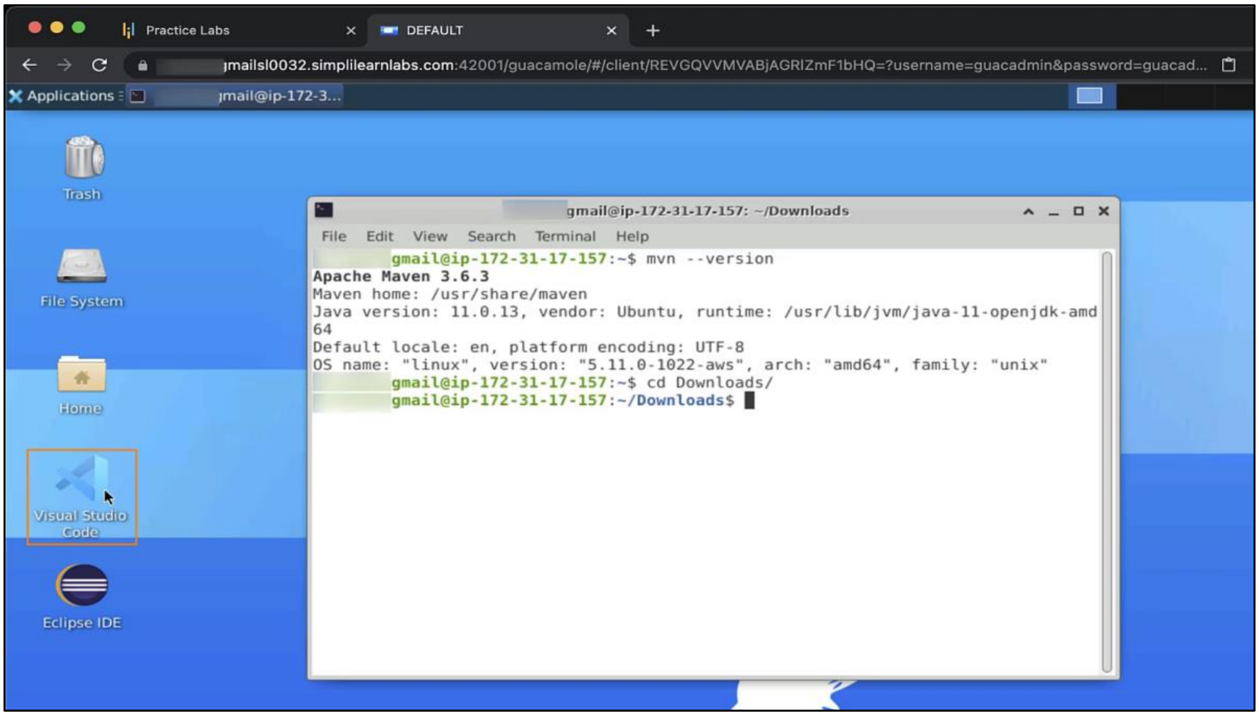
1.3 Use the cd command to go to the **Downloads** directory:

cd Downloads/


Practice Labs
DEFAULT
[redacted]mailsl0032.simplilearnlabs.com:42001/guacamole/#/client/REVGQVVMVABjAGRlZmF1bHQ=?username=guacadmin&password=guacad...
Applications
[redacted]mail@ip-172-3...
Trash
File System
Home
Visual Studio Code
[redacted]gmail@ip-172-31-17-157: ~
File Edit View Search Terminal Help

```
[redacted]gmail@ip-172-31-17-157:~$ mvn --version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.13, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd
64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "5.11.0-1022-aws", arch: "amd64", family: "unix"
[redacted]gmail@ip-172-31-17-157:~$ cd Downloads/
```

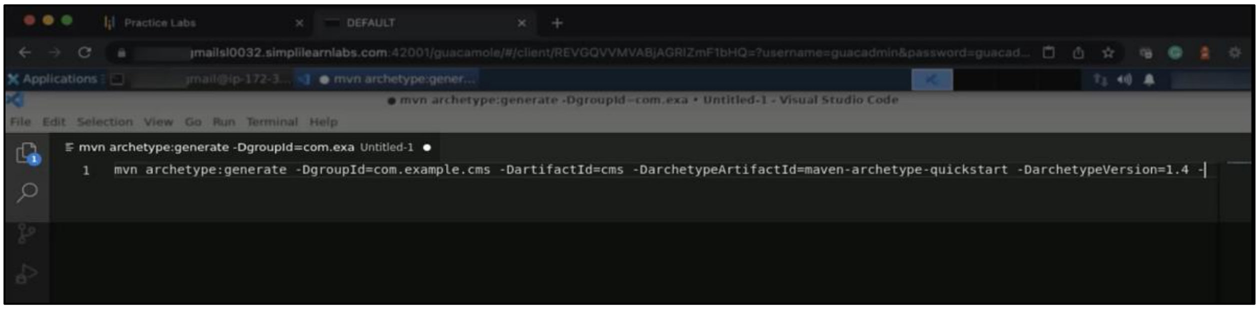
1.4 Open the Visual Studio Code


Practice Labs
DEFAULT
[redacted]jmailsl0032.simplilearnlabs.com:42001/guacamole/#/client/REVGQVVMVABjAGRlZmF1bHQ=?username=guacadmin&password=guacad...
Applications
[redacted]jmail@ip-172-3...
Trash
File System
Home
Visual Studio Code
Eclipse IDE
[redacted]gmail@ip-172-31-17-157: ~/Downloads
File
Edit
View
Search
Terminal
Help

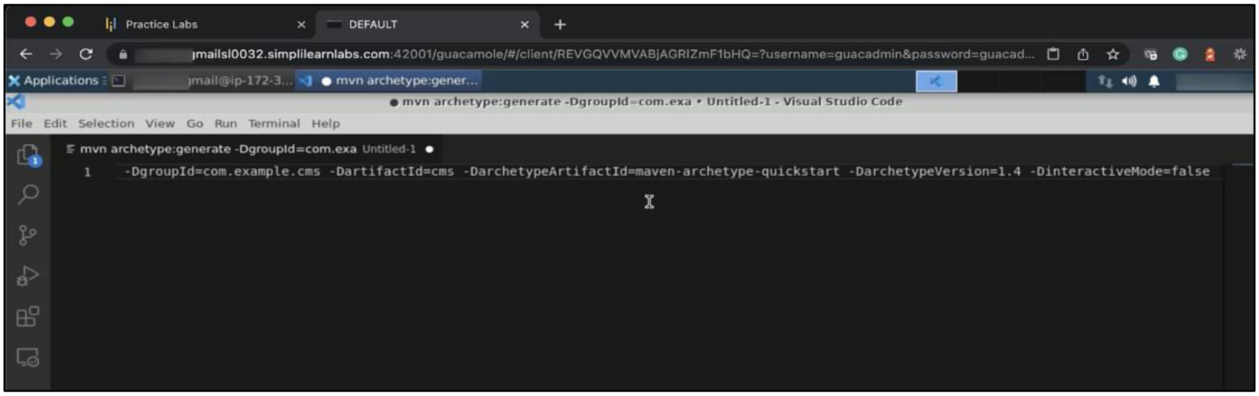
```
[redacted]gmail@ip-172-31-17-157:~$ mvn --version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.13, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd
64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "5.11.0-1022-aws", arch: "amd64", family: "unix"
[redacted]gmail@ip-172-31-17-157:~$ cd Downloads/
[redacted]gmail@ip-172-31-17-157:~/Downloads$ 
```

1.5 Type the following command (line 1) to generate a new Maven project structure:

mvn archetype:generate -DgroupId=com.example.cms -DartifactId=cms -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -DinteractiveMode=false


Practice Labs
DEFAULT
[redacted]jmailsl0032.simplilearnlabs.com:42001/guacamole/#/client/REVGQVVMVABjAGRlZmF1bHQ=?username=guacadmin&password=guacad...
Applications
[redacted]jmail@ip-172-3...
● mvn archetype:gener...
● mvn archetype:generate -DgroupId=com.exa • Untitled-1 - Visual Studio Code
File
Edit
Selection
View
Go
Run
Terminal
Help
mvn archetype:generate -DgroupId=com.exa Untitled-1 ●

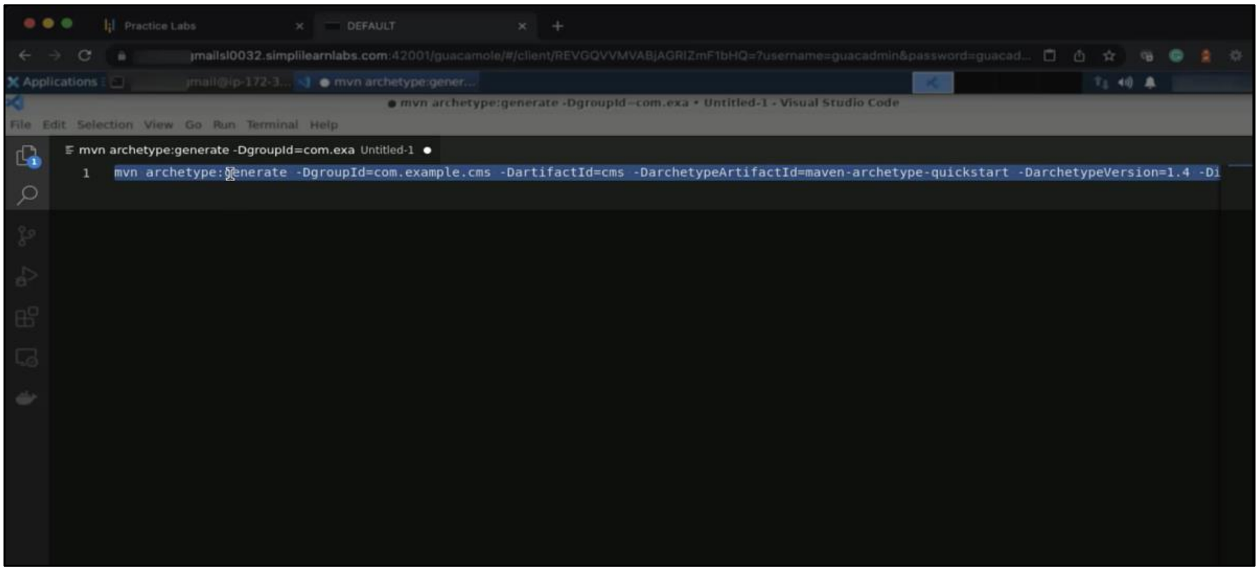
```
mvn archetype:generate -DgroupId=com.example.cms -DartifactId=cms -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -
```


Practice Labs
DEFAULT
[redacted]mailsl0032.simplilearnlabs.com:42001/guacamole/#/client/REVGQVVMVABjAGRIZmF1bHQ=?username=guacadmin&password=guacad...
Applications
[redacted]mail@ip-172-3...
● mvn archetype:gener...
● mvn archetype:generate -Dgroupld=com.exa • Untitled-1 - Visual Studio Code
File Edit Selection View Go Run Terminal Help
mvn archetype:generate -Dgroupld=com.exa Untitled-1 ●

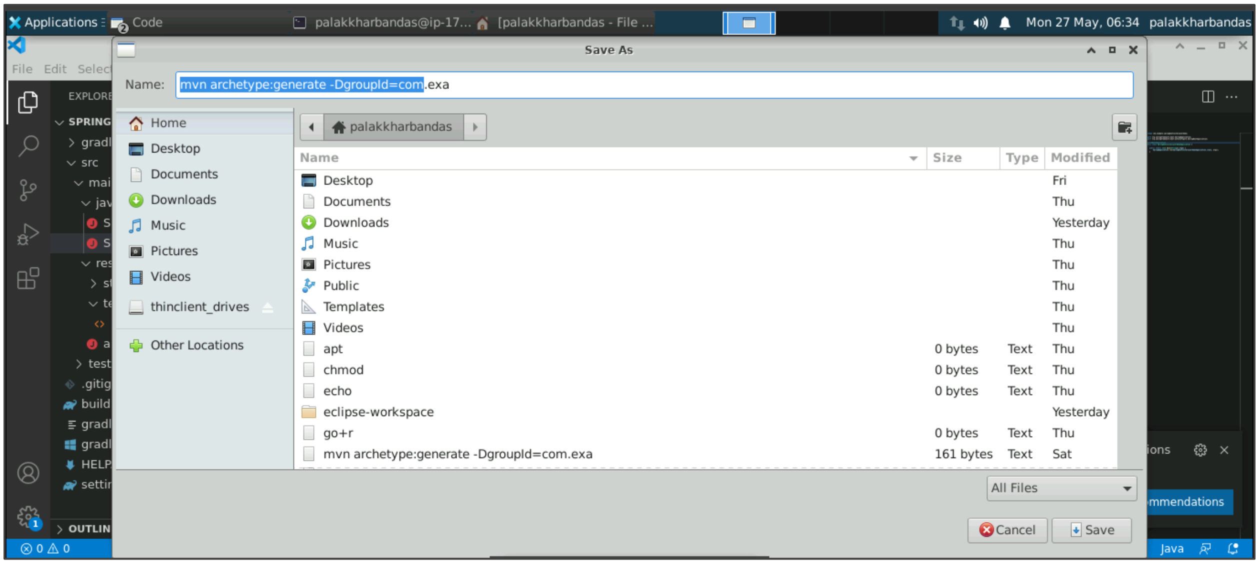
```
-DgroupId=com.example.cms -DartifactId=cms -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -DinteractiveMode=false
```

This command will generate a new Maven project structure based on the **maven-archetype-quickstart** archetype with the specified **Group ID, Artifact ID,** and **archetype version** and without any interactive prompts.

1.6 Copy and paste the entire command into the terminal and press **Enter**


Practice Labs
DEFAULT
[redacted]mailsl0032.simplilearnlabs.com:42001/guacamole/#/client/REVGQVVMVABjAGRIZmF1bHQ=?username=guacadmin&password=guacad...
Applications
[redacted]mail@ip-172-3...
● mvn archetype:gener...
● mvn archetype:generate -Dgroupld=com.exa • Untitled-1 - Visual Studio Code
File Edit Selection View Go Run Terminal Help
mvn archetype:generate -Dgroupld=com.exa Untitled-1 ●

```
mvn archetype:generate -DgroupId=com.example.cms -DartifactId=cms -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -Di
```

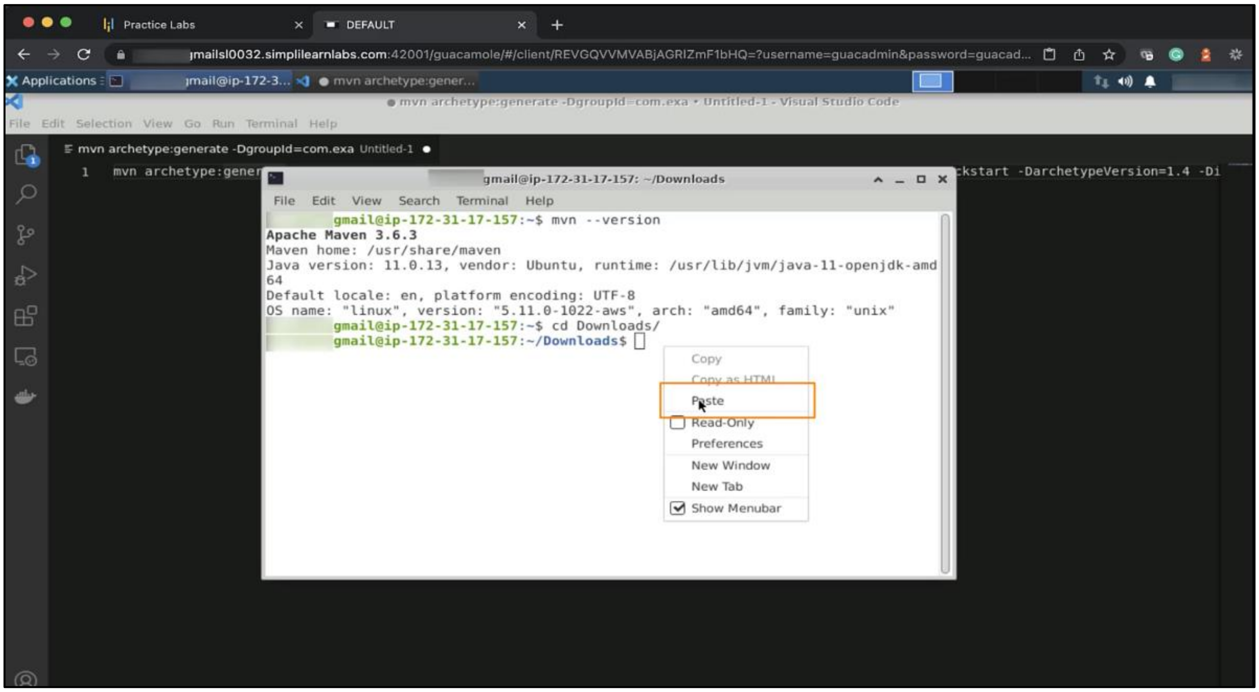


Save As

Name: mvn archetype:generate -DgroupId=com.exa

Name	Size	Type	Modified
Desktop			Fri
Documents			Thu
Downloads			Yesterday
Music			Thu
Pictures			Thu
Public			Thu
Templates			Thu
Videos			Thu
apt	0 bytes	Text	Thu
chmod	0 bytes	Text	Thu
echo	0 bytes	Text	Thu
eclipse-workspace			Yesterday
go+r	0 bytes	Text	Thu
mvn archetype:generate -DgroupId=com.exa	161 bytes	Text	Sat

‘



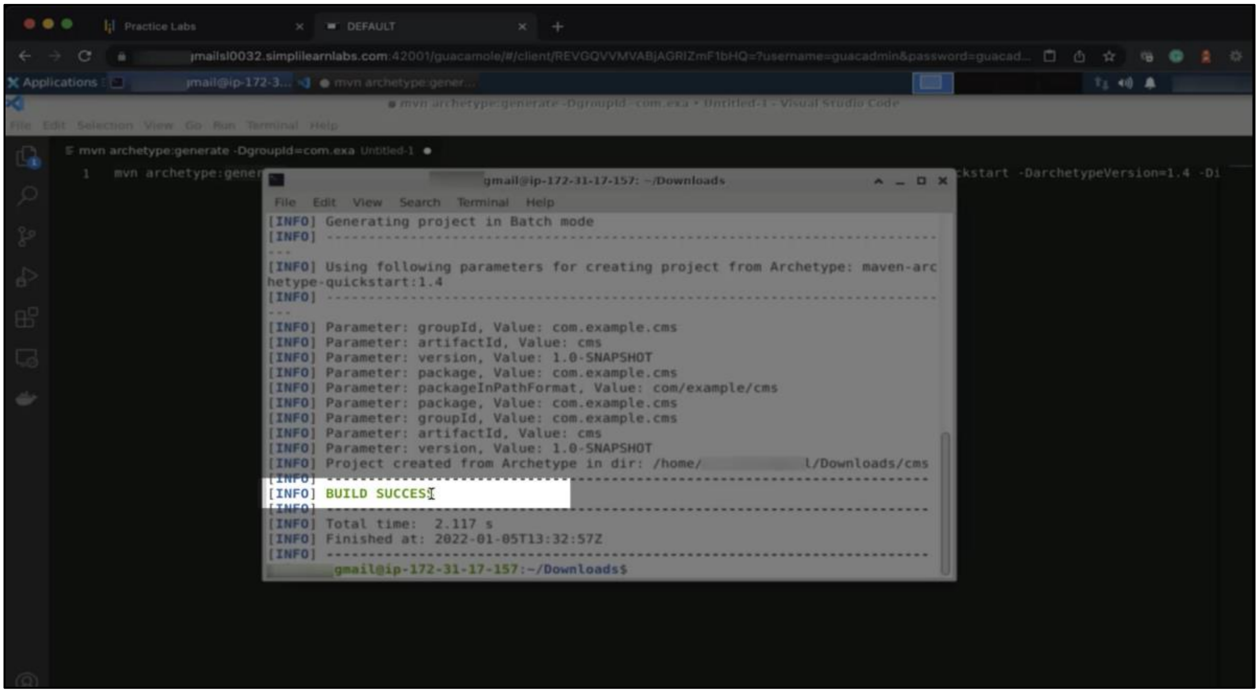
mvn archetype:generate -DgroupId=com.exa Untitled-1

```
1   mvn archetype:gener                                          ckstart -DarchetypeVersion=1.4 -Di
```

[redacted]gmail@ip-172-31-17-157: ~/Downloads

```
[redacted]gmail@ip-172-31-17-157:~$ mvn --version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.13, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd
64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "5.11.0-1022-aws", arch: "amd64", family: "unix"
[redacted]gmail@ip-172-31-17-157:~$ cd Downloads/
[redacted]gmail@ip-172-31-17-157:~/Downloads$
```

Practice Labs
DEFAULT
[redacted]mailsl0032.simplilearnlabs.com:42001/guacamole/#/client/REVGQVVMVABjAGRIZmF1bHQ=?username=guacadmin&password=guacad...
Applications
[redacted]mail@ip-172-3...
mvn archetype:gener...
mvn archetype:generate -DgroupId=com.exa • Untitled-1 - Visual Studio Code
File
Edit
Selection
View
Go
Run
Terminal
Help
File
Edit
View
Search
Terminal
Help
Copy
Copy as HTML
Paste
□ Read-Only
Preferences
New Window
New Tab
☑ Show Menubar



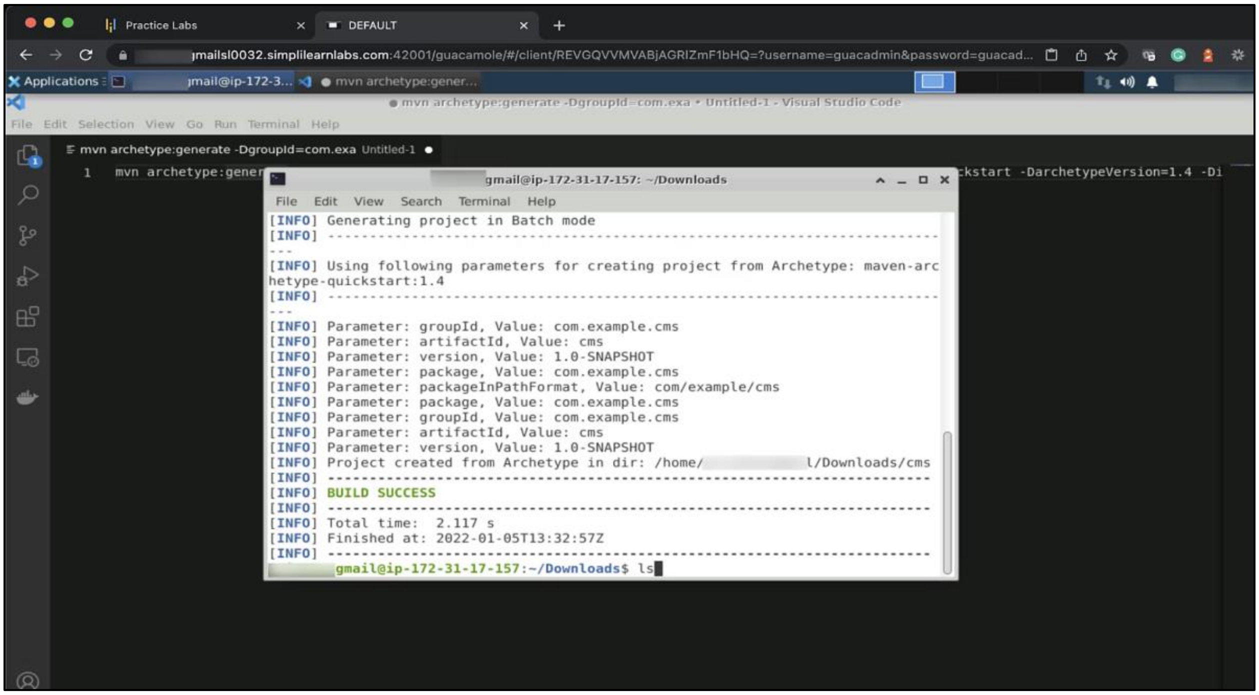
```
mvn archetype:gener                                            ckstart -DarchetypeVersion=1.4 -Di
```

```
[INFO] Generating project in Batch mode
[INFO] ------------------------------------------------------------------------
---
[INFO] Using following parameters for creating project from Archetype: maven-arc
hetype-quickstart:1.4
[INFO] ------------------------------------------------------------------------
---
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: packageInPathFormat, Value: com/example/cms
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: /home/[redacted]l/Downloads/cms
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.117 s
[INFO] Finished at: 2022-01-05T13:32:57Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads$
```

The BUILD SUCCESS can be seen.

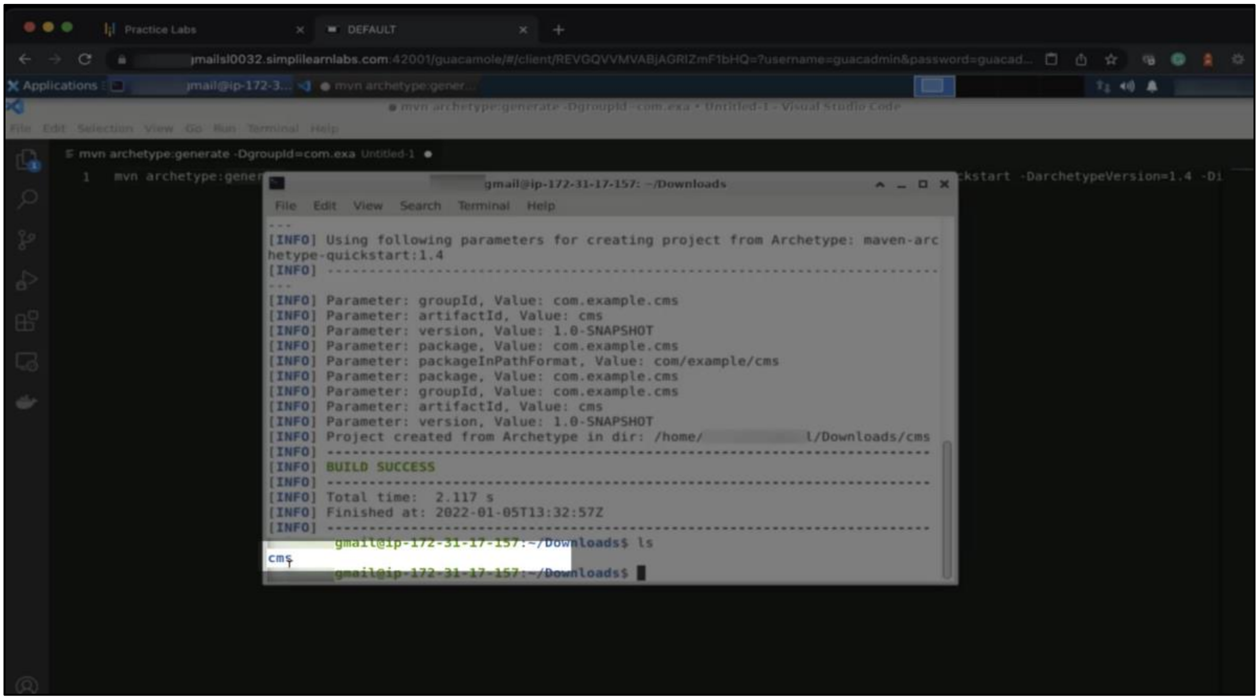
1.7 Use the ls command to list the directories and files:

ls



```
mvn archetype:gener                                            ckstart -DarchetypeVersion=1.4 -Di
```

```
[INFO] Generating project in Batch mode
[INFO] ------------------------------------------------------------------------
---
[INFO] Using following parameters for creating project from Archetype: maven-arc
hetype-quickstart:1.4
[INFO] ------------------------------------------------------------------------
---
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: packageInPathFormat, Value: com/example/cms
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: /home/[redacted]l/Downloads/cms
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.117 s
[INFO] Finished at: 2022-01-05T13:32:57Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads$ ls
```

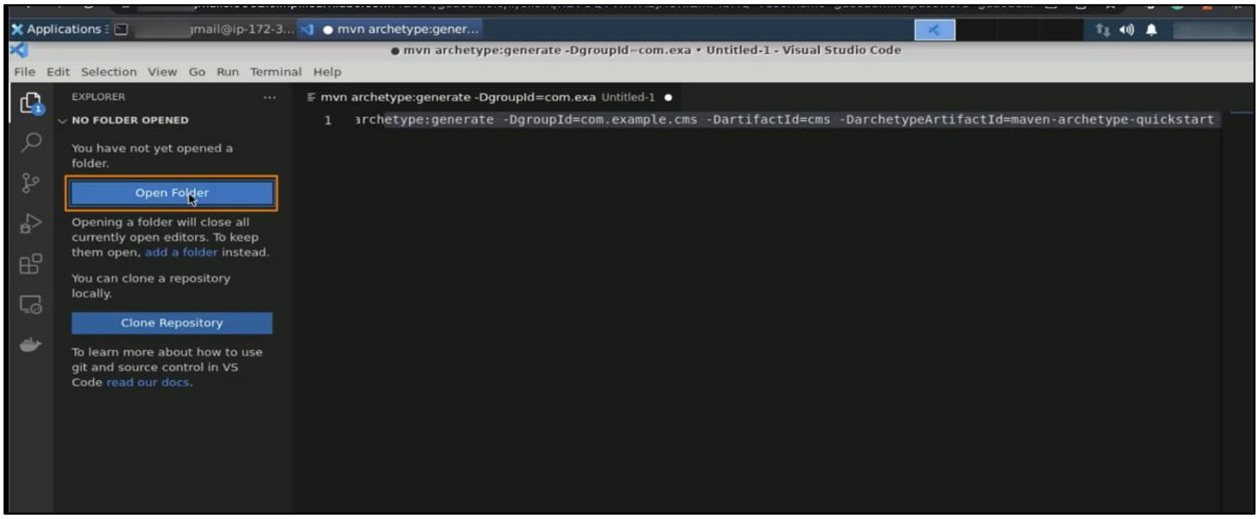


```
[redacted]gmail@ip-172-31-17-157: ~/Downloads
---
[INFO] Using following parameters for creating project from Archetype: maven-arc
hetype-quickstart:1.4
[INFO] ----------------------------------------------------------------------------
---
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: packageInPathFormat, Value: com/example/cms
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: /home/[redacted]l/Downloads/cms
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.117 s
[INFO] Finished at: 2022-01-05T13:32:57Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads$ ls
cms
[redacted]gmail@ip-172-31-17-157:~/Downloads$
```

A project directory named **cms** has been created.

Step 2: Open the CMS project

2.1 Navigate back to the Visual Studio Code IDE and click on **Open Project**



Applications
[redacted]mail@ip-172-3...
mvn archetype:gener...
● mvn archetype:generate -DgroupId=com.exa • Untitled-1 - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
mvn archetype:generate -DgroupId=com.exa Untitled-1

```
archetype:generate -DgroupId=com.example.cms -DartifactId=cms -DarchetypeArtifactId=maven-archetype-quickstart
```

NO FOLDER OPENED

You have not yet opened a folder.

Open Folder

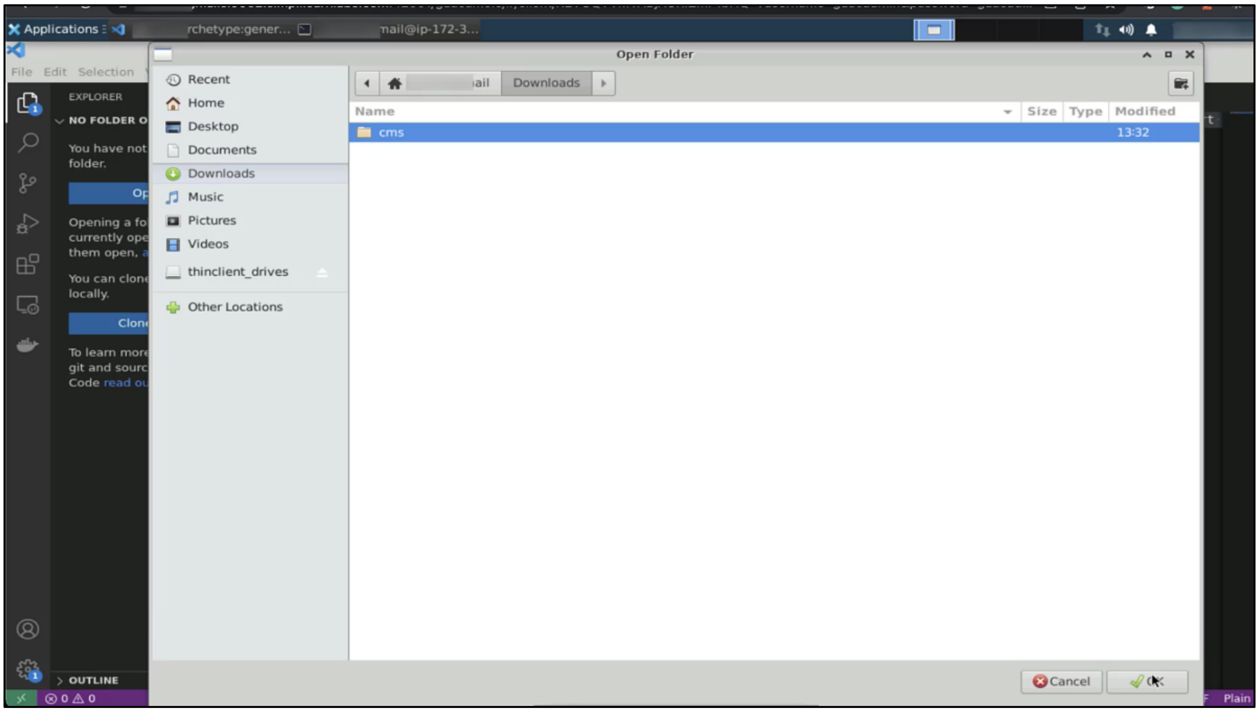
Opening a folder will close all currently open editors. To keep them open, add a folder instead.

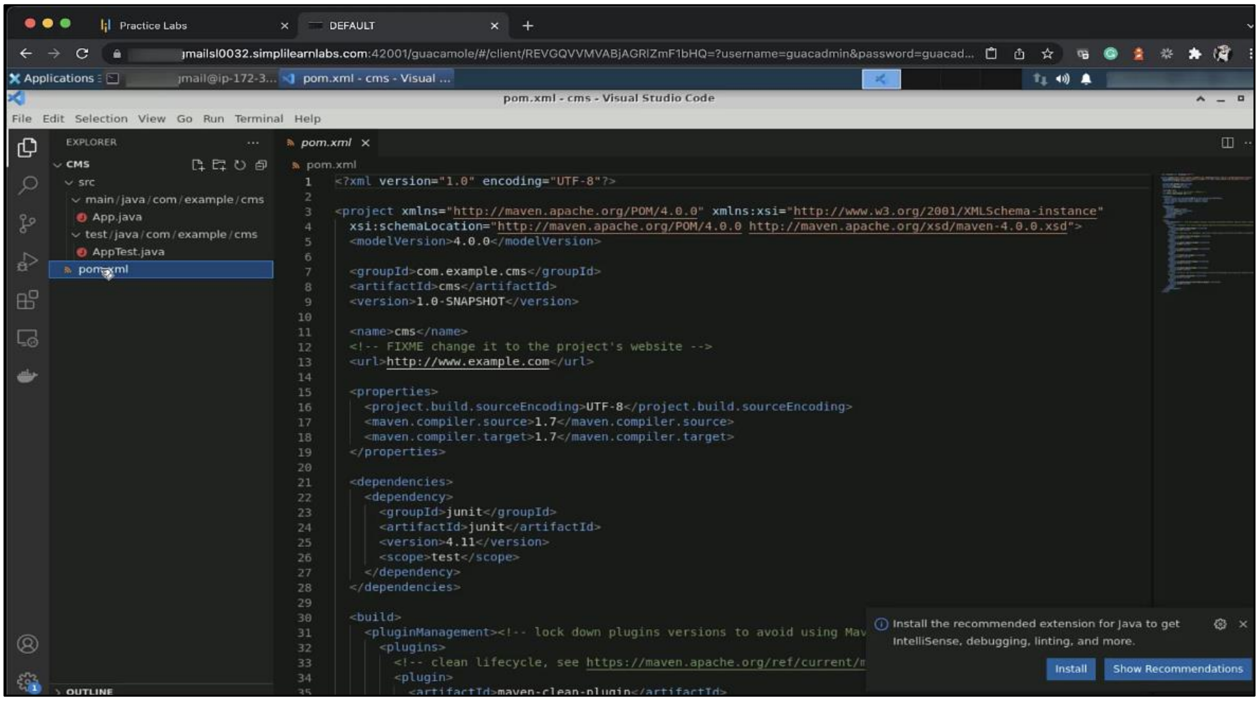
You can clone a repository locally.

Clone Repository

To learn more about how to use git and source control in VS Code read our docs.

2.2 Open the **cms** folder from the Downloads and click **OK**




Practice Labs
DEFAULT
mailsl0032.simplilearnlabs.com:42001/guacamole/#/client/REVGQVVMVABjAGRIZmF1bHQ=?username=guacadmin&password=guacad...
Applications
pom.xml - cms - Visual ...
pom.xml - cms - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
CMS
src
main / java / com / example / cms
App.java
test / java / com / example / cms
AppTest.java
pom.xml
OUTLINE
pom.xml
Install
Show Recommendations

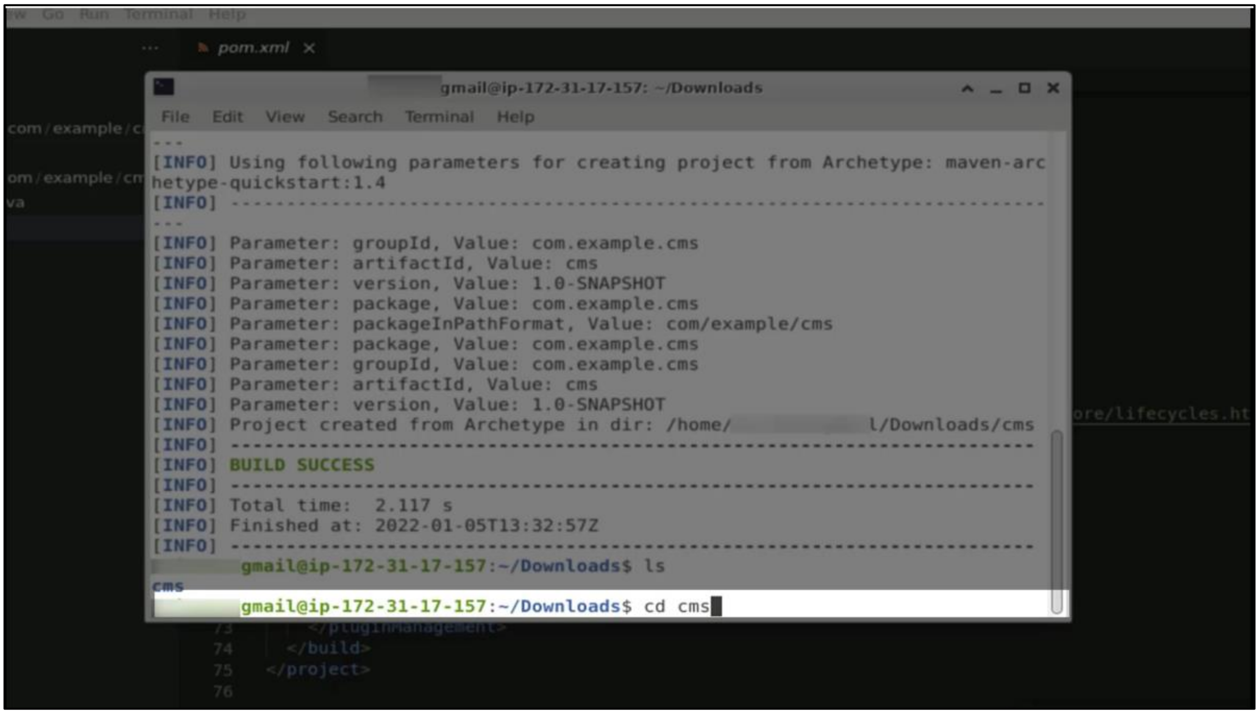
```
<?xml version="1.0" encoding="UTF-8"?>

<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>

  <groupId>com.example.cms</groupId>
  <artifactId>cms</artifactId>
  <version>1.0-SNAPSHOT</version>

  <name>cms</name>
  <!-- FIXME change it to the project's website -->
  <url>http://www.example.com</url>

  <properties>
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
    <maven.compiler.source>1.7</maven.compiler.source>
    <maven.compiler.target>1.7</maven.compiler.target>
  </properties>

  <dependencies>
    <dependency>
      <groupId>junit</groupId>
      <artifactId>junit</artifactId>
      <version>4.11</version>
      <scope>test</scope>
    </dependency>
  </dependencies>

  <build>
    <pluginManagement><!-- lock down plugins versions to avoid using Mav
      <plugins>
        <!-- clean lifecycle, see https://maven.apache.org/ref/current/m
        <plugin>
          <artifactId>maven-clean-plugin</artifactId>
```

Install the recommended extension for Java to get IntelliSense, debugging, linting, and more.

A **pom.xml** file is created in the **cms** folder in Visual Studio Code.

2.3 Use the cd command to change the directory to **cms**:

cd cms

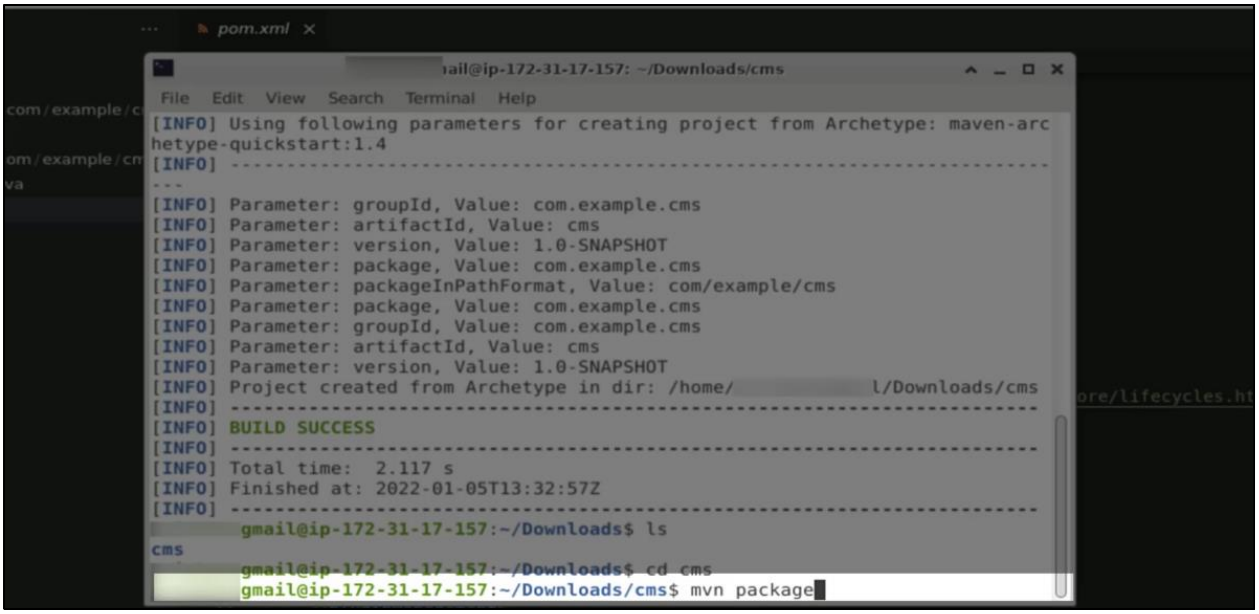


ew Go Run Terminal Help
pom.xml
[redacted]gmail@ip-172-31-17-157: ~/Downloads
File Edit View Search Terminal Help

```
---
[INFO] Using following parameters for creating project from Archetype: maven-arc
hetype-quickstart:1.4
[INFO] ------------------------------------------------------------------------
---
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: packageInPathFormat, Value: com/example/cms
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: /home/[redacted]l/Downloads/cms
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.117 s
[INFO] Finished at: 2022-01-05T13:32:57Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads$ ls
cms
[redacted]gmail@ip-172-31-17-157:~/Downloads$ cd cms
```

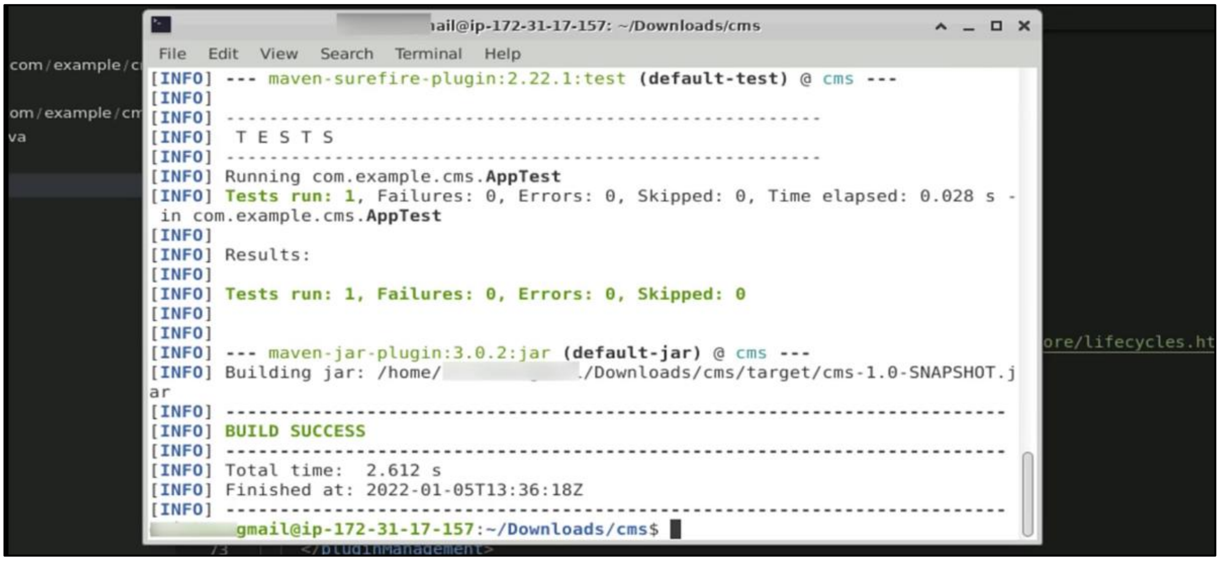
2.4 Create a JAR file containing the project's compiled code and resources using the **mvn** command and press **Enter**

mvn package


pom.xml
[redacted]ail@ip-172-31-17-157: ~/Downloads/cms
File Edit View Search Terminal Help
com/example/c
om/example/cm
va
ore/lifecycles.ht

```
[INFO] Using following parameters for creating project from Archetype: maven-arc
hetype-quickstart:1.4
[INFO] -------------------------------------------------------------------------
---
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: packageInPathFormat, Value: com/example/cms
[INFO] Parameter: package, Value: com.example.cms
[INFO] Parameter: groupId, Value: com.example.cms
[INFO] Parameter: artifactId, Value: cms
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: /home/[redacted]l/Downloads/cms
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.117 s
[INFO] Finished at: 2022-01-05T13:32:57Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads$ ls
cms
[redacted]gmail@ip-172-31-17-157:~/Downloads$ cd cms
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$ mvn package
```

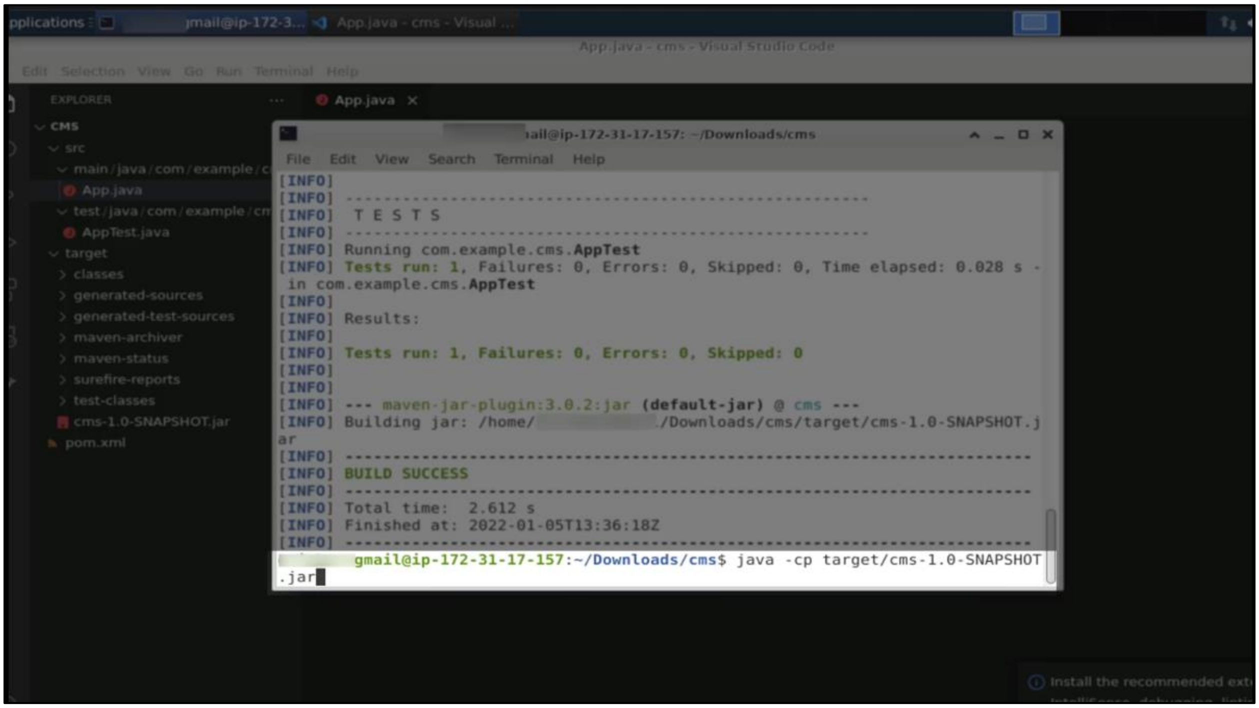
The **mvn package** is a command used in Maven, a popular build automation tool for Java projects, to create a JAR file or a WAR file (depending on the project type) that contains the project's compiled code and resources.


[redacted]ail@ip-172-31-17-157: ~/Downloads/cms
File Edit View Search Terminal Help
com/example/c
om/example/cm
va
ore/lifecycles.ht

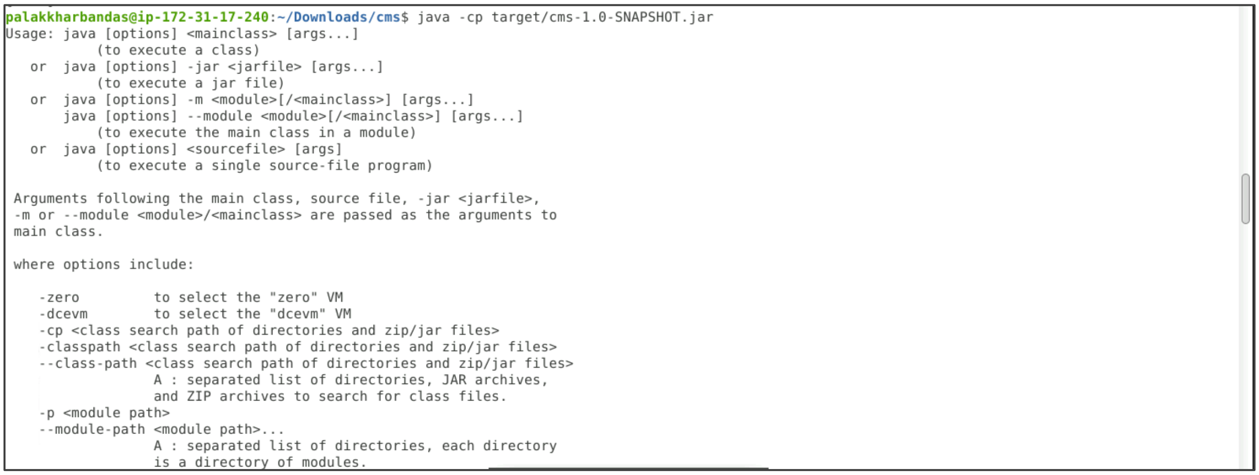
```
[INFO] --- maven-surefire-plugin:2.22.1:test (default-test) @ cms ---
[INFO]
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.example.cms.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.028 s -
 in com.example.cms.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.0.2:jar (default-jar) @ cms ---
[INFO] Building jar: /home/[redacted]./Downloads/cms/target/cms-1.0-SNAPSHOT.j
ar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.612 s
[INFO] Finished at: 2022-01-05T13:36:18Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$
```

The BUILD SUCCESS can be seen.

2.5 Use the following command to execute the Java application:
java -cp target/cms-1.0-SNAPSHOT.jar


pplications
jmail@ip-172-3...
App.java - cms - Visual ...
App.java - cms - Visual Studio Code
Edit Selection View Go Run Terminal Help
EXPLORER
CMS
src
main / java / com / example / c
App.java
test / java / com / example / cm
AppTest.java
target
classes
generated-sources
generated-test-sources
maven-archiver
maven-status
surefire-reports
test-classes
cms-1.0-SNAPSHOT.jar
pom.xml
App.java
[redacted]ail@ip-172-31-17-157: ~/Downloads/cms
File Edit View Search Terminal Help
Install the recommended ext

```
[INFO]
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.example.cms.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.028 s -
 in com.example.cms.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.0.2:jar (default-jar) @ cms ---
[INFO] Building jar: /home/[redacted]/Downloads/cms/target/cms-1.0-SNAPSHOT.j
ar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.612 s
[INFO] Finished at: 2022-01-05T13:36:18Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$ java -cp target/cms-1.0-SNAPSHOT
.jar
```

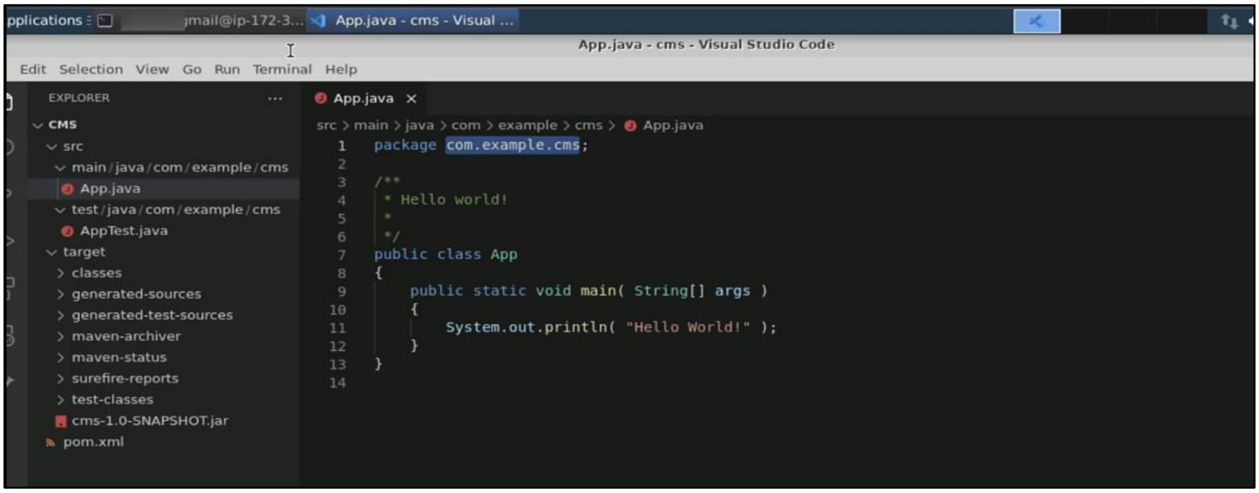


```
palakkharbandas@ip-172-31-17-240:~/Downloads/cms$ java -cp target/cms-1.0-SNAPSHOT.jar
Usage: java [options] <mainclass> [args...]
           (to execute a class)
   or  java [options] -jar <jarfile> [args...]
           (to execute a jar file)
   or  java [options] -m <module>[/<mainclass>] [args...]
       java [options] --module <module>[/<mainclass>] [args...]
           (to execute the main class in a module)
   or  java [options] <sourcefile> [args]
           (to execute a single source-file program)

 Arguments following the main class, source file, -jar <jarfile>,
 -m or --module <module>/<mainclass> are passed as the arguments to
 main class.

 where options include:

    -zero         to select the "zero" VM
    -dcevm        to select the "dcevm" VM
    -cp <class search path of directories and zip/jar files>
    -classpath <class search path of directories and zip/jar files>
    --class-path <class search path of directories and zip/jar files>
                  A : separated list of directories, JAR archives,
                  and ZIP archives to search for class files.
    -p <module path>
    --module-path <module path>...
                  A : separated list of directories, each directory
                  is a directory of modules.
```

The command **java -cp target/cms-1.0-SNAPSHOT.jar** is used to execute a Java application that has been packaged as a JAR file.

2.6 Copy the selected package name

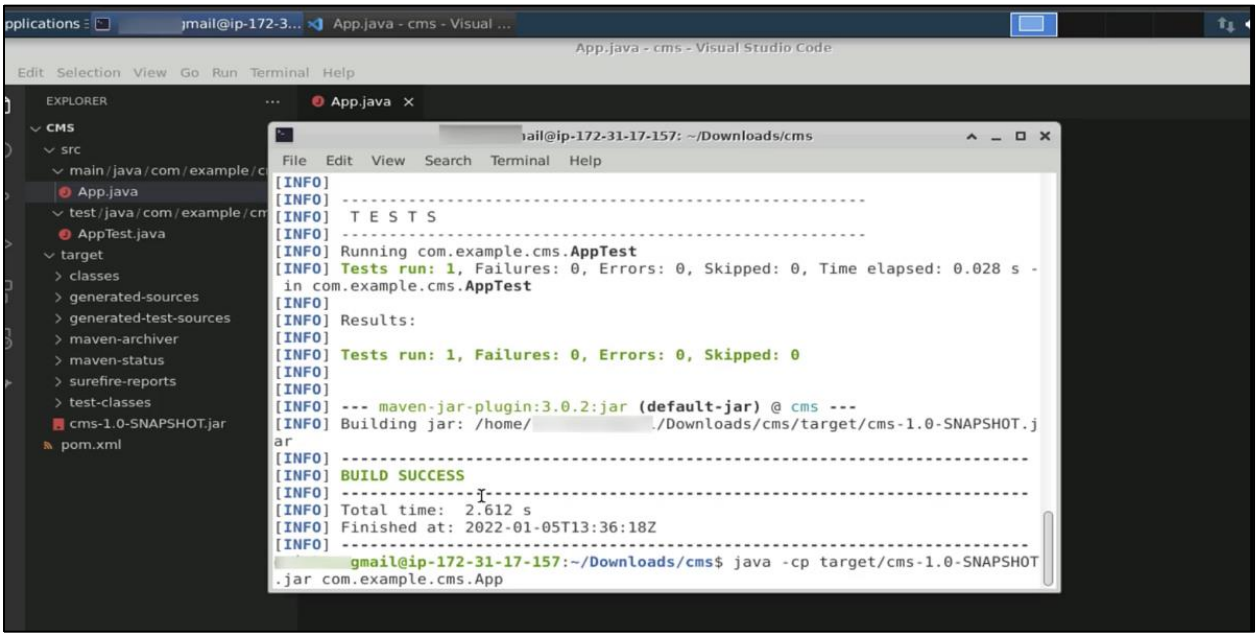
com.example.cms


pplications
[redacted] jmail@ip-172-3...
App.java - cms - Visual ...
App.java - cms - Visual Studio Code
Edit Selection View Go Run Terminal Help
EXPLORER
CMS
src
main / java / com / example / cms
App.java
test / java / com / example / cms
AppTest.java
target
classes
generated-sources
generated-test-sources
maven-archiver
maven-status
surefire-reports
test-classes
cms-1.0-SNAPSHOT.jar
pom.xml
App.java
src > main > java > com > example > cms > App.java

```
package com.example.cms;

/**
 * Hello world!
 *
 */
public class App
{
    public static void main( String[] args )
    {
        System.out.println( "Hello World!" );
    }
}
```

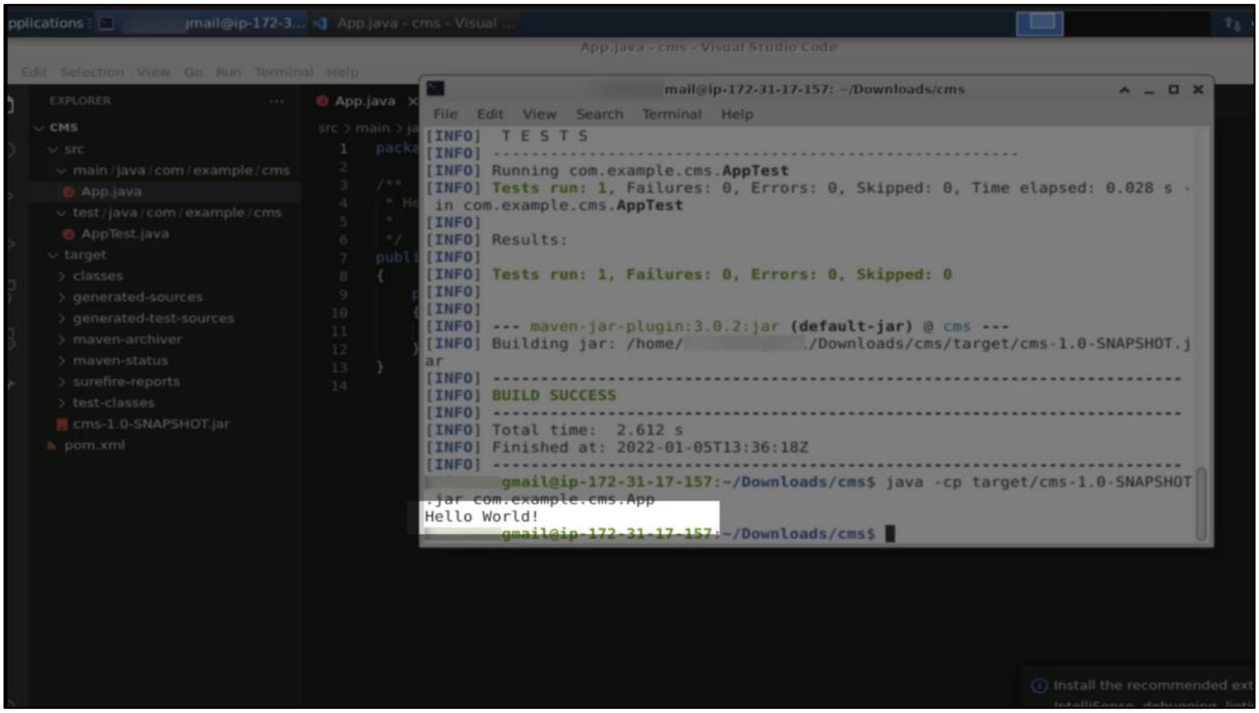
2.7 Paste the copied name in the terminal and complete the command shown in step 2.6 by adding **.App** at the end:

java -cp target/cms-1.0-SNAPSHOT.jar com.example.cms.App


pplications
[redacted] jmail@ip-172-3...
App.java - cms - Visual ...
App.java - cms - Visual Studio Code
Edit Selection View Go Run Terminal Help
EXPLORER
CMS
src
main / java / com / example / c
App.java
test / java / com / example / cm
AppTest.java
target
classes
generated-sources
generated-test-sources
maven-archiver
maven-status
surefire-reports
test-classes
cms-1.0-SNAPSHOT.jar
pom.xml
App.java
[redacted] ail@ip-172-31-17-157: ~/Downloads/cms
File Edit View Search Terminal Help

```
[INFO]
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.example.cms.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.028 s -
 in com.example.cms.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.0.2:jar (default-jar) @ cms ---
[INFO] Building jar: /home/[redacted]/Downloads/cms/target/cms-1.0-SNAPSHOT.j
ar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.612 s
[INFO] Finished at: 2022-01-05T13:36:18Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$ java -cp target/cms-1.0-SNAPSHOT
.jar com.example.cms.App
```

The output can be seen as below:



```
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.example.cms.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.028 s -
 in com.example.cms.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.0.2:jar (default-jar) @ cms ---
[INFO] Building jar: /home/[redacted]/Downloads/cms/target/cms-1.0-SNAPSHOT.j
ar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.612 s
[INFO] Finished at: 2022-01-05T13:36:18Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$ java -cp target/cms-1.0-SNAPSHOT
.jar com.example.cms.App
Hello World!
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$
```

2.8 In the **App.java** file, write the following lines of code (from lines 11 to 15):

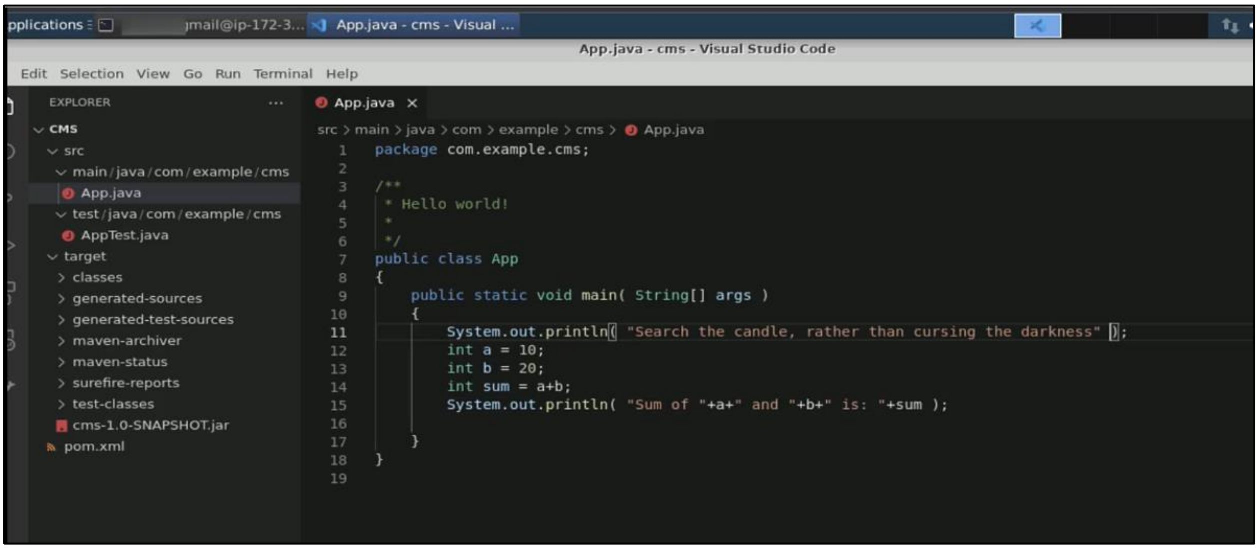
System.out.println("Search the candle, rather than cursing the darkness");

int a = 10;

int b = 20;

int sum = a+b;

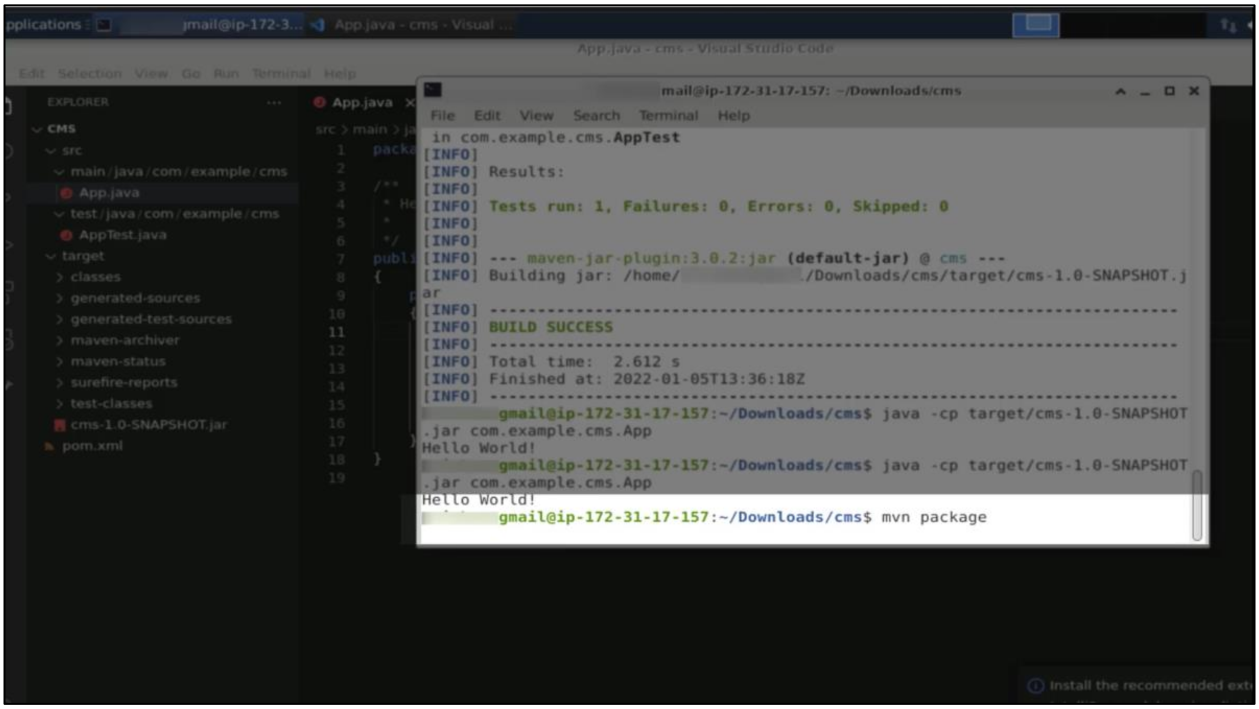
System.out.println("Sum of "+a+" and "+b+" is: "+sum);



```
1   package com.example.cms;
2
3   /**
4    * Hello world!
5    *
6    */
7   public class App
8   {
9       public static void main( String[] args )
10      {
11          System.out.println( "Search the candle, rather than cursing the darkness" );
12          int a = 10;
13          int b = 20;
14          int sum = a+b;
15          System.out.println( "Sum of "+a+" and "+b+" is: "+sum );
16
17      }
18  }
19
```

Overall, the code prints a message, performs the addition of two numbers (10 and 20), and displays the sum with an appropriate message.

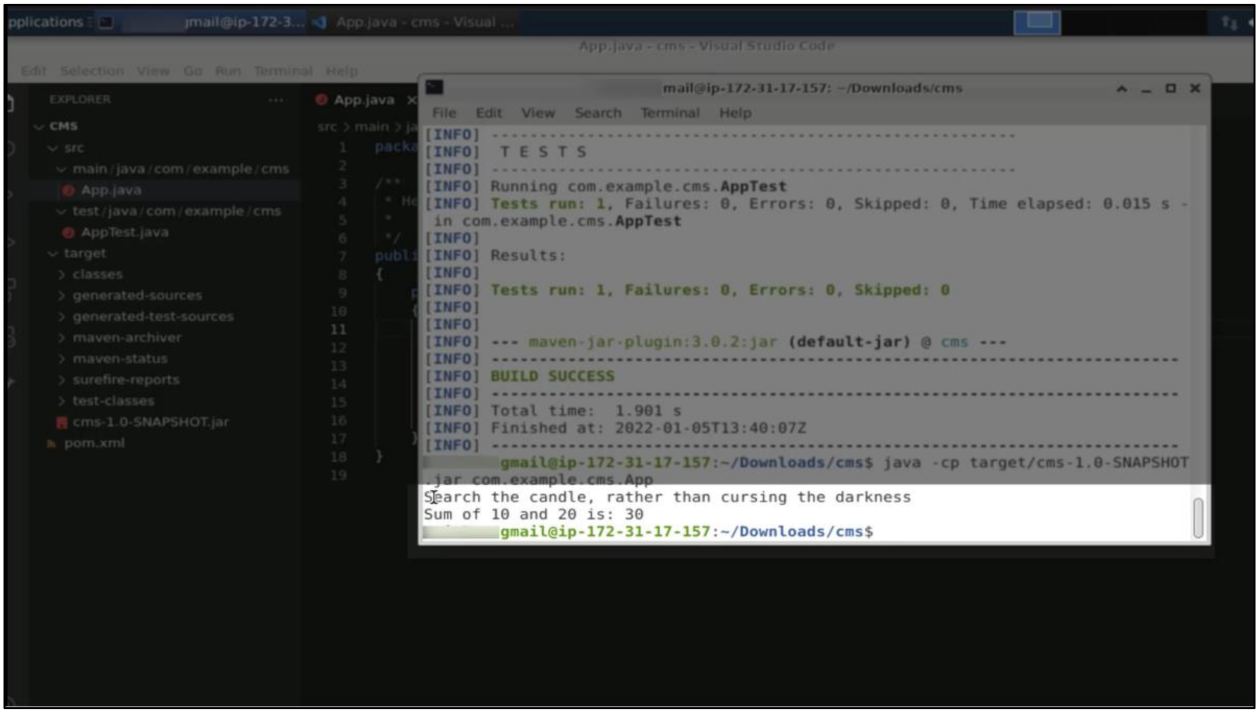
2.9 Use the **mvn** command to create the package and press **Enter**:
mvn package


App.java - cms - Visual Studio Code
[redacted]mail@ip-172-31-17-157: ~/Downloads/cms
File Edit View Search Terminal Help

```
 in com.example.cms.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.0.2:jar (default-jar) @ cms ---
[INFO] Building jar: /home/[redacted]/Downloads/cms/target/cms-1.0-SNAPSHOT.j
ar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.612 s
[INFO] Finished at: 2022-01-05T13:36:18Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$ java -cp target/cms-1.0-SNAPSHOT
.jar com.example.cms.App
Hello World!
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$ java -cp target/cms-1.0-SNAPSHOT
.jar com.example.cms.App
Hello World!
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$ mvn package
```

2.10 Run the project using the following command:

java -cp target/cms-1.0-SNAPSHOT.jar com.example.cms.App



App.java - cms - Visual Studio Code
[redacted]mail@ip-172-31-17-157: ~/Downloads/cms
File Edit View Search Terminal Help
EXPLORER
CMS
src
main/java/com/example/cms
App.java
test/java/com/example/cms
AppTest.java
target
classes
generated-sources
generated-test-sources
maven-archiver
maven-status
surefire-reports
test-classes
cms-1.0-SNAPSHOT.jar
pom.xml

```
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.example.cms.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.015 s -
 in com.example.cms.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.0.2:jar (default-jar) @ cms ---
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  1.901 s
[INFO] Finished at: 2022-01-05T13:40:07Z
[INFO] ------------------------------------------------------------------------
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$ java -cp target/cms-1.0-SNAPSHOT
.jar com.example.cms.App
Search the candle, rather than cursing the darkness
Sum of 10 and 20 is: 30
[redacted]gmail@ip-172-31-17-157:~/Downloads/cms$
```

As seen in the screenshot, the output is different now as per the code added in the main function of the **App.java** file.

By following the steps, you have successfully completed the creation of a Maven application and executed it using the CLI. This includes running the mvn package command and opening the CMS project.