

Lesson 01 Demo 04

Exploring Maven Compiler Plugin

Objective: To explore Maven Compiler Plugin to generate and compile the test classes

Tools Required: Visual Studio Code and Maven

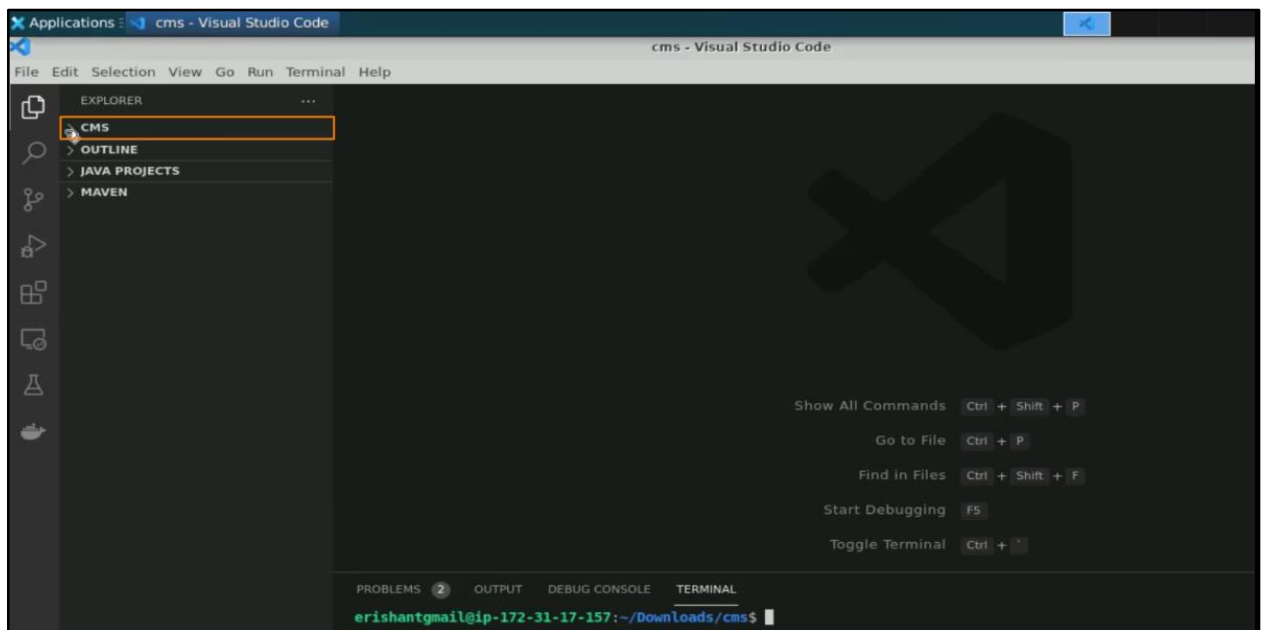
Prerequisites: None

Steps to be followed:

1. Perform maven compilation
2. Generate test class
3. Create a Java file
4. Compile the test

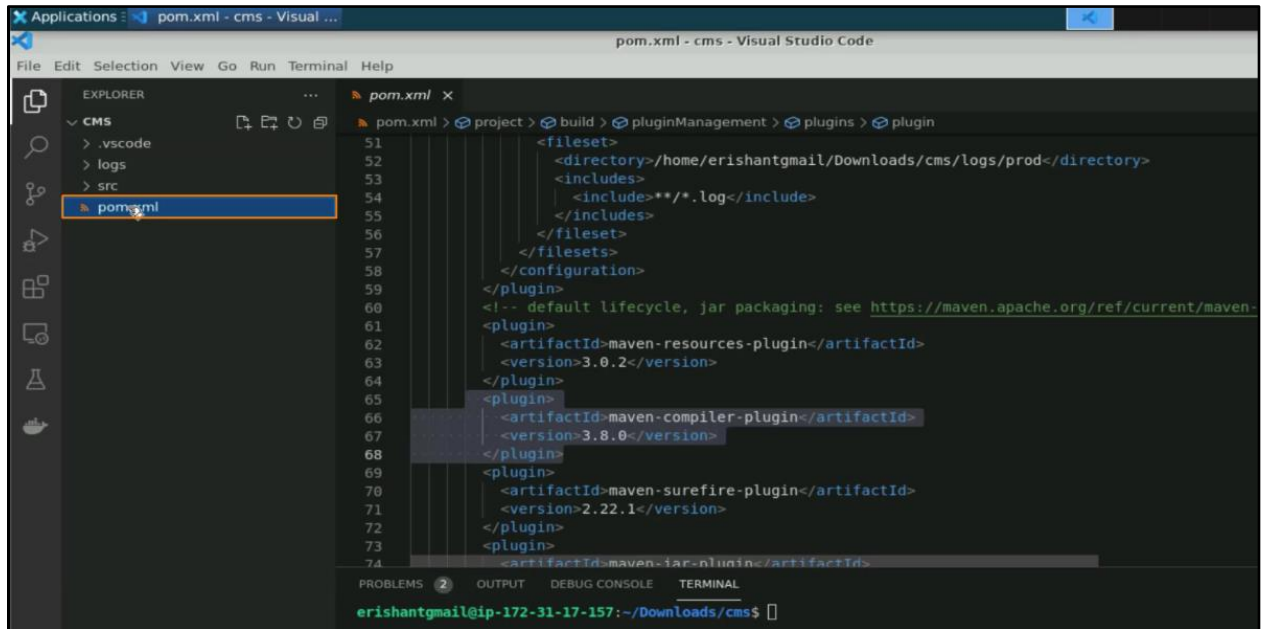
Step 1: Perform maven compilation

1.1 Open Visual Studio Code and open the project **CMS**



Note: Please refer to the previous demo on how to create the CMS project

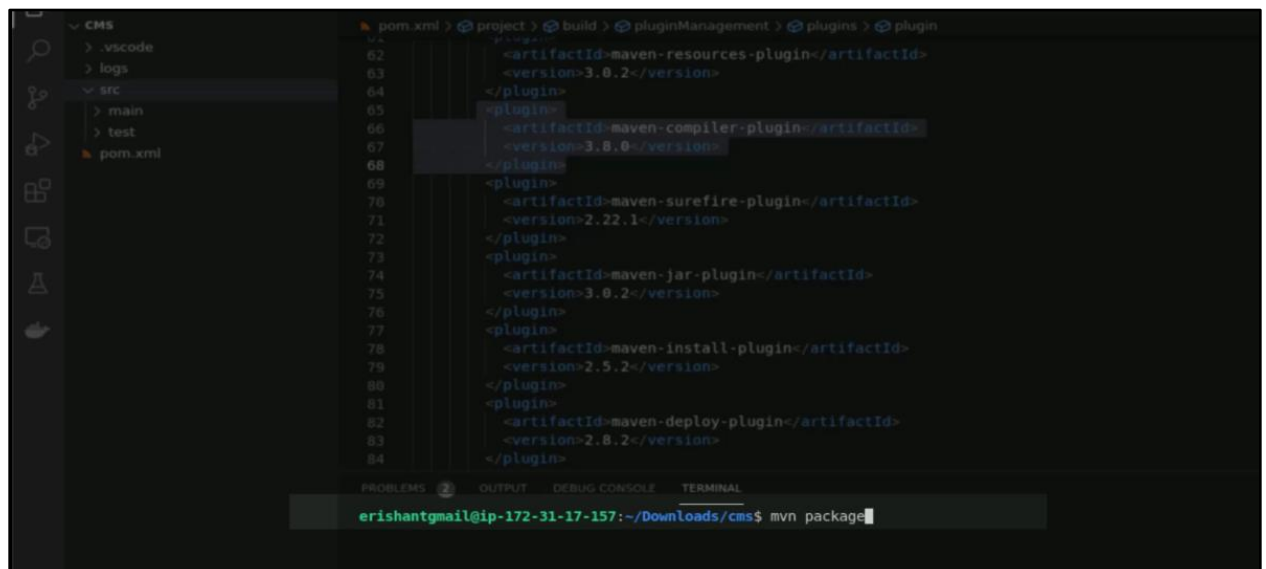
1.2 Now, open the **pom.xml** file



```
51 <fileset>
52 <directory>/home/erishantgmail/Downloads/cms/logs/prod</directory>
53 <includes>
54 <include>**/*.log</include>
55 </includes>
56 </fileset>
57 </filesets>
58 </configuration>
59 </plugin>
60 <!-- default lifecycle, jar packaging: see https://maven.apache.org/ref/current/maven-
61 <plugin>
62 <artifactId>maven-resources-plugin</artifactId>
63 <version>3.0.2</version>
64 </plugin>
65 <plugin>
66 <artifactId>maven-compiler-plugin</artifactId>
67 <version>3.8.0</version>
68 </plugin>
69 <plugin>
70 <artifactId>maven-surefire-plugin</artifactId>
71 <version>2.22.1</version>
72 </plugin>
73 <plugin>
74 <artifactId>maven-jar-plugin</artifactId>
```

1.3 In the terminal of the Visual Studio Code, use the **mvn package** command to run the build

mvn package



```
62 <artifactId>maven-resources-plugin</artifactId>
63 <version>3.0.2</version>
64 </plugin>
65 <plugin>
66 <artifactId>maven-compiler-plugin</artifactId>
67 <version>3.8.0</version>
68 </plugin>
69 <plugin>
70 <artifactId>maven-surefire-plugin</artifactId>
71 <version>2.22.1</version>
72 </plugin>
73 <plugin>
74 <artifactId>maven-jar-plugin</artifactId>
75 <version>3.0.2</version>
76 </plugin>
77 <plugin>
78 <artifactId>maven-install-plugin</artifactId>
79 <version>2.5.2</version>
80 </plugin>
81 <plugin>
82 <artifactId>maven-deploy-plugin</artifactId>
83 <version>2.8.2</version>
84 </plugin>
```

```
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn package
```

The compilation is done.

```

pom.xml
62     <artifactId>maven-resources-plugin</artifactId>
63     <version>3.0.2</version>
64   </plugin>
65   <plugin>
66     <artifactId>maven-compiler-plugin</artifactId>
67     <version>3.8.0</version>
68   </plugin>
69   <plugin>
70     <artifactId>maven-surefire-plugin</artifactId>
71     <version>2.22.1</version>
72   </plugin>
73   <plugin>
74     <artifactId>maven-jar-plugin</artifactId>
75     <version>3.0.2</version>
76   </plugin>
77   <plugin>
78     <artifactId>maven-install-plugin</artifactId>
79     <version>2.5.2</version>
80   </plugin>
81   <plugin>
82     <artifactId>maven-deploy-plugin</artifactId>
83     <version>2.8.2</version>
84   </plugin>
  
```

```

[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /home/erishantgmail/Downloads/cms/src/main/resources
[INFO] --- maven-compiler-plugin:3.8.0:compile (default-compile) @ cms ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to /home/erishantgmail/Downloads/cms/target/classes
[INFO] --- maven-resources-plugin:3.0.2:testResources (default-testResources) @ cms ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /home/erishantgmail/Downloads/cms/src/test/resources
[INFO]
  
```

Step 2: Generate test class

2.1 Use the **mvn clean** command to build the project from scratch and remove the previously generated artifacts:

mvn clean

```

pom.xml
74     <artifactId>maven-jar-plugin</artifactId>
75     <version>3.0.2</version>
76   </plugin>
77   <plugin>
78     <artifactId>maven-install-plugin</artifactId>
79     <version>2.5.2</version>
80   </plugin>
81   <plugin>
82     <artifactId>maven-deploy-plugin</artifactId>
83     <version>2.8.2</version>
84   </plugin>
  
```

```

[INFO]
[INFO] --- maven-jar-plugin:3.0.2:jar (default-jar) @ cms ---
[INFO] Building jar: /home/erishantgmail/Downloads/cms/target/cms-1.0-SNAPSHOT.jar
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 2.709 s
[INFO] Finished at: 2022-01-07T09:04:00Z
[INFO]
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn clean
  
```

2.2 Use the **mvn compile** command to compile the source code of the Maven project:

mvn compile

```

pom.xml
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
</plugin>
<!-- default lifecycle, jar packaging: see https://maven.apache.org/ref/current/maven-
</plugin>
<plugin>
  <artifactId>maven-resources-plugin</artifactId>
  <version>3.0.2</version>
</plugin>
<plugin>
  <artifactId>maven-compiler-plugin</artifactId>
  <version>3.8.0</version>
</plugin>
<plugin>
  <artifactId>maven-surefire-plugin</artifactId>
  <version>2.22.1</version>
</plugin>
<plugin>
  <artifactId>maven-jar-plugin</artifactId>
  <version>3.0.2</version>
</plugin>
<plugin>
  <artifactId>maven-install-plugin</artifactId>
  <version>2.5.2</version>
</plugin>
<plugin>
  <artifactId>maven-dependency-plugin</artifactId>
  <version>3.1.1</version>
</plugin>
</plugins>
</project>

[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ cms ---
[INFO] Deleting /home/erishantgmail/Downloads/cms/target
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/dev (includes = [**/*.log, **/*.tmp], excludes = [
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/prod (includes = [**/*.log], excludes = [])
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.443 s
[INFO] Finished at: 2022-01-07T09:05:03Z
[INFO] -----
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn compile
  
```

2.3 Use the following command to compile the test source code and dependencies of a project, without running the tests:

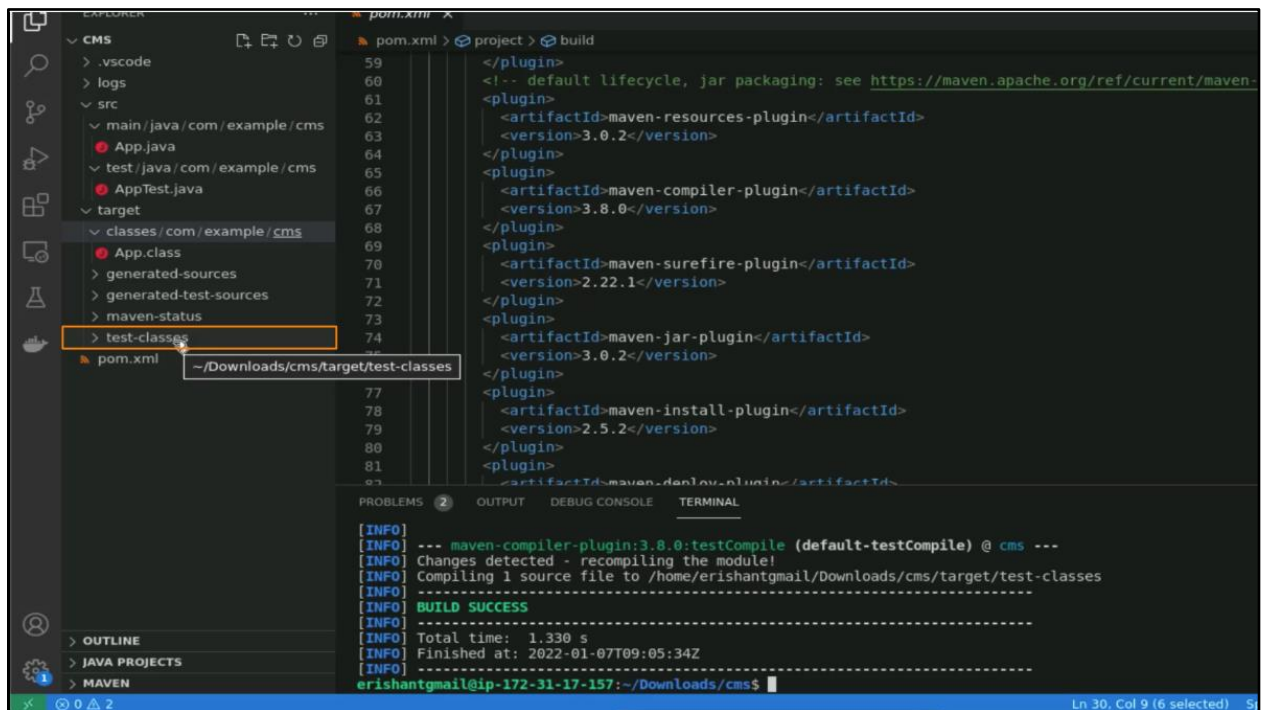
mvn test-compile

```

74
75
76
77
78
79
80
81
82
</plugin>
<!-- default lifecycle, jar packaging: see https://maven.apache.org/ref/current/maven-
</plugin>
<plugin>
  <artifactId>maven-resources-plugin</artifactId>
  <version>3.0.2</version>
</plugin>
<plugin>
  <artifactId>maven-compiler-plugin</artifactId>
  <version>3.8.0</version>
</plugin>
<plugin>
  <artifactId>maven-surefire-plugin</artifactId>
  <version>2.22.1</version>
</plugin>
<plugin>
  <artifactId>maven-jar-plugin</artifactId>
  <version>3.0.2</version>
</plugin>
<plugin>
  <artifactId>maven-install-plugin</artifactId>
  <version>2.5.2</version>
</plugin>
<plugin>
  <artifactId>maven-dependency-plugin</artifactId>
  <version>3.1.1</version>
</plugin>
</plugins>
</project>

[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ cms ---
[INFO] Deleting /home/erishantgmail/Downloads/cms/target
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/dev (includes = [**/*.log, **/*.tmp], excludes = [
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/prod (includes = [**/*.log], excludes = [])
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.443 s
[INFO] Finished at: 2022-01-07T09:05:03Z
[INFO] -----
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn test-compile
  
```

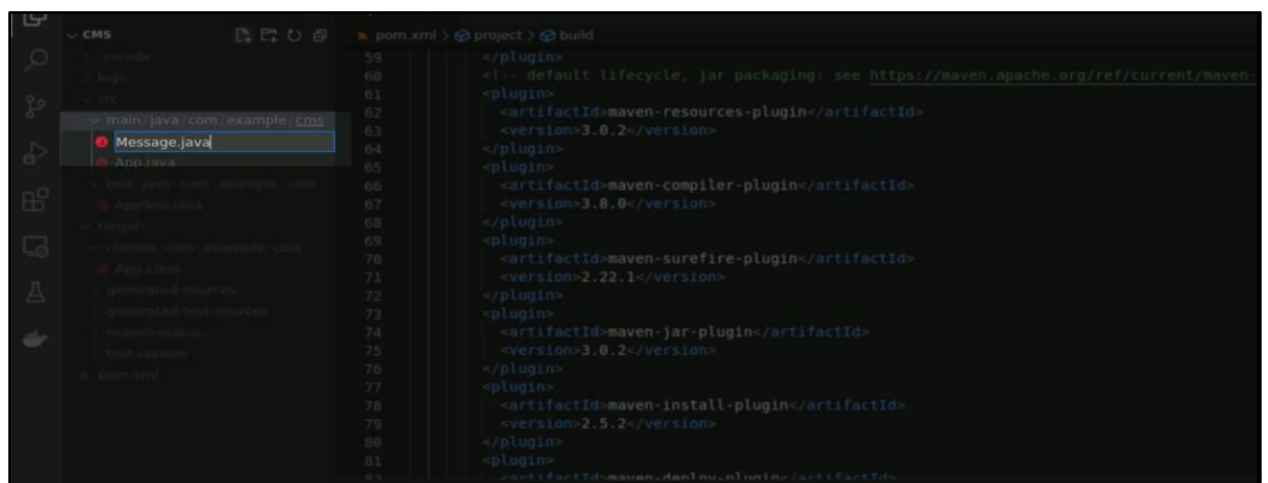
mvn test-compile is a Maven command that compiles the test source code and dependencies of a project, without running the tests.



The test classes have been generated.

Step 3: Create a Java file

3.1 Create a new Java file and name it **Message.java**



3.2 Also, create the same Java file in the **test** package

The screenshot shows the VS Code interface with the Explorer view on the left. The project structure is as follows:

- src
 - main
 - java
 - com
 - example
 - cms
 - App.java
 - Message.java
 - test
 - java
 - com
 - example
 - cms
 - MessageTest.java
 - AppTest.java

The main editor shows the content of `MessageTest.java`:

```
src > main > java > com > example > cms > MessageTest.java > ...
1 package com.example.cms;
2
3 public class MessageTest {
4
5 }
6
```

The terminal at the bottom shows the output of a Maven build:

```
[INFO] --- maven-compiler-plugin:3.8.0:compile (default-compile) @ cms ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 2 source files to /home/erishantgmail/Downloads/cms/target/classes
[INFO] BUILD SUCCESS
[INFO] Total time: 1.266 s
[INFO] Finished at: 2022-01-07T09:06:21Z
[INFO] -----
erishantgmail@ip-172-31-17-157:~/Downloads/cms$
```

3.3 Run the **mvn clean** command to remove the target directory

The screenshot shows the VS Code interface with the Explorer view on the left. The project structure is the same as in the previous screenshot, but now includes `MessageTest.java` in the test package.

The main editor shows the content of `MessageTest.java`:

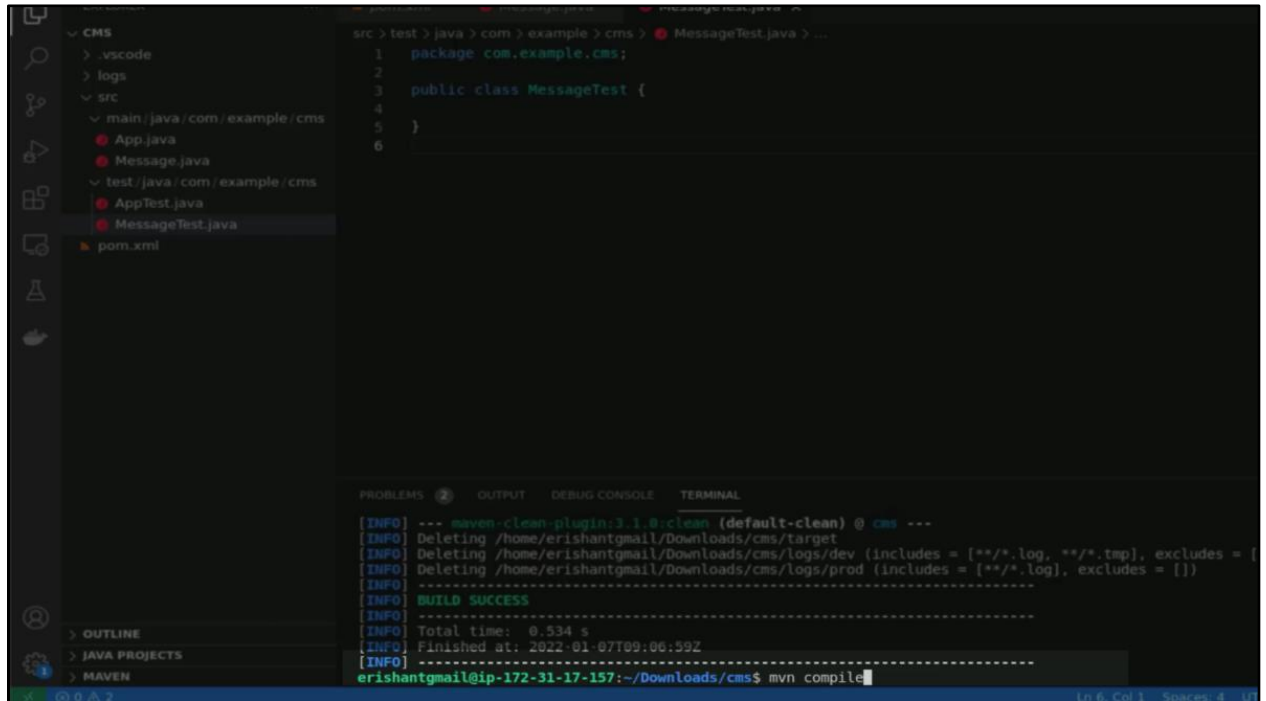
```
src > test > java > com > example > cms > MessageTest.java > ...
1 package com.example.cms;
2
3 public class MessageTest {
4
5 }
6
```

The terminal at the bottom shows the output of a Maven build, followed by the execution of the `mvn clean` command:

```
[INFO] --- maven-compiler-plugin:3.8.0:compile (default-compile) @ cms ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 2 source files to /home/erishantgmail/Downloads/cms/target/classes
[INFO] BUILD SUCCESS
[INFO] Total time: 1.266 s
[INFO] Finished at: 2022-01-07T09:06:21Z
[INFO] -----
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn clean
```

3.4 Use the following command to compile the source code of the project:

mvn compile



```

src > test > java > com > example > cms > MessageTest.java > ...
1 package com.example.cms;
2
3 public class MessageTest {
4
5 }
6

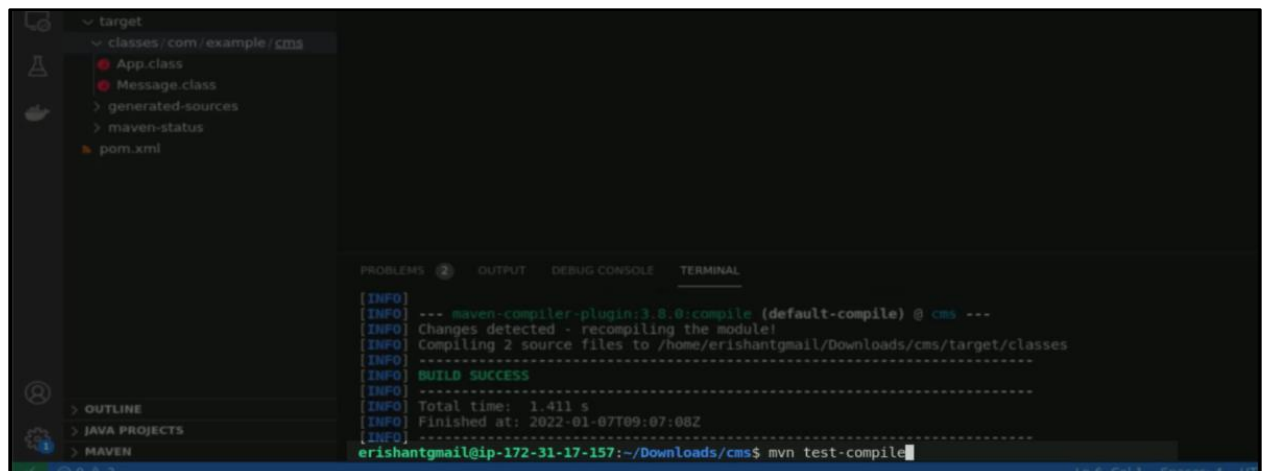
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ cms ---
[INFO] Deleting /home/erishantgmail/Downloads/cms/target
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/dev (includes = [**/*.log, **/*.tmp], excludes = [
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/prod (includes = [**/*.log], excludes = [])
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.534 s
[INFO] Finished at: 2022-01-07T09:06:59Z
[INFO] -----
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn compile

```

Step 4: Compile the test

4.1 Run the below command to compile the test source code and dependencies:

mvn test-compile



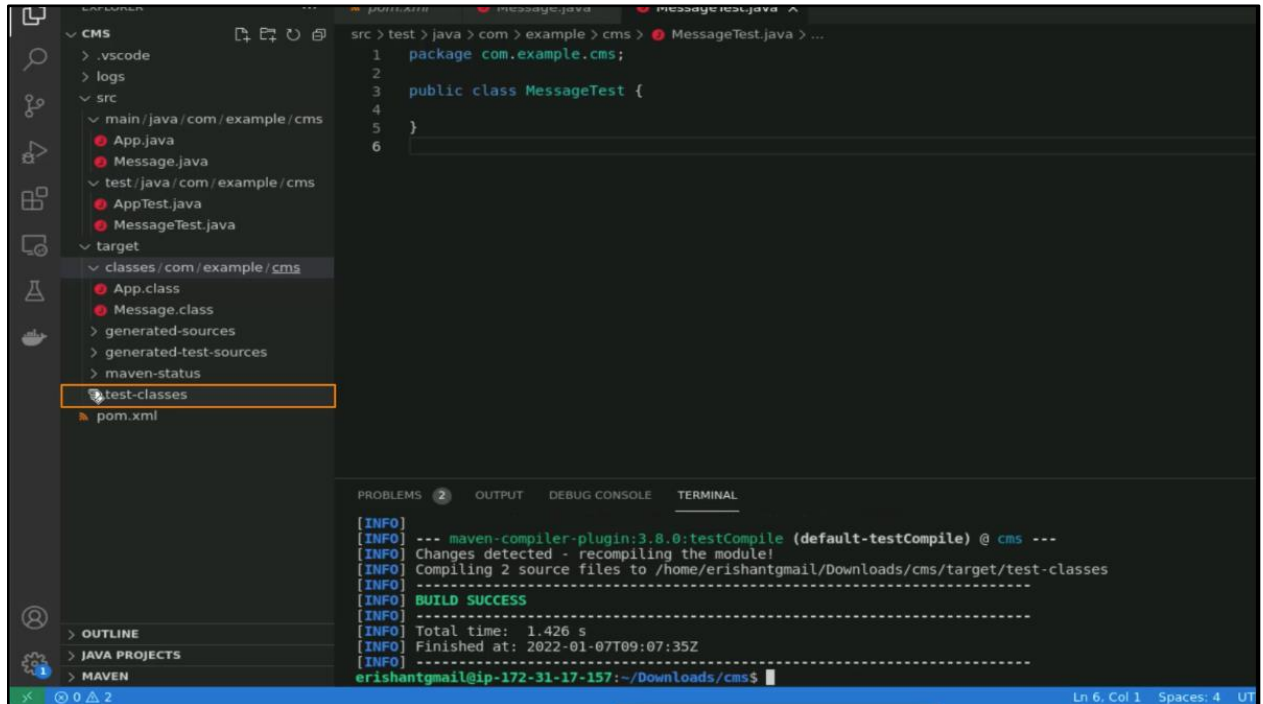
```

target
├── classes/com/example/cms
│   ├── App.class
│   └── Message.class
├── generated-sources
├── maven-status
└── pom.xml

[INFO] --- maven-compiler-plugin:3.8.0:compile (default-compile) @ cms ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 2 source files to /home/erishantgmail/Downloads/cms/target/classes
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.411 s
[INFO] Finished at: 2022-01-07T09:07:08Z
[INFO] -----
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn test-compile

```


The above command will generate test classes for the directory.

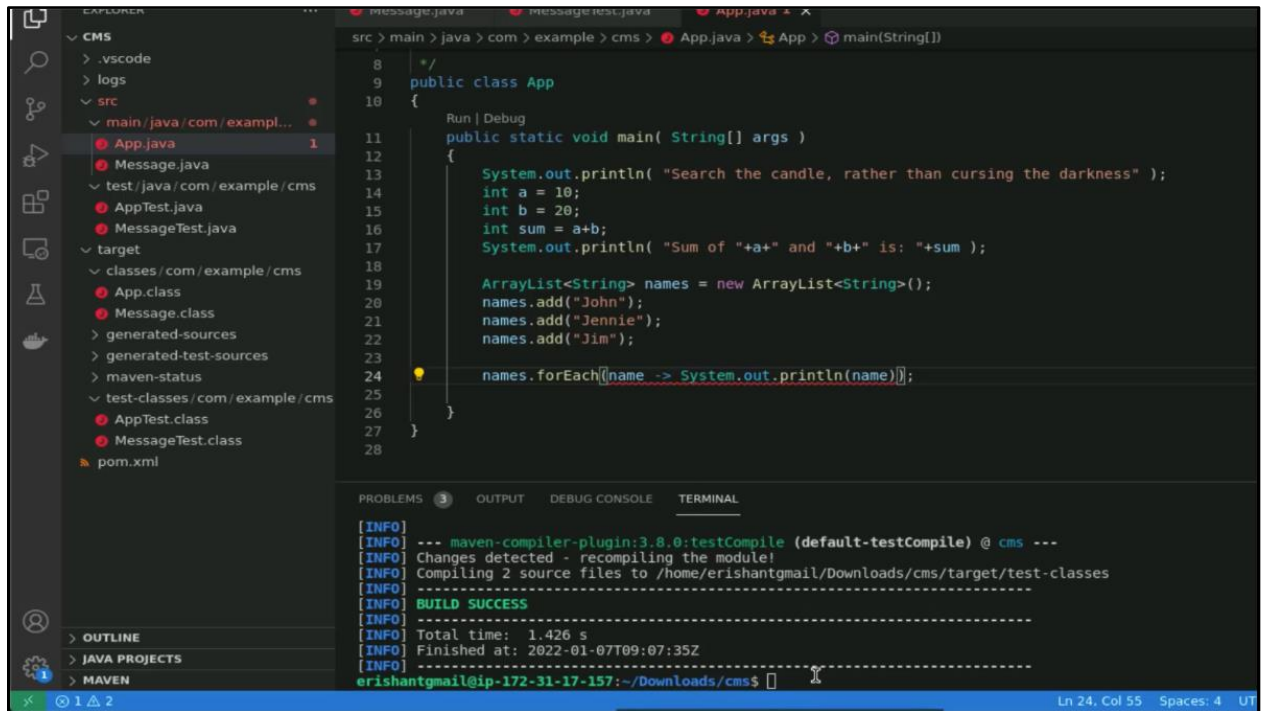


4.2 Now, in the **App.java** file, add the following lines of code (from lines 19 to 24):

```

ArrayList<String> names = new ArrayList<String>();
names.add("John");
names.add("Jennie");
names.add("Jim");
names.forEach(name -> System.out.println(name));

```

The screenshot shows an IDE with a project named 'cms'. The file explorer on the left shows the project structure, including source files like 'App.java', 'Message.java', 'AppTest.java', and 'MessageTest.java', and compiled classes in the 'target' directory. The main editor displays the code for 'App.java'.

```

src > main > java > com > example > cms > App.java > App > main(String[])
8  /*
9  public class App
10 {
11     Run | Debug
12     public static void main( String[] args )
13     {
14         System.out.println( "Search the candle, rather than cursing the darkness" );
15         int a = 10;
16         int b = 20;
17         int sum = a+b;
18         System.out.println( "Sum of "+a+" and "+b+" is: "+sum );
19
20         ArrayList<String> names = new ArrayList<String>();
21         names.add("John");
22         names.add("Jennie");
23         names.add("Jim");
24         names.forEach((name -> System.out.println(name)));
25     }
26 }
27
28

```

The terminal at the bottom shows the output of a Maven build:

```

[INFO] --- maven-compiler-plugin:3.8.0:testCompile (default-testCompile) @ cms ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 2 source files to /home/erishantgmail/Downloads/cms/target/test-classes
[INFO] BUILD SUCCESS
[INFO] Total time: 1.426 s
[INFO] Finished at: 2022-01-07T09:07:35Z
[INFO]
erishantgmail@ip-172-31-17-157:~/Downloads/cms$

```

The code creates an **ArrayList** object called **names** that can store String objects.

4.3 To remove the previously created **target** folder, run the **mvn clean** command:

mvn clean

```

src > main > java > com > example > cms > App.java > App > main(String[])
8  /*
9  public class App
10 {
11     Run | Debug
12     public static void main( String[] args )
13     {
14         System.out.println( "Search the candle, rather than cursing the darkness" );
15         int a = 10;
16         int b = 20;
17         int sum = a+b;
18         System.out.println( "Sum of "+a+" and "+b+" is: "+sum );
19         ArrayList<String> names = new ArrayList<String>();
20         names.add("John");
21         names.add("Jennie");
22         names.add("Jim");
23         names.forEach(name -> System.out.println(name));
24     }
25 }
26
27
28
PROBLEMS 3 OUTPUT DEBUG CONSOLE TERMINAL
[INFO] --- maven-compiler-plugin:3.8.0:testCompile (default-testCompile) @ cms ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 2 source files to /home/erishantgmail/Downloads/cms/target/test-classes
[INFO] BUILD SUCCESS
[INFO] Total time: 1.426 s
[INFO] Finished at: 2022-01-07T09:07:35Z
[INFO]
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn clean

```

4.4 Run the **mvn compile** command to run the test:

mvn compile

```

src > main > java > com > example > cms > App.java > App > main(String[])
8  /*
9  public class App
10 {
11     Run | Debug
12     public static void main( String[] args )
13     {
14         System.out.println( "Search the candle, rather than cursing the darkness" );
15         int a = 10;
16         int b = 20;
17         int sum = a+b;
18         System.out.println( "Sum of "+a+" and "+b+" is: "+sum );
19         ArrayList<String> names = new ArrayList<String>();
20         names.add("John");
21         names.add("Jennie");
22         names.add("Jim");
23         names.forEach(name -> System.out.println(name));
24     }
25 }
26
27
28
PROBLEMS 3 OUTPUT DEBUG CONSOLE TERMINAL
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ cms ---
[INFO] Deleting /home/erishantgmail/Downloads/cms/target
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/dev (includes = [**/*.log, **/*.tmp], excludes = [
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/prod (includes = [**/*.log], excludes = [])
[INFO] BUILD SUCCESS
[INFO] Total time: 0.415 s
[INFO] Finished at: 2022-01-07T09:09:02Z
[INFO]
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn compile

```

```

src > main > java > com > example > cms > App.java > App > main(String[])
8  /*
9  public class App
10 {
11     Run | Debug
12     public static void main( String[] args )
13     {
14         System.out.println( "Search the candle, rather than cursing the darkness" );
15         int a = 10;
16         int b = 20;
17         int sum = a+b;
18         System.out.println( "Sum of "+a+" and "+b+" is: "+sum );
19
20         ArrayList<String> names = new ArrayList<String>();
21         names.add("John");
22         names.add("Jennie");
23         names.add("Jim");
24         names.forEach(name -> System.out.println(name));
25     }
26
27
28

```

```

[INFO] -----
[INFO] Total time: 1.081 s
[INFO] Finished at: 2022-01-07T09:09:10Z
[INFO] -----
[ERROR] Failed to execute goal org.apache.maven.plugins:maven-compiler-plugin:3.8.0:compile (default-comp
failure
[ERROR] /home/erishantgmail/Downloads/cms/src/main/java/com/example/cms/App.java:[24,20] lambda expressio
7
[ERROR] (use -source 8 or higher to enable lambda expressions)
[ERROR]
[ERROR] -> [Help 1]

```

The output contains some build errors due to the Lambda expression.

4.5 Go to the **pom.xml** file and write the following lines of code (lines 68 to 70):

```

<configuration>
    <verbose>true</verbose>
</configuration>

```

```

pom.xml
<!-- default lifecycle, jar packaging: see https://maven.apache.org/ref/current/maven-
</plugin>
<!-- default lifecycle, jar packaging: see https://maven.apache.org/ref/current/maven-
<plugin>
<artifactId>maven-resources-plugin</artifactId>
<version>3.0.2</version>
</plugin>
<plugin>
<artifactId>maven-compiler-plugin</artifactId>
<version>3.8.0</version>
<configuration>
<verbose>true</verbose>
</configuration>
</plugin>
<plugin>
<artifactId>maven-surefire-plugin</artifactId>
<version>2.22.1</version>
</plugin>
<plugin>
<artifactId>maven-jar-plugin</artifactId>
<version>3.0.2</version>
</plugin>
<plugin>
<artifactId>maven-install-plugin</artifactId>
<version>3.0.2</version>
</plugin>

```

```

[INFO] -----
[INFO] Total time: 1.081 s
[INFO] Finished at: 2022-01-07T09:09:10Z
[INFO] -----
[ERROR] Failed to execute goal org.apache.maven.plugins:maven-compiler-plugin:3.8.0:compile (default-comp
failure
[ERROR] /home/erishantgmail/Downloads/cms/src/main/java/com/example/cms/App.java:[24,28] lambda expressio
7
[ERROR] (use -source 8 or higher to enable lambda expressions)
[ERROR] -> [Help 1]

```

4.6 Run the **mvn compile** command again to run the test cases:

mvn compile

```

pom.xml
<configuration>
<verbose>true</verbose>
</configuration>
</plugin>
<plugin>
<artifactId>maven-surefire-plugin</artifactId>
<version>2.22.1</version>
</plugin>
<plugin>
<artifactId>maven-jar-plugin</artifactId>
<version>3.0.2</version>
</plugin>
<plugin>
<artifactId>maven-install-plugin</artifactId>
<version>3.0.2</version>
</plugin>

```

```

[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ cms ---
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/dev (includes = [**/*.log, **/*.tmp], excludes = [
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/prod (includes = [**/*.log], excludes = [])
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.428 s
[INFO] Finished at: 2022-01-07T09:10:17Z
[INFO] -----
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn compile

```

```
pom.xml > project > build > pluginManagement > plugins > plugin
59 </plugin>
60 <!-- default lifecycle, jar packaging: see https://maven.apache.org/ref/current/maven-core/default-bins
61 <plugin>
62   <artifactId>maven-resources-plugin</artifactId>
63   <version>3.0.2</version>
64 </plugin>
65 <plugin>
66   <artifactId>maven-compiler-plugin</artifactId>
67   <version>3.8.0</version>
68   <configuration>
69     <verbose>true</verbose>
70   </configuration>
71 </plugin>
72 <plugin>
73   <artifactId>maven-surefire-plugin</artifactId>
74   <version>2.22.1</version>
75 </plugin>
76 <plugin>
77   <artifactId>maven-jar-plugin</artifactId>
78   <version>3.0.2</version>
79 </plugin>
80 <plugin>
81   <artifactId>maven-install-plugin</artifactId>
82   <version>3.0.2</version>
83 </plugin>
84 </plugins>
85 </build>
86 </project>
87 </pom>
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
[INFO] -----
[INFO] Total time: 1.055 s
[INFO] Finished at: 2022-01-07T09:10:21Z
[INFO] -----
[ERROR] Failed to execute goal org.apache.maven.plugins:maven-compiler-plugin:3.8.0:compile (default-compile) on project cms: Compilation failure
[ERROR] /home/erishantgmail/Downloads/cms/src/main/java/com/example/cms/App.java:[24,28] lambda expressions are not supported in -source 7
[ERROR] (use -source 8 or higher to enable lambda expressions)
[ERROR] -> [Help 1]
```

We can still see the errors.

4.7 Change the value of the compiler source and target from 1.7 to 1.8 in the code, and repeat step 4.6

```

pom.xml > project > properties > maven.compiler.target
1  <?xml version="1.0" encoding="UTF-8"?>
2
3  <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
5  <modelVersion>4.0.0</modelVersion>
6
7  <groupId>com.example.cms</groupId>
8  <artifactId>cms</artifactId>
9  <version>1.0-SNAPSHOT</version>
10
11  <name>CMS</name>
12  <!-- FIXME change it to the project's website -->
13  <url>http://www.example.com</url>
14
15  <properties>
16  <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
17  <maven.compiler.source>1.8</maven.compiler.source>
18  <maven.compiler.target>1.8</maven.compiler.target>
19  </properties>
20
21  <dependencies>
22  <dependency>
23  <groupId>junit</groupId>
24  <artifactId>junit</artifactId>

```

```

pom.xml > project > properties > maven.compiler.target
1  <?xml version="1.0" encoding="UTF-8"?>
2
3  <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
5    <modelVersion>4.0.0</modelVersion>
6
7    <groupId>com.example.cms</groupId>
8    <artifactId>cms</artifactId>
9    <version>1.0-SNAPSHOT</version>
10
11    <name>cms</name>
12    <!-- FIXME change it to the project's website -->
13    <url>http://www.example.com</url>
14
15    <properties>
16      <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
17      <maven.compiler.source>1.8</maven.compiler.source>
18      <maven.compiler.target>1.8</maven.compiler.target>
19    </properties>
20
21    <dependencies>
22      <dependency>
23        <groupId>junit</groupId>
24        <artifactId>junit</artifactId>

```

```

[write /home/erishantgmail/Downloads/cms/target/classes/com/example/cms/App.class]
[checking com.example.cms.Message]
[write /home/erishantgmail/Downloads/cms/target/classes/com/example/cms/Message.class]
[total 419ms]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.442 s
[INFO] Finished at: 2022-01-07T09:11:10Z
[INFO] -----
erishantgmail@ip-172-31-17-157:~/Downloads/cms$

```

The output is BUILD SUCCESS.

4.8 Update the code by updating the source and target value (lines 70 and 71):

`<source>1.8</source>`

`<target>1.8</target>`

```

pom.xml > project > build > pluginManagement > plugins > plugin > configuration > target
56    </fileset>
57  </filesets>
58  </configuration>
59 </plugin>
60 <!-- default lifecycle, jar packaging: see https://maven.apache.org/ref/current/maven-core/default-binc
61 <plugin>
62   <artifactId>maven-resources-plugin</artifactId>
63   <version>3.0.2</version>
64 </plugin>
65 <plugin>
66   <artifactId>maven-compiler-plugin</artifactId>
67   <version>3.8.0</version>
68   <configuration>
69     <verbose>true</verbose>
70     <source>1.8</source>
71     <target>1.8</target>
72   </configuration>
73 </plugin>
74 <plugin>
75   <artifactId>maven-surefire-plugin</artifactId>
76   <version>2.22.1</version>
77 </plugin>
78 <plugin>
79   <artifactId>maven-jar-plugin</artifactId>

```



```
<compilerArgs>
    <arg>-verbose</arg>
    <arg>-Xlint:all</arg>
</compilerArgs>
```



```

67 <version>3.8.0</version>
68 <configuration>
69 <!-- <verbose>true</verbose> -->
70 <source>1.8</source>
71 <target>1.8</target>
72
73
74 <!-- <fork>true</fork>
75 <executable>path to JDK</executable>
76 <compilerVersion>1.3</compilerVersion> -->
77
78 <fork>true</fork>
79 <meminitial>256m</meminitial>
80 <maxmem>512m</maxmem>
81
82 <compilerArgs>
83 <arg>-verbose</arg>
84 <arg>-Xlint:all</arg>
85 </compilerArgs>
86
87 </configuration>
88 </plugin>
89 </plugin>

```

```

[INFO] --- maven-compiler-plugin:3.8.0:compile (default-compile) @ cms ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 2 source files to /home/erishantgmail/Downloads/cms/target/classes
[INFO] BUILD SUCCESS
[INFO] Total time: 1.296 s
[INFO] Finished at: 2022-01-07T09:11:48Z
[INFO]
erishantgmail@ip-172-31-17-157:~/Downloads/cms$

```

These lines of code are used to configure compiler arguments in a Maven project's **pom.xml** file.

4.11 Run the **mvn compile** command to run the build:

mvn compile

```

74 <!-- <fork>true</fork>
75 <executable>path to JDK</executable>
76 <compilerVersion>1.3</compilerVersion> -->
77
78 <fork>true</fork>
79 <meminitial>256m</meminitial>
80 <maxmem>512m</maxmem>
81
82 <compilerArgs>
83 <arg>-verbose</arg>
84 <arg>-Xlint:all</arg>
85 </compilerArgs>
86
87 </configuration>
88 </plugin>
89 </plugin>

```

```

[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ cms ---
[INFO] Deleting /home/erishantgmail/Downloads/cms/target
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/dev (includes = [**/*.log, **/*.tmp], excludes = [])
[INFO] Deleting /home/erishantgmail/Downloads/cms/logs/prod (includes = [**/*.log], excludes = [])
[INFO] BUILD SUCCESS
[INFO] Total time: 0.638 s
[INFO] Finished at: 2022-01-07T09:18:14Z
[INFO]
erishantgmail@ip-172-31-17-157:~/Downloads/cms$ mvn compile

```

By following these steps, you have successfully worked with the Maven Compiler Plugin. You have achieved two goals: using **mvn compile** to compile the main Java sources

and `mvn test-compile` to compile the test cases for the test files inside the test directory.