Day 24: **Manisha Assignment**

Task 1: Build Lifecycle

Demonstrate the use of Maven lifecycle phases (clean, compile, test, package, install, deploy) by executing them on a sample project and documenting what happens in each phase.

1. `clean:

- **Command: `mvn clean`**
- **Purpose: Deletes all files generated by the previous build, specifically the `target` directory.**
- **What Happens: The `target` directory, which contains compiled classes and built artifacts, is deleted to ensure a clean slate for the new build.**

2. compile`:

- **Command: `mvn compile`**
- **Purpose: Compiles the source code of the project.**
- **What Happens: The Java source files in the `src/main/java` directory are compiled into bytecode, which is placed in the `target/classes` directory.**

3. `test`:

- **Command: `mvn test`**
- **Purpose: Runs the tests using a unit testing framework (e.g., JUnit).**
- **What Happens: The test source files in the `src/test/java` directory are compiled and executed. The results are displayed, showing whether tests passed or failed.**

4. `package`:

- **Command: `mvn package`**
- **Purpose: Packages the compiled code into a distributable format, such as a JAR file.**
- **What Happens: A JAR file is created in the `target` directory, which contains the compiled classes and other necessary files.**

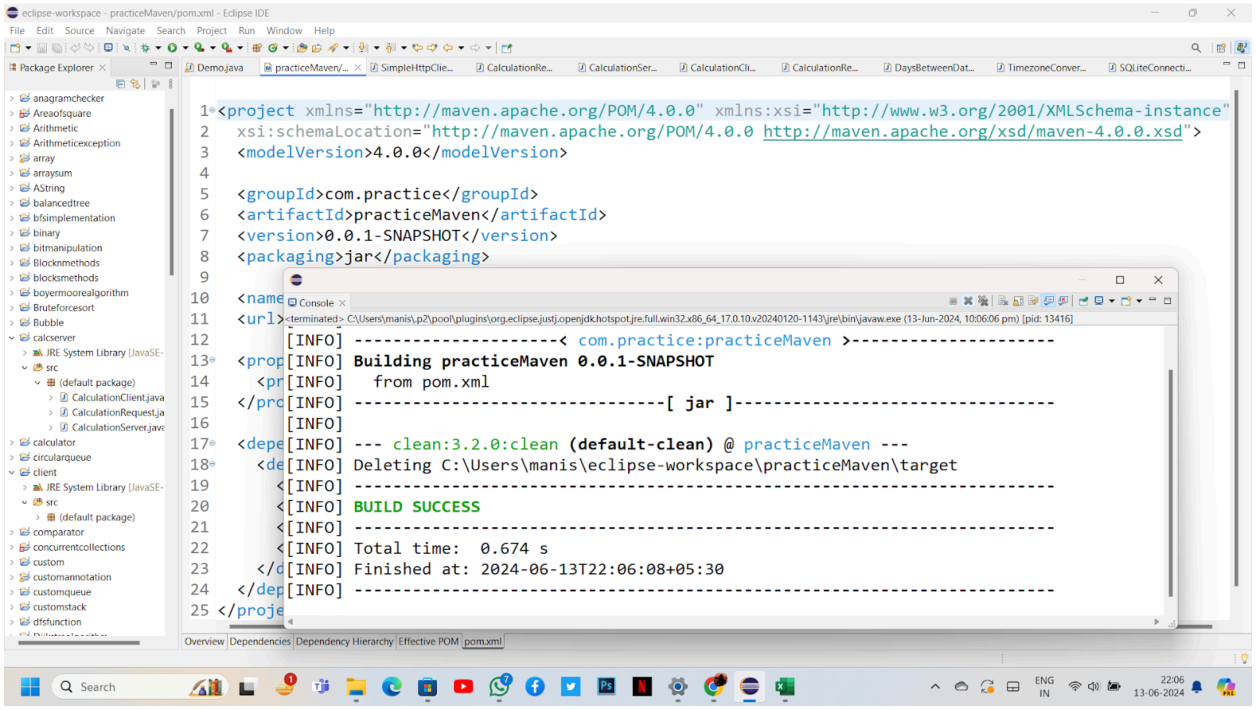
5. `install`:

- **Command: `mvn install`**
- **Purpose: Installs the package into the local Maven repository.**
- **What Happens: The JAR file is copied to the local Maven repository (`~/.m2/repository`), making it available for other projects on your machine to use as a dependency.**

6. deploy`:

- **Command: `mvn deploy`**
- **Purpose: Copies the final package to a remote repository for sharing with other developers or projects.**
- **What Happens: The built package is uploaded to a remote repository (e.g., a company's internal repository or a repository like Nexus or Artifactory).**

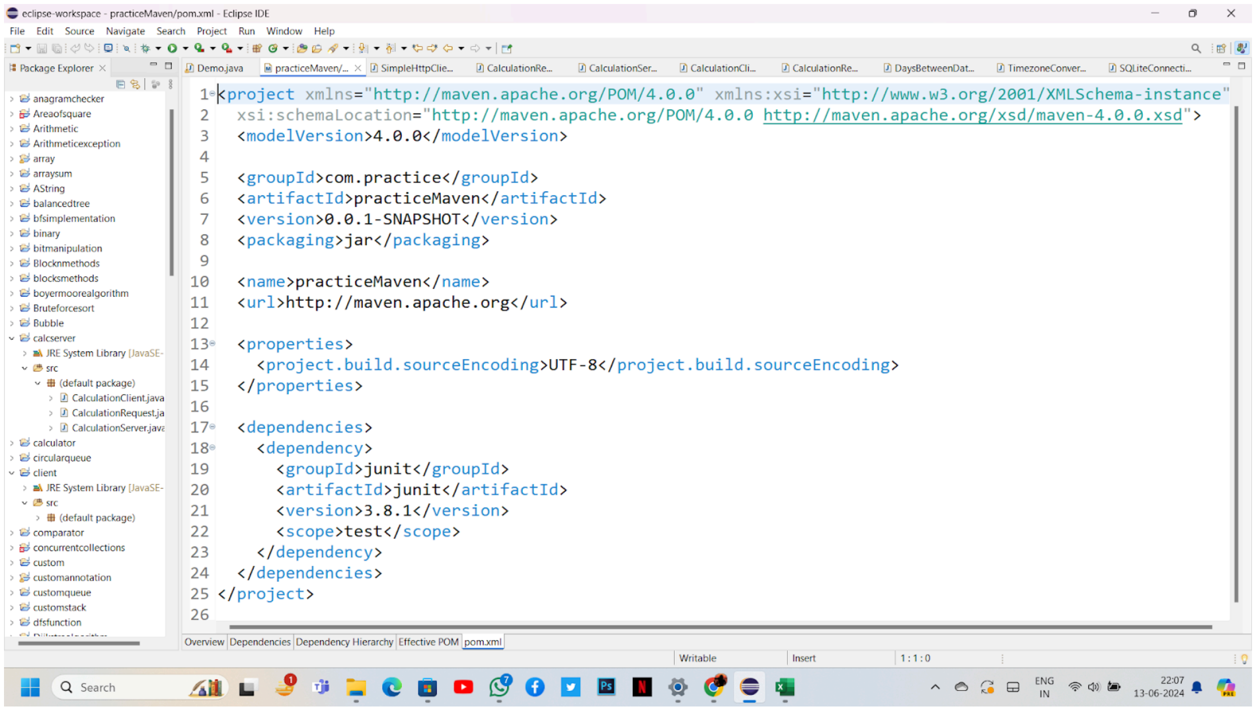
Here Output As Follows:


eclipse-workspace - practiceMaven/pom.xml - Eclipse IDE
File Edit Source Navigate Search Project Run Window Help
Package Explorer
Demo.java
practiceMaven/...
Console
Overview Dependencies Dependency Hierarchy Effective POM pom.xml

```
<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.practice</groupId>
  <artifactId>practiceMaven</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <packaging>jar</packaging>
```

```
<terminated> C:\Users\manis\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.10.v20240120-1143\jre\bin\javaw.exe (13-Jun-2024, 10:06:06 pm) [pid: 13416]
[INFO] --------------------< com.practice:practiceMaven >---------------------
[INFO] Building practiceMaven 0.0.1-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]--------------------------------
[INFO]
[INFO] --- clean:3.2.0:clean (default-clean) @ practiceMaven ---
[INFO] Deleting C:\Users\manis\eclipse-workspace\practiceMaven\target
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.674 s
[INFO] Finished at: 2024-06-13T22:06:08+05:30
[INFO] ------------------------------------------------------------------------
```


eclipse-workspace - practiceMaven/pom.xml - Eclipse IDE
File Edit Source Navigate Search Project Run Window Help
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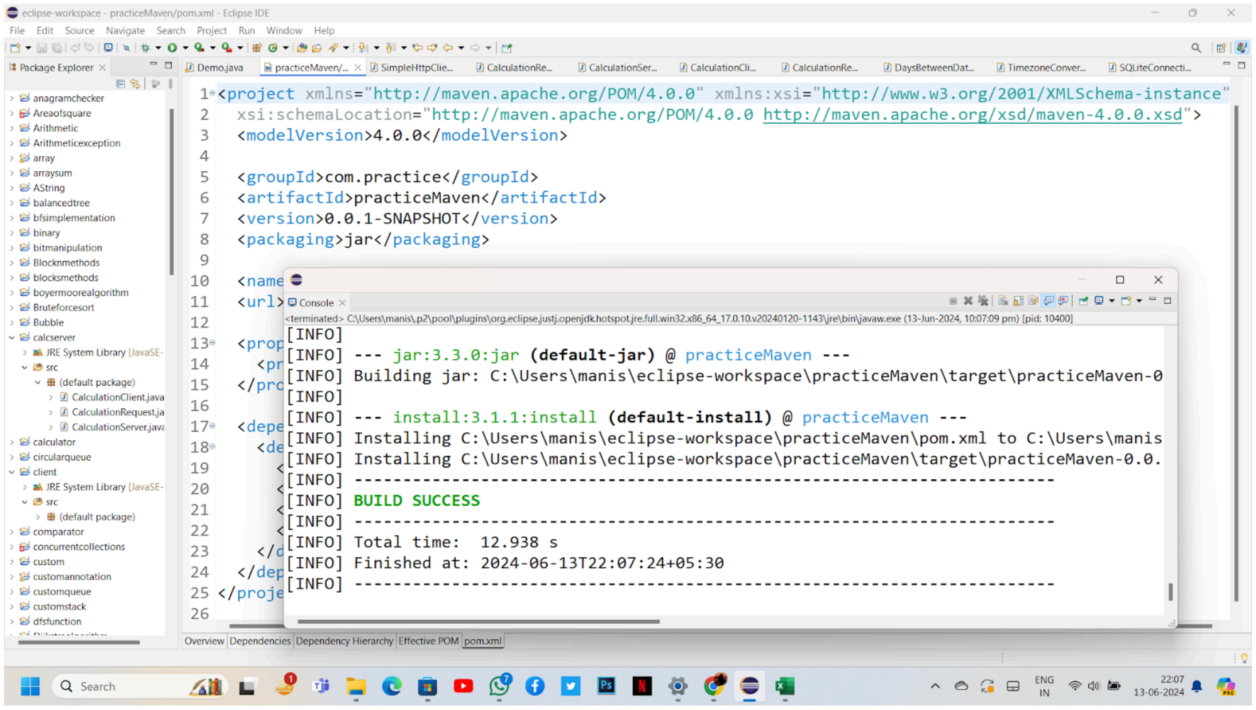
```
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>

  <groupId>com.practice</groupId>
  <artifactId>practiceMaven</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <packaging>jar</packaging>

  <name>practiceMaven</name>
  <url>http://maven.apache.org</url>

  <properties>
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
  </properties>

  <dependencies>
    <dependency>
      <groupId>junit</groupId>
      <artifactId>junit</artifactId>
      <version>3.8.1</version>
      <scope>test</scope>
    </dependency>
  </dependencies>
</project>
```


eclipse-workspace - practiceMaven/pom.xml - Eclipse IDE
File Edit Source Navigate Search Project Run Window Help
Package Explorer
Overview Dependencies Dependency Hierarchy Effective POM pom.xml

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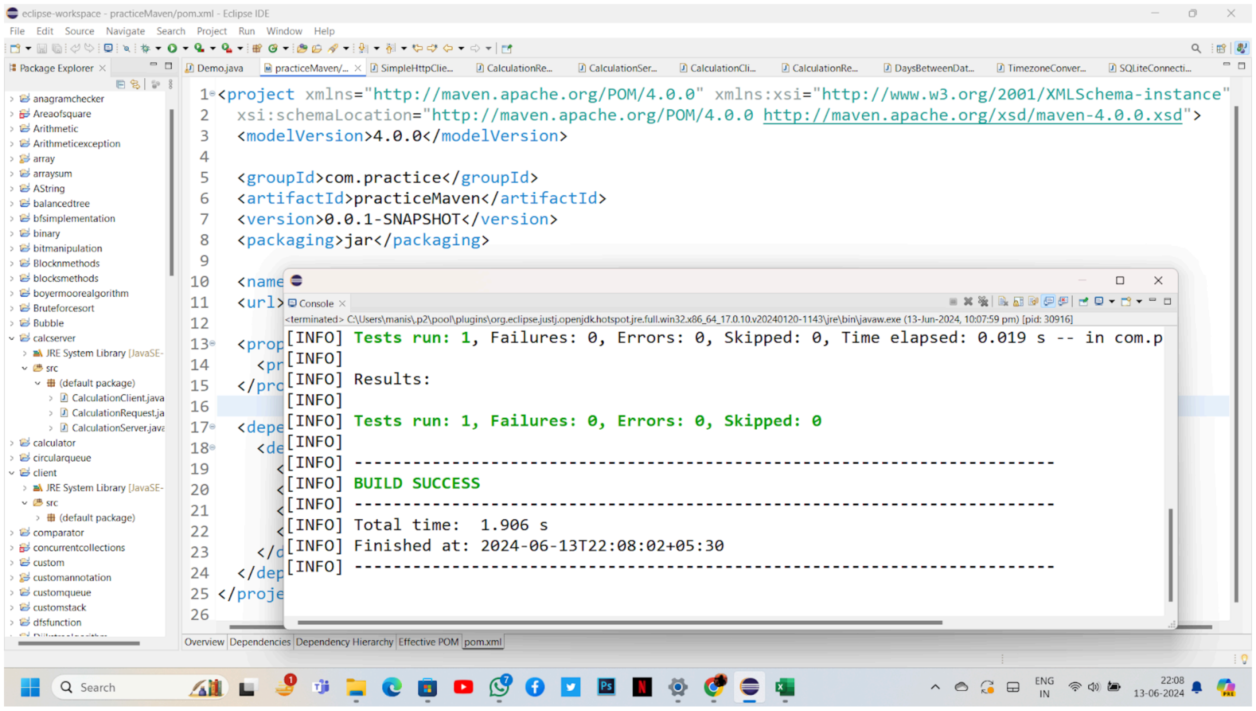
  <modelVersion>4.0.0</modelVersion>

  <groupId>com.practice</groupId>
  <artifactId>practiceMaven</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <packaging>jar</packaging>

  <name
  <url>
```

```
<terminated> C:\Users\manis\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.10.v20240120-1143\jre\bin\javaw.exe (13-Jun-2024, 10:07:09 pm) [pid: 10400]
[INFO]
[INFO] --- jar:3.3.0:jar (default-jar) @ practiceMaven ---
[INFO] Building jar: C:\Users\manis\eclipse-workspace\practiceMaven\target\practiceMaven-0
[INFO]
[INFO] --- install:3.1.1:install (default-install) @ practiceMaven ---
[INFO] Installing C:\Users\manis\eclipse-workspace\practiceMaven\pom.xml to C:\Users\manis
[INFO] Installing C:\Users\manis\eclipse-workspace\practiceMaven\target\practiceMaven-0.0.
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  12.938 s
[INFO] Finished at: 2024-06-13T22:07:24+05:30
[INFO] ------------------------------------------------------------------------
```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File Edit Source Navigate Search Project Run Window Help
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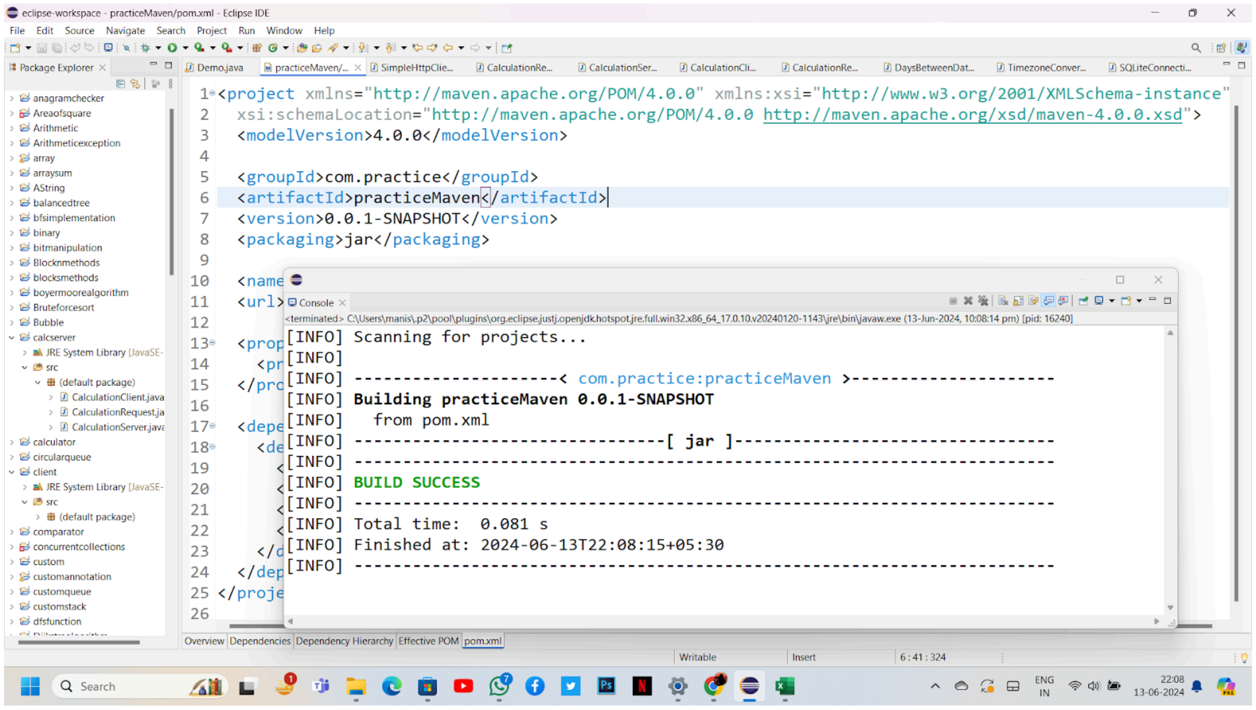
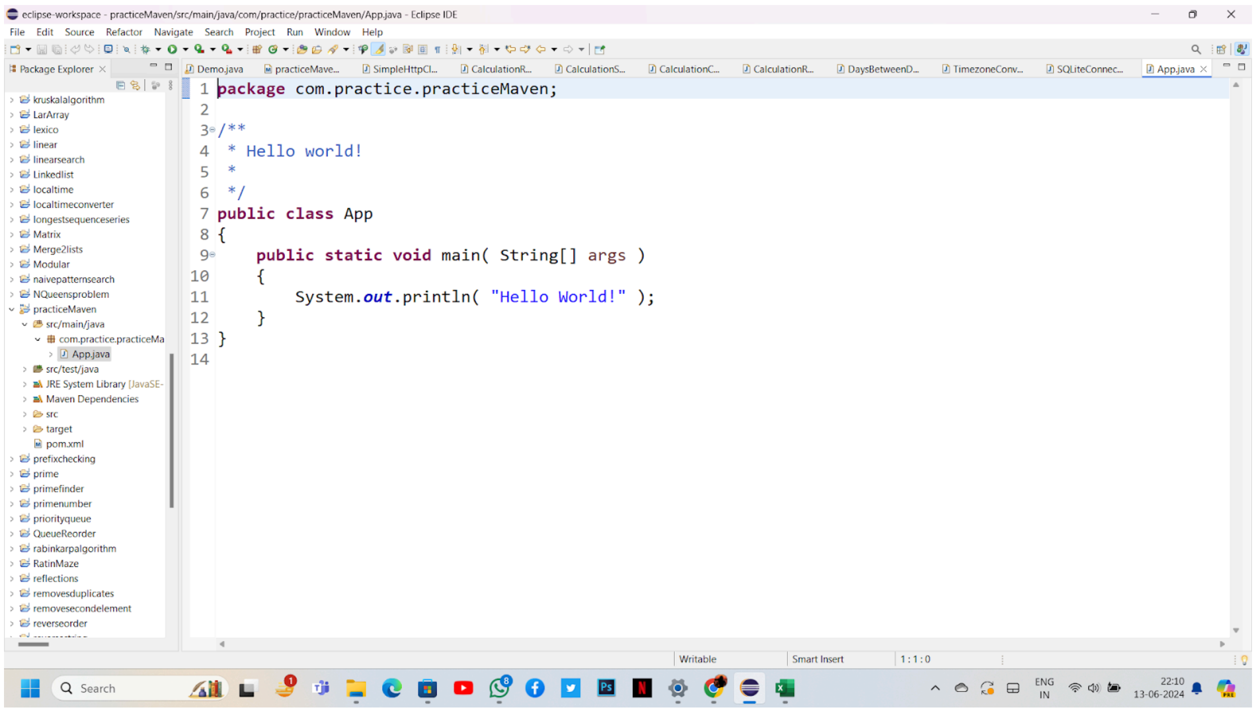
```
<terminated> C:\Users\manis\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.10.v20240120-1143\jre\bin\javaw.exe (13-Jun-2024, 10:07:59 pm) [pid: 30916]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.019 s -- in com.p
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  1.906 s
[INFO] Finished at: 2024-06-13T22:08:02+05:30
[INFO] ------------------------------------------------------------------------
```



```
<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.practice</groupId>
  <artifactId>practiceMaven</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <packaging>jar</packaging>
```

```
<terminated> C:\Users\manis\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.10.v20240120-1143\jre\bin\javaw.exe (13-Jun-2024, 10:08:14 pm) [pid: 16240]
[INFO] Scanning for projects...
[INFO]
[INFO] --------------------< com.practice:practiceMaven >--------------------
[INFO] Building practiceMaven 0.0.1-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.081 s
[INFO] Finished at: 2024-06-13T22:08:15+05:30
[INFO] ------------------------------------------------------------------------
```



```java
package com.practice.practiceMaven;

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

pom.xml File:

- **Path:** `/practiceMaven/pom.xml`
- **Contents: This file defines the Maven project configuration:**
  - **GroupId:** `com.practice`
  - **ArtifactId:** `practiceMaven`
  - **Version:** `0.0.1-SNAPSHOT`
  - **Packaging:** `jar`
  - **Dependencies: Includes JUnit dependency for testing.**

App.java File:

- **Path:** `/src/main/java/com/practice/practiceMaven/App.java`
- **Contents: This is a simple Java class:**
  - **Class:** `App`
  - **Method:** `main(String[] args)`
  - **Functionality: Prints "Hello, World!" to the console.**