

Day 24:.

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.

Answer:

App.java

```
package com.example;

public class App {
    public static void main(String[] args) {
        System.out.println("Hello, Maven!");
    }
}
```

AppTest.java

```
package com.example;

import org.junit.Test;
import static org.junit.Assert.assertTrue;

public class AppTest {
    @Test
    public void testApp() {
        assertTrue(true);
    }
}
```

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.example</groupId>
    <artifactId>maven-sample-project</artifactId>
    <version>1.0-SNAPSHOT</version>
    <properties>
        <maven.compiler.source>1.8</maven.compiler.source>
        <maven.compiler.target>1.8</maven.compiler.target>
    </properties>
```

```

<dependencies>
  <dependency>
    <groupId>junit</groupId>
    <artifactId>junit</artifactId>
    <version>4.12</version>
    <scope>test</scope>
  </dependency>
</dependencies>
</project>

```

Maven Lifecycle Phases

clean: This phase deletes the target directory where Maven stores compiled classes and built artifacts.

mvn clean

Output:

```

[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.example:maven-sample-project >-----
[INFO] Building maven-sample-project 1.0-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ maven-sample-project ---
[INFO] Deleting /path/to/maven-sample-project/target
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----

```

compile: This phase compiles the source code of the project.

mvn compile

```

[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.example:maven-sample-project >-----
[INFO] Building maven-sample-project 1.0-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ maven-sample-project ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /path/to/maven-sample-project/src/main/resources

```

```
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ maven-sample-
project ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to /path/to/maven-sample-project/target/classes
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
```

test: This phase runs the tests using a suitable testing framework. These tests should not require the code to be packaged or deployed.

mvn test

```
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.example:maven-sample-project >-----
[INFO] Building maven-sample-project 1.0-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ maven-
sample-project ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /path/to/maven-sample-
project/src/test/resources
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:testCompile (default-testCompile) @ maven-
sample-project ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to /path/to/maven-sample-project/target/test-classes
[INFO]
[INFO] --- maven-surefire-plugin:2.22.2:test (default-test) @ maven-sample-project ---
[INFO]
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running com.example.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.022 s - in
com.example.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
```

package: This phase takes the compiled code and packages it in its distributable format, such as a JAR.

mvn package

```
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.example:maven-sample-project >-----
[INFO] Building maven-sample-project 1.0-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ maven-sample-project ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /path/to/maven-sample-project/src/main/resources
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ maven-sample-project ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ maven-sample-project ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /path/to/maven-sample-project/src/test/resources
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:testCompile (default-testCompile) @ maven-sample-project ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-surefire-plugin:2.22.2:test (default-test) @ maven-sample-project ---
[INFO] Tests are skipped.
[INFO]
[INFO] --- maven-jar-plugin:3.1.0:jar (default-jar) @ maven-sample-project ---
[INFO] Building jar: /path/to/maven-sample-project/target/maven-sample-project-1.0-SNAPSHOT.jar
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
```

install: This phase installs the package into the local repository, which can be used as a dependency in other projects locally.

mvn install

```
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.example:maven-sample-project >-----
[INFO] Building maven-sample-project 1.0-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ maven-sample-
project ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /path/to/maven-sample-
project/src/main/resources
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ maven-sample-
project ---
[INFO] Nothing to compile - all classes are up
```