

Day - 24

1] 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.

Solution :-

1. Create a Simple Java Project

Maven Lifecycle Phases :

Phase 1: clean

The clean phase removes any previously compiled artifacts.

```
Console X
<terminated> C:\Users\Skyne\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_22.0.1.v20240426-1149\jre\bin\javaw.exe (Jun 23, 2024, 2:39:06 AM) [pid: 4276]
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.assign:demoproj >-----
[INFO] Building demoproj 0.0.1-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-clean-
plugin/3.2.0/maven-clean-plugin-3.2.0.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-clean-plugin/3.2.0/maven-
clean-plugin-3.2.0.pom (5.3 kB at 3.6 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-plugins/35/maven-
plugins-35.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-plugins/35/maven-plugins-
35.pom (9.9 kB at 111 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/35/maven-parent-35.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/35/maven-parent-35.pom (45
kB at 319 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/apache/25/apache-25.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/apache/25/apache-25.pom (21 kB at 236 kB/s)
[INFO]
[INFO] --- clean:3.2.0:clean (default-clean) @ demoproj ---
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.3.4/maven-
shared-utils-3.3.4.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.3.4/maven-
shared-utils-3.3.4.pom (5.8 kB at 106 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-
components/34/maven-shared-components-34.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-
components/34/maven-shared-components-34.pom (5.1 kB at 91 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/34/maven-parent-34.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/34/maven-parent-34.pom (43
kB at 246 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.6/commons-io-2.6.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.6/commons-io-2.6.pom (14 kB at
102 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/42/commons-parent-
42.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/42/commons-parent-
42.pom (68 kB at 327 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/apache/18/apache-18.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/apache/18/apache-18.pom (16 kB at 123 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.3.4/maven-
shared-utils-3.3.4.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.3.4/maven-
shared-utils-3.3.4.jar (153 kB at 510 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.6/commons-io-2.6.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.6/commons-io-2.6.jar (215 kB at
334 kB/s)
[INFO] Deleting D:\java full stack\java full stack\Eclipse programs class\demoproj\target
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 4.519 s
[INFO] Finished at: 2024-06-23T02:39:13-07:00
[INFO]
```

- Deletes the **target** directory which contains the compiled bytecode, packaged distributions, and other generated files.
- Cleans up the project by removing all files generated by previous builds.

Phase 2.Compile

The compile phase compiles the main source code



```

<terminated> demoproj [Maven Build] C:\Users\Skyne\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_22.0.1.v20240426-1149\jre\bin\javaw.exe (Jun 23, 2024, 2:44:55 AM) [
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.assign:demoproj >-----
[INFO] Building demoproj 0.0.1-SNAPSHOT
[INFO]   from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ demoproj ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] Copying 0 resource from src\main\resources to target\classes
[INFO]
[INFO] --- compiler:3.13.0:compile (default-compile) @ demoproj ---
[INFO] Nothing to compile - all classes are up to date.
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 1.025 s
[INFO] Finished at: 2024-06-23T02:44:58-07:00
[INFO]

```

- Compiles the source code of the project.
- Turns Java source code (*.java) in the src/main/java directory into bytecode (*.class) and places them in the target/classes directory.

Phase 3 .Test

The test phase runs unit tests from src/test/java.

```
Console X
<terminated> C:\Users\Skyne\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_22.0.1.v20240426-1149\jre\bin\javaw.exe (Jun 23, 2024, 2:47:27 AM) [pid: 5408]
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.assign:demoproj >-----
[INFO] Building demoproj 0.0.1-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ demoproj ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] Copying 0 resource from src\main\resources to target\classes
[INFO]
[INFO] --- compiler:3.13.0:compile (default-compile) @ demoproj ---
[INFO] Nothing to compile - all classes are up to date.
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ demoproj ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] Copying 0 resource from src\test\resources to target\test-classes
[INFO]
[INFO] --- compiler:3.13.0:testCompile (default-testCompile) @ demoproj ---
[INFO] Nothing to compile - all classes are up to date.
[INFO]
[INFO] --- surefire:3.2.5:test (default-test) @ demoproj ---
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/maven-surefire-
common/3.2.5/maven-surefire-common-3.2.5.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/maven-surefire-
common/3.2.5/maven-surefire-common-3.2.5.pom (6.2 kB at 11 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-api/3.2.5/surefire
api-3.2.5.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-api/3.2.5/surefire-
api-3.2.5.pom (3.5 kB at 17 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-logger-
api/3.2.5/surefire-logger-api-3.2.5.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-logger-
api/3.2.5/surefire-logger-api-3.2.5.pom (3.3 kB at 59 kB/s)
```

```
Console X
<terminated> C:\Users\Skyne\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_22.0.1.v20240426-1149\jre\bin\javaw.exe (Jun 23, 2024, 2:47:27 AM) [pid: 5408]
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-logger-
api/3.2.5/surefire-logger-api-3.2.5.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-logger-
api/3.2.5/surefire-logger-api-3.2.5.pom (3.3 kB at 59 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-shared-
utils/3.2.5/surefire-shared-utils-3.2.5.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-shared-
utils/3.2.5/surefire-shared-utils-3.2.5.pom (4.1 kB at 69 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-extensions-
api/3.2.5/surefire-extensions-api-3.2.5.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-extensions-
api/3.2.5/surefire-extensions-api-3.2.5.pom (3.3 kB at 65 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-
booster/3.2.5/surefire-booster-3.2.5.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-
booster/3.2.5/surefire-booster-3.2.5.pom (4.5 kB at 93 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-extensions-
spi/3.2.5/surefire-extensions-spi-3.2.5.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-extensions-
spi/3.2.5/surefire-extensions-spi-3.2.5.pom (1.8 kB at 30 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-util/1.0.0.v20140518/aether-
util-1.0.0.v20140518.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-util/1.0.0.v20140518/aether-
util-1.0.0.v20140518.pom (2.2 kB at 38 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether/1.0.0.v20140518/aether-
1.0.0.v20140518.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether/1.0.0.v20140518/aether-
1.0.0.v20140518.pom (30 kB at 339 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-api/1.0.0.v20140518/aether-
api-1.0.0.v20140518.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-api/1.0.0.v20140518/aether-
api-1.0.0.v20140518.pom (1.9 kB at 20 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-common-artifact-
```

```
Console X
<terminated> C:\Users\Skyne\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64.22.0.1.v20240426-1149\jre\bin\javaw.exe (Jun 23, 2024, 2:47:27 AM) [pid: 5408]
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-util/1.0.0.v20140518/aether-util-1.0.0.v20140518.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-booter/3.2.5/surefire-booter-3.2.5.jar (118 kB at 383 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-api/1.0.0.v20140518/aether-api-1.0.0.v20140518.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-logger-api/3.2.5/surefire-logger-api-3.2.5.jar (14 kB at 30 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-common-artifact-filters/3.1.1/maven-common-artifact-filters-3.1.1.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-api/3.2.5/surefire-api-3.2.5.jar (171 kB at 354 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.15.1/commons-io-2.15.1.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-util/1.0.0.v20140518/aether-util-1.0.0.v20140518.jar (146 kB at 264 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-shared-utils/3.2.5/surefire-shared-utils-3.2.5.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-api/1.0.0.v20140518/aether-api-1.0.0.v20140518.jar (136 kB at 210 kB/s)
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-extensions-api/3.2.5/surefire-extensions-api-3.2.5.jar (26 kB at 37 kB/s)
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-common-artifact-filters/3.1.1/maven-common-artifact-filters-3.1.1.jar (61 kB at 53 kB/s)
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.15.1/commons-io-2.15.1.jar (501 kB at 192 kB/s)
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-shared-utils/3.2.5/surefire-shared-utils-3.2.5.jar (2.4 MB at 639 kB/s)
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 12.163 s
[INFO] Finished at: 2024-06-23T02:47:42-07:00
[INFO] -----
```

Phase 4 . Package

The package phase packages the compiled code into a distributable format (e.g., JAR).

```
Console X
<terminated> demoproj (1) [Maven Build] C:\Users\Skyne\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_22.0.1.v20240426-1149\jre\bin\javaw.exe (Jun 23, 2024, 2:50:16 AM - 2:50:27 AM) [pid: 1]
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.assign:demoproj >-----
[INFO] Building demoproj 0.0.1-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ demoproj ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] Copying 0 resource from src\main\resources to target\classes
[INFO]
[INFO] --- compiler:3.13.0:compile (default-compile) @ demoproj ---
[INFO] Nothing to compile - all classes are up to date.
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ demoproj ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] Copying 0 resource from src\test\resources to target\test-classes
[INFO]
[INFO] --- compiler:3.13.0:testCompile (default-testCompile) @ demoproj ---
[INFO] Nothing to compile - all classes are up to date.
[INFO]
[INFO] --- surefire:3.2.5:test (default-test) @ demoproj ---
[INFO]
[INFO] --- jar:3.4.1:jar (default-jar) @ demoproj ---
[INFO] Building jar: D:\java full stack\java full stack\Eclipse programs class\demoproj\target\demoproj-0.0.1-SNAPSHOT.jar
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 3.713 s
[INFO] Finished at: 2024-06-23T02:50:27-07:00
[INFO] -----
```

- Compiles the code (if not already compiled) and packages it into a JAR file.
- Creates the JAR file `maven-demo-java-1.0-SNAPSHOT.jar` in the target directory.