

Homework assignment 2

Exercise 1: Create Your First Maven Project

```
> mvn archetype:generate -DgroupId=com.example -DartifactId=my-first-app -DarchetypeArtifactId=maven-archetype-quickstart -DinteractiveMode=false
WARNING: A terminally deprecated method in sun.misc.Unsafe has been called
WARNING: sun.misc.Unsafe::staticFieldBase has been called by com.google.inject.internal.aop.HiddenClassDefiner (file:/opt/homebrew/Cellar/maven/3.9.10/libexec
/lib/guice-5.1.0-classes.jar)
WARNING: Please consider reporting this to the maintainers of class com.google.inject.internal.aop.HiddenClassDefiner
WARNING: sun.misc.Unsafe::staticFieldBase will be removed in a future release
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.apache.maven:standalone-pom >-----
[INFO] Building Maven Stub Project (No POM) 1
[INFO] -----[ pom ]-----
[INFO]
[INFO] >>> archetype:3.4.0:generate (default-cli) > generate-sources @ standalone-pom >>>
[INFO]
[INFO] <<< archetype:3.4.0:generate (default-cli) < generate-sources @ standalone-pom <<<
[INFO]
[INFO] --- archetype:3.4.0:generate (default-cli) @ standalone-pom ---
[INFO] Generating project in Batch mode
[INFO]
[INFO] Using following parameters for creating project from Old (1.x) Archetype: maven-archetype-quickstart:1.0
[INFO]
[INFO] Parameter: basedir, Value: /Users/td/Desktop/home/Aktuelle Trend Inf
[INFO] Parameter: package, Value: com.example
[INFO] Parameter: groupId, Value: com.example
[INFO] Parameter: artifactId, Value: my-first-app
[INFO] Parameter: packageName, Value: com.example
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] project created from Old (1.x) Archetype in dir: /Users/td/Desktop/home/Aktuelle Trend Inf/my-first-app
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 0.517 s
[INFO] Finished at: 2025-08-23T10:10:44+02:00
[INFO]
```

```
> cd my-first-app
> tree
.
├── pom.xml
├── src
│   ├── main
│   │   ├── java
│   │   │   ├── com
│   │   │   │   ├── example
│   │   │   │   │   └── App.java
│   │   └── test
│   │       ├── java
│   │       │   ├── com
│   │       │   │   ├── example
│   │       │   │   │   └── AppTest.java
└── 10 directories, 3 files
```

In 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/maven-v4_0_0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.example</groupId>
  <artifactId>my-first-app</artifactId>
  <packaging>jar</packaging>
  <version>1.0-SNAPSHOT</version>
  <name>my-first-app</name>
  <url>http://maven.apache.org</url>
  <dependencies>
    <dependency>
      <groupId>junit</groupId>
      <artifactId>junit</artifactId>
      <version>3.8.1</version>
      <scope>test</scope>
    </dependency>
  </dependencies>
</project>
```

Exercise 2: Add a Dependency

```
> mvn exec:java -Dexec.mainClass=assecor.App
WARNING: A terminally deprecated method in sun.misc.Unsafe has been called
WARNING: sun.misc.Unsafe::staticFieldBase has been called by com.google.inject.internal.aop.HiddenClassDefiner (file:/opt/homebrew/Cellar/maven/3.9.10/libexec/lib/guice-5.1.0-classes.jar)
WARNING: Please consider reporting this to the maintainers of class com.google.inject.internal.aop.HiddenClassDefiner
WARNING: sun.misc.Unsafe::staticFieldBase will be removed in a future release
[INFO] Scanning for projects...
[INFO] -----< assecor:my-first-app >-----
[INFO] Building my-first-app 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] --- exec:3.5.1:java (default-cli) @ my-first-app ---
Hello World!
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.223 s
[INFO] Finished at: 2025-08-23T13:21:31+02:00
[INFO] -----
```

Check: yes!

```
> cd ~/.m2/repository/com/google/code/gson/gson
> ls
2.10.1
> cd 2.10.1
> ls
_remote.repositories  gson-2.10.1.jar      gson-2.10.1.jar.sha1  gson-2.10.1.pom      gson-2.10.1.pom.sha1
```

Exercise 3: Run Unit Tests with Maven

If success:

```
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running assecor.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO] Results:
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.432 s
[INFO] Finished at: 2025-08-23T13:23:54+02:00
[INFO] -----
~/Desktop/home/Aktuelle Trend Inf/my-first-app >
```

If fails:

```
[INFO] T E S T S
[INFO] -----
[INFO] Running assecor.AppTest
[ERROR] Tests run: 1, Failures: 1, Errors: 0, Skipped: 0, Time elapsed: 0.023 s <<< FAILURE!
[ERROR] assecor.AppTest.testGreeting -- Time elapsed: 0.015 s <<< FAILURE!
org.opentest4j.AssertionFailedError: expected: <5> but was: <6>
    at org.junit.jupiter.api.AssertionFailureBuilder.build(AssertionFailureBuilder.java:15)
    at org.junit.jupiter.api.AssertionFailureBuilder.buildAndThrow(AssertionFailureBuilder.java:39)
    at org.junit.jupiter.api.AssertEquals.failNotEqual(AssertEquals.java:201)
    at org.junit.jupiter.api.AssertEquals.assertEquals(AssertEquals.java:152)
    at org.junit.jupiter.api.AssertEquals.assertEquals(AssertEquals.java:147)
    at org.junit.jupiter.api.Assertions.assertEquals(Assertions.java:558)
    at assecor.AppTest.testGreeting(AppTest.java:14)

[INFO]
[INFO] Results:
[INFO]
[ERROR] Failures:
[ERROR]   AppTest.testGreeting:14 expected: <5> but was: <6>
[INFO]
[ERROR] Tests run: 1, Failures: 1, Errors: 0, Skipped: 0
[INFO]
[INFO] -----
[INFO] BUILD FAILURE
[INFO] -----
[INFO] Total time: 0.945 s
[INFO] Finished at: 2025-08-23T13:27:05+02:00
[INFO] -----
[ERROR] Failed to execute goal org.apache.maven.plugins:maven-surefire-plugin:3.2.5:test
[ERROR]
[ERROR] Please refer to /Users/td/Desktop/home/Aktuelle Trend Inf/my-first-app/target/surefire-reports for the full text of the error.
[ERROR] Please refer to dump files (if any exist) [date].dump, [date]-jvmRun[N].dump and [date].dumpstream.
[ERROR] -> [Help 1]
[ERROR]
[ERROR] To see the full stack trace of the errors, re-run Maven with the -e switch.
[ERROR] Re-run Maven using the -X switch to enable full debug logging.
[ERROR]
[ERROR] For more information about the errors and possible solutions, please read the following articles:
[ERROR] [Help 1] [FAQ]
```

Exercise 4: Explore Maven Lifecycle Phases

- mvn validate: No new file or folder appear
- mvn compile: compile project, target folder appear(classes, generated-sources etc..)
- mvn test: under target, folder for test sources and test appear
- mvn package: under target, jar file appear
- mvn install: Install jar to .m2 folder

```
--- install:3.1.2:install (default-install) @ my-first-app ---
Installing /Users/td/Desktop/home/Aktuelle Trend Inf/my-first-app/pom.xml to /Users/td/.m2/repository/assecor/my-first-app/1.0-SNAPSHOT/my-first-app-1.0-SNAPSHOT.pom
Installing /Users/td/Desktop/home/Aktuelle Trend Inf/my-first-app/target/my-first-app-1.0-SNAPSHOT.jar to /Users/td/.m2/repository/assecor/my-first-app-1.0-SNAPSHOT/my-first-app-1.0-SNAPSHOT.jar
```

inside Target folder are all the artifact, that maven need to build, test and generate code during lifecycle of the project:

- classes/ : compiled .class files from my src/main/java source code
- test-classes/: compiled .class files from my src/test/java source code
- generated-*sources/: auto generated source code(e.g from anotation processors)
- surefire-reports/ : Test result from surefire plugin
- .jar file: the final packaged jar file of the project

Exercise 5: Bonus – View the Dependency Tree

```
[INFO] assecor:my-first-app:jar:1.0-SNAPSHOT
[INFO] +- com.google.code.gson:gson:jar:2.10.1:compile
[INFO] \- org.junit.jupiter:junit-jupiter:jar:RELEASE:test
[INFO]     +- org.junit.jupiter:junit-jupiter-api:jar:6.0.0-RC1:test
[INFO]         | +- org.opentest4j:opentest4j:jar:1.3.0:test
[INFO]         | +- org.junit.platform:junit-platform-commons:jar:6.0.0-RC1:test
[INFO]         | +- org.apiguardian:apiguardian-api:jar:1.1.2:test
[INFO]         | \- org.jspecify:jspecify:jar:1.0.0:test
[INFO]     +- org.junit.jupiter:junit-jupiter-params:jar:6.0.0-RC1:test
[INFO]     \- org.junit.jupiter:junit-jupiter-engine:jar:6.0.0-RC1:test
[INFO]         \- org.junit.platform:junit-platform-engine:jar:6.0.0-RC1:test
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.974 s
[INFO] Finished at: 2025-08-23T13:56:45+02:00
[INFO] -----
```

Transitive Dependency are under org.junit.jupiter:junit-jupiter:jar:RELEASE:test

And there are no version conflict but there is a warning that not recommend using „RELEASE“ as version. I changed that to 5.9.1