

Maven

1. What is maven?

Maven is a powerful project management tool that is primarily used for java projects. It helps with dependency management, project structure and build automation.

2. Maven project Structure

```
my-maven-project
├── src
│   ├── main
│   │   ├── java      (Source Code)
│   │   └── resources  (Configuration files)
│   └── test
│       ├── java      (Test Code)
├── pom.xml            (Project Object Model)
└── target              (Compiled Output)
```

3. Understanding pom.xml file

pom.xml file is heart of maven project it contains

- Metadata (groupID, artifactID, version)
- Dependencies (libraries required for project).
- plugin
- Build settings

4. Common maven commands

| | |
|----------------------------------|--|
| <code>mvn compile</code> | Compiles source code |
| <code>mvn clean</code> | Cleans <code>target/</code> directory |
| <code>mvn package</code> | Packages the code into a JAR/WAR file |
| <code>mvn install</code> | Installs the package in the local repository |
| <code>mvn dependency:tree</code> | Shows dependency hierarchy |
| <code>mvn test</code> | Runs tests |
| <code>mvn clean install</code> | Cleans, compiles, and installs the package |

5. Dependency management

We can use the tag `<dependencies>` `</dependencies>` between which we can add multiple dependencies using the tag `<dependency>` `</dependency>`

```
<dependencies>
  <dependency>
    <groupId>org.apache.commons</groupId>
    <artifactId>commons-lang3</artifactId>
    <version>3.12.0</version>
  </dependency>
</dependencies>
```

We can get all our dependencies from the website <https://mvnrepository.com/>.

- We can copy paste all our dependencies.

