

What is Maven?

Maven is a project management and comprehension tool that provides developers a complete build lifecycle framework. Development team can automate the project's build infrastructure in almost no time as Maven uses a standard directory layout and a default build lifecycle.

In case of multiple development teams environment, Maven can set-up the way to work as per standards in a very short time. As most of the project setups are simple and reusable, Maven makes life of developer easy while creating reports, checks, build and testing automation setups.

Maven provides developers ways to manage the following –

- Builds
- Documentation
- Reporting
- Dependencies
- SCMs
- Releases
- Distribution
- Mailing list

To summarize, Maven simplifies and standardizes the project build process. It handles compilation, distribution, documentation, team collaboration and other tasks seamlessly. Maven increases reusability and takes care of most of the build related tasks.

POM :

POM stands for Project Object Model. It is fundamental unit of work in Maven. It is an XML file that resides in the base directory of the project as pom.xml.

The POM contains information about the project and various configuration detail used by Maven to build the project(s).

POM also contains the goals and plugins. While executing a task or goal, Maven looks for the POM in the current directory. It reads the POM, gets the needed configuration information, and then executes the goal. Some of the configuration that can be specified in the POM are following –

- project dependencies
- plugins
- goals
- build profiles
- project version
- developers
- mailing list

Before creating a POM, we should first decide the project **group** (`groupId`), its **name** (`artifactId`) and its version as these attributes help in uniquely identifying the project in repository.

Advantages of Maven

- No manual JAR setup — dependencies managed automatically.
- Same structure across all projects — easy collaboration.
- Integration with Spring, Hibernate, and other frameworks is seamless.
- Supports testing, packaging, and deployment with simple commands.

Code :

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 https://maven.apache.org/xsd/maven-4.0.0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <groupId>com.example</groupId>
    <artifactId>SimpleMaven</artifactId>
    <version>0.0.1-SNAPSHOT</version>

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

    <build>
        <plugins>
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-compiler-plugin</artifactId>
                <version>3.10.1</version>
                <configuration>
                    <source>17</source>
                    <target>17</target>
                </configuration>
            </plugin>
        </plugins>
    </build>
</project>
```

App.java

```
package com.example;

import org.apache.commons.lang3.StringUtils;

public class App {
    public static void main(String[] args) {
        System.out.println("Maven Project is running successfully!");

        String msg = "Hello Maven! ";
        System.out.println("Original: [" + msg + "]");
        System.out.println("Trimmed: [" + StringUtils.trim(msg) + "]");
    }
}
```