MAVEN

1. What is Maven?

**Ans:**

Maven is a build automation and project management tool.

This is primarily used for java projects.

**Features:**

Build Tool- **compiles code,run tests,package(.jar/.war)**

Dependency Management-**Automatically download the**

**required Libraries(jar files) from remote repositories.**

Project structure- **Giving standard project structure.**

POM file(pom.xml)- **configuration,dependencies,plugins,build**

**steps mention in this file.**

Life cycle management-**Defined phases like clean,verify,compile,**

**test,package,install,deploy .**

1. **Maven standard Project Structure?**

**Ans:**

Maven-project

Src/main/java- write source code

Src/main/resources- source code related resources files

Src/test/java-write test code

Src/test/resources-test code related resources files

Target folder- compile and package file is their

Pom.xml- project related configuration files

1. **What is pom.xml?**

**Ans:**

Pom.xml -means Project object model this is a xml file

Group id- it means company name.

Artifact id- it means project name.

Version- project version.

Dependencies-list of external libraries project use.it’s jar files.

Build-configuration related files in build the

project.(compile,test,package)

Plugins- tools that help with build steps like compiling .(compiler

Plugin,surefire(test)plugin.

1. **What is parent pom?**

**Ans:**

Parent pom is the special pom.xml file.

It is share common settings (dependecies,plugins,java version) used in

multiple maven projects.

This is avoid repeating the same configuration in every project.

This is useful for large project for multiple project. In that parent pom

Mension versions,child pom don’t mension version.

1. **What is dependencies?**

**Ans:**

Dependency is a external java libray(jar) tha t our project needs run or build.

Maven will download automatically from the internet using the

Information we give in the <dependencies> inside. we are add the

dependency inside <dependencies> /</dependencies>

1. **What is dependency Management?**

**Ans:**

Dependency management is used in the parent POM to define

Dependency versions only ones,so chind POM don’t have to repeat

them.

It is used to control and centralize dependency version it’s used for

multi model projects.

1. **How to compile a program with specific JVM version?**

**Ans:**

We are using the maven project we can compile a specific JVM version by setting the version in pom.xml file using the **maven compiler plugin.**

Example we are used java 17

In pom.xml file add this tag

<properties>

<maven.compiler.source>17</maven.compiler.source> -source code

<maven.compiler.target>17</maven.compiler.target> compiled byte code

</properties>

1. **What is build?**

**Ans:**

Build is the process of converting ours source code in to a working application.

**Build life cycle is:**

1.validate-check if project is correct -pom.xml and folders

2.compile-compile the source code.

3.test-run unit test

4.package-package the code in .jar/.war file

5.verify-any integration test verify.

6.install-save jar/war file in our local .m2 repository.

7.deploy-upload jar/war in remote repository.

1. **What is Target folder in Maven?**

**Ans:**

Maven stores all the output files after building the project in target folder.

This is stored in compile files,test reports,final jar/war files,sure file reports for after build process.

We run **mvn compile**-create compile file in traget folder..

We run **mvn tes**t- create compile test file in target folder.

We run **mvn package**-package jar/war file in target folder.

Sure fire report-test reports in target folder.

1. **what is clean?**

**Ans:**

**In maven we used the mvn clean command delete the all files inside the target folder.**

**Start fresh- remove old compile files and avoid conflict.**

**Clean up build-helps when switching the code or fixing build issues.**

**Rebuild everything-ensure maven recompile all code from scratch.**