**1.What is maven?**

Maven is a build tool, are completely open source tool.

This tool is used to develop and manage any java based projects

Maven is mainly used for maintaining the 3rd party libraries

**What does maven help with?**

**What are the different elements that Maven takes care of?**

* Build
* Dependencies
* Distribution
* Reports

**What is POM?**

Page Object Model, the POM contains all the information regarding the projects and configuration details.

The xml file is present in project home directory, we tend to execute.

**What all is included in the POM?**

POM contains the following configurations:

* Dependencies
* Developers and contributors
* Plugins
* Plugin configuration
* Resources

**What are the minimum required elements for POM?**

* Project root
* Model version
* Group id
* Artifact id
* Version

**What is meant by the term ‘Build Tool’?**

* Developing a source code
* Compiling a source code
* Packaging a compiled codes into JaR files

**What is Clean, Default, and Site in Maven?**

There are three built-in build life cycles:

Clean: The clean lifecycle looks after project cleaning.

Default: The default lifecycle handles the project deployment.

Site: The site lifecycle refers to the creation of the project’s site documentation.

**What is a Maven Repository?**

🡪Maven repository can contain packaged jar files,

3 repository:

Local repository

Remote repository

Central repository-maven search any dependency in local repository if it is not found, it starts searching in central repository.

**What is Maven Build Lifecycle?**

Maven lifecycle is a collection of steps that are to be followed, to build a project. There are three built-in build lifecycles:

**What are the different phases in the Maven Build Lifecycle?**

**What is meant by Maven Plugins?**

Maven plugins carry out the compile code, test the code, and create jar files and create documentation

**Why are Maven Plugins used?**

* Create jar files
* Create war files
* Create project reports
* Create project documentation
* Compiling a code

**2. Why we need to go for maven?**

If I don't use the maven in Java projects what are the problem, whenever you create a project you need some dependencies, to complete project I need some 3rd party libraries, for example I need to work in database I need to download libraries related to the database.

🡪If you want to work with selenium I need to download selenium jar files and attached to the particular Java project

🡪similarly we want to work with testng I need to download testng g jar files and attached to the particular Java project

🡪then we will able to use number of classes and methods coming from those libraries and now we will able to use the project

**3. There are 2 important problems ?**

🡪Now I wanted to download the all the libraries from different websites and attach to the Java project manually.

🡪If any upgradation came we need to download the libraries from different website , existing libraries and place the new one upgrade libraries

**4. Overcome these 2 important problems we have called maven?**

🡪maven is build tool which is provided by apachi POI

🡪1.whenever you created a maven project by default POM .XML file is there, the whole maven project is controlled by POM.XML file

2. Whenever you created a maven project by default projects structure is there

**5.POM.xml**

2 kinds of entries in pom.xml lfile

1. **Dependency**-when you have dependency in pom. XML file which will automatically download all the 3rd party libraries into your project(advantage),

🡪if you need to add any upgradation you can change the version number in dependencies it will automatically changed

1. **Plugins**-plugins or having all the configuration stuff(maven surefire plugin,compiler plugin,compiling the project)

These 2 will control the entire project

**6.Feature:**

1.By using maven we can generate report or

2. create a project related documentation

3. Packaging is a one more feature🡪once you are done your project you don't need to provide the entire project to client we need to package it and submit the project.

**7. How the maven project is work internally?**

🡪If you are creating maven project side by side it will create the **maven local repository**, that will be available in your project

🡪all the libraries are available in **remote maven repository**

🡪I, maven will have pom.xml ,n POM.XML file we have a dependencies it will download from the maven report repository there are all the libraries are available, all the libraries are downloaded in local maven repository.

🡪First time you need an Internet connection to download all the dependencies and next time if you have any upgradation you can change the version number in your dependent list that is enough .

🡪If I'm changing the version number in dependencies new dependencies are download and replace the existing dependencies

This is how maven project internally work

**🡪 In POM.xml file apart from the dependencies we have some plugins**

all the plugins are included in < plugins>tag, if I want to compile the entire project I want to add maven compiler plugin.

🡪Suppose I want to run whole project I want to add maven surefire plugin is required, we need to add in <plugins> tag

🡪plugins will control the entire project

if we don't use the maven project and every time we go to download the libraries and we need to attach a project then on we need to work

**8.maven project in eclipse?**

🡪maven is default come with an eclipse

🡪architype is a template, what project you are going to work like selenium

🡪 group id is basically representing the company name

🡪artifact id is basically representing the project name

🡪in packaging default options jar file, there are several options are there pom file

**9. Maven project folders structure?**

* Whenever you create an event project by default it will create the folder structure
* src/main/java-Mainly contains the development source code

🡪for example if I create an app in main file all the related data is present in the resource file, for example resource the you can contain username and password

* src/main/resources-if developer using any 3rd party files they are present in this folder -which these folders are mainly used by developer.
* Src/test/java-All the unit test written by the developer

🡪we need to implement the test cases in SRC /test /Java

* 🡪 Src/test/java-- in this testing phase we need to use the test Ng we have to add the 3rd party libraries for test ng, you have to add the dependency in pom.XML file
* Src/test/resources- if they need any resources while they will keep In this folder

**10.Page Object Model(POM)?**

* Basically the whole project is controlled by POM

**11. Maven build life cycle?**

* Validate the project files
* Compile it
* we need to test the code
* we need to package it(jar/war file)
* verify
* finally install- install in local repository
* and deployment – install in remote repository used by the other project

🡪 maven build life cycle we have a compilation phase , execution phase, testing phase

🡪for example if I add dependencies in pom file, if I save it it will create new maven dependency folder in my project, so the maven dependency folder contain all 3rd party libraries it will download from the remote repository to local repository

🡪if I remove the dependency in pom file the maven dependency folder is gone

**12. how to execute maven project?**

🡪 if I want to run the maven project click on the pom file and click on the run as and click on the **maven test**, for example if I click on the maven test the previous phase are executed like validation and compilation is executed

🡪if I click on **the maven build** it will ask goal if I enter the clean it will clean the project, if I want to add the goal -compile, it will compile the project if there is no dependency for compilation the error will be mentioned in console.

🡪 If I click the **maven clean** it will clean the unnecessary files and clean the project

🡪 if i click the **maven install**  the previous phase will be executed and it will create the jar file it will be available in your target folder

🡪final processes if I execute the pom file as a maven test, all the process are done and refresh the target folder one jar file will be there

🡪if I dont want to share the source code to others you can send the jar file

**13. How to integrate selenium with maven project in eclipse?**

* First we need to update pom.xml with required dependencies
* add the selenium java dependencies
* You can save the pom file and you will see the maven dependency folder

**14. how to run selenium tests in eclipse using maven?**

* Then we can create a TestNg test cases in src/ test /java folder
* then you can directly click on the test cases with the right click and go to run as and click on the TestNg test(only one test cases)
* If we have a lot of testng test cases we have to create testing.XML file and then run it as TestNg test

**15. Maven surefire plugin?**

🡪 If you want to run all the testNg test cases using maven you can add maven surefire plugin , add the dependency in pom.xml (before all the dependencies)

->in the sure fire dependency you have to add the configuration tag inside the configuration tag, you can add the <suitsmlfiles >tag, inside add the <suitexmlfile> tag

🡪 you can run it as a maven test after adding the surefire dependency in pom.XML file

🡪then it will be executed all the test cases which you are presented in the testNg.XML file

🡪and refresh target folder you can see the index.HTML file

**16. How to generate a maven report?**

🡪 If we run maven project as maven test it will generate an report in index.HTML file after your complete maven test you can refresh the target folder and see the index.html file

->-You can open the report in the browser.

**17. I want to run a project in outside eclipse through command prompt**

How to install and set up maven on windows

* Go to Google Chrome search maven and select the latest binary file
* Windows accept only zip binary file
* Download it and once extract the folder
* Pre request of configuration the maven is java, download the jdk installation, maven internally used Java
* Check the environment variables and Java path in environment variables go to the properties and check it
* Then we need to set the maven path, copy the maven folder path, go to the properties, click on environment variable, under system variable click on new add the maven home and paste the path, click on the path and in system variables and to have to paste the maven path and you have to add this \ bin

**Maven commands**

* In command prompt
* Mvn – version
* Cd (copy the project path from eclipse)
* Dir(it will show all the files in your project)
* Mvn validate(this particular command is used to validate our project)-(build success if u enter this command )
* Mvn clean(this command with clean the all unnecessary files)-if u enter this show build success
* Mvn compile(compiles the source code of a project)- it show build success.
* Mvn test-(the command will run all the test cases in your project) Test command will compile the all our test code
* Cls command will clear your screen
* Mvn package ( it will be create war file or jar file )-if u want to share the file to somebody-this is use of package command
* Mvn install(whatever the package command will do-this will come after packaging—(when we use this command after all the processes done the jar files are present in local repository
* Mvn deploy (shut this command is used to copy the jar or war file into remote repository) -it will execute all prev command
* Mvn clean test(you can add the multiple commands also)