**Maven Fundamentals**

1. Explain what is Maven? How does it work?

Answer:

Maven is an Open source Project Management Tool that is used for project builds, dependencies. It is based on POM. Maven will download the dependencies found in the remote repository to a local repository for building a project.

1. Explain what is POM and its significance

Answer:

POM (Project Object Management) is an XML file. Each project will have a pom.xml file that contains the information about the project, the configuration details and dependency details used by Maven for the project.

1. Explain what a Maven artifact is?

Answer:

Dependencies of project are specified as artifact in maven. Artifacts are identified using

* groupId: which is typically the packaging structure
* artifactId: name of the actual item that we need to include
* version: it is the release version of the artefact that we need to include

This will avoid duplication.

1. List out the dependency scope in Maven?

Answer:

Scope is used to specify the visibility of a dependency.

* Compile: this is the default scope. Dependencies will be available on the classpath of the project.
* Provided: Indicate dependencies that should be provided by JDK or web server or container at runtime
* Runtime: Indicate dependencies that are required at runtime
* Test: Indicate dependencies that are required only for testing
* System: It is similar to provided but we need to provide the system path
* Import: It is only supported for the dependency type pom

1. List out what are the build phases in Maven?

Answer:

* Validate: it checks whether all information required for the build process are available
* Initialise: initialises build state
* Compile: compile the source code
* Test-compile: compile the test source code
* Test: Run unit test
* Package: take the compiled code and package it in its distributed format like jar, war etc.
* Install: install the package into the local repository
* Deploy: copy the final package to remote repository

1. Mention the three build lifecycle of Maven?

Answer:

Three build cycles of maven are:

* Clean: It delete the target directory and the generated source code by the prior builds.
* Default (build): Used to build the application.
* Site: It is used to create documentation for projects.

1. List out what are the aspects does Maven Manages?

Answer:

Activities handled by Maven are:

* Build
* Documentation
* Reporting
* Dependencies
* SCMs (Software Configuration Management)
* Releases
* Distribution
* Mailing list

1. Explain what a Maven Repository is? What are their types?

Answer:

A Maven repository is a directory or location where all the project related artifacts are stored and be used by maven.

There are 3 types of Maven Repository

* Local repository: It is located on a local system (Computer) in which a maven runs and created by maven.
* Central repository: It is located on the web created by apache maven itself.
* Remote repository: It is located on the web. Some libraries may be missing in central repository, then need to check in remote repository.

1. Explain how you can exclude dependency?

Answer:

By adding <exclusion> element in the dependency we can exclude a dependency

1. For POM what are the minimum required elements?

Answer:

Minimum required elements for POM are:

Project root

modelVersion

groupId

artifactId

version