**MAVEN**

**MAVEN INTRODUCTION**

Maven is a build automation and project management tool primarily used in java-based software development projects.it is an Open source and free of cost.

Meven is based on the concept of a project object model(pom). the pom is an xml file that contains information about the project we all configuration stored in xml files(pom.xml).

🡪Maven was developed by Apache company.

🡪 maven is used for only java-based projects application.

🡪as a build automation tools it automate the source code.

**\* What is a build tool in devops?**

It is software programming that automates the process of transforming the source code a deployable & executable format.

**Build tools:**

Maven is an open-source build automation tool used to manage project and compile code for java application.

The build tool is the creation of executable application from source code.

It reduces the normal project deployment time.

Jar , war, ear depending on project life cycle.

Java - Apache maven, Apache ANT (older version)

Python – pybuilder

.NET – Ms build (Microsoft build engine)

Node Js – GULP, GRANT, GRADLE, WEB PACK.

Generates source code

Generates documentation from source code

Compiles source code

Packages compiled code into JAR of ZIP file.

**Work Flow of maven process:**

Developer --> code --> push--> GitHub (remote repository)

--> build (maven) -- > packages -- >ear/war/jar -->copy the packages to the web servers (tomcat) -->EU (access the applications)

Ear – enterprise archive.

War – web application.

Jar – java application.

**Project object model(pom):**

The maven project object model from is a fundamental concept in Apache maven. The pom is xml based contains information about project configuration.

The pom.xml file is the heart of a Maven project.

**Plugins:**

**-->**maven plugins are used to extend mavens capabilities. they

Helps its tasks like compiling code, running tests, packaging

Application deploying.

-->installing the dependencies (external future) is known as

Plugins.

-->dependencies –external future adding to your project.

-->2type of plugins 1) inbuilt plugins (one time use)

2)added plugins (reusable)

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**Repositories of maven:**

Ther are 3 types

\*Central repo -->online repo GitHub --> The official Maven

Repository, containing thousands of open-source libraries.

\*Remote repo -->organization repo – IBM (real time) -->A

Repository hosted on a remote server.

\*Local repo --> own laptop/system. -->Local repo Is located on

Your Computer by default.

Maven in devops should be utilised in scenarios.

\*If the initiative has no of significant dependencies.

\*If the dependencies version needs to be upgrade frequency.

**ANT (another neat tool)**

Apache ant is a build automation tool used primarily for java

Project.

It is an older version of maven

-->developed by Apache company

-->can build any kind of project

-->has no life cycle

-->build XML --> build developers

-->JUnit (java unit) test cases not three in ANT

-->script is not reusable.

**Life cycle of maven:**

default: it features the source code from developers and

Performs few features.

\*Compile: compile the entire source code

\*Validate: validate the compiled code

\*Test: test the source code

\*Packages: generate the package for source

\*Install: install an all packages generated by packages

\*Verify: will verify the generated packages.

**Clean:**

performed before compilation

\*Pre – clean: check for jar/war/ear

\*Clean- delete the older ear/jar/war files

\*post- clean: the new generated war/ear/jar files will be saved

**Site:**

it’s like folder where we will deploy our application.

\*pre-site: it receives we will deploy our application

\*Site: it receives the pre site files.

\*Post. Site: it receives the file.

Maven installation

1. take one EC2 instance and login
2. connect to Linux environment
3. install java --> Sudo yum install java-1.8.0-amazon-corretto.x86\_64
4. instal git --> yum instal -y git
5. clone the git URL --> git clone https://github.com/Bajisai/myweb.git
6. maven instal --> Sudo wget [http://repos.fedorapeople.org/repos/dchen/apache-maven/epel-apache-maven.repo -O /etc/yum.repos.d/epel-apache-maven.repo](http://repos.fedorapeople.org/repos/dchen/apache-maven/epel-apache-maven.repo%20-O%20/etc/yum.repos.d/epel-apache-maven.repo).

this command downloads and adds an external repository for installing Apache maven.

\*sudo sed -i s/\$releasever/6/g /etc/yum.repos.d/epel-apache-maven.repo 🡪 this command modifies the repository file to ensure compatibility.

\*sudo yum install -y Apache-maven 🡪 you can installs Apache maven.

1. cd file name (pom.xml)
2. mvn clean package