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MAVEN

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Why we use it :- So it is a Build tool or Manages dependencies. But the main thing is it is a Project Management tool. (Java)

Java Project structure (Avinash Pandy)

→ Source Code
→ test Code
→ Project structure (artifact, directories, Resource)
→ Dependencies / Library
→ Configuration
→ Task - Runner ⇒ build → test → Run
→ Reporting

So this all Process done by any Java project in this process we want to more manpower to reduce some these complexity we use maven.

Ant → Maven → Gradle
old Current New

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MAVEN → (Avinash Reddy)

Maven is an Automation and Project managment tool developed by Apache Software foundation. It is based on (POM) Project object Model: (Pom xml)

→ Maven can build any number of project into desired output such as "jar, "war, ma data.

→ Mostly used for Java based project.

→ It was intially released on 13 July 2004.

→ Maven is written in Java.

→ Maven "Accumulator of Knowledge.

→ Maven help in getting the right jar file for each project as their may be diffrent version of Separate packages.

→ To download dependencies it is no more needed to visit the official website of each software. It could how be easily done by visiting "mvnrepository.com"

Dependinicies → It refers to the Java libraries that are needed for the Project.

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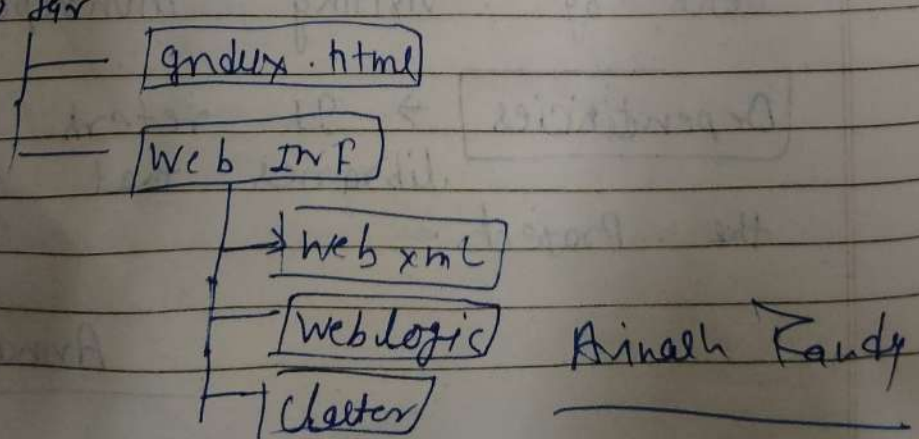
Repositories → Refers to the directories of packaged jar files.

Build tool → C, C++ — make file
.Net — Visual Studio
Java — Ant, Maven, gradle

Problems without MAVEN

1. Adding set of jars in each Project :-
In case of struts, spring we need to add jar file in each project it must include all the dependencies of jar also.

2. Creating the right project structure :-
We must create the right project structure in Servlet, struts etc, otherwise it will not be executed.
for eg → .war file layout.



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(Arinash)

3 Building and deploing the project :- we must have to build and deploy the project so that it may work.

What MAVEN Does ?

1. It make project easy to build.
2. It Provide Project information (ex:- log document, Cross Reference source mailing list, dependicy list, unit task.)
3. Easy to add new dependencies

Therfore, Apache Meven help to Manages.

i Build
ii Dependencies
iii Reports
iv Reliance
v Distribution

What is build tool ?

A build tool take care everything for Building a procus. It does following.

→ Generate Source Code
→ Generate documentation from source code
→ Install the packeg code in local repo Server repo or Central Repository
→ Compile source code.
→ POM Refers to the XML file that have all the information regarding Project and Configration deteliy.

Main Configration file is POM XML

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→ It has the discription of the project, detels regarding the versioning and Configration mangament of the project

→ The XML file is in the project home directory.

pom xml Contains

⇒ Matadata
→ dependiencies
→ King of project
→ Kind of output (Jar, War)
→ Discription

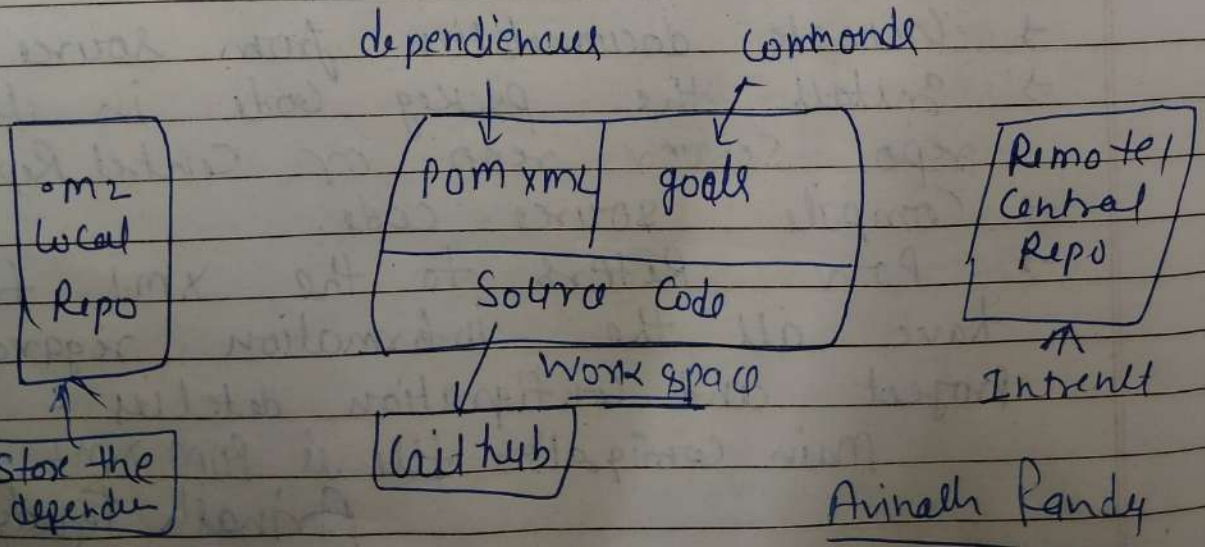
One project → One Workspace → one pom xml

Requirement for Build

→ Source code (Present in workspace)
→ Complier (Remote repo → local repo → workspace)
→ Dependencies (Remote repo – local repo – workspace)

Architecture of MAVEN

40 min



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Local Repo ⇒ It refers to the machine of the developers where all the project material is saved.

Remote Repo :-
It refers to the repository present in the webserver which is used when maven needs to download dependencies this Repo same as a Central Repo whenever anything is needed from remote repo it is first downloaded to the local repo and then it is used.

Central Repository :-
It refers to the MAVEN community that comes into action when there is need of dependencies and these dependencies cannot be found in the local Repo.

MAVEN Life-Cycle

1. Generate Resource (Dependencies)
2. Compile (Code) (Source code to machine code)
3. Unit test
4. (Build) Package (Jar file war file)
5. Install (into local repo & artifactory)
6. Depotoy (to Server)

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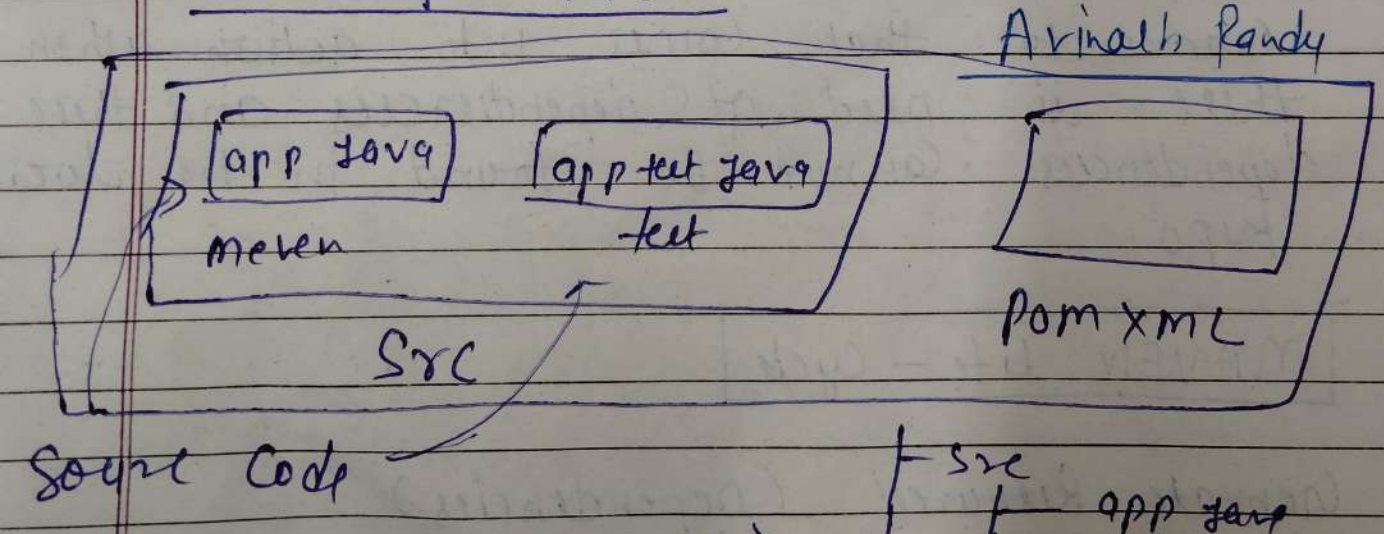
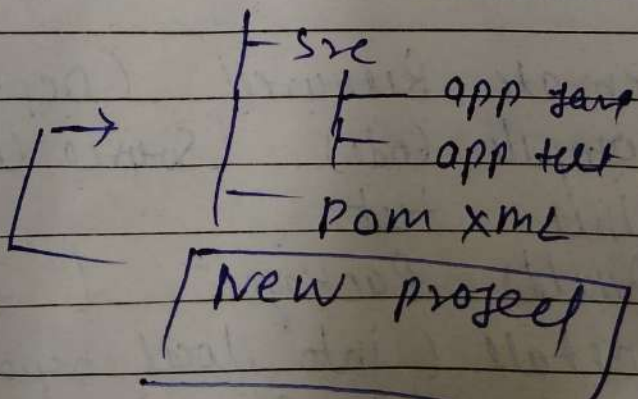
7 Clean (delete all runtime files)
eg- mvn install
mvn clean package
1 to 6 Default & sequence
7 → Not Default & it wonot allow sequence.

Build Life-cycle consist of a sequence of Build phases and each build consist of a sequency of goals.
Each goalls responsible for a perticuler task
When phase is run all the goals related to that phase and its plugience are also compile

Directory Structure





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MEVEN

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Ant	MAVEN
# It does not has formal Conventions. So we need to provide information of the project structure in Build xml file	It has a convention to place source code, compiled code etc. So we don't need to provide to information about the projet structures in pom xml file.
# It is procedural, we need to provide info about what to do and when to do though Code.	It is declarative, everything you define in the pom.xml file
# There is no life-cycle	There is a life-cycle
# It is a tool box	It is a ~~fo~~ framework
# It is mainally a build tool	It is mainly Projet Mangement tool
# It is less Preffered then Meven	It is more prefered

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