Maven Fundamentals

COURSE OVERVIEW

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Overview

- Introduction
- Key Concepts
- Day-to-day coding
- Integration
- Complexities

Topics

Introduction to Maven

Structure

Dependencies

Repositories

Plugins

IDE Integration

Introduction to Maven

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Outline

High Level Overview

Ant VS Maven VS IDE

Installation Best Practices

Hello World Application

Summary

What is Maven

Build Tool

- One Artifact

- Manage Dependencies

Project Management Tool

- Handles Versioning/Releases

- Describes Project

- Produce Javadocs/Site Information

Who owns it

Apache Software Foundation

Maven is built with Maven

Open Source

Why use it

Repeatable builds

Transitive dependencies

Environment

Local repo

IDE and Standalone

Preferred method

Ant

Replacement for Make

Cross platform

Java and XML based

Procedural

Ant

```
<target name="clean" description="clean up">
  <delete dir="${build}"/>
</target>
```

Ant

```
<target name="clear" description="clean up">
  <delete dir="${build}"/>
</target>
```

Ant

```
<project>
  <target name="delete_everything" description="clean up">
    <delete dir="build"/>
  </target>

  <target name="compile_code" depends="init" description="compile the source">
    <mkdir dir="build/classes"/>
    <javac srcdir="src" destdir="build"/>
  </target>

  <target name="wrap">
    <mkdir dir="build/jar"/>
    <jar destfile="build/jar/HelloWorld.jar" basedir="build/classes" />
  </target>
</project>
```

Maven

Full Featured

Implicit

Consistency

Inheritance

Transitive dependencies

Versioned

Pros and Cons

Maven	Ant
Black box	Easily trace
Steeper learning curve	Quick to learn
Convention over Configuration	Copy-and-paste
IDE	Large project size
Less Overhead	
Mindset	

Ant

```xml
<project>
  <target name="clean" description="clean up">
    <delete dir="build"/>
  </target>

  <target name="compile" depends="init" description="compile the source">
    <mkdir dir="build/classes"/>
    <javac srcdir="src" destdir="build"/>
  </target>

  <target name="jar">
    <mkdir dir="build/jar"/>
    <jar destfile="build/jar/HelloWorld.jar" basedir="build/classes" />
  </target>
</project>
```

Maven

```xml
<project>
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.pluralsight</groupId>
  <artifactId>FitnessTracker</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <name>HelloWorld</name>

</project>
```

Java 10+

```xml
<build>
  <plugins>
    <plugin>
      <groupId>org.apache.maven.plugins</groupId>
      <artifactId>maven-compiler-plugin</artifactId>
      <version>3.8.0</version>
      <configuration>
          <release>10</release>
      </configuration>
    </plugin>
  </plugins>
</build>
```

Summary

Ant is declarative

Maven convention

Ant is scripted

Maven project lifecycle