Maven实战

本节目标

1.掌握Maven项目的创建 2.掌握使用Maven构建项目

1. Maven创建普通Java项目

1.1 创建项目

运行命令：

```
mvn -B archetype:generate -DarchetypeGroupId=org.apache.maven.archetypes -
DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.1  -
DgroupId=com.bittech.hello -DartifactId=hello-app -Dversion=1.0.0
```

运行输出：

```
λ mvn -B archetype:generate -DarchetypeGroupId=org.apache.maven.archetypes -
DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.1  -
DgroupId=com.bittech.hello -DartifactId=hello-app  -Dversion=1.0.0
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] Building Maven Stub Project (No POM) 1
[INFO] ------------------------------------------------------------------------
[INFO]
[INFO] >>> maven-archetype-plugin:3.0.1:generate (default-cli) > generate-sources @
standalone-pom >>>
[INFO]
[INFO] <<< maven-archetype-plugin:3.0.1:generate (default-cli) < generate-sources @
standalone-pom <<<
[INFO]
[INFO]
[INFO] --- maven-archetype-plugin:3.0.1:generate (default-cli) @ standalone-pom ---
[INFO] Generating project in Batch mode
[WARNING] No archetype found in remote catalog. Defaulting to internal catalog
[INFO] Archetype repository not defined. Using the one from
[org.apache.maven.archetypes:maven-archetype-quickstart:1.1] found in catalog internal
[INFO] ----------------------------------------------------------------------------
[INFO] Using following parameters for creating project from Old (1.x) Archetype: maven-
archetype-quickstart:1.1
[INFO] ----------------------------------------------------------------------------
[INFO] Parameter: basedir, Value: F:\__bittech\java-courseware\java-special-
subject\Maven\project
[INFO] Parameter: package, Value: com.bittech.hello
[INFO] Parameter: groupId, Value: com.bittech.hello
[INFO] Parameter: artifactId, Value: hello-app
[INFO] Parameter: packageName, Value: com.bittech.hello
[INFO] Parameter: version, Value: 1.0.0
[INFO] project created from Old (1.x) Archetype in dir: F:\__bittech\java-courseware\java-
special-subject\Maven\project\hello-app
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 5.022 s
```

```
[INFO] Finished at: 2017-11-26T21:26:30+08:00
[INFO] Final Memory: 16M/139M
[INFO] ------------------------------------------------------------------------
```

项目目录结构:

```
输入 tree . /F
卷 Workspace 的文件夹 PATH 列表
卷序列号为 C0000100 0005:1A4F
F:\__BITTECH\JAVA-COURSEWARE\JAVA-SPECIAL-SUBJECT\MAVEN\PROJECT\HELLO-APP
|  pom.xml
|
└─src
    ├─main
    |  └─java
    |      └─com
    |          └─bittech
    |              └─hello
    |                      App.java
    |
    └─test
        └─java
            └─com
                └─bittech
                    └─hello
                            AppTest.java
```

其中App.java中的代码如下:

```
package com.bittech.hello;
public class App {
    public static void main( String[] args ){
        System.out.println( "Hello World!" );
    }
}
```

1.2 编译源代码

运行命令:

```
mvn compile
```

运行输出:

```
输入 mvn compile
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] Building hello-app 1.0.0
[INFO] ------------------------------------------------------------------------
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ hello-app ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory F:\__bittech\java-courseware\java-special-
subject\Maven\project\hello-app\src\main\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:compile (default-compile) @ hello-app ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to F:\__bittech\java-courseware\java-special-
subject\Maven\project\hello-app\target\classes
[INFO] ------------------------------------------------------------------------
```

```
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 3.382 s
[INFO] Finished at: 2017-11-26T21:31:22+08:00
[INFO] Final Memory: 13M/139M
[INFO] ------------------------------------------------------------------------
```

输出目录：Maven命令产生的输出文件都在当前工程目录下的target目录。

```
输入 tree . /F
卷 Workspace 的文件夹 PATH 列表
卷序列号为 C0000100 0005:1A4F
F:\__BITTECH\JAVA-COURSEWARE\JAVA-SPECIAL-SUBJECT\MAVEN\PROJECT\HELLO-APP
│  pom.xml
│
├─src
│  ├─main
│  │  └─java
│  │      └─com
│  │          └─bittech
│  │              └─hello
│  │                      App.java
│  │
│  └─test
│      └─java
│          └─com
│              └─bittech
│                  └─hello
│                          AppTest.java
│
└─target
    ├─classes
    │  └─com
    │      └─bittech
    │          └─hello
    │                  App.class
    │
    └─maven-status
        └─maven-compiler-plugin
            └─compile
                └─default-compile
                        createdFiles.lst
                        inputFiles.lst
```

1.3 编译测试代码

运行命令：

```
mvn test-compile
```

运行输出：

```
λ mvn test-compile
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] Building hello-app 1.0.0
[INFO] ------------------------------------------------------------------------
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ hello-app ---
```

```
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\src\main\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:compile (default-compile) @ hello-app ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\target\classes
[INFO]
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ hello-app ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\src\test\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:testCompile (default-testCompile) @ hello-app ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\target\test-classes
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 3.025 s
[INFO] Finished at: 2017-11-26T21:40:21+08:00
[INFO] Final Memory: 14M/133M
[INFO] ------------------------------------------------------------------------
```

1.4 运行单元测试

运行命令：

```
mvn test
```

运行输出：

```
λ mvn test
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] Building hello-app 1.0.0
[INFO] ------------------------------------------------------------------------
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ hello-app ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\src\main\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:compile (default-compile) @ hello-app ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ hello-app ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\src\test\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:testCompile (default-testCompile) @ hello-app ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-surefire-plugin:2.12.4:test (default-test) @ hello-app ---
[INFO] Surefire report directory: F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\target\surefire-reports
```

```
-------------------------------------------------------
 T E S T S
-------------------------------------------------------
Running com.bittech.hello.AppTest
Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.023 sec

Results :

Tests run: 1, Failures: 0, Errors: 0, Skipped: 0

[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 3.107 s
[INFO] Finished at: 2017-11-26T21:42:43+08:00
[INFO] Final Memory: 11M/114M
[INFO] ------------------------------------------------------------------------
```

1.4 打包工程

运行命令：

```
mvn package
```

运行输出：

```
λ mvn package
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] Building hello-app 1.0.0
[INFO] ------------------------------------------------------------------------
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ hello-app ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory F:\__bittech\java-courseware\java-special-
subject\Maven\project\hello-app\src\main\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:compile (default-compile) @ hello-app ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to F:\__bittech\java-courseware\java-special-
subject\Maven\project\hello-app\target\classes
[INFO]
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ hello-app ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory F:\__bittech\java-courseware\java-special-
subject\Maven\project\hello-app\src\test\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:testCompile (default-testCompile) @ hello-app ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to F:\__bittech\java-courseware\java-special-
subject\Maven\project\hello-app\target\test-classes
[INFO]
[INFO] --- maven-surefire-plugin:2.12.4:test (default-test) @ hello-app ---
[INFO] Surefire report directory: F:\__bittech\java-courseware\java-special-
subject\Maven\project\hello-app\target\surefire-reports

-------------------------------------------------------
 T E S T S
```

```
-------------------------------------------------------
Running com.bittech.hello.AppTest
Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.012 sec

Results :

Tests run: 1, Failures: 0, Errors: 0, Skipped: 0

[INFO]
[INFO] --- maven-jar-plugin:2.4:jar (default-jar) @ hello-app ---
[INFO] Building jar: F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\target\hello-app-1.0.0.jar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 4.734 s
[INFO] Finished at: 2017-11-26T21:48:58+08:00
[INFO] Final Memory: 16M/134M
[INFO] ------------------------------------------------------------------------
```

运行打包命令之后，会在target目录下生成构件（hello-app-1.0.0.jar）构件名称由：artifactId-version.packaging组成。

1.5 安装构件到本地仓库

运行命令：

```
mvn install
```

运行输出：

```
此处忽略编译代码，运行单元测试的输出
[INFO]
[INFO] --- maven-jar-plugin:2.4:jar (default-jar) @ hello-app ---
[INFO] Building jar: F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\target\hello-app-1.0.0.jar
[INFO]
[INFO] --- maven-install-plugin:2.4:install (default-install) @ hello-app ---
[INFO] Installing F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\target\hello-app-1.0.0.jar to D:\__repository\com\bittech\hello\hello-app\1.0.0\hello-app-1.0.0.jar
[INFO] Installing F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\pom.xml to D:\__repository\com\bittech\hello\hello-app\1.0.0\hello-app-1.0.0.pom
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 5.257 s
[INFO] Finished at: 2017-11-26T21:56:37+08:00
[INFO] Final Memory: 16M/140M
[INFO] ------------------------------------------------------------------------
```

1.6 发布构件到仓库服务

- 中央仓库
  - 申请中央仓库帐号
  - settings中配置仓库服务的认证信息
  - pom.xml 设置发布仓库地址
  - 向中央仓库申请发布构件

    - 申请通过之后，进行构件发布
- 公司私服
    - 申请公司私服帐号
    - settings中配置仓库服务的认证信息
    - pom.xml 设置发布仓库地址
    - 发布构件
- 配置操作

  pom.xml中的配置信息

```
<distributionManagement>
    <repository>
        <id>mycompany-repository</id>
        <name>MyCompany Repository</name>
        <url>scp://repository.mycompany.com/repository/maven2</url>
    </repository>
</distributionManagement>
```

  settings.xml中配置信息

```
<servers>
  <server>
    <id>mycompany-repository</id>
    <username>jvanzyl</username>
    <!-- Default value is ~/.ssh/id_dsa -->
    <privateKey>/path/to/identity</privateKey> (default is ~/.ssh/id_dsa)
    <passphrase>my_key_passphrase</passphrase>
  </server>
</servers>
```

- 发布构件

```
mvn deploy
```

1.7 构建可执行的jar构件

可执行的jar构件是指可以通过java命令来执行运行jar构件，类似与window下的exe,linux下的sh。

在1.4中我们打包输出的hello-app-1.0.0.jar通过执行java -jar hello-app-1.0.0.jar输出信息如下：

```
F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\target
λ ll
total 4
drwxr-xr-x 1 ZhangXiao 197121    0 Nov 26 22:30 classes
-rw-r--r-- 1 ZhangXiao 197121 2340 Nov 26 22:30 hello-app-1.0.0.jar
drwxr-xr-x 1 ZhangXiao 197121    0 Nov 26 22:30 maven-archiver
drwxr-xr-x 1 ZhangXiao 197121    0 Nov 26 22:30 maven-status
drwxr-xr-x 1 ZhangXiao 197121    0 Nov 26 22:30 surefire-reports
drwxr-xr-x 1 ZhangXiao 197121    0 Nov 26 22:30 test-classes

F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\target
λ java -jar hello-app-1.0.0.jar
hello-app-1.0.0.jar中没有主清单属性

F:\__bittech\java-courseware\java-special-subject\Maven\project\hello-app\target
λ
```

从输出日志中可以看出，我们打包输出的jar是没有主类的，可以理解为java命令没有找到其中带main方法的类。但是根据1.1中的目录和类信息，我们知道工程中是有主类的，那么下面我们就需要在pom.xml中指定在打包的时候添加主清单信息。

```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0"
         xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">
    <!-- 此处省略其它配置 -->
    <build>
        <plugins>
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-jar-plugin</artifactId>
                <version>2.4</version>
                <configuration>
                    <archive>
                        <manifest>
                            <addClasspath>true</addClasspath>
                            <mainClass>com.bittech.hello.App</mainClass>
                            <addExtensions>true</addExtensions>
                        </manifest>
                        <manifestEntries>
                            <Implementation-Title>${project.name}</Implementation-Title>
                            <Implementation-Version>${project.version}</Implementation-
Version>
                            <Implementation-Vendor-Id>${project.groupId}</Implementation-
Vendor-Id>
                        </manifestEntries>
                    </archive>
                </configuration>
            </plugin>
        </plugins>
        </build>
</project>
```

执行打包命令，然后通过java命令执行jar

```
mvn package
java -jar target\hello-app-1.0.0.jar
Hello World!
```

从上面输出信息可以看出，我们打包输出的jar现在可以通过java命令执行执行了。

2. Maven创建Java Web项目

maven创建web项目和应用项目不同的是web项目的打包类型通常是war,以及web项目的目录中有webapp目录用来归档web页面。

2.1 选择maven-archetype-webapp的原型创建web项目

```
mvn -B archetype:generate -DarchetypeGroupId=org.apache.maven.archetypes -
DarchetypeArtifactId=maven-archetype-webapp -DarchetypeVersion=1.0  -
DgroupId=com.bittech.hello -DartifactId=hello-webapp -Dversion=1.0.0
```

2.2 目录信息

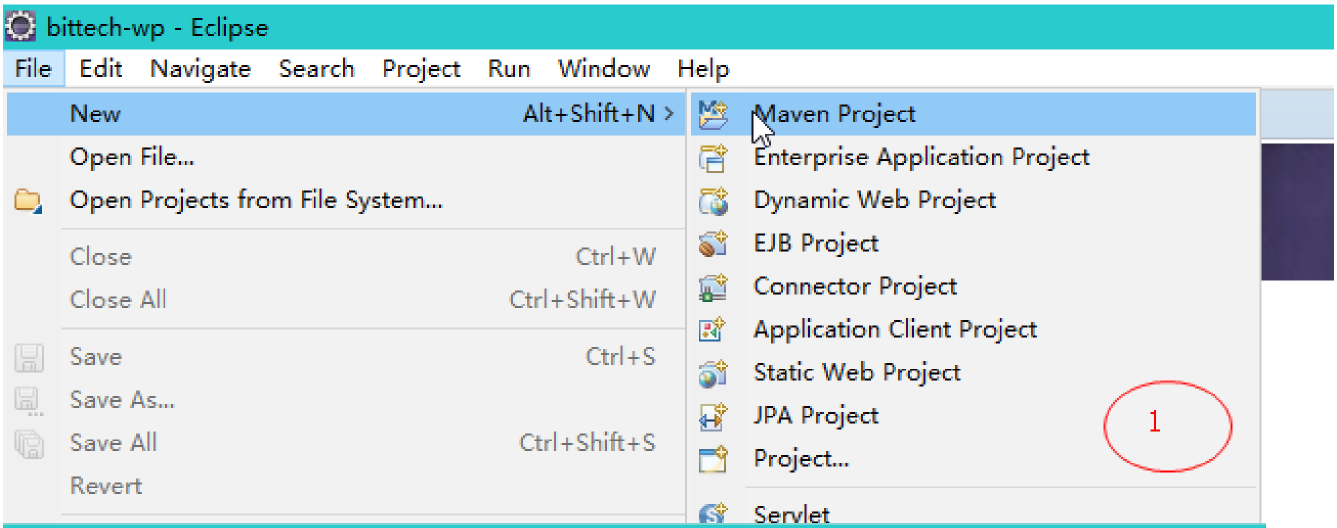
```
λ tree . /F
卷 Workspace 的文件夹 PATH 列表
卷序列号为 C0000100 0005:1A4F
F:\__BITTECH\JAVA-COURSEWARE\JAVA-SPECIAL-SUBJECT\MAVEN\PROJECT\HELLO-WEBAPP
|   pom.xml
```

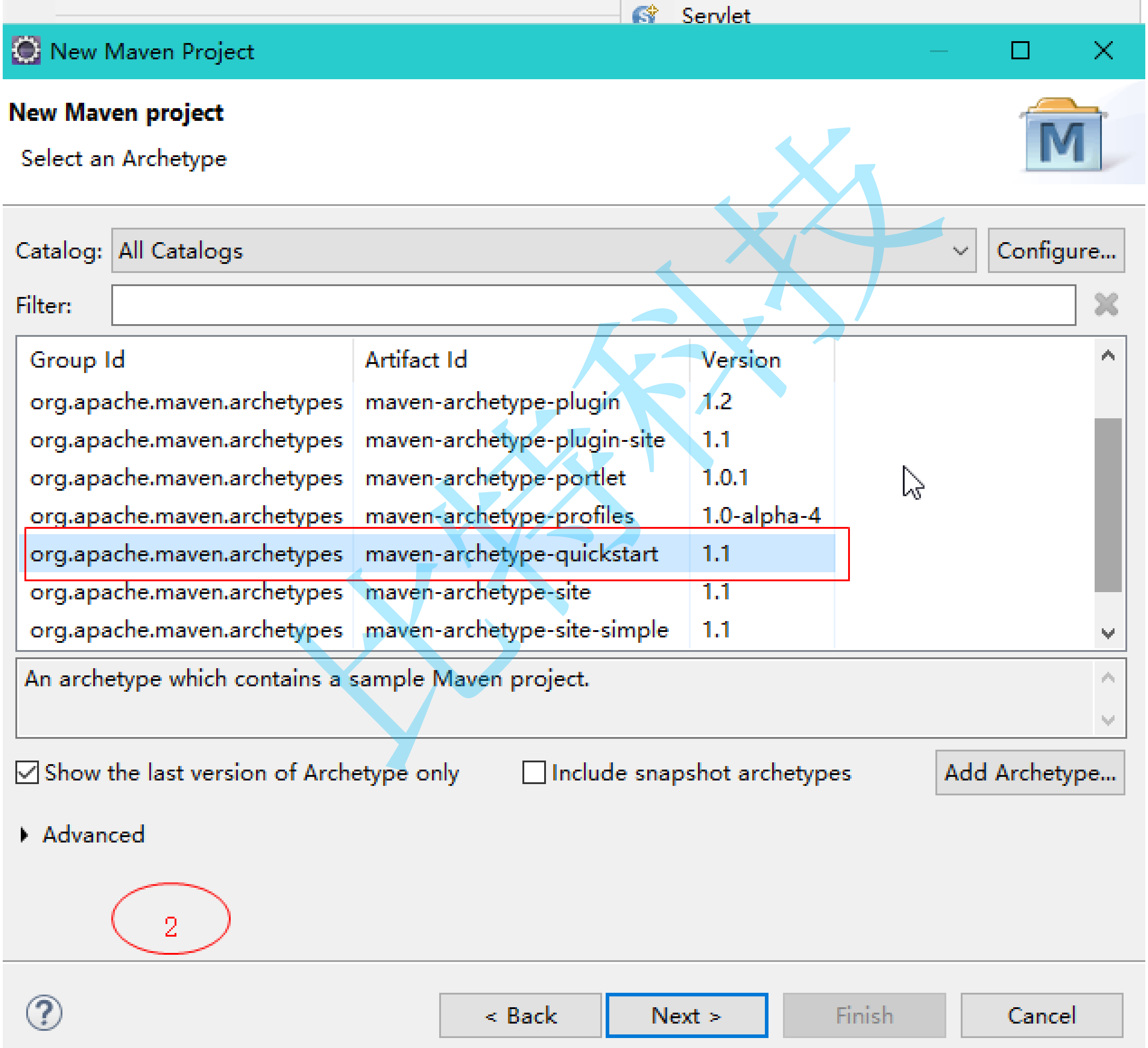
```
|
└─src
    └─main
        ├─resources
        └─webapp
            |   index.jsp
            |
            └─WEB-INF
                    web.xml
```

2.3 其它命令操作和1.1-1.6相同

3. 通过IDE创建Maven项目

3.1 Eclipse





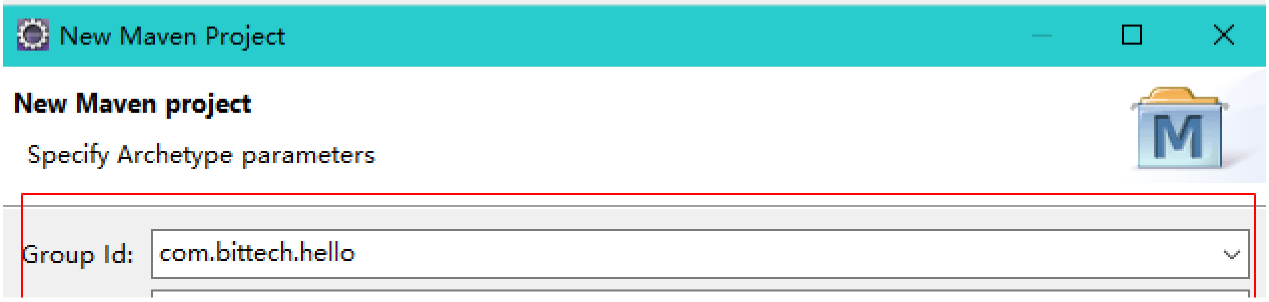
Catalog: All Catalogs

Filter:

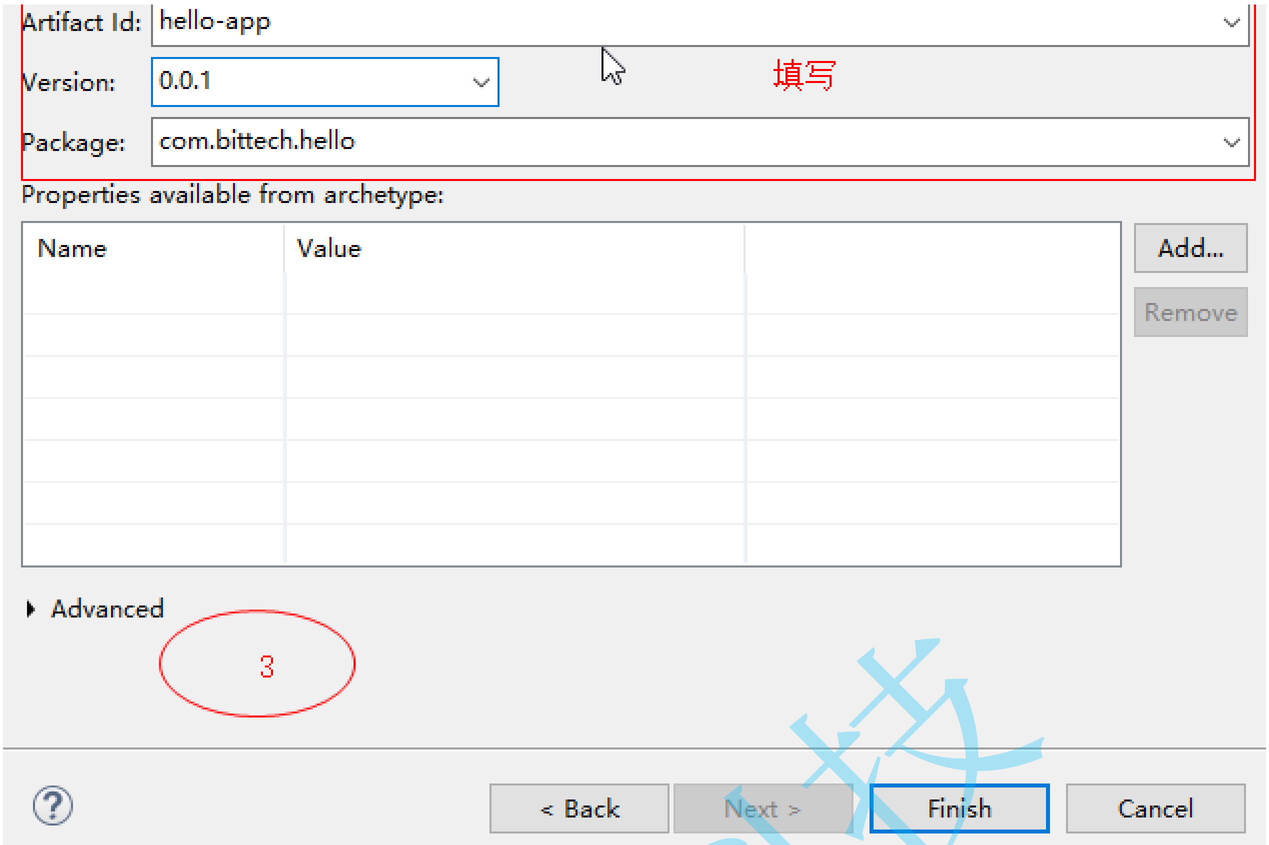
Group Id	Artifact Id	Version
org.apache.maven.archetypes	maven-archetype-plugin	1.2
org.apache.maven.archetypes	maven-archetype-plugin-site	1.1
org.apache.maven.archetypes	maven-archetype-portlet	1.0.1
org.apache.maven.archetypes	maven-archetype-profiles	1.0-alpha-4
org.apache.maven.archetypes	maven-archetype-quickstart	1.1
org.apache.maven.archetypes	maven-archetype-site	1.1
org.apache.maven.archetypes	maven-archetype-site-simple	1.1

An archetype which contains a sample Maven project.

☑ Show the last version of Archetype only ☐ Include snapshot archetypes



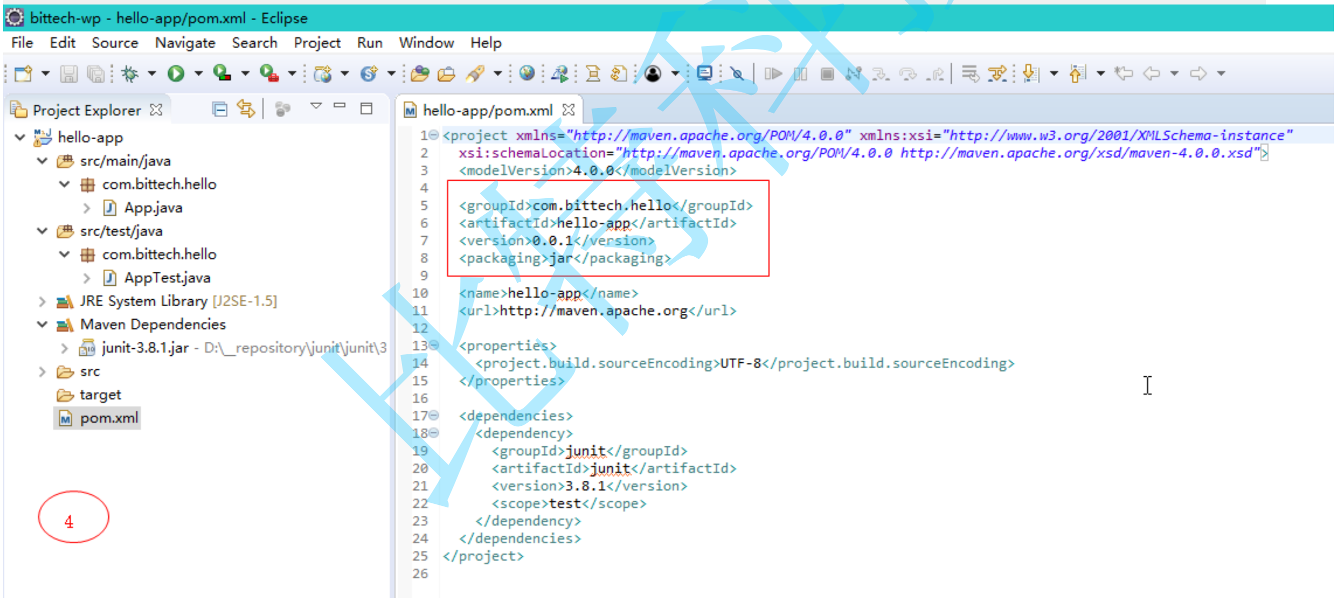
Group Id: com.bittech.hello



Artifact Id: hello-app

Version: 0.0.1

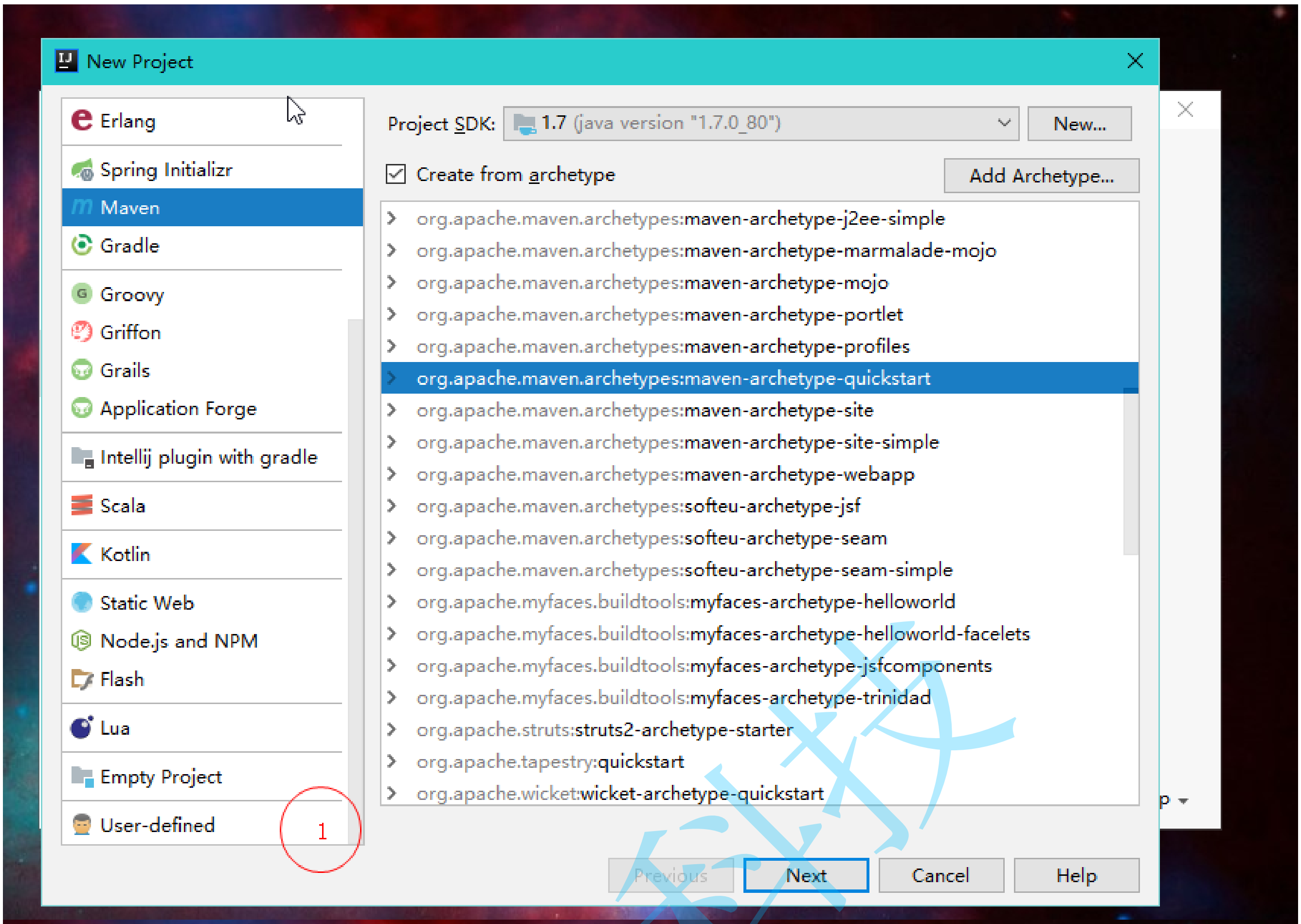
Package: com.bittech.hello



bittech-wp - hello-app/pom.xml - Eclipse
File Edit Source Navigate Search Project Run Window Help
Project Explorer
hello-app
src/main/java
com.bittech.hello
App.java
src/test/java
com.bittech.hello
AppTest.java
JRE System Library [J2SE-1.5]
Maven Dependencies
junit-3.8.1.jar - D:_repository\junit\junit\3
src
target
pom.xml
4
hello-app/pom.xml

```xml
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>

  <groupId>com.bittech.hello</groupId>
  <artifactId>hello-app</artifactId>
  <version>0.0.1</version>
  <packaging>jar</packaging>

  <name>hello-app</name>
  <url>http://maven.apache.org</url>

  <properties>
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
  </properties>

  <dependencies>
    <dependency>
      <groupId>junit</groupId>
      <artifactId>junit</artifactId>
      <version>3.8.1</version>
      <scope>test</scope>
    </dependency>
  </dependencies>
</project>
```

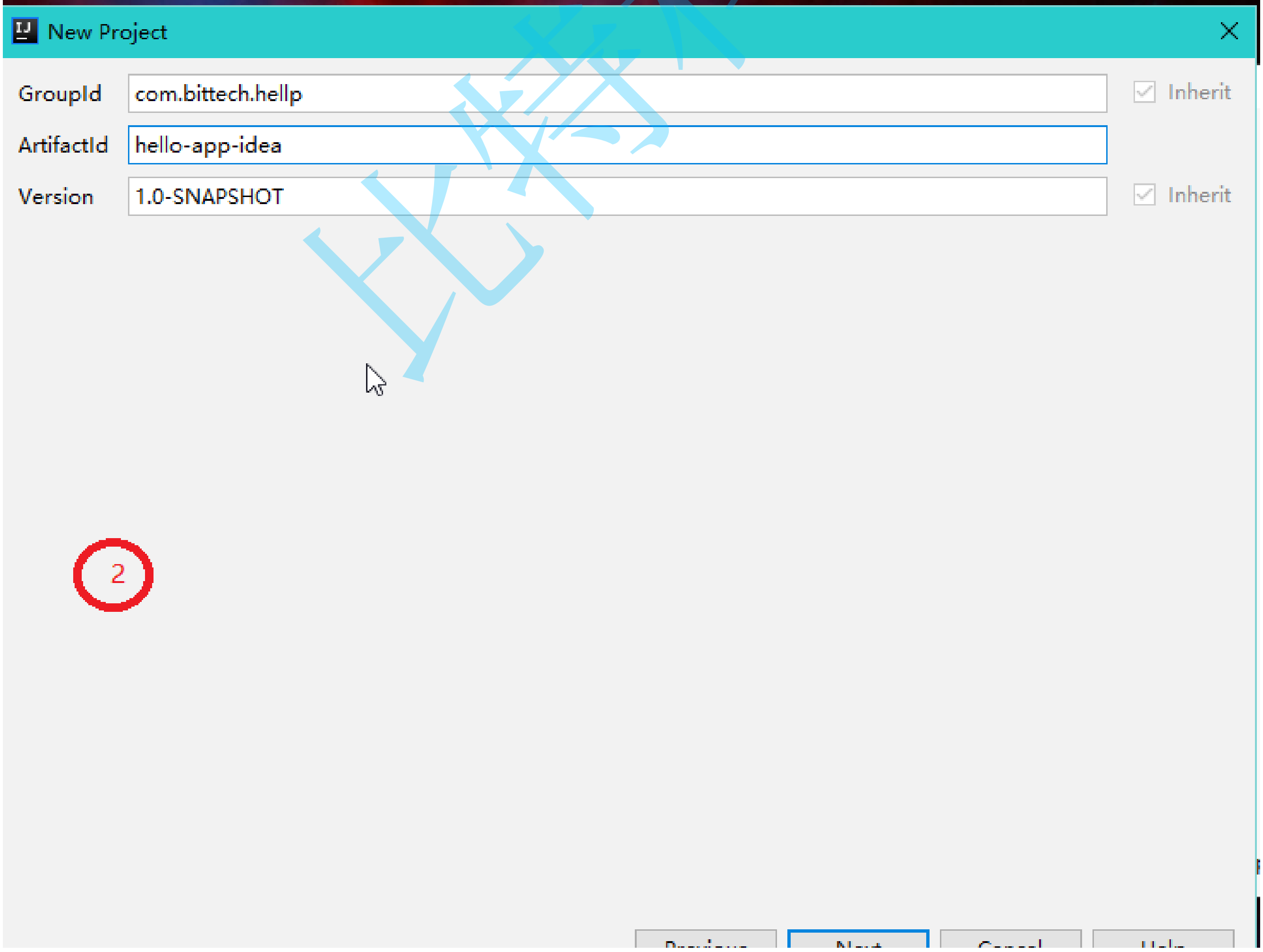
3.2 IDEA



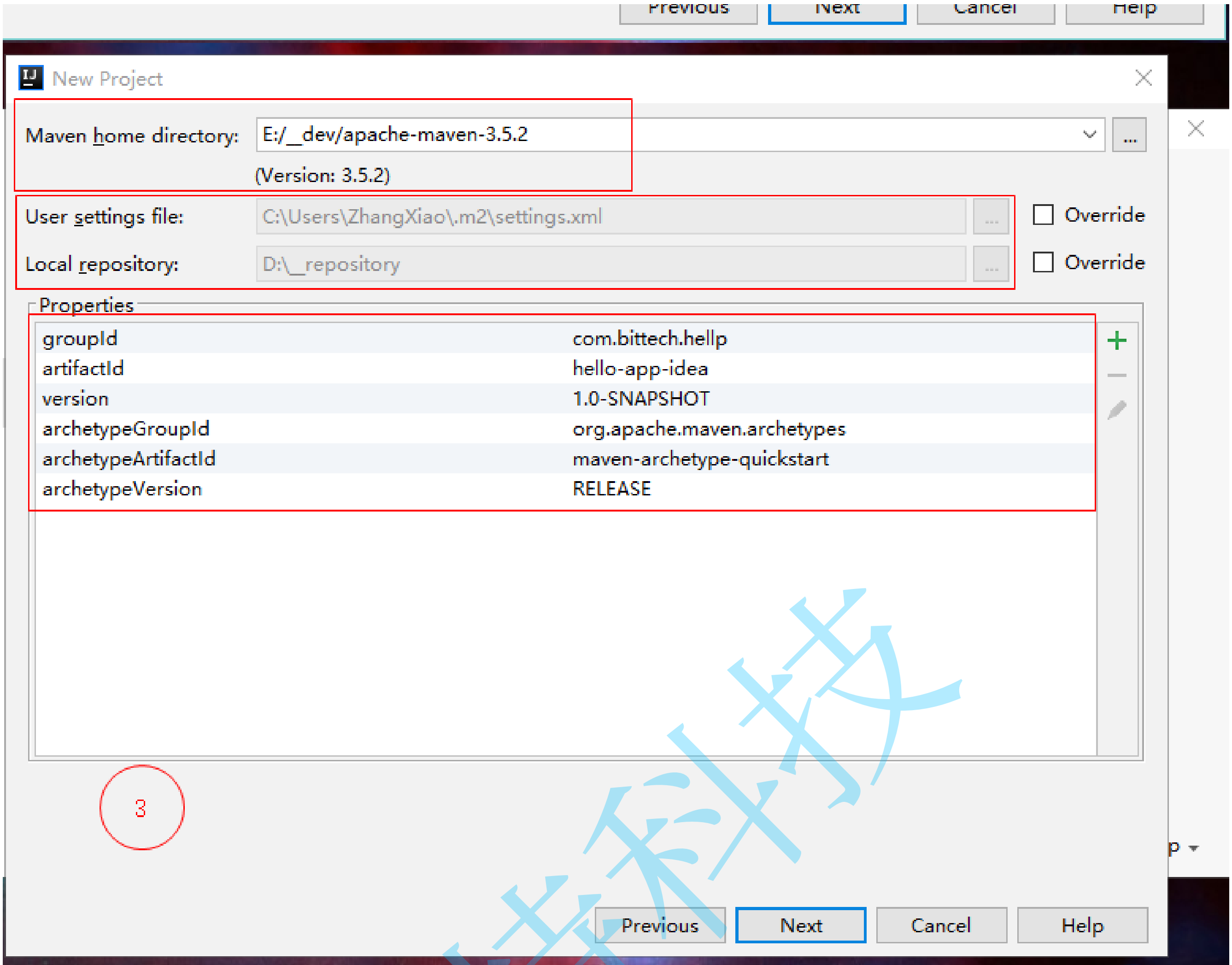
Project SDK: 1.7 (java version "1.7.0_80")

☑ Create from archetype

- org.apache.maven.archetypes:maven-archetype-j2ee-simple
- org.apache.maven.archetypes:maven-archetype-marmalade-mojo
- org.apache.maven.archetypes:maven-archetype-mojo
- org.apache.maven.archetypes:maven-archetype-portlet
- org.apache.maven.archetypes:maven-archetype-profiles
- org.apache.maven.archetypes:maven-archetype-quickstart
- org.apache.maven.archetypes:maven-archetype-site
- org.apache.maven.archetypes:maven-archetype-site-simple
- org.apache.maven.archetypes:maven-archetype-webapp
- org.apache.maven.archetypes:softeu-archetype-jsf
- org.apache.maven.archetypes:softeu-archetype-seam
- org.apache.maven.archetypes:softeu-archetype-seam-simple
- org.apache.myfaces.buildtools:myfaces-archetype-helloworld
- org.apache.myfaces.buildtools:myfaces-archetype-helloworld-facelets
- org.apache.myfaces.buildtools:myfaces-archetype-jsfcomponents
- org.apache.myfaces.buildtools:myfaces-archetype-trinidad
- org.apache.struts:struts2-archetype-starter
- org.apache.tapestry:quickstart
- org.apache.wicket:wicket-archetype-quickstart



GroupId	com.bittech.hellp	☑ Inherit
ArtifactId	hello-app-idea	
Version	1.0-SNAPSHOT	☑ Inherit



New Project

Maven home directory: E:/__dev/apache-maven-3.5.2

(Version: 3.5.2)

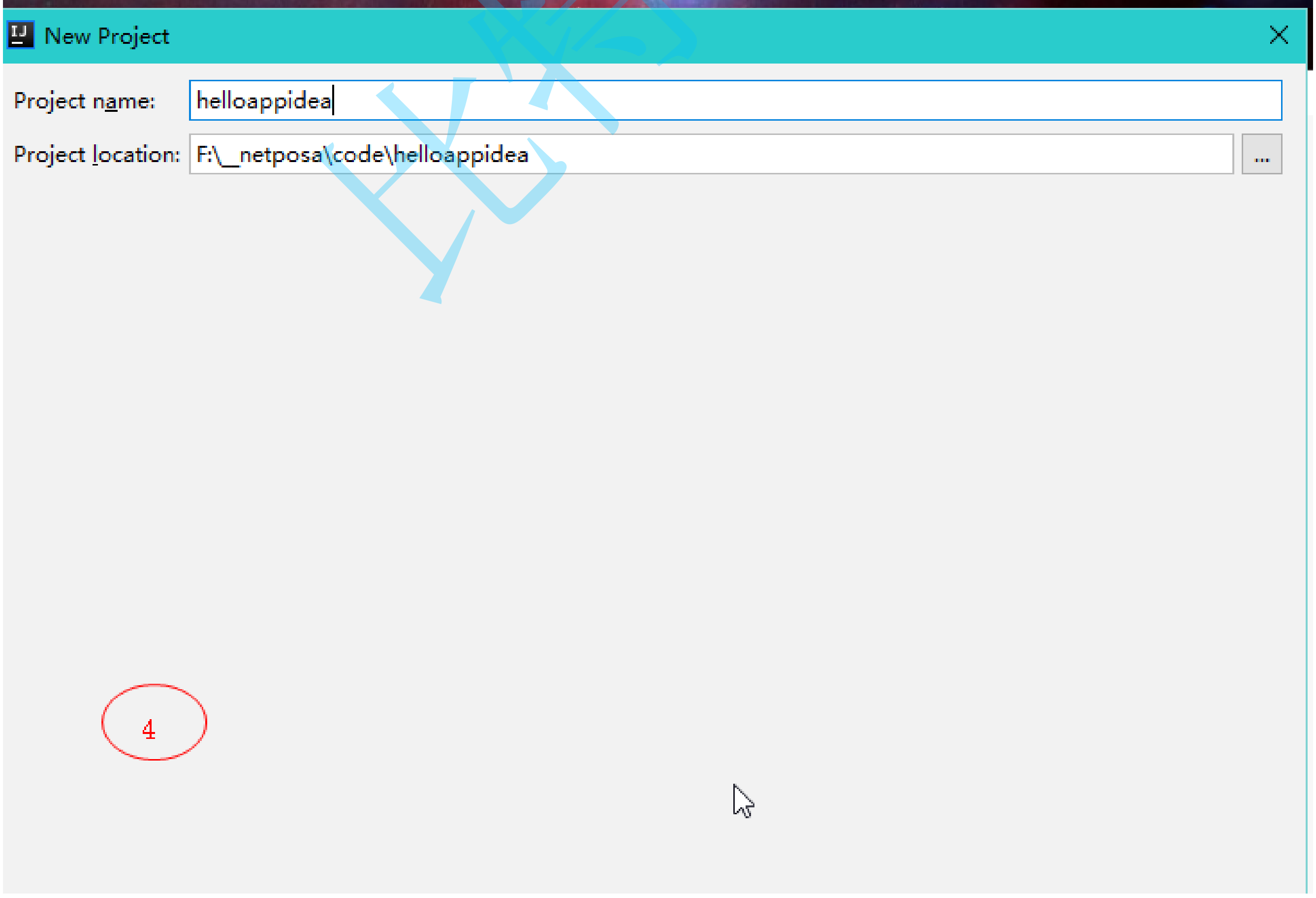
User settings file: C:\Users\ZhangXiao\.m2\settings.xml □ Override

Local repository: D:\__repository □ Override

Properties

groupId	com.bittech.hellp
artifactId	hello-app-idea
version	1.0-SNAPSHOT
archetypeGroupId	org.apache.maven.archetypes
archetypeArtifactId	maven-archetype-quickstart
archetypeVersion	RELEASE

3

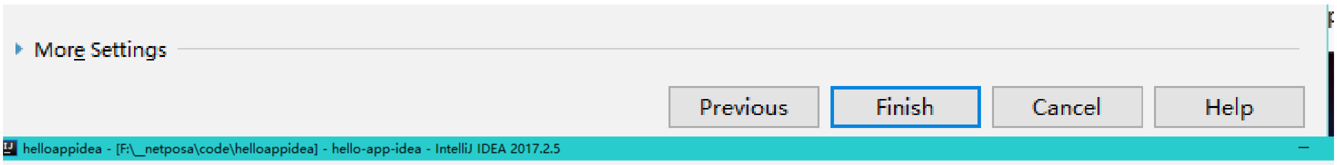


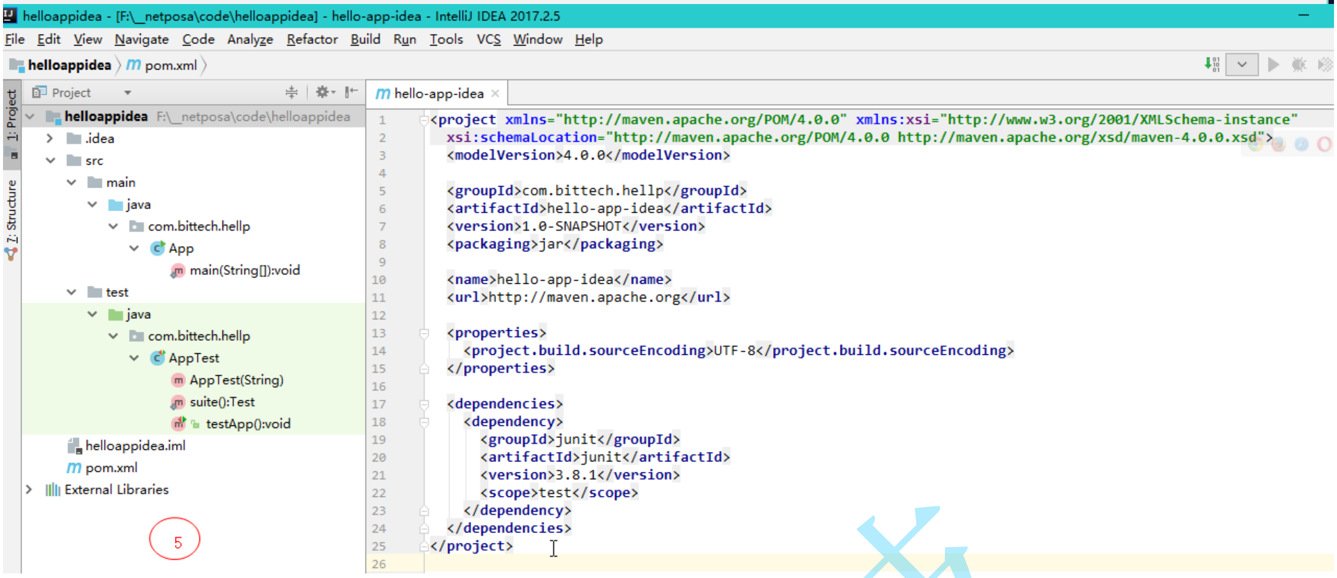
New Project

Project name: helloappidea

Project location: F:\__netposa\code\helloappidea

4





```
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>

  <groupId>com.bittech.hellp</groupId>
  <artifactId>hello-app-idea</artifactId>
  <version>1.0-SNAPSHOT</version>
  <packaging>jar</packaging>

  <name>hello-app-idea</name>
  <url>http://maven.apache.org</url>

  <properties>
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
  </properties>

  <dependencies>
    <dependency>
      <groupId>junit</groupId>
      <artifactId>junit</artifactId>
      <version>3.8.1</version>
      <scope>test</scope>
    </dependency>
  </dependencies>
</project>
```

4. Maven常用操作

- mvn clean清理构建目录
- mvn compile 编译源代码
- mvn test-compile编译测试代码
- mvn test 运行单元测试
- mvn package运行打包
- mvn install运行安装，生成的构建存储到本地仓库
- mvn clean package 清理然后打包
- mvn clean package -Dmaven.test.skip=true清理然后打包，但是跳过测试阶段
- mvn site生成项目站点

5. JDBC项目改造

5.1 简介

在学习完成MySQL数据库以及JDBC编程，我们所依赖的JDBC驱动程序是一个独立的由第三方提供的库，要完成项目的完整构建就需要将依赖的库和开发的程序一起发布，Maven工具则可以完成的项目管理和构建发布工作。

5.2 改造

- 原JDBC项目
- 创建Maven项目
- 配置pom.xml文件
    - 属性信息
    - 依赖组件
    - 构建信息
        - 项目打包

        - 依赖组件处理
- 运行打包mvn clean package

5.3 pom配置

```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0"
         xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">
    <modelVersion>4.0.0</modelVersion>

    <groupId>com.bittech</groupId>
    <artifactId>jdbc-with-maven</artifactId>
    <version>1.0.0</version>
    <packaging>jar</packaging>
    <name>jdbc-with-maven</name>
    <description>JDBC普通项目改造为Maven项目演示案例，通过配置依赖jar包，构建插件，完成项目的打包和依赖归档
</description>

    <properties>
        <!--项目采用UTF8编码-->
        <encoding>UTF-8</encoding>
        <!--JDK版本采用JDK8-->
        <java.version>1.8</java.version>
        <!--编译的目标代码级别为JDK8-->
        <maven.compiler.target>${java.version}</maven.compiler.target>
        <!--编写的源码级别为JDK8-->
        <maven.compiler.source>${java.version}</maven.compiler.source>
    </properties>

    <dependencies>
        <!--MySQL数据库驱动-->
        <dependency>
            <groupId>mysql</groupId>
            <artifactId>mysql-connector-java</artifactId>
            <version>5.1.47</version>
        </dependency>
    </dependencies>

    <build>
        <plugins>
            <!--编译插件-->
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-compiler-plugin</artifactId>
                <version>3.1</version>
                <configuration>
                    <target>${java.version}</target>
                    <testTarget>${java.version}</testTarget>
                    <source>${java.version}</source>
                    <testSource>${java.version}</testSource>
                    <encoding>${java.version}</encoding>
                </configuration>
            </plugin>
            <!--依赖管理插件-->
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-dependency-plugin</artifactId>
                <version>3.1.1</version>
                <executions>
                    <execution>
                        <id>copy-dependencies</id>
                        <!--打包阶段-->
                        <phase>package</phase>
                        <goals>
                            <!--复制依赖目标-->
                            <goal>copy-dependencies</goal>
                        </goals>
                        <configuration>
                            <!--复制依赖的到指定路径-->
                            <outputDirectory>${project.build.directory}/lib</outputDirectory>
                            <!--复制依赖包含的范围-->
                            <includeScope>compile</includeScope>
                        </configuration>
                    </execution>
                </executions>
            </plugin>
            <!--打包插件-->
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-jar-plugin</artifactId>
                <version>3.0.2</version>
                <configuration>
                    <archive>
                        <!--清单文件配置-->
                        <manifest>
                            <!--依赖的jar包添加到classpath-->
                            <addClasspath>true</addClasspath>
                            <!--设置可执行jar的主类-->
                            <mainClass>com.bittech.maven.ApplicationDemo</mainClass>
                            <addExtensions>true</addExtensions>
                            <!--指定可执行jar依赖包归档的目录前缀-->
                            <classpathPrefix>lib</classpathPrefix>
                        </manifest>
                        <manifestEntries>
                            <Implementation-Title>${project.name}</Implementation-Title>
                            <Implementation-Version>${project.version}</Implementation-Version>
                            <Implementation-Vendor-Id>${project.groupId}</Implementation-Vendor-Id>
                        </manifestEntries>
                    </archive>
                </configuration>
            </plugin>
        </plugins>
    </build>
</project>
```

课后作业

- 通过IDE（Eclipse或者IDEA）创建一个Hello工程，构建输出可执行的jar

扩展阅读

- Maven工程多模块继承和聚合的创建