

# CS544 Exercises

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*April 2016*

## READ ME FIRST

For the lab projects we will use:

Tool	Version	URL
Java JDK	8u74 or later	<a href="http://www.oracle.com/technetwork/java/javase/downloads/index.html">http://www.oracle.com/technetwork/java/javase/downloads/index.html</a>
MySQL	Community Server 5.7.x	<a href="http://dev.mysql.com/downloads/mysql/">http://dev.mysql.com/downloads/mysql/</a> Python <a href="https://www.python.org/downloads/">https://www.python.org/downloads/</a>
STS	3.7.3	<a href="https://spring.io/tools">https://spring.io/tools</a>
JPA	2.1	Maven repository <b>GROUP ID:</b> org.hibernate hibernate-jpa-2.1-api 1.00.Final
Hibernate	5.1.0.Final	Maven repository <b>GROUP ID:</b> org.hibernate hibernate-core hibernate-entitymanager <i>Use instead of core when using JPA</i>
Spring	4.2.5	Maven repository <b>GROUP ID:</b> org.springframework spring-context spring-core
MySql JDBC Connector	<b>5.1.37</b>	Maven repository <b>GROUP ID:</b> mysql mysql-connector-java

Required artifacts will be listed on the projects.

## Maven:

All of the projects for this class will be based on Maven (<http://maven.apache.org/>). Maven is a build automation tool (like Ant or Gradle) that helps organize a project and its deployment.

Maven uses an XML file called pom.xml (Project Object Model), that describes how your source code is built, and what dependencies (jar files/libraries) your project depends on. It even download the dependencies for you.

Maven relies on convention: requires a predefined file structure for the project.

Directory name	Purpose
project home	Contains the pom.xml and all subdirectories.
src/main/java	Contains the deliverable Java sourcecode for the project.
src/main/resources	Contains the deliverable resources for the project, such as property files.
src/main/filters	Resource filter files
src/main/config	Configuration files
src/main/scripts	Application/Library scripts
src/main/webapp	Web application sources
src/test/java	Contains the testing Java sourcecode (for example JUnit or TestNG test cases)
src/test/resources	Contains resources necessary for testing
src/test/filters	Test resource filter files
src/assembly	Assembly descriptors
src/site	Site

Most IDEs come with Maven integration, you do not need to download it.

## POM.XML Example

```
<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>edu.mum.cs544</groupId>  
  <artifactId>exercise02_1</artifactId>  
  <version>1.0-SNAPSHOT</version>  
  <packaging>jar</packaging>  
  
  <name>exercise02_1</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>  
    <dependency>  
      <groupId>org.hibernate</groupId>  
      <artifactId>hibernate-core</artifactId>  
      <version>5.1.0.Final</version>  
    </dependency>  
    <dependency>  
      <groupId>mysql</groupId>  
      <artifactId>mysql-connector-java</artifactId>  
      <version>5.1.37</version>  
    </dependency>  
    <dependency>  
      <groupId>log4j</groupId>  
      <artifactId>log4j</artifactId>  
      <version>1.2.17</version>  
    </dependency>  
  </dependencies>  
</project>
```

Basic project naming

Jar files that we  
need for this project