

Lab 1.1 Web Environment Setup- Java/Tomcat/Eclipse

Overview

Web programming is a really big topic, which is related to a series of work. But In this lab, the only thing you have to do is: learn how to setup the web environment, include Java, Tomcat and Eclipse. It is the very base of all our further work about Web.

Before you start, you should choose the OS platform first, windows or linux. Actually, both platforms are suitable, just up to you!

Back to the lab, what's our objective:

1. Setup the Java, and make sure it's correct.
2. Setup the tomcat, and check the tomcat welcome page.
3. Setup the Eclipse, and learn how to use it.

Steps(For Windows)

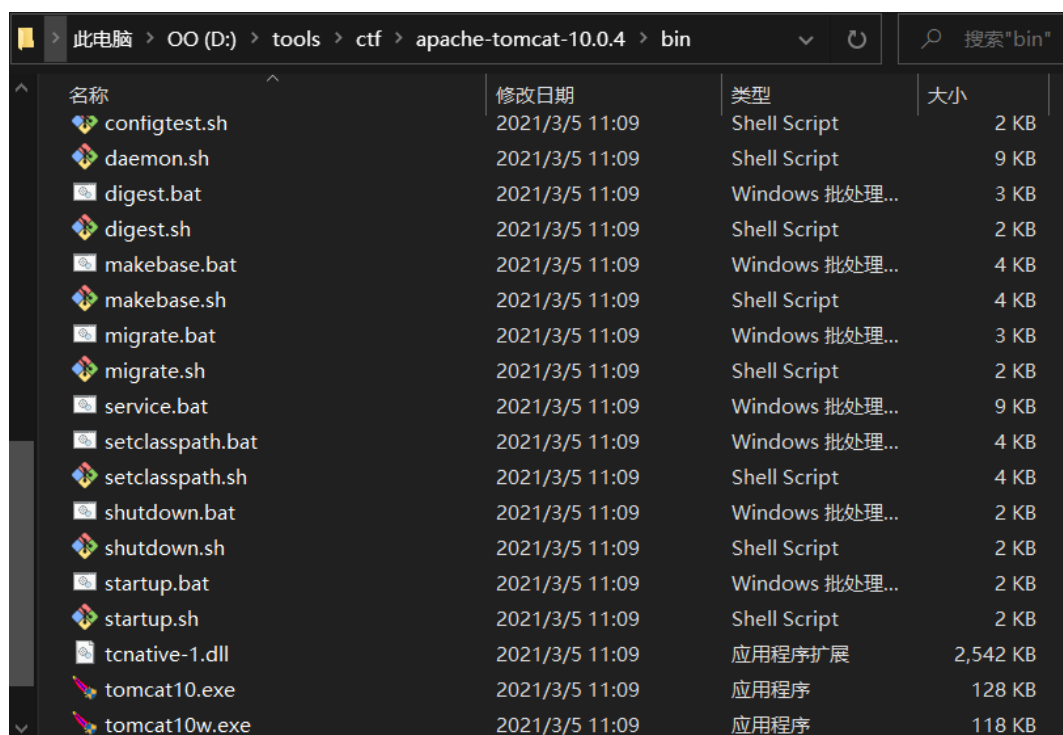
1. Setup the Java.

- Java has been installed;
- Check the Java version.

```
C:\WINDOWS\system32>java -version
java version "1.8.0_191"
Java(TM) SE Runtime Environment (build 1.8.0_191-b12)
Java HotSpot(TM) 64-Bit Server VM (build 25.191-b12, mixed mode)
```

2. Setup the Tomcat:

- Apache-Tomcat-10.0.4 has been installed.

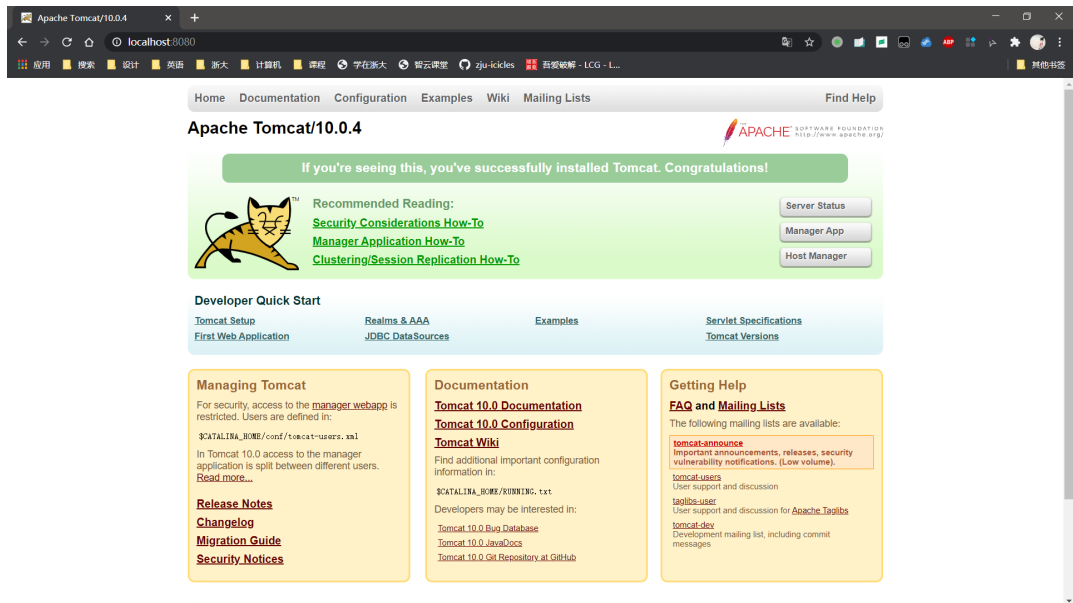


名称	修改日期	类型	大小
configtest.sh	2021/3/5 11:09	Shell Script	2 KB
daemon.sh	2021/3/5 11:09	Shell Script	9 KB
digest.bat	2021/3/5 11:09	Windows 批处理...	3 KB
digest.sh	2021/3/5 11:09	Shell Script	2 KB
makebase.bat	2021/3/5 11:09	Windows 批处理...	4 KB
makebase.sh	2021/3/5 11:09	Shell Script	4 KB
migrate.bat	2021/3/5 11:09	Windows 批处理...	3 KB
migrate.sh	2021/3/5 11:09	Shell Script	2 KB
service.bat	2021/3/5 11:09	Windows 批处理...	9 KB
setclasspath.bat	2021/3/5 11:09	Windows 批处理...	4 KB
setclasspath.sh	2021/3/5 11:09	Shell Script	4 KB
shutdown.bat	2021/3/5 11:09	Windows 批处理...	2 KB
shutdown.sh	2021/3/5 11:09	Shell Script	2 KB
startup.bat	2021/3/5 11:09	Windows 批处理...	2 KB
startup.sh	2021/3/5 11:09	Shell Script	2 KB
tcnative-1.dll	2021/3/5 11:09	应用程序扩展	2,542 KB
tomcat10.exe	2021/3/5 11:09	应用程序	128 KB
tomcat10w.exe	2021/3/5 11:09	应用程序	118 KB

- Run /bin/startup.bat to start Tomcat.

```
Tomcat
08-May-2021 19:54:35.233 信息 [main] org.apache.coyote.AbstractProtocol.init 初始化协议处理器 ["http-nio-8080"]
08-May-2021 19:54:35.255 信息 [main] org.apache.catalina.startup.Catalina.load 服务器在[605]毫秒内初始化
08-May-2021 19:54:35.293 信息 [main] org.apache.catalina.core.StandardService.startInternal 正在启动服务[Catalina]
08-May-2021 19:54:35.293 信息 [main] org.apache.catalina.core.StandardEngine.startInternal 正在启动 Servlet 引擎: [Apache Tomcat/10.0.4]
08-May-2021 19:54:35.304 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory 把web 应用程序部署到目录 [D:\tools\ctf\apache-tomcat-10.0.4\webapps\docs]
08-May-2021 19:54:35.830 警告 [main] org.apache.catalina.util.SessionIdGeneratorBase.createSecureRandom 使用[SHA1PRNG]创建会话ID生成的SecureRandom实例花费了[304]毫秒。
08-May-2021 19:54:35.853 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory Web应用程序目录[D:\tools\ctf\apache-tomcat-10.0.4\webapps\docs]的部署已在[549]毫秒内完成
08-May-2021 19:54:35.854 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory 把web 应用程序部署到目录 [D:\tools\ctf\apache-tomcat-10.0.4\webapps\examples]
08-May-2021 19:54:36.152 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory Web应用程序目录[D:\tools\ctf\apache-tomcat-10.0.4\webapps\examples]的部署已在[298]毫秒内完成
08-May-2021 19:54:36.153 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory 把web 应用程序部署到目录 [D:\tools\ctf\apache-tomcat-10.0.4\webapps\host-manager]
08-May-2021 19:54:36.178 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory Web应用程序目录[D:\tools\ctf\apache-tomcat-10.0.4\webapps\host-manager]的部署已在[25]毫秒内完成
08-May-2021 19:54:36.179 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory 把web 应用程序部署到目录 [D:\tools\ctf\apache-tomcat-10.0.4\webapps\manager]
08-May-2021 19:54:36.203 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory Web应用程序目录[D:\tools\ctf\apache-tomcat-10.0.4\webapps\manager]的部署已在[24]毫秒内完成
08-May-2021 19:54:36.204 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory 把web 应用程序部署到目录 [D:\tools\ctf\apache-tomcat-10.0.4\webapps\ROOT]
08-May-2021 19:54:36.223 信息 [main] org.apache.catalina.startup.HostConfig.deployDirectory Web应用程序目录[D:\tools\ctf\apache-tomcat-10.0.4\webapps\ROOT]的部署已在[19]毫秒内完成
08-May-2021 19:54:36.231 信息 [main] org.apache.coyote.AbstractProtocol.start 开始协议处理句柄["http-nio-8080"]
08-May-2021 19:54:36.248 信息 [main] org.apache.catalina.startup.Catalina.start [992]毫秒后服务器启动
```

- Visit localhost:8080 in the web browser and see Tomcat home page.



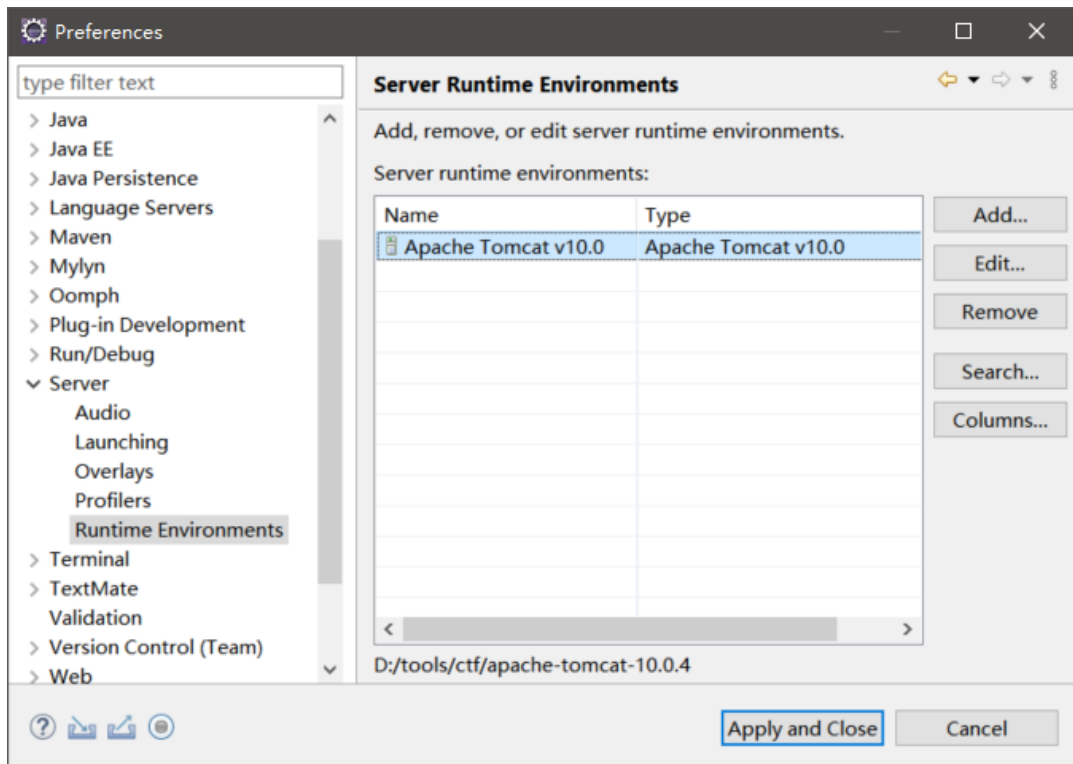
- Run /bin/shutdown.bat to stop Tomcat.

3. Setup the Eclipse:

- Download the Eclipse;



- Run the Tomcat Installer;



- Develop a "Hello World"!
 - Create a Dynamic Web Project `He1lowor1d`.

New Dynamic Web Project

Dynamic Web Project
Create a standalone Java-based Web Application or add it to a new or existing Enterprise Application.

Project name:

Project location
☒ Use default location
 Location:

Target runtime

Dynamic web module version

Configuration

 A good starting point for working with Apache Tomcat v10.0 runtime. Additional facets can later be installed to add new functionality to the project.

EAR membership
☐ Add project to an EAR
 EAR project name:

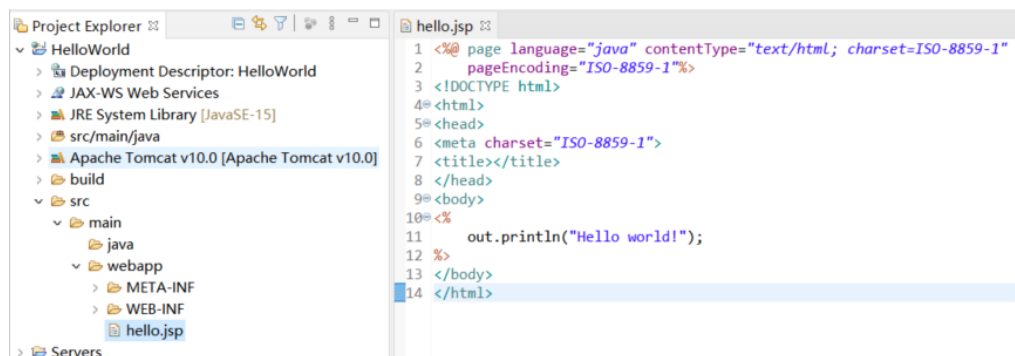
Working sets
☐ Add project to working sets
 Working sets:

- Create `hello.jsp` in the directory of `webapp`.

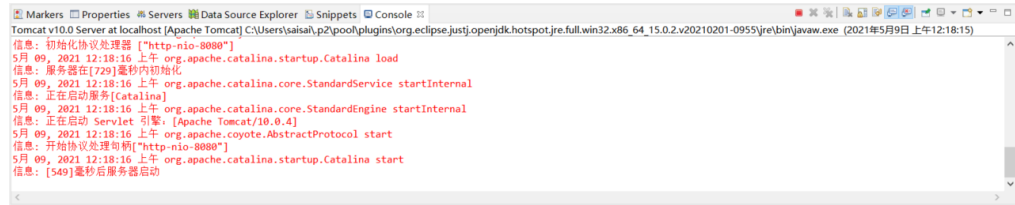
```

1  <%@ page language="java" contentType="text/html; charset=ISO-8859-1"
2      pageEncoding="ISO-8859-1"%>
3  <!DOCTYPE html>
4  <html>
5  <head>
6  <meta charset="ISO-8859-1">
7  <title></title>
8  </head>
9  <body>
10 <%
11     out.println("Hello world!");
12 %>
13 </body>
14 </html>

```

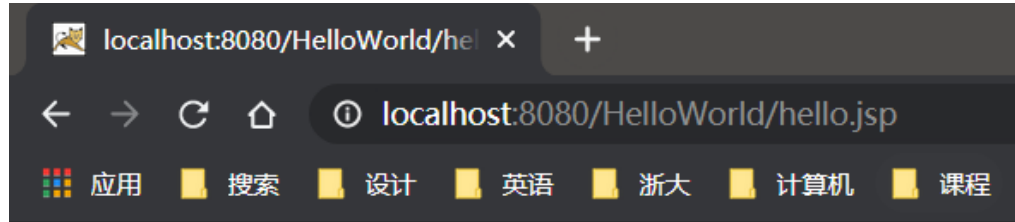


- Add and remove current project to Tomcat server and start the server to run `hello.jsp`.



```
Tomcat v10.0 Server at localhost [Apache Tomcat/10.0.15]
5月 09, 2021 12:18:16 上午 org.apache.catalina.startup.Catalina load
5月 09, 2021 12:18:16 上午 org.apache.catalina.core.StandardService startInternal
5月 09, 2021 12:18:16 上午 org.apache.catalina.core.StandardEngine startInternal
5月 09, 2021 12:18:16 上午 org.apache.coyote.AbstractProtocol start
5月 09, 2021 12:18:16 上午 org.apache.catalina.startup.Catalina start
5月 09, 2021 12:18:16 上午 org.apache.catalina.startup.Catalina start
信息: [549]毫秒后服务器启动
```

- Visit <http://localhost:8080/HelloWorld/hello.jsp> in Chrome and see `Hello world!`.



Hello world!

Lab 1.2 Implementation of Web Application

Overview

In lab 1.1, you have learned to setup the Web Programming Environment. It is easy, but very important, which is the base of lab 1.2.

In this lab, you will learn how to implement a web application. Usually, a web application is related with database, web server, data access, service, page design and so on. So there are really much you have to learn before you start the Implementation.

Back to the lab, what's our objective:

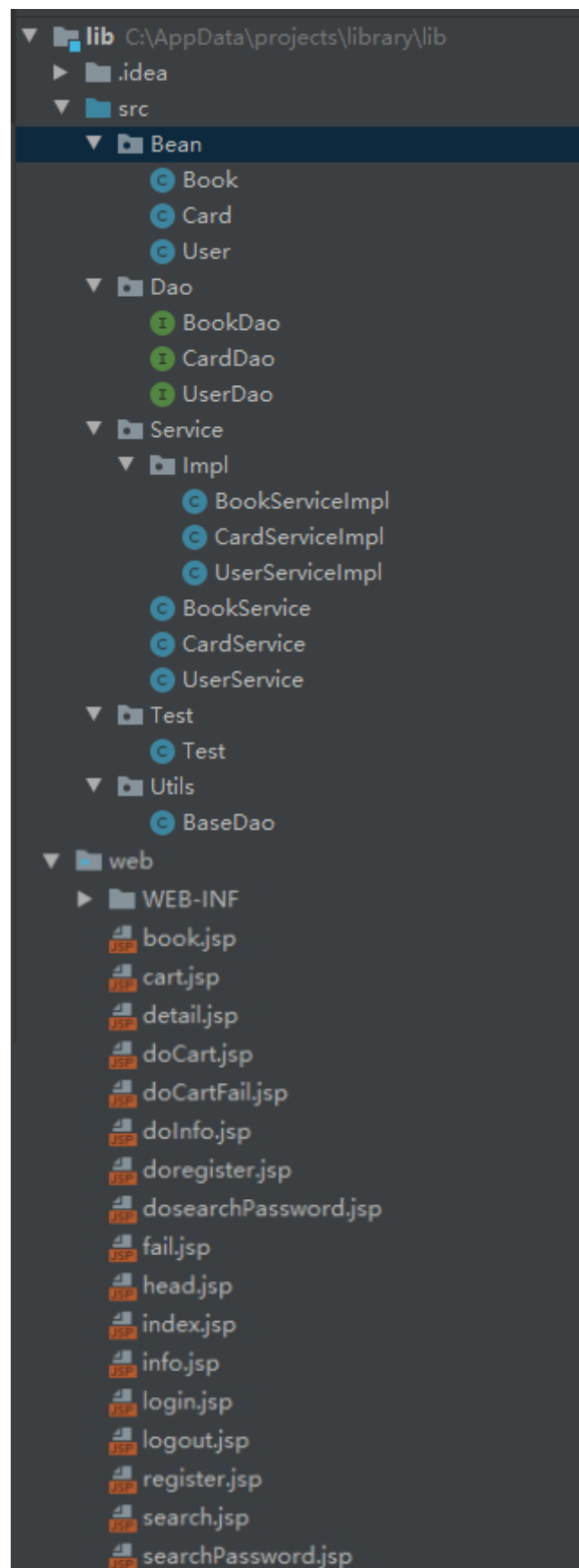
1. Design and access the database (MySQL recommended).
2. Learn to use web server and deploy your web application (Tomcat recommended).
3. Implement the application (Html, JSP recommended).
4. CSS is required to be used for controlling the page display in the "External Style Sheet" way.

Steps

用IDEA结合Tomcat和MySQL设计了一个图书管理系统，实现了用户注册与登录功能，实现了图书列表展示，购物车简单的功能。

有三张后台表，一张是user表，存储的是用户的信息，一张是book表，存储的是图书的信息，另外一张是card表，用来存储某个用户对应的购物车的信息。

整体文件架构：



登录界面:

图书列表界面：

图书详情界面：

购物车列表界面：

数据库与Tomcat配置:

