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实验一、Java Web 开发环境配置

| 专业: | 计算机科学与技术 | 学期: | 2016~2017 学年第二学期 | 任课教师: | 夏羽 |
|-----|----------|-----|------------------|-------|----|
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试验目的:

- 1) 掌握 Java 虚拟机的安装与配置;
- 2) 掌握 Tomcat 服务器的配置;
- 3) 掌握 MySql 数据库服务器的配置与使用;
- 4) 掌握使用 Eclipse 开发 Web 程序的步骤。

实验步骤:

【任务一】: 安装 JDK。

步骤:

- 1. 双击 JDK 安装文件。
- 2. 按照提示安装 JDK 到 D 盘,并记录下安装路径,例如 d:\Program files\Oracle\JDK\。
- 3. 配置环境变量(注意大小写,此外 JAVA_HOME 请使用上面记录的路径):

| JAVA_HOME | d:\Program files\Oracle\JDK\ |
|------------|--|
| Path | %JAVA_HOME%\bin;%JAVA_HOME%\jre\bin |
| CLASSPATH | .;%JAVA_HOME%\lib\dt.jar;%JAVA_HOME%\lib\tools.jar |
| 4. 打开命令提示符 | ,输入 java –version 查看是否输出正确的版本信息,如果成功,则 JRE 配置成功: |

C:\WINDOWS\system32\cmd.exe

Microsoft Windows [Version 10.0.14393] (c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\rainsia>Java -version java version "1.8.0_121" Java(TM) SE Runtime Environment (build 1.8.0_121-b13) Java HotSpot(TM) 64-Bit Server VM (build 25.121-b13, mixed mode)

C:\Users\rainsia>_

5. 输入 javac 看是否输出编译信息,若输入,则 JDK 配置成功:



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| C:1. | C:\WINDOWS\s | ystem32\cmd.exe |
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| Microsoft Windows [Version 10 |). 0. 14393] | \mathbf{A} |
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| (c) 2016 Microsoft Corporatio | on. All rights reserved. | |
| C:\Users\rainsia>Java -versio java version "1.8.0_121" Java(TM) SE Runtime Environme Java HotSpot(TM) 64-Bit Serve | on ent (build 1.8.0_121-b13) er VM (build 25.121-b13, mixed mode) | |
| C:\Users\rainsia>javac Usage: javac <options> <sourc where possible options includ</sourc </options> | ce files> le: | |
| -g -g:none -g:{lines,vars,source} | Generate all debugging info Generate no debugging info Generate only some debugging info | |
| -nowarn -verbose -deprecation | Output messages about what the compiler is doing Output source locations where deprecated APIs are u | L |
| sed -classpath <path></path> | Specify where to find user class files and annotati | |
| on processors -cp <path></path> | Specify where to find user class files and annotati | |
| on processors -sourcepath <path> -bootclasspath <path> -evtdirs <dirs></dirs></path></path> | Specify where to find input source files Override location of bootstrap class files Override location of installed extensions | ~ |

【任务二】:在安装配置完成 JDK 的基础上,安装和配置 Tomcat 服务器。

步骤:

- 1. 解压提供的 Tomcat 文件到 D 盘,并记录下其路径,例如 D:\apache-tomcat-8.5.5\。
- 2. 配置 CATALINA_HOME 环境变量到上面记下的路径:

| C/ | ATALINA_HOME | D:\apache-tomcat-8.5.5\ | | |
|----|------------------|---|-------|------|
| 3. | 启动 Tomcat 服务器: 打 | 找到 D:\apache-tomcat-8.5.5\路径下的 bin 目录中的 startup.bat 文件, | 双击运行, | 如果输出 |

启动信息,并未输出任何异常,则 Tomcat 安装正确:



| 🖆 Tomcat - 🗆 🗙 | |
|---|---|
| Feb 28, 2017 11:46:05 AM org.apache.catalina.startup.TldConfig execute INFO: At least one JAR was scanned for TLDs yet contained no TLDs. Enable debug logging for this logger for a complete list of JARs that were scanned but no TLD s were found in them. Skipping unneeded JARs during scanning can improve startup | ^ |
| time and JSP compilation time. Feb 28, 2017 11:46:05 AM org.apache.catalina.startup.HostConfig deployDirectory INFO: Deployment of web application directory E:\apache=tomcat=7.0.72\webapps\re gistration has finished in 547 ms | |
| Feb 28, 2017 11:46:05 AM org.apache.catalina.startup.HostConfig deployDirectory INFO: Deploying web application directory E:\apache=tomcat=7.0.72\webapps\ROOT Feb 28, 2017 11:46:05 AM org.apache.catalina.startup.TldConfig execute INFO: At least one TAR was scenned for TLDs yet contained no TLDs. Roeble debug | |
| logging for this logger for a complete list of JARs that were scanned but no TLD s were found in them. Skipping unneeded JARs during scanning can improve startup | |
| Fime and JSF compliation time. Feb 28, 2017 11:46:05 AM org.apache.catalina.startup.HostConfig deployDirectory INFO: Deployment of web application directory E:\apache=tomcat=7.0.72\webapps\RO OT bes finished in 124 ms | |
| Feb 28, 2017 11:46:05 AM org. apache. coyote. AbstractProtocol start INFO: Starting ProtocolHandler ["http-bio-8080"] | |
| reb 28, 2017 11:48:05 AM org.apache.coyote.Abstractfrotocol start INFO: Starting ProtocolHandler ["ajp-bio-8009"] Feb 28, 2017 11:46:05 AM org.apache.catalina.startup.Catalina start | |
| INFU: Server startup in 4653 ms | ~ |

4. 打开浏览器,在地址栏输入地址 <u>http://loalhost:8080/</u> 或者 <u>http://127.0.0.1:8080/</u>,如果能够打开 Tomcat 配置页 面,则说明 Tomcat 配置成功:

| Apache Tomcat/7.0.72 | \times + | | | | | | | | | | | | | - | D | × |
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| | Apache Tomca | at/7.0.72 | | | | | The | Apache | Sof ://w | f twar | e Fou pache | nda . o r g | ation g / | | | |
| | | If you're se | eing this, | you've s | uccessf | ully installed To | mcat. C | congratul | latio | ns! | | | | | | |
| | | Recommer <u>Security Co</u> <u>Manager Ap</u> <u>Clustering/S</u> | nded Read nsideratio pplication H Session Re | ling: ns HOW-TO HOW-TO plication H | ng: <u>5 HOW-TO</u> <u>W-TO</u> lication HOW-TO | | | | | | Server S Manager Host Man | | | | | |
| | Developer Quick S | Start | | | | | | | | | | | | | | |
| | Tomcat Setup | <u>R</u> | ealms & AAA | AA Examples | | | | Servlet Specifications | | | | | | | | |
| | First Web Application | <u>1</u> | DBC DataSou | Irces | | | | Tom | cat Ve | ersions | | | | | | |
| | Managing Tomca | at | ann is | Docume | entation | optotion | | Getting H | lelp | a Lioto | | | | | | |
| | restricted. Users are de | efined in: | 13 13 | Tomcat 7 | 0 Config | uration | 1 | The following | n mailir | ng lists a | re availa | ible: | | | | |
| | \$CATALINA_HOME/conf/t In Tomcat 7.0 access to application is split betwee Read more | tomcat-users.xm o the manager een different use | rs. | Find addition | Viki onal importa i in: _HOME/RUNNI | ant configuration | [| tomcat-annor Important and vulnerability r tomcat-users User support | unce nounce notifica and dis | ements, re ations. (Lo scussion | eleases, s w volume | ecurity). | / | | | |

5. 在 Tomat 开启的命令提示符界面按下 Ctrl-C 键,关闭 Tomcat 服务器。再次尝试访问 Tomcat 配置页面,若出现网



页不能访问提示,则说明 Tomcat 关闭成功:

| | | | 6 | db a c | | | • " | | | ~ |
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| (j) | Unable to co | ction to the server at local | ost:8080. | nate | | | | | | |
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| | Try Again | | | | | | | | | |
| | | | | | | | | | | |

【任务三】:在 Tomcat 中新建 Web 工程。

步骤:

- 1. 找到 Tomcat 目录下的 webapps 目录。
- **2**. 在 webapps 目录中新建一个目录: first_webapp。(注意 first 和 webapp 中间为下划线)。
- 3. 在 first_webapp 中建立一个目录:WEB-INF。(注意大小写,WEB 和 INF 之间为横线)。
- 4. 将提供的 web.xml 文件复制到 WEB-INF 目录中。
- 5. 将提供的 index.html 文件复制到 first_webapp 目录下。
- 6. 启动 Tomcat。
- 7. 在浏览器中输入网址 <u>http://localhost:8080/first_webapp</u>,查看是否能够正确访问。如果可以正确显示页面,则表示 Tomcat 中创建新项目成功。

【任务四】: 安装配置 MySql 服务器。

步骤:

- 1. 将提供的 xampp 工具解压到 D 盘根目录下。(注意 xampp 一定要解压到根目录下才有效。所谓根目录是指 D:\xampp\目录下不能再嵌套 xampp 目录,而是直接在 D:\xampp\目录下能够找到 mysql 目录。切记!!)
- 2. xampp 是一套 web 开发套件,里面包含了 mysql、apache、tomcat 等常用组件。这里我们主要利用其中的 mysql 组件来完成数据库的开发。
- 3. 双击 xampp 目录下的 xampp-control.exe 文件运行,并显示如下界面:



| 🔀 ХАМРР С | Control Panel | v3.2.1 [Comp | iled: May 7th 2013] | | | | - | - 🗆 | × | | |
|--|--|---|--|--|---|---|---|------------------------|-------|--|--|
| 8 | XAMPP Control Panel v3.2.1 | | | | | | | | | | |
| Modules Service | Module | PID(s) | Port(s) | Actions | | | | Net | stat | | |
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| | MySQL | | | Start | Admin | Config | Logs | 🔁 Exp | lorer | | |
| | FileZilla | | | Start | Admin | Config | Logs | 🚽 🛃 Serv | ices | | |
| | Mercury | | | Start | Admin | Config | Logs | 😟 He | elp | | |
| | Tomcat | | | Start | Admin | Config | Logs | 📃 Qı | uit | | |
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| | | | | | | | | | - | | |

4. 为了避免和本机上已经安装的 MySql 服务器冲突,我们需要更改 xampp 的服务名称:单机界面上的 Config 按 钮,显示如下界面:

| 🔀 Configuration of Control Pan | nel — 🗆 🗙 |
|---|----------------------------|
| Editor: | |
| notepad.exe | |
| Browser (empty = system default) | |
| | |
| Autostart of modules | |
| Apache FileZilla | Tomcat |
| MySQL Mercury | |
| Selected modules will be started on Panel. | next launch of the Control |
| Start Control Panel Minimized | |
| Enable Tomcat output window | |
| Check default ports on startup | |
| Show debug information | |
| Change Language | Service and Port Settings |
| User Defined Files | Log Options |
| [| 🗙 Abort 🛛 🖋 Save |

5. 点击"Service and Port Settings" 按钮,将出现如下界面:

| 🔀 Service Settings | _ | | Х |
|--|---|------------------------------------|-------------------|
| Use this form to set service-specific and default port settings. | You can | set the i | name |
| quotes in names. This does NOT change the ports that the se use. You still need to change those in the services' configurat | ervices a ion files. | and progr | ams |
| Apache MySQL FileZilla Mercury Tomcat | | | |
| Service Name Main Port SSL Port Apache2.4 80 443 | | | |
| 🗙 Abo | rt | 🖋 S | ave |
| 6. 点击 MySQL 标签页,配置 MySql。 7. 将 MySql 的 Service Name 从 mysql 更改为 mysql-xamp | op: | | |
| 😢 Service Settings | — | | × |
| Use this form to set service-specific and default port settings. and default ports the XAMPP Control Panel will check. Do not quotes in names. This does NOT change the ports that the se use. You still need to change those in the services' configurat | You can include ervices a ion files. | set the i spaces o and progr | name or ams |
| Apache MySQL FileZilla Mercury Tomcat | | | |
| MySQL Settings | | | |
| mysql-xampp 3306 | | | |
| 🗙 Abo | rt | 🖋 S | ave |

8. 点击保存。

9. 关闭 xampp。(注意如果关闭 xampp 后, xampp 任然在后台运行,必须从右下角系统托盘处完全关闭。)

10. 重新打开 xampp-control.exe 文件:



| 🔀 XAMPP (| Control Panel | v3.2.1 [Comj | piled: May 7th 2013] | | | | - | - 🗆 | \times |
|--|--|---|--|--|---|--|---|---------------------|----------|
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| Modules Service | Module | PID(s) | Port(s) | Actions | | | | 🍥 Net | stat |
| | Apache | | | Start | Admin | Config | Logs | 📄 🔝 Sh | nell |
| | MySQL | | | Start | Admin | Config | Logs | 🔁 Exp | lorer |
| | FileZilla | | | Start | Admin | Config | Logs | 🚽 🛃 | vices |
| | Mercury | | | Start | Admin | Config | Logs | 🙆 He | elp |
| | Tomcat | | | Start | Admin | Config | Logs | Q | uit |
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| | | | | | | | | | - |

11. 点击 MySql 对应的 Start 按钮。如果 MySql 服务启动成功,则显示如下:



12. 其中, MySql 字符的背景色变为绿色表示启动成功, PID 表示 MySql 在操作系统中的进程号, Port 表示 MySql

进程所监听的端口号。

13. 打开提供的 heidiSQL 工具(绿色软件),将显示如下界面:

| 🐵 Session manager | | | | | ? | × |
|-------------------|---|---|--|--|--|----------|
| Session name | Start New here? In order "session" at first. Jus first session.Give it a the next time you st | to connect to st click the "N a friendly nan tart HeidiSQL s file | e a server, you ha lew" button on t ne (e.g. "Local Di | ve to create a so he bottom left to 8 server") so you' | called o create yo 'll recall it | ur |
| New ▼ Save Delete | | | Open | Cancel | More | • |
| Session manager | | | | | ? | × |
| Session name | 🥜 Settings 🅜 Ad | dvanced 🚺 | Statistics | | | |
| 🖏 Unnamed | Network type: | MySQL (TC | P/IP) | | | \sim |
| | Hostname / IP: | 127.0.0.1 | | | | |
| | | Prompt f | or credentials | | | |
| | Uses | Use Wind | dows authenticat | tion | | _ |
| | Password: | root | | | | - |
| | Port: | 3306 | • • •sed client/serve | r protocol | | |
| | Databases: | Separated b | oy semicolon | | | |
| | Comment: | | | | | |
| New Save Delete | | | Open | Cancel | More | |

15. 在 hostname/IP 处填写: 127.0.0.1 或者 localhost。在 User 处填写: root (这是 MySql 的登录用户名)。在



Password 处填写: root(这是 MySql 的登录密码。注意:如果是自己下载的 xampp 工具,则密码为空。使用 我提供的 xampp 工具,则 MySql 登录密码被我改成 root。)在 Port 处填写: 3306(这是 MySql 默认的监听端口)。

16. 随后点击"Open"按钮,将显示如下界面:

| Unnamed\ - HeidiSQL Portable 9.4.0.5125 | | | | | | | | | | | | | - 0 × |
|--|--|---------------------|-------------|----------|----------|------------|-------|-------------|--------|-------------------|--------------|-----------|----------|
| File Edit Search Tools Go to Help | | | | | | | | | | | | | Ҏ Donate |
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| 🗊 Database filter 🔄 Table filter 🔶 🔶 | 📑 Host: 127.0.0.1 🕨 Qu | iery 🗝 | | | | | | | | | | | |
| 🗸 🔪 Unnamed | 🗐 Databases (11) 🔅 Va | ariables 🏾 🌾 Status | Proces | ses 💼 Co | ommand- | Statistics | | | | | | | |
| information_schema album cdcol city course mysql performance_schema phpmyadmin register test webauth | Database ^ album cdcol city course information_schema mysql performance_schema phpmyadmin register test webauth | Size It | ems Last . | . Tables | Views | Func | Proc | Trigg | Events | Default collation | | . m | |
| 6/* Characterset: utf8mb4 */ 7 SHOW STATUS; 8 SHOW VARIABLES; 9 SHOW DATABASEES; 10 /* Entering session "Unnamed" */ | | | | | | | | | | t | φ φ γ | Y = 0 I / | ~ |
| | | Connect | ed: 00:00 h | 🔍 MySQ | L 5.6.26 | | Uptim | ne: 00:07 h | ı | 🔯 UTC: 2017-0 | 2-28 4:20 AM | ◎ Idle. | |

17. 左边列出了目前 MySql 中的所有数据库,右边是当前数据库的内容。(请勿更改和删除默认数据库的内容)

【任务五】:在 MySql 中创建数据库。

步骤:

1. 在 heidiSql 界面中左边数据库树的最顶层点击鼠标右键,上图中显示"Unnamed"。



| 🐵 Unnamed\ - HeidiSQL Portable 9.4.0.5125 | - 0 | × |
|--|---|--------|
| File Edit Search Tools Go to Help | P Di | nate |
| 🍬 • 🎤 🗈 🖺 Ə 🖨 🗇 • 🕭 🗉 | 3 🕼 🛛 🖉 🖉 🖉 🗶 🕨 - 🖾 🖉 👘 🦕 🖉 🖓 🔊 🖙 🕴 🔇 | |
| 🗊 Database filter 🔄 Table filter 🔶 | 👼 Host 127.0.0.1 🕨 Query 🚐 | |
| ✓ ↓ Uni Edit Alt+Enter | 🕒 Databases (11) 🌼 Variables 🖐 Status 🕨 Processes 💼 Command-Statistics | |
| if if or Drop c Drop c Empty table(s) Shift+Del c Run routine(s) c Create new c Create data tab filter c Export database as SQL Find text on server Shift+Ctrl+F w Buik table editor Expand all Collapse all Tree style options Print Ctrl+P Refresh F5 Disconnect | Database abum cdcol Table Table | |
| 6/* Characterset: utf8mb4 */ 7 SHON STATUS; 8 SHON VARIABLES; 9 SHON DATABAEES; 10 /* Entering session "Unnamed" */ | © Connected 0004 b D MrS01 5626 Untime 0011 b 10107-2017-02-28 424 AM a Idla | ^ ~ |

2. 选中菜单项:"Create new" → "Database" 来创建新数据库:

| Create database | | × |
|-----------------------------|-----------------------------|--------------|
| <u>N</u> ame: Collation: | latin1 swedish ci | ~ |
| _ | Servers default: latin1_swe | edish_ci |
| | ОК | Cancel |
| CREATE code: | | |
| CREATE DATA | BASE `` /*!40100 COL | LATE 'Latin. |

- 3. 在 Name 处填入数据库的名字: first_db(注意 first 和 db 中间为下划线),并在 Collation 处选择字符编码格式 为: utf8_bin。最后点击确定创建数据库。
- 4. 此时,界面左边数据库栏中将多出一项 first_db 数据库。



| File Edit Search Teals Gate Help | | | | | | | | | | | P Donate |
|--|--|-------------------------|------------|----------|------------|-------|-------------|--------|-------------------|---------------------|----------|
| | | ✓ X ► - 📴 - 🕅 J | 3 m 🍫 > | 🔺 🗟 🗉 | P | 3 | | | | | Ponac |
| Database filter | Host: 127.0.0.1 | | | | - , , | | | | | | |
| ✓ ↓ Unnamed | Databases (12) 🔅 Va | ariables 🖐 Status 🕨 Pro | cesses 🖬 C | ommand-S | Statistics | | | | | | |
| information_schema album could city course first_db mysql performance_schema phpmyadmin register test webauth | Database ^ album cdcol city course first_db information_schema mysql performance_schema phpmyadmin register test webauth | Size Items La | st Tables | Views | Func | Proc | Trigg | Events | Default collation | | |
| 11 SHOW COLLATION; 12 SHOW VARIABLES LIKE 'collation_se | rver'; | | | | | | | | | | ^ |
| <pre>13 CREATE DATABASE `first_db` /*!401 14 SHOW DATABASES; 15 /* Entering session "Unnamed" */</pre> | 00 COLLATE 'utf8_bin' */; | | | | | | | | | | |
| | | Connected: 00:07 | h 🔊 MySO | L 5.6.26 | | Uptim | ne: 00:14 h | 1 | 10 UTC: 2017-02 | -28 4:27 AM 💿 Idle. | |

5. 选中 first_db 数据库,并选择右边界面中的 Query 标签:

| IF is Est Starth Tools (oso Help If is Est Starth Tools (oso Help <td< th=""><th>Unnamed\first_db\ - HeidiSQL Portable 9.4.0.51</th><th>25</th><th></th><th></th><th></th><th></th><th></th><th></th><th>– 0 ×</th></td<> | Unnamed\first_db\ - HeidiSQL Portable 9.4.0.51 | 25 | | | | | | | – 0 × |
|--|---|-------------------|-----------------------|---------------------|------------------------------|---------------|---------|---------------------------|----------|
| 2 SOUP FUNCTION STATUS WERE "Db"-information_schema"; | File Edit Search Tools Go to Help | | | | | | | | 🥬 Donate |
| @ Database filter @ Hat: 127.0.1 @ Database filter @ Joint of the construction of the con | 🍠 • 🌮 🕒 🛍 Ə 🚔 🧐 • 🍰 関 |) 🖬 🛛 🖓 👘 |) | · 🗎 📑 🏙 🍃 🔎 | ? 🛆 🗟 🕫 🕴 😫 | | | | |
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- 6. 在上面的文本框中粘贴入提供的 sql.txt 文件中的内容,随后点击工具栏上的执行按钮"▶"。
- 7. 点击工具栏中的刷新按钮"参"(或者按 F5 键)刷新数据库列表。
- 8. 展开 first_db 数据库,此时将看到 first_db 当中的表,点击各个表将看到具体的数据。
- 9. 如果创建表成功则,数据库配置成功。



| ľ | 任务六】:在 Tomcat 中连接数据库。 |
|----|--|
| 步 | 骤: |
| 1. | 将提供的 MySql 的 JDBC 驱动文件 mysql-connector-java-xxxx-bin.jar 文件复制到 Tomcat 目录下的 lib 目录中。 |
| 2. | 将提供的 usedb.jsp 文件复制到 first_webapp 目录下。 |
| 3. | 启动 Tomat。 |
| 4. | 在浏览器中输入网址: http://localhost:8080/first webapp/usedb.jsp。 |
| 5. | 如果能够正常显示页面和数据,则从 Tomcat 当中连接数据库成功。 |
| Ľ, | 任务七】: 在 Eclipse 中创建 Java Web 工程。 |
| 步 | 骤: |
| 1. | 将提供的 Eclipse 文件解压到 D 盘。 |
| 2. | 启动 Eclipse 文件,将询问 Eclipse 工作区: |
| Ċ | Eclipse Launcher X |
| S | elect a directory as workspace |
| | Eclipse uses the workspace directory to store its preferences and development artifacts. |
| | |
| 7 | <u>N</u> orkspace <u>B</u> rowse |
| Г | Use this as the default and do not ask again |
| | |
| 1 | Recent Workspaces |
| | |
| | OK Cancel |

- 3. 将 Eclipse 工作区设置到 D 盘,例如: D:\Workspace 下。然后点击"OK" 按钮。
- 4. 进入 Eclipse 后首先将 Tomcat 服务器位置通知 Eclipse。选择菜单项"Window" → "Preferences":



Works e - Java EE - Eclip

| Workspace - Java EE - Eclipse File Edit Navigate Search Project Run Win | low Help | - ¤ × |
|---|---|---|
| Workspace - Java EE - Eclipse File Edit Navigate Search Project Run Win Project Explorer 32 Project Explorer 32 ClostMatching Servers Servers Struts01 Struts01 | New Window Editor Appearance Show View Perspective Navigation Web Browser Preferences | Cutick Acces: Cutick |
| 0 items selected | Refreching conver adapter list (494) | alme zemlele zemlele |
| | i teresining server adapter iist (476) | |

5. 打开 "Preferences"对话框,在左边找到 "Server"选项,并展开,选中其中 "Runtime Environments"项目:



| Preferences | | | — 🗆 X |
|--|---|---|-----------------------------------|
| type filter text | Server Runtime E | nvironments | ← → ⇒ → |
| Java Persistence JavaScript JBoss Tools | Add, remove, or edit Server runtime e <u>n</u> vir | t server runtime environments. ronments: | |
| > JSON > Maven > Mylyn > Oomph > Plug-in Development Relative Number Ruler > Pameta Systems | Name | Туре | Add Edit Remove |
| Remote Systems Run/Debug Server Audio Launching Overlays Profilers Runtime Environme | | | <u>S</u> earch <u>C</u> olumns |
| > Team > Terminal Validation > Web > Web Services > XML | | | |
| ? | | ОК | Cancel |

6. 点击右边界面中"Add"按钮,在弹出的界面中找到"Apache Tomcat 8.5"项目并选中。

| New Server Runtime Environment | | | × |
|---|-------|--------|-------|
| New Server Runtime Environment | | | |
| Define a new server runtime environment | | | |
| | | | |
| Select the type of runtime environment: | | | |
| type filter text | | | |
| | | | |
| Apache Tomcat v3.2 | | | ^ |
| Apache Iomcat v4.0 | | | |
| Apache Tomcat v4.1 | | | |
| Apache Tomcat v5.0 | | | |
| Apache Tomcat v5.5 | | | |
| Apache Tomcat v6.0 | | | |
| Apache Tomcat v7.0 | | | |
| Apache Tomcat v8.0 | | | |
| 🗄 Apache Tomcat v8.5 | | | |
| Anache Tomcat v9.0 | | | * |
| Apache Tomcat v8.5 supports J2EE 1.2, 1.3, 1.4, and Java EE 5, 6, and 7 V | Veb r | nodule | s. |
| | | | |
| | | | |
| <u>C</u> reate a new local server | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| (?) < <u>Back</u> <u>Next</u> > <u>Finish</u> | | Ca | ancel |
| | | | |

7. 点击下一步,并在 Name 处输入: Apache Tomcat v8.5。然后将目标目录选定为刚刚安装的 Tomcat 目录。



| 🥘 New Server Runti | me Environment | | | | | \times |
|---|----------------|----------------|----------------|--------------|-----------------|----------|
| Tomcat Server Specify the installati | on directory | | | | | |
| Na <u>m</u> e: | | | | | | |
| Apache Tomcat v8.5 | | | | | | |
| Tomcat installation d | lirectory: | | | | _ | |
| E:\apache-tomcat-8 | 3.5.5 | | | | B <u>r</u> owse | |
| | | | | Downlo | oad and In | stall |
| JRE: | | | | | | |
| Workbench default | JRE | | ~ | <u>I</u> nst | talled JREs | |
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| ? | < <u>B</u> ack | <u>N</u> ext > | <u>F</u> inisł | n | Cance | el |

8. 最后点击"Finish"按钮完成服务器的配置。

9. 选中 Eclipse 菜单项"New" → "Dynamic Web Project",新建一个动态网页项目:

| 四川师范大学 |
|--------|

| Eile | Norkspace - Java EE - Eclipse Edit Navinate Search Project Run Win | dow Help | | | | | | | - | ٥ | × |
|-------|--|--|---------------|---|-------------------------------------|----|------|--------------------------|--------------|------------|------------|
| | New Onen File | Alt+Shift+N > | | JPA Project Enterprise Application Project | ⌀▾┆ᅇ┆๕┊ᢓュ▾ჽі▾∿⇔⇔▾⇔▾ | | | | Quick Access | | 12 |
| | Open Projects from File System | | 73 | Dynamic Web Project | | | | 🔁 Outline 🔀 📗 Ta | isk List | 6 9 | |
| | Open Projects from File System Close Close All Save Save As Save All Revert Move Rename Refresh Convert Line Delimiters To Print Switch Workspace Restart Import | Ctrl+W Ctrl+Shift+W Ctrl+Shift+S Ctrl+Shift+S F2 F5 S Ctrl+P X | | Dynamic Web Project EJB Project Connector Project Application Client Project Static Web Project Maven Project Project Servlet Session Bean (EJB 3.x) Message-Driven Bean (EJB 3.x) Web Service Folder File Example Other Ctrl+N | | | | An outline is not availa | ble. | | |
| | Export | | | | | | | | | | |
| | Properties 1 TimeRangeStatistic.java [SynTime/] | Alt+Enter | | | | | | | | | |
| | 2 GraphIO.java [EdigeColoring/src/model] 3 MainFrame.java [EdigeColoring/src/view] 4 2016_04_06-18_51_05.txt [ClosMatchi] | | Prop ailal | perties W Servers 33 🗰 Data Source Explo | rer 🚡 Snippets 📮 Console 🖷 Progress | | | e | 梦 () ∅ ■ | I D | |
| _ | Exit | | | | | | B | 中 🌙 🤊 🍨 📟 | *** | | |
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10. 在新建项目界面中 project name 处输入工程名称 second_webapp (注意 second 和 webapp 中间为下划线)。并 记住此名字。在 Runtime 中选择刚刚配置的 Tomat。



| 🗑 New Dynamic Web Project – 🗆 🗙 |
|---|
| Dynamic Web Project Create a standalone Dynamic Web project or add it to a new or existing Enterprise Application. |
| Project name: second_webapp Project location ② Use default location Location: F:\MyNetDrive\快盘\MyWork\WorkAtSICNU\教学\《Java Web应用开发》 Browse Target runtime Apache Tomcat v8.5 Dynamic web module version 3.1 |
| Configuration Default Configuration for Apache Tomcat v8.5 V Modify |
| A good starting point for working with Apache Tomcat v8.5 runtime. Additional facets can later be installed to add new functionality to the project. |
| EAR membership Add project to an EAR EAR project name: EAR Vorking sets Add project to working sets Working sets: Select |
| (?) < <u>Back</u> <u>N</u> ext > <u>Finish</u> Cancel |

11. 点击"Next"按钮,并对配置不做修改,再次点击"Next"按钮:



| New Dynamic Web Project | | | × |
|--|---|---------------|-----|
| Java Configure project for building a Java application. | | | |
| Source folders on build path: | | | |
|) () SFC | 4 | Add Fold | ler |
| | | <u>E</u> dit | |
| | | <u>R</u> emov | /e |
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| <u>D</u> efault output folder: | | | |
| build\classes | | | |
| | | | |
| ? < <u>Back</u> <u>Next ></u> <u>Finish</u> | | Cance | ł |

12. 在下一个界面中,选中"Generate web.xml"选项。最后点击"Finish"按钮创建工程。



| 💭 New Dynamic V | Veb Project | | | _ | | × |
|---|-----------------|----------------|----------------|----------------|------|----|
| Web Module Configure web mo | odule settings. | | | | | 0 |
| Context root: Content directory: ⊡Generate web.xr | second_webap | p | | | | |
| ? | | < <u>B</u> ack | <u>N</u> ext > | <u>F</u> inish | Canc | el |

13. 在 second_webapp 上点击右键,并选中"Properties"菜单项。

| 💓 Works File Edi | pace- t Nav | Java EE - second_webapp/WebCon vigate Search Project Run W | tent/index.html - Eclipse Vindow Help | | | | | - | ٥ | × |
|---------------------|----------------|---|--|--|---|-----------------|----------|-------|----------|------|
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| > 😂 S | yn 🔍 | Remove from Context | Ctrl+Alt+Shift+Down | | | | | | | |
| | | Build Path | > | | | | | | | |
| | | Kefactor | Alt+Shift+1 > | | | | | | | |
| | | Import | > | | | | | | | |
| | | Export | > | | | | | | | |
| | | Refresh | F5 | | | | | | | |
| | | Close Project | | | | | | | | |
| | | Close Unrelated Projects | | | | | | | | |
| | | Validate | | | | | | | | |
| | | Show in Remote Systems view | | | | | | | | |
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14. 若看到工程默认编码为 GBK,则在对话框中将工程的编码方式改为 UTF-8,目的是避免以后中文出现乱码(以后作业或者考试,均必须使用 UTF-8 作为工程编码,切记!!):

| Properties for second_weba | ipp | | | × |
|---|---|--------------|---------------------|------------|
| type filter text | Resource | < | 5 • 4) | - - |
| Resource Builders Deployment Assembly Hibernate Settings Java Build Path Java Code Style Java Compiler Java Compiler Java Compiler Java Editor JavaScript JSP Fragment Project Facets Project References Run/Debug Settings Server Server Service Policies Targeted Runtimes Task Repository Task Tags Validation Web Content Settings Web Page Editor Web Project Settings WikiText | Path: /second_webapp Type: Project Location: F:\MyNetDrive\快盘\MyWork\WorkAtSICNU\数学\ 《Java Web应用开发 (2014级)\Workspace\second_webapp Last modified: February 28, 2017 at 1:02:52 PM Text file encoding Inherited from container (GBK) Other: GBK Inheritet UTF-16BE UTF-16LE Other: UTF-8 Restore Restore | 》\2016-教 | (学课件 <u>A</u> pp | ly ■ |
| ? | 0 | к | Cance | al |

15. 展开 second_webapp 工程,并在"WebContent"项目上点击鼠标右键,并选中菜单项目"New"→"HTML File"

| Workspace - Ja File Edit Navig | va EE - Eclipse Jate Search Project Run Wind | ow Help | | - 0 × |
|--|---|---------------------|--|---------------------------------|
| | ⊒ i x I> II ■ M 3. ⑦ . | n 🗟 😿 🛣 🎋 🗸 | O ▼ 9₄ ▼ 1ಔ ▼ 69 ▼ 1≝ 2∋ 22 √ ▼ 1 № 1 4≩ 1½ ▼ 1№ ↓ ↓ ↓ ↓ ↓ | Quick Access 🛛 😰 📲 |
| Project Explore Project Explore ClosMatch Ctube Ctube Ctube Figure Figure Figure Ctube Figure | er 🛛 🦳 🖓 🖓 🖓 🖓 | > | Project | P Dutline 🛛 🗍 Task List 🗊 V P D |
| > 💕 registrat | Show In | Alt+Shift+W > | G Folder | |
| > 🚡 Depl | Сору | Ctrl+C | SQL File | |
| > 🎢 JAX- | Copy Qualified Name | | O HTML File | |
| > 🛋 Java 🏻 | Paste | Ctrl+V | SP File | |
| > 🗁 build 🕽 | K Delete | Delete | 📸 Example | |
| > 🕞 N | Remove from Context | Ctrl+Alt+Shift+Down | Other Ctrl+N | |
| | Build Path | > | | |
| > 🔛 Servers | Rename | F2 | | |
| > 🖾 SynTime | import ≤ Export | | | |
| | Refresh | F5 | | |
| | Validate | | | |
| | Show in Remote Systems view | | | |
| | Run As | > | 👫 Servers 🔀 🎼 Data Source Explorer 🔚 Snippets 🖳 Console 🖓 Progress | |
| | Debug As | > | c this link to create a new server | |
| | Profile As | > | | |
| | Restore from Local History | | | |
| | Compare With | , | | |
| | Source | > | | |
| 🗁 WebContent | Properties | Alt+Enter | | A □ ≠ 7 0 A □ ≠ 7 0 A □ ≠ 7 0 |

16. 然后输入网页的名字 index.html,并点击"Finish"按钮:

| New HTML File | — | |
|---|---|--------|
| HTML Create a new HTML file | | |
| | | |
| Enter or select the parent folder: | | |
| second_webapp/WebContent | | |
| 🕆 🗘 | | |
| > 😂 Cpt08 | | ~ |
| > 🕾 Cpt09 | | |
| RemoteSystemsTempFiles | | |
| ✓ ≌ second_webapp | | |
| 🗁 .settings | | |
| > 🦻 build | | |
| Src | | |
| > > Servers | | |
| > 😂 Struts01 | | |
| > 😂 SynTime | | |
| | | × |
| File na <u>m</u> e: index.html | | |
| <u>A</u> dvanced >> | | |
| (?) < <u>Back</u> <u>Next</u> > <u>Finish</u> | | Cancel |

17. 此时将显示 HTML 文件内容 (默认为 HTML 5 格式):

| Workspace - Java EE - second_webapp/WebContent <u>File Edit Source N</u> avigate Se <u>a</u> rch <u>P</u> roject <u>R</u> u | ríndex.html - Eclipse n ∭indow <u>H</u> elp | | | | - | ٥ | × |
|---|---|---------|---|----------------|--------|-------|---------------|
| 📑 🕶 🔚 🕼 📮 🔪 🕪 🗉 🔲 M 🗷 👁 . | ≈ ≂ 🛪 💯 🐐 • O • 9 • 10 • 60 • 10 ∞ 40 ∞ 41 00 14 14 14 10 • 10 • 10 • 10 • 10 • | | | Quick A | Access | 😢 🖪 | 2 B |
| Project Explorer ≥ Project Explorer ≥ ClosMatching Project Explorer ≥ ClosMatching Project Explorer ClosMatching Project Explorer Project Explor | <pre> index.html index.html image: ************************************</pre> | ₽ | E Outline 2 I Ta OCTVPE:html > 0 html > 0 head body | Quick <i>I</i> | | | |
| html/body/#text | NORMAL Writable Smart Insert 8 : 1 | (a) (b) | 🗢 🗡 🔞 🐴 🔟 | = 🗡 🔞 | | ۵ 🖻 | > © |

18. 编辑 index.html 文件,成如下内容:(如果无法正常编辑文件,可查看 Eclipse 工具栏上"了"按钮是否按下,

次按钮是 Eclipse 插件用于模拟 Linux 平台下 vi 编辑器的运作,如果不习惯 vi 编辑器,则可以将按钮关闭,恢 复到正常编辑状态)

| html |
|---|
| <html></html> |
| <head></head> |
| <meta charset="utf-8"/> |
| <title>我的第二个 Web 工程</title> |
| <style type="text/css"></th></tr><tr><th>#content div.text {</th></tr><tr><th>padding-left: 1em;</th></tr><tr><th>padding-left: 1em;</th></tr><tr><th>}</th></tr><tr><th></th></tr><tr><th>h1 {</th></tr><tr><th>text-align: <i>center</i>;</th></tr><tr><th>}</th></tr><tr><th></th></tr><tr><th>#content h2 {</th></tr><tr><th>padding-left: <i>5px</i>;</th></tr><tr><th>padding-right: <i>5px</i>;</th></tr><tr><th>background-color: #eaeaea;</th></tr><tr><th>}</th></tr><tr><th></style> |
| |

</head> <body>

<h1>Web 开发工具介绍</h1>

<div id="content">

<h2 id="JDK">JDK</h2>

<div class="text">

>JDK 是 Java 语言的软件开发工具包,主要用于移动设备、嵌入式设备上的 java 应用程序。 JDK 是整个 java 开发的核心,它包含了 JAVA 的运行环境, JAVA 工具和 JAVA 基础的类库。

</div>

<h2 id="Tomcat">Tomcat</h2>

<div class="text">

<u>Tomcat</u> 服务器是一个免费的开放源代码的 Web 应用服务器,属于轻量级应用服务器,在中小型系统和并发访问用户不是很多的场合下被普遍使用,是开发和调试 JSP 程序的首选。

</div>

<h2 id="mysql">MySql</h2>

<div class="text">

MySQL 是一种关系数据库管理系统,关系数据库将数据保存在不同的表中,而不是将所有数据 放在一个大仓库内,这样就增加了速度并提高了灵活性。

</div>

<h2 id="xampp">XAMPP</h2>

<div class="text">

XAMPP(Apache+MySQL+PHP+PERL)是一个功能强大的建站集成软件包。这个软件包原来的名

字是

LAMPP,但是为了避免误解,最新的几个版本就改名为 XAMPP 了。它可以在 Windows、Linux、 Solaris、Mac OS

X 等多种操作系统下安装使用,支持多语言:英文、简体中文、繁体中文、韩文、俄文、日文

等。

许多人通过他们自己的经验认识到安装

Apache 服务器是件不容易的事儿。如果您想添加 MySQL、PHP 和 <u>Perl</u>,那就更难了。XAMPP 是一个易于安装且包含

MySQL、PHP 和 <u>Perl</u> 的 Apache 发行版。XAMPP 的确非常容易安装和使用:只需下载,解压 缩,启动即可。

</div>
<h2 id="*Eclipse*">Eclipse</h2>
<div class="*text*">





20. 在弹出的对话框中选择,刚刚配置的 Tomcat 环境,边点击"Finish"按钮启动 Tomcat 服务器:

| 💭 Run On Server | — 🗆 X |
|--|-----------------------------|
| Run On Server | |
| Select which server to use | |
| How do you want to select the server? | |
| Choose an existing server | |
| Manually define a new server | |
| Select the center type: | |
| type filter text | |
| Image: Structure Image: Tomcat v5.0 Server Image: Tomcat v5.5 Server Image: Tomcat v6.0 Server Image: Tomcat v8.0 Server Image: Tomcat v8.0 Server Image: Tomcat v8.0 Server Image: Tomcat v9.0 Server | urations to a local Tomcat |
| Server name: Tomcat v8.5 Server at localhost | |
| Server <u>r</u> untime environment: Apache Tomcat v8.5 | ~ <u>Add</u> |
| <u>Cor</u> Always use this server when running this <u>p</u> roject | figure runtime environments |
| (?) < <u>B</u> ack <u>N</u> ext > | <u>Finish</u> Cancel |

21. 等待服务器启动完成。然后在浏览器中输入网址: <u>http://localhost:8080/second_webapp/index.html</u>, 查看网页。