Project Proposal: Web-based homework submission and evaluation system

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1 Project Investigation

This project is a database application. The purpose of this project is to get familiar with DBMS like Oracle, and also database application development using Java and JDBC. It is aimed to produce an easy-to-use web-based interface for homework submission and evaluation system. Through this system, students can submit his/her homework; then instructor/TA can grade students’ homework and put grades and corresponding comments on the web; finally students can view his/her grade online.

Basically, there are two kinds of user for this system.

- Instructor/TA: creates students’ information; creates different homework, set due days; grades students’ homework, puts in grades and comments
- Student: submits homework; views grades.

Every student is required to submit homework for each course he/she is taking nearly each week, and then Instructor/TA will grade it and send back comments. This homework submission and evaluation process happened frequently, so no matter Instructor/TA or student will like an easy-to-use interface to do it. Now there is a Unix program `turnin` on CCC machine, basically student submit homework using this program; Instructor/TA will get students’ homework also using this program, then grading all the homework, finally make grades available using `turnin` or send email to every student with his/her grade. The manual of `turnin` can be found at URL [http://www.cs.wpi.edu/Help/turnin.html](http://www.cs.wpi.edu/Help/turnin.html) Program `turnin` can do all the processes involved in homework submission and evaluation, but it is just a command line program without a good user interface, it requires students put their homework onto CCC machine and then login on a CCC machine, at last submit it using `turnin`. The whole process is not very straightforward, so here I’m proposing to design and develop a Web-based homework submission and evaluation system. This application has good and easy-to-use user interface; it will make the whole process of homework submission and evaluation easier and more straightforward.
2 Project Architecture

I will apply three-tier architecture in this project.

The first tier of such an application could use any number of Java enabled browsers. Complex user interface tasks would be handled by Java applets downloaded from the second tier servers; simpler tasks could be handled using standard HTML forms. For this project, the standard HTML format is enough.

The second tier would be a Web Server, which supports Java Servlets and JSP. The browser will make a request directly to a java Servlet, which actually generates the dynamic content, wraps the results into a result bean and invokes the JSP page. The JSP page accesses the dynamic content from the bean and sends the results (as HTML) to the browser.

The third tier consists of data repositories. I will choose ORACLE as the back-end DBMS, and access it through JDBC.
3 Proposed Work to Be Done

This project will require me to learn Java, JSP, Servlets, JDBC and RDBMS related techniques. I will apply what I learned in CS542 class to model the domain requirement of data, this includes designing the tables, create them in the Oracle database, input pre-required data; design the user interface; write program and test it, finally deliver the whole project.

4 Relevant Environment Set

For the first tier, Web browser such like Internet Explorer, Netscape Navigator can be used. These Web browsers generally are installed on every machine, so there is no need for further environment setup.

For the second tier, a Web Server that supports JSP and Servlets is required. There are a lot of products can be used, some are commercial, some are freely available. As for the platform, it can run on Unix or Windows. In this project, I’m planning to use Allaire’s JRun. JRun is an easy-to-use J2EE application server and integrated development environment for building and deploying server-side Java applications. Because I installed it on my home PC, and played with it for some days, so I will use it for this project. Actually, my entire program will be compliant with JSP, and Java Servelets standard, so it can be deployed on any other Web Servers, which support JSP and Java Servelets.

As for the third tier, I will use Oracle as the back-end DBMS. Oracle is installed on wpi.wpi.edu, also on crane.wpi.edu. Instructor already assigned the user account and password, all the left work is to design tables, and create them.

5 Plan of Completion

<table>
<thead>
<tr>
<th>Time</th>
<th>Tasks</th>
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| 9.11 – 9.24  | • Learning Java  
               • Learning JSP  
               • Learning Java Servlets  
               • Writing project intent |
| 9.25 – 10.8  | • Learning JSP  
               • Learning Java Servlets  
               • Installing JRun and playing with it  
               • Learning Oracle  
               • Writing project proposal |
| 10.9 – 10.15 | • Continue learning JSP/Servlets  
               • Finalizing project proposal |
| 10.16 – 10.22| • Data modeling  
               • Table designing |
### Deliverables

At the end of this project, I’m going to give out a web-based, easy-to-use homework submission and evaluation system.

### Background Materials

1. Marty Hall, Core Servlets and JavaServer Pages, Prentice Hall, 2000
5. Seth White, JDBC API Tutorial and Reference, 2nd Ed, Addison-Wesley, 1999

<table>
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<tr>
<th>Date</th>
<th>Activities</th>
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<tr>
<td>10.23 – 10.29</td>
<td>Creating tables</td>
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<tr>
<td>10.30 – 11.6</td>
<td>Designing user interfaces</td>
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<td>11.6 – 11.12</td>
<td>Coding Servlets &amp; JSP</td>
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<td>11.13 – 11.19</td>
<td>Coding Servlets &amp; JSP</td>
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