Course Agent
Adaptive Online Course Recommendation System

Independent Study Report 2013 Fall

Student: Cheng Tan
Supervisor: Prof. Peter Brusilovsky
Part I. Introduction to Course Agent

Course Agent is the new implementation at the School of Information Sciences of the Adaptive Online Course Recommendation System. It is specially designed for students and faculties in the School of Information Sciences and is also available to the public who has interests in the courses offered at the School of Information Sciences.

For students, this system can give suggestions on what courses to take after knowing their career goal. And it can provide the information of workload, ratings and also relevance of each course helping students make better decisions on planning their study. Based on the recommendations from similar students and also the evaluations from faculty, students can find the information they need easily. Also the system can tell students their career progress based on the course they took; it's clear to see what courses do they need to achieve their career goal.

But currently the system is lacking of administrator functions. This project aims to build up an administrator end to manage students, faculties and courses information. Also staffs can edit course schedule information and semester information from the system. Then it can have more accurate and current information for both students and faculty. Plus, it can deal with uploaded files when adding students or graduation students, which can save a lot of effort for staff.

Part II. Technical Detail of Course Agent:

Development Environment and Techniques:
1. PHP
2. MySQL
3. Apache Server
4. jQuery and AJAX

Deploying Environment:
For local user: Apache Server (localhost)
For remote server user: http://halley.exp.sis.pitt.edu/courseagent/v3/index.php
Part III. System Overview:

1. Students:

1) Edit Students Account:

Choose student:

Click “Edit Accounts” under Students, input the name of a student (Last Name First Name), then the autocomplete function will give hints about student’s name, administrator can choose the name from list. Since there will be thousands of students, if trying to find one student from a drop down list, it’s easy to make mistakes and also a waste of time.
After choosing students, click the Submit button, student’s information will show as below:
In the form, student’s id and password are not editable, and if there is any change to peoplesoft number or email, system will check if the peoplesoft number is a 7-digit integer and if the email address is in correct format. Also system needs to make sure they are unique in the database.

When click on Update button at the bottom of the page, system will check if the required information including peoplesoft number, student’s name and email are filled in. If not, there will be a reminder pop up, otherwise, system will update the record and tell the administrator the data has been updated.

2) Add Student:
Apart from adding students from a list, there is a chance to add a single student to system:
System will automatically check if student’s id is unique, and peoplesoft number is 7-digit integer and unique, password and retype password are match, email is in correct format, also all the required input box are filled. If all requirements are met,
then the new student will be added to the system and there will be a reminder to tell user the new record is added.

3) Graduate from list:

System can takes in csv file and txt file, if the list is in other format, system will have a reminder of wrong format. The file should include peoplesoft number, student’s last name and first name, email, degree, and start term. First system will find the matching peoplesoft number and set their graduate status to 1 if they are on the list. If student does not have a peoplesoft number, then system will check if they have email, if email is in our list, then student can also be set to graduate. If both their peoplesoft number and email are missing or wrong, then administrator need to find the student manually and update the record. There will be two forms return after upload the file, one is for students graduated successfully, and the other one is the accounts with problems.
2. Courses

1) Add Course:

System will check if the course number input is unique in the system. To avoid any typo, credit used a drop down list. And both description and note are optional.
2) **Edit Course Area**

Choose the program from drop down list (IST, LIS and TELCOM are included):

Then choose the areas from the drop down list, then all the course number belongs to this area will be listed in a table.
Click on the red button before the course number can delete the course from this area. If the administrator wants to add a new course to this area, then find the course from the drop down list in the last line, and click the blue button. The new course will be added. When adding a course, system will automatically check if this course has already existed in this area, if it has then a reminder will pop up and the course won’t be added.
3) Rename Course

Rename course function allows user to modify the course title, also other features of a course. When editing the details, system will check if the course number is unique. And system will keep the original record and the new record of the course information. Then we can always find out the old course information if we need to. Also, if the course number changed, all the tables in the database will be updated if they contain the course number.
Schedule

1) Edit Schedule

Edit schedule is used to modify the schedule information of the selected term, course number and course title are not allowed to change. When update the CRN, system will check if the CRN is a 5-digit integer and if it is unique when it’s neither null nor 0. And to prevent from user’s typo, I used drop down list for Day and Instructor. After modification, user clicks on the green button to update the record. And click on the yellow button, record will be deleted. At the bottom, user can add a new record to the schedule. If the CRN has been updated, system will update all the tables containing the CRN.
Select the semester and the program from the table. And Schedule will be opened in a separate tab in case user closed the page after printing. On the top of the schedule printing page is the program name and term information. The color for different program is the same with Information School’s official website. And on the schedule, clicking on the course title, it will link to the course introduction on Information School’s official website, and click on Professor’s name it will link to the Faculty introduction page on Information School’s official website.

Course schedule for IST program:
### Course schedule for LIS program:

<table>
<thead>
<tr>
<th>Class Number</th>
<th>Course Title &amp; Number</th>
<th>Day &amp; Time</th>
<th>Instructor</th>
<th>Change Last Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>19015</td>
<td>INFSCI 2006 Intro to Information Science</td>
<td>Mon 12:00 PM - 01:00 PM</td>
<td>Paul Marks</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>20236</td>
<td>INFSCI 215A Decision Analysis and Decision Support Systems</td>
<td>Mon 12:00 PM - 01:00 PM</td>
<td>M. Dourlat</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>16184</td>
<td>INFSCI 2106 Information Storage and Retrieval</td>
<td>Tue 12:00 PM - 01:00 PM</td>
<td>null</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>21255</td>
<td>INFSCI 2106 Knowledge Representation and The Semantic Web</td>
<td>Tue 12:00 PM - 01:00 PM</td>
<td>M. Dourlat</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>25280</td>
<td>INFSCI 2206 Human Information Processing</td>
<td>Wed 12:00 PM - 01:00 PM</td>
<td>Elizabeth Hilde</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>20220</td>
<td>INFSCI 2206 Human Factors in Systems</td>
<td>Wed 12:00 PM - 01:00 PM</td>
<td>Michael Leese</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>24532</td>
<td>INFSCI 2415 Introduction to Neural Networks</td>
<td>Thu 12:00 PM - 01:00 PM</td>
<td>Paul Marks</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>19071</td>
<td>INFSCI 2475 Interactive Systems Design</td>
<td>Fri 12:00 PM - 01:00 PM</td>
<td>Peter Broniatowski</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>25085</td>
<td>INFSCI 2486 Adaptive Information Systems</td>
<td>Fri 12:00 PM - 01:00 PM</td>
<td>Peter Broniatowski</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>16756</td>
<td>INFSCI 2506 Data Structures</td>
<td>Fri 12:00 PM - 01:00 PM</td>
<td>Eagle Prinz</td>
<td>2017-11-14</td>
</tr>
</tbody>
</table>

### Course schedule for TELCOM program:

<table>
<thead>
<tr>
<th>Class Number</th>
<th>Course Title &amp; Number</th>
<th>Day &amp; Time</th>
<th>Instructor</th>
<th>Change Last Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z1002</td>
<td>LIS 2015/2016 Introduction &amp; Retrieval Information</td>
<td>Online</td>
<td>Gary Kodrat</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>Z1003</td>
<td>LIS 2015/2016 Introduction &amp; Retrieval Information</td>
<td>Online</td>
<td>undefined</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>Z4155</td>
<td>LIS 2144/2146 Online Information Society</td>
<td>Online</td>
<td>Kip Carter</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>Z5040</td>
<td>LIS 2516/2516 Online Information Society</td>
<td>Fri 12:00 PM - 01:00 PM</td>
<td>Kip Carter</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>16052</td>
<td>LIS 2516/2516 Introduction &amp; Retrieval Information</td>
<td>Online</td>
<td>M. Beadle</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>Z1001</td>
<td>LIS 2516/2516 Introduction &amp; Retrieval Information</td>
<td>Online</td>
<td>M. Beadle</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>18075</td>
<td>LIS 2516/2516 Online Information Society</td>
<td>Fri 12:00 PM - 01:00 PM</td>
<td>M. Beadle</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>18076</td>
<td>LIS 2516/2516 Online Information Society</td>
<td>Fri 12:00 PM - 01:00 PM</td>
<td>Richard Dao</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>18014</td>
<td>LIS 2516/2516 Online Information Society</td>
<td>Online</td>
<td>B. Carter</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>18077</td>
<td>LIS 2516/2516 Online Information Society</td>
<td>Fri 12:00 PM - 01:00 PM</td>
<td>Richard Dao</td>
<td>2015-11-14</td>
</tr>
<tr>
<td>18013</td>
<td>LIS 2516/2516 Online Information Society</td>
<td>Online</td>
<td>Richard Dao</td>
<td>2015-11-14</td>
</tr>
</tbody>
</table>
3) Set Current Term

Set current term is to extract the semester information from term table. Then user select the current term from the drop down list when a new semester begins.
4) Add Term

When the semester is not in the system, user can add a new semester from here. System will check if the year is in correct 4-digit integer format. Also when user click submit button, system will check if this term has already existed. If it does, a reminder will pop up, if not, this new semester will be added to system.
1) Add Faculty

Add faculty is similar with adding student, except when adding title, I listed several most common ones in the list. If the title is not in the list, click on other. Then an input box will pop up. And we will save the input as the title.
Since the number of faculty will be much fewer than students, I used a drop down list to choose faculty. Then their information will be listed below. User id and password are not allowed to change. And system will guarantee all the information input is correctly formatted.
Part IV. Conclusion and Future Work

This independent study gave me a chance to learn about PHP + jQuery + Ajax development. And in the meanwhile, I learned how to design a user-friendly website and how to make a better interactions between the users. Now the administrator end has all the functions to deal with student, faculty, course and schedule information. But there are still some features need to improve in the future.

First of all, when editing course information, now I update the course information in the table their course number is not change and create a new record only if the course number has changed, since in current design the course number is the primary key in the course table. I keep the record of all changes in the history table. But it will be better if we keep the record in the course table too even if the course number does not change. Then when we look for courses from long time ago, we can still get the course title at that time.

Second, the design of editing schedule may not be good enough. There could be a large number of courses in each term, so listing all the record in a big table may be not clear. In the future, we may consider what information need to list in that table and maybe to make it smaller. Or we can think about how to rank the course and how to separate them into smaller groups to help user easily find their target.

Last but not least, since more and more people using smartphone or tablet browsing website. We could add responsive design to the website to fit different appliances better. Then we can bring users more convenience.