INFSCI 2470: Interactive System Design

Heuristic Evaluation Project

Evaluated System:
Course Agent
http://www.sis.pitt.edu/~cagent

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Introduction:

This report presents a heuristic evaluation of Course Agent, an adaptive hypermedia system developed by the PAWS lab at School of Information Sciences, University of Pittsburgh. Its objective is to support graduate students of the school in selecting courses by presenting them static and personalized information. It also helps faculty advisors to keep track of their advisees' courses and interests.

Course Agent has very distinctive features. On one side, it provides social navigation support by means of averaging feedback provided by users on specific courses. This characteristic is reflected by the workload of every course. On the other side, using information of career interest provided by students, the system is able to recommend courses that match their interest. Finally, the students can see recommendations that the faculty give depending on different career profiles.

This system provides valuable help to students, especially newcomers, since it focuses on a fundamental activity of any graduate student. However, it is not difficult to identify some problems in its implementation, and the purpose of this report is to identify, classify, evaluate and propose solutions for these problems. This evaluation focuses not only on the student's interface, but also on the administrator interface. The latter is a very important portion of the system, and it presents some implementation flaws that range from requiring additional steps to do a task to problems that can lead to security risks.

This report is divided in three sections. The first one presents issues and good features found in the student's interface, the second section shows good characteristics and problems identified in the administrator interface, and the third section summarizes all these findings in a table and gives some conclusions.

I. Student Interface:

HE1 -- Good Feature

Name

Home Page

Evidence

Heuristic: Simple and natural dialog

The home page clearly presents to the user the different roles in which a person can login to the system

Explanation

The system indicates that there are three different roles in which user can be allowed to login, i.e. as student, administrator or faculty

Benefit

Clear separation of roles ensures that students know exactly which tab they have to click to get to the login page

Trade-offs

If the user does not notice the tabs, then they have no alternate mechanism to get to the login page. Some healthy redundancy might help here

Relationships

HE2: Message on home page

Submitted by

Sri Mandayam, Denis Parra

HE2 -- Bad Feature

Name

Message on home page

Evidence

Heuristic: Provide shortcuts

The message is long and informational, but does not include any hyperlinks that can point the user to the next page.

Welcome!

Welcome to the **SIS CourseAgent**, the implementation at the School of Information Sciences of the **Adaptive Online Course Recommendation System**. SIS CourseAgent is special designed for students and faculties in the School of Information Sciences and is also avaialble to the public who has interests in the courses offered at the School of Information Sciences.

You could either visit our course catalog to get general information about courses offered in SIS or Login to our CourseAgent system to get more personalized information.

Copyright 2003 (c) School of Information Sciences, University of Pittsburgh
Last updated: 08/25/2010 21:01:53 by SIS WebMaster
courseagent.adm [AT] gmail [DOT] com

Explanation

People who wish to login or view the course catalog do not have any hyperlinks in the message that can easily redirect them to the concerned page

Severity

Low: Although the hyperlinks at the top left of the page indicate how the user should proceed, their attention might be drawn to the message and they might be stuck on this screen for awhile

Solution

Update the message to include hyperlinks to the course catalog and login page, based on user type (faulty, administrator, student)

Relationships

HE1: Home Page
HE24: Help file

Submitted by

Sri Mandayam

HE3 -- Bad Feature

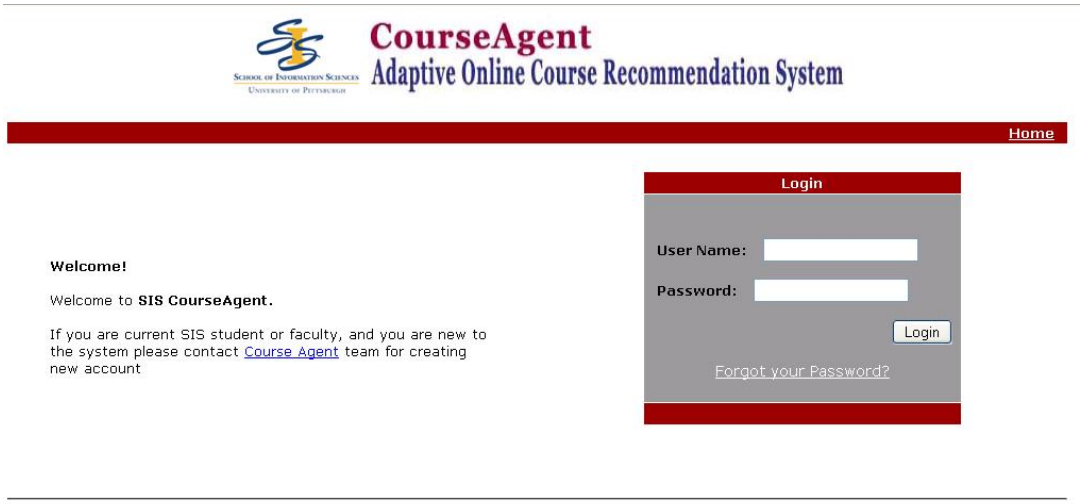
Name

Creating an account

Evidence

Heuristic: Speak the user's language - Simple and natural dialog

The user is told to contact Course Agent team for creating a new account.



Explanation

The user has no way to start using the system right away because, against the convention in similar systems, there is no automatic process for creating an account.

Severity

Moderate: User will have to leave the system, send an email, and wait for the admin to answer the email in order to use the system. This process discourages the users to use the system because it takes them away from the system and could take a lot of time.

Solution

Create a method of verifying user's identity as a SIS student and make the sign-up process automatic and quick.

Relationships

HE4: Alignment of fields on the login form

Submitted by

Arash Farsi

HE4 -- Bad Feature

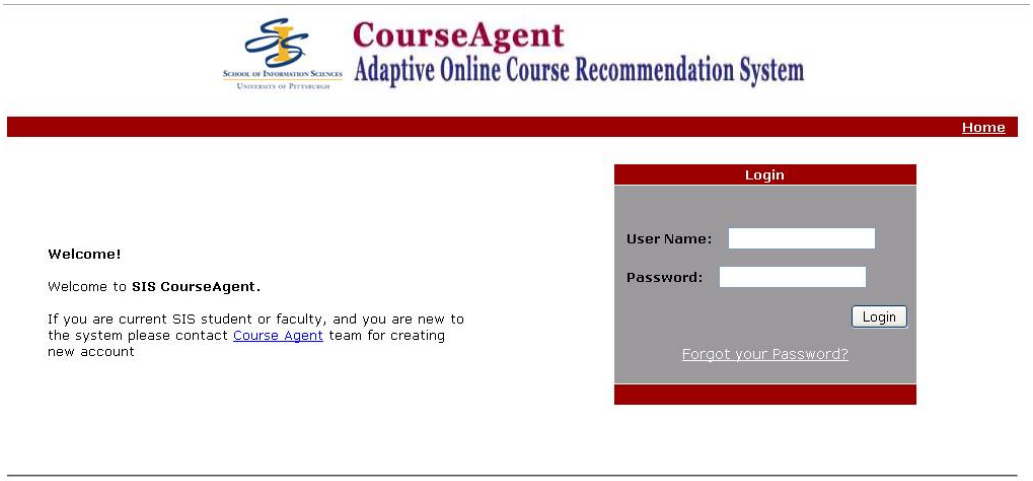
Name

Alignment of fields on the login form

Evidence

Heuristic: Be consistent

"Password" field is not positioned directly below "User Name" field.



.

Explanation

The login form does not look good because of the problem in alignment.

Severity

Low: User expects to see well-organized design for forms because it would be easier for the eye to follow from a field to the next.

Solution

Align the fields.

Relationships

HE3: Creating an account

Submitted by

Arash Farsi

HE5 -- Good Feature

Name

Navigation bar and tabs

Evidence

Heuristic: Minimize user memory load

The system uses graphical elements to indicate which tab and which page the user is currently viewing.

.

Explanation

On the top bar, the active tab's borders are faded. On the bottom bar, the active page has a larger font size. Both features clearly indicate where the user is in the system.

Benefit

The user does not have to memorize or double check to find out which page he/she is on.

Trade-offs

The distinctions might not be noticed by some people because the system uses rather same colors.

Relationships

Submitted by

Abdul Raqeeb Abdul Aziz, Arash Farsi, Sri Mandayam

HE6 -- Bad Feature

Name
Naming convention for menu bar

Evidence
Heuristic: Speak the user's language

One of the tabs in the page is “Control Panel” which displays the account details of the user.

.

Explanation
The user may not understand the meaning of control panel when generally names like “My Account” or “Account Settings” is used for that purpose.

Severity
Low: A user might be searching for the page that helps him change the password or his other details.

Solution
The name of the tab could be changed to My Account or Account Settings to make it more meaningful.

Relationships

Submitted by
Abdul Raqeeb Abdul Aziz

HE7 -- Bad Feature

Name

Confirmation for updating profile

Evidence

Heuristic: Provide feedback

When the user clicks the Update button, the page refreshes but there is no message/confirmation that the update was successful or not.

.

Explanation

No feedback is provided to the user upon updating the profile. There is no way to find out if the updates were saved except clicking on “Profile” again to reload.

Severity

Low: No information is passed to the user which could cause confusion.

Solution

The system could generate a message in a line above “My Profile” or in a dialog box to let the user know what happened.

Relationships

HE13: Feedback to evaluation

HE23: Register for courses

Submitted by

Arash Farsi, Denis Parra

HE8 -- Good Feature

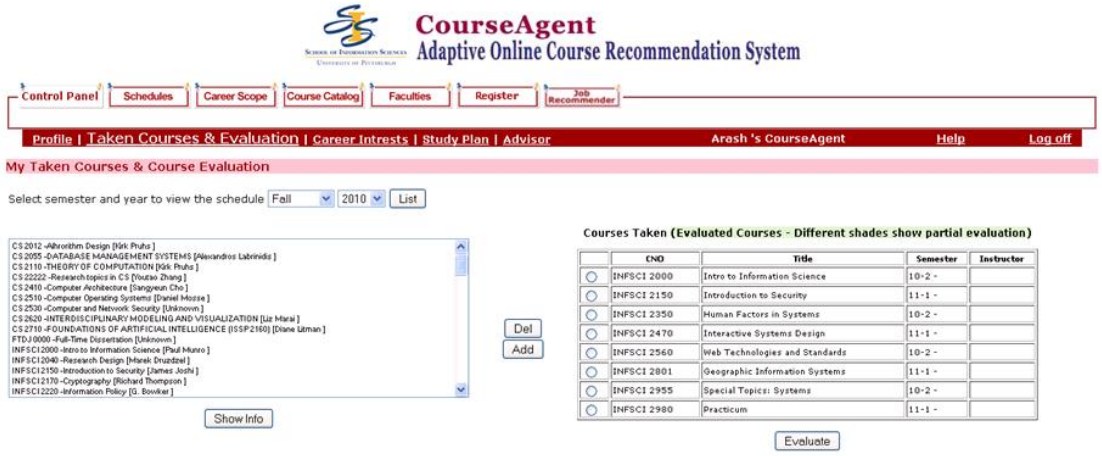
Name

List of courses in a semester

Evidence

Heuristic: Minimize user memory load

The user can choose from a list what courses he/she has taken and does not need to type in the name of the courses.



Explanation

The system shows a list of courses for each semester so that the user can just pick the courses he/she has taken.

Benefit

The list eliminates the need for the user to remember what were the exact titles of the courses. Students who look at this can easily select taken courses and evaluate them.

Trade-offs

It might take a little while for the user to locate each course in the list, especially if it is toward the bottom of the list.

Relationships

HE9: Selecting multiple courses
HE10: Navigating back to the list of taken courses

Submitted by

Arash Farsi, Sri Mandayam

HE9 -- Bad Feature

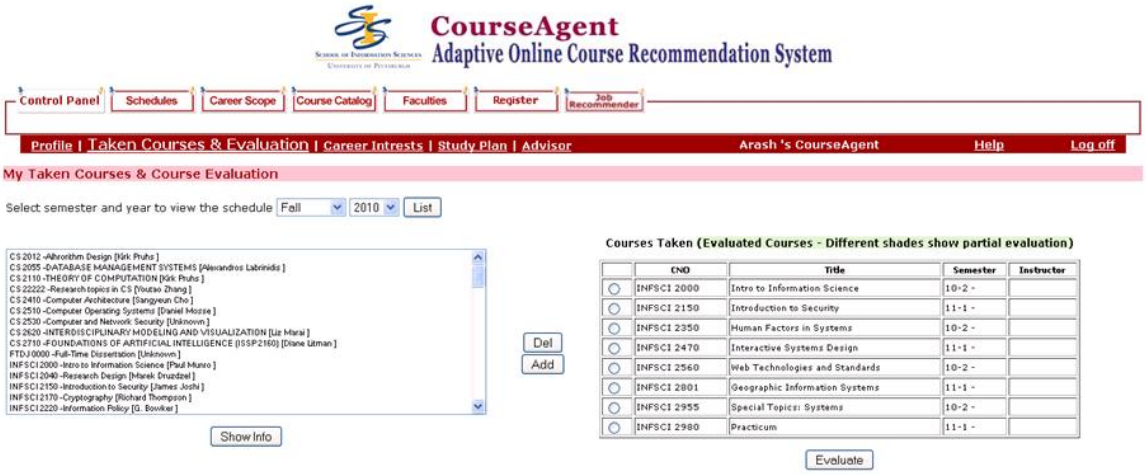
Name

Selecting multiple courses

Evidence

Heuristic: Provide shortcuts - Minimize user memory load

The user cannot select multiple courses from a semester's schedule to add to the "Courses Taken" list.



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Explanation

Almost all users have taken more than one course in most semesters. But, for adding all of them to the list on the right, they have to select and add courses one by one from the list on the left which takes much more time than selecting and adding all at once.

Severity

High: The time it takes for the user to add courses from one semester is considerably high. Adding to this problem is also the fact that the list refreshes with every "add" and the user has to scroll from beginning of the list again (this could take a separate UAR).

Solution

Add the possibility of selecting multiple courses at once.

Relationships

HE8: List of courses in a semester

Submitted by

Abdul Raqeeb Abdul Aziz, Arash Farsi, Sri Mandayam

HE10 -- Good Feature

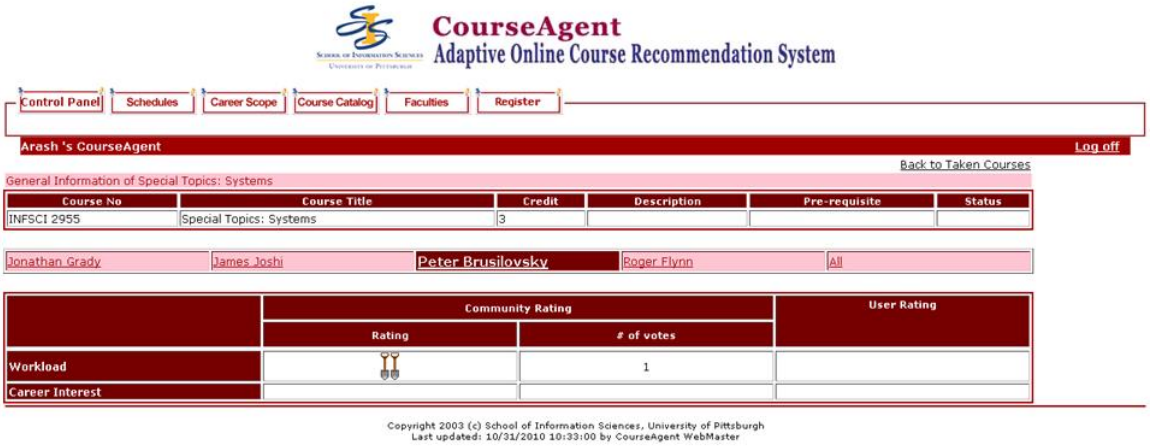
Name

Navigating back to the list of taken courses

Evidence

Heuristic: Provide clearly marked exits

After viewing course information, navigating back to the list of courses is easy and nothing will be lost.



.

Explanation

By selecting a course and clicking “Show Info”, the user will go to a new page. After getting whatever information he/she needs or if there is nothing interesting on the page, going back is very easy; he/she just has to click the link on the top right corner of the page.

Benefit

User does not lose any work and can get right back to what he was working on in the previous page.

Trade-offs

No significant trade-offs

Relationships

HE8: List of courses in a semester
HE16: Course information buttons

Submitted by

Arash Farsi

HE11 -- Bad Feature

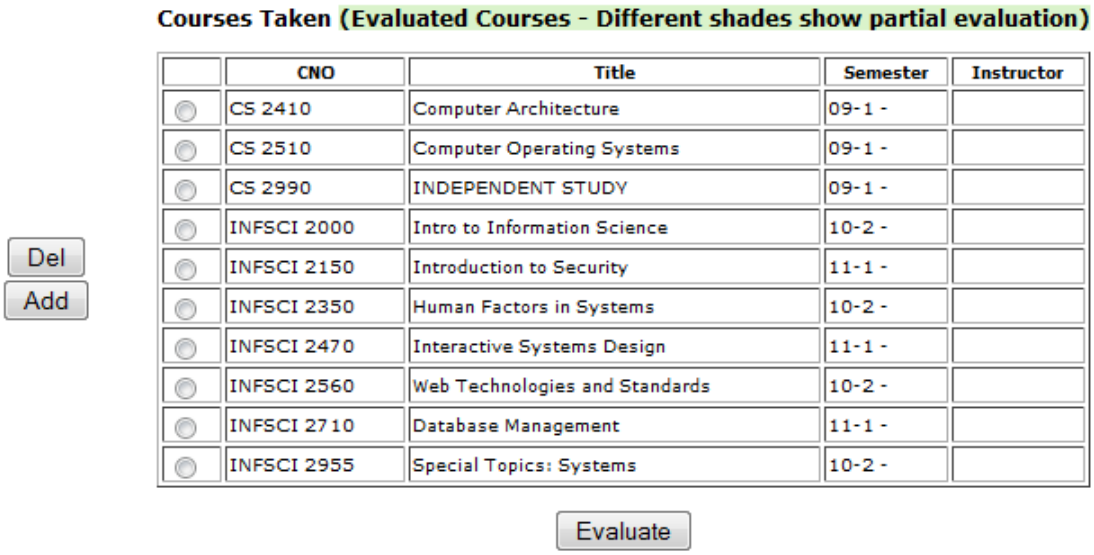
Name

Semester naming convention

Evidence

Heuristic: Provide feedback - Speaking user language

Users may not understand the notation used to indicate Fall, Spring and summer terms



Courses Taken (Evaluated Courses - Different shades show partial evaluation)

	CNO	Title	Semester	Instructor
○	CS 2410	Computer Architecture	09-1 -	
○	CS 2510	Computer Operating Systems	09-1 -	
○	CS 2990	INDEPENDENT STUDY	09-1 -	
○	INFSCI 2000	Intro to Information Science	10-2 -	
○	INFSCI 2150	Introduction to Security	11-1 -	
○	INFSCI 2350	Human Factors in Systems	10-2 -	
○	INFSCI 2470	Interactive Systems Design	11-1 -	
○	INFSCI 2560	Web Technologies and Standards	10-2 -	
○	INFSCI 2710	Database Management	11-1 -	
○	INFSCI 2955	Special Topics: Systems	10-2 -	

Del

Add

Evaluate

Explanation

The semester description is of the format “yy-tt-?” where yy indicates the year and tt indicates the term, and these aren’t explained adequately

Severity

Low: Not very severe, but might confuse a user who does not understand the meaning of this notation

Solution

Provide an explanation, e.g. 09: Year and 1: Spring

Relationships

Submitted by

Arash Farsi, Sri Mandayam

HE12 -- Bad Feature

Name
Prompting the user to select a course to evaluate

Evidence
Heuristic: Prevent Errors

When the user clicks the Evaluate button without selecting a course, the website opens a new page with no content.

.

Explanation
When the user clicks the Evaluate button in the Taken Courses and Evaluation page, the website does not prompt the user to select a course if the user has accidentally pressed the evaluate button without selecting a course.

Severity
Low: A blank webpage is displayed with no error message. The user might not know what went wrong.

Solution
This could be prevented by creating a pop up that requests the user to select a course or open the default (first) listed course.

Relationships

Submitted by
Abdul Raqeeb Abdul Aziz

HE13 -- Bad Feature

Name

Feedback to evaluation

Evidence

Heuristic: Provide feedback

Once the user completes entering the evaluation details, there is not feedback displayed when the save button is clicked.

Explanation

Once the user enters all the information in the course evaluation page and then clicks the Save button, the system does not inform the user that the information was updated in the machine. The user would be in dilemma as to whether all the setting were reset or saved.

Severity

Moderate: The user might be confused as to whether the values were reset to blank or they were accepted by the system.

Solution

Display a message stating the entered details were received and accepted by the system.

Relationships

HE7: Confirmation for updating profile
HE23: Register for courses

Submitted by

Abdul Raqeeb Abdul Aziz

HE14 -- Bad Feature

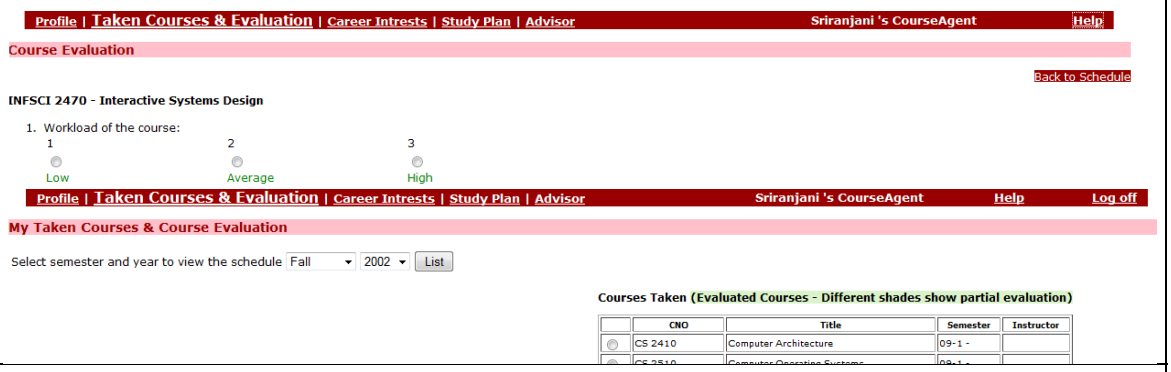
Name

Position of help/logoff links

Evidence

Heuristic: Be consistent

The help/logoff links are not placed consistently across screens, as can be seen from the screenshots below.



Explanation

The links Help and Logoff are not placed consistently in the same position, thereby leading to possible confusion for users

Severity

Low: Although the hyperlinks are well demarcated and visible, users might click the wrong link by mistake

Solution

Make the postion of the links consistent

Relationships

Submitted by

Sri Mandayam

HE15 -- Good Feature

Name

List of career goals

Evidence

Heuristic: Speak the user's language

The list is almost all-inclusive and gives many options to the users.

.

Explanation

A comprehensive list has been put together in an effort to cover every possible job title in the areas relevant to SIS graduates. The used terms come directly from the IT industry.

Benefit

The users can select exactly what they are looking for and not just something close to it.

Trade-offs

Some users might get confused by different career goals that are very similar. Also, the list could get a bit long if more areas are going to be added.

Relationships

HE16: Course information buttons

Submitted by

Arash Farsi

HE16 -- Bad Feature

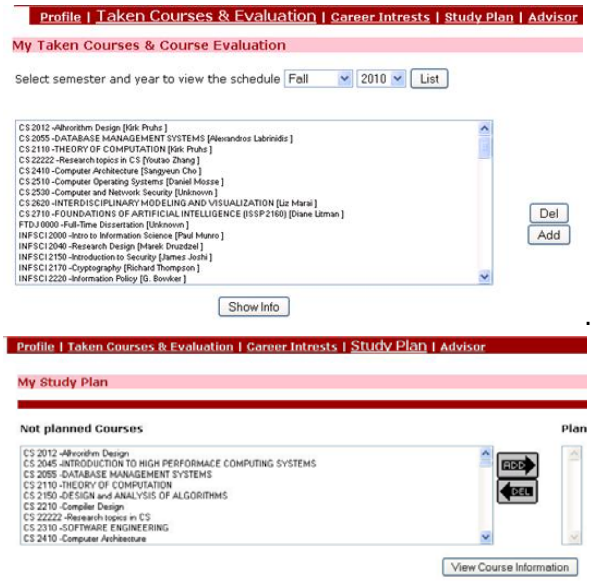
Name

Course information buttons

Evidence

Heuristic: Be consistent

The location of the button and its text are different in two sections (Taken Courses & Evaluation - Study Plan)



Explanation

Since both buttons take the user to the same page, they should be consistent in every aspect. But, one button has the words “Show Info”, while the other has “View Course Information”. Also, one is centered below the list of courses, but the other appears on the bottom right corner of the list.

Severity

Low: This problem might give the impression that the two buttons actually have different functions.

Solution

Edit the button to look the same everywhere in the system.

Relationships

HE10: Navigating back to the list of taken courses
HE15: List of career goals

Submitted by

Arash Farsi

HE17 -- Good Feature

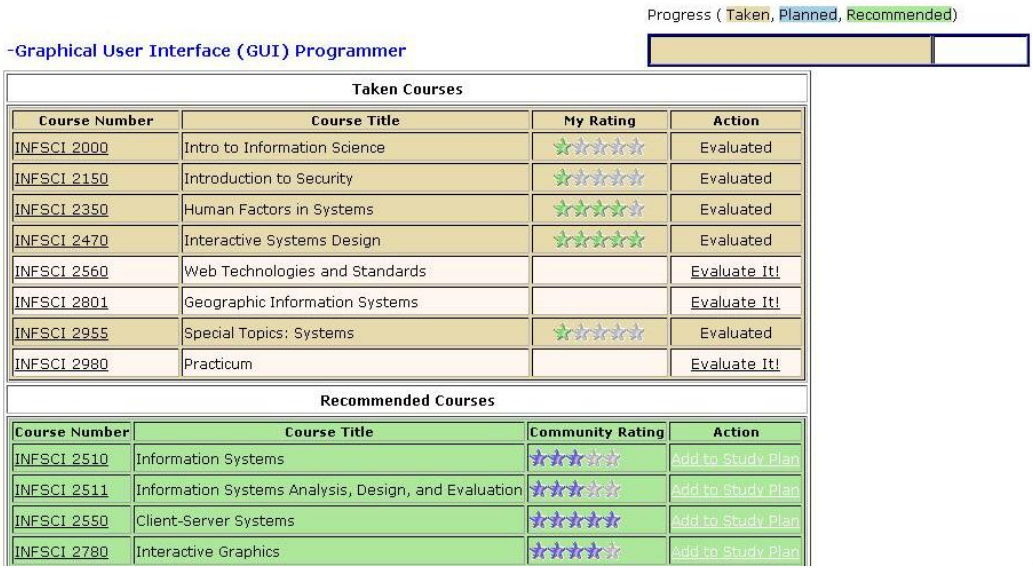
Name

Career-related courses

Evidence

Heuristic: Simple and natural dialog

The system allows each career goal title to be expanded/collapsed to allow users to view courses in Taken, Planned and Recommended category.



Progress (Taken, Planned, Recommended)

-Graphical User Interface (GUI) Programmer

Taken Courses

Course Number	Course Title	My Rating	Action
INFSCI 2000	Intro to Information Science	★☆☆☆☆	Evaluated
INFSCI 2150	Introduction to Security	★☆☆☆☆	Evaluated
INFSCI 2350	Human Factors in Systems	★★★★☆	Evaluated
INFSCI 2470	Interactive Systems Design	★★★★★	Evaluated
INFSCI 2560	Web Technologies and Standards		Evaluate It!
INFSCI 2801	Geographic Information Systems		Evaluate It!
INFSCI 2955	Special Topics: Systems	★☆☆☆☆	Evaluated
INFSCI 2980	Practicum		Evaluate It!

Recommended Courses

Course Number	Course Title	Community Rating	Action
INFSCI 2510	Information Systems	★★★☆☆	Add to Study Plan
INFSCI 2511	Information Systems Analysis, Design, and Evaluation	★★★☆☆	Add to Study Plan
INFSCI 2550	Client-Server Systems	★★★★★	Add to Study Plan
INFSCI 2780	Interactive Graphics	★★★★☆	Add to Study Plan

Explanation

The ‘plus’ sign at the beginning of each career goal title indicates that the user can expand this to view content, and vice versa for the minus sign. The tabular format of the page with the distinction in colors provides the user with all the relevant information the system has regarding a career goal, all at just a glance.

Benefit

Students who look at this get a clear picture of the courses that they have taken and could be taking to achieve their respective career goals.

Trade-offs

Although all the courses that the user has taken are displayed for comparison purposes, this could make the first table long and cluttered when the user nears graduation because there could be a lot of courses on the table at that point.

Relationships

Submitted by

Arash Farsi, Sri Mandayam

HE18 -- Good Feature

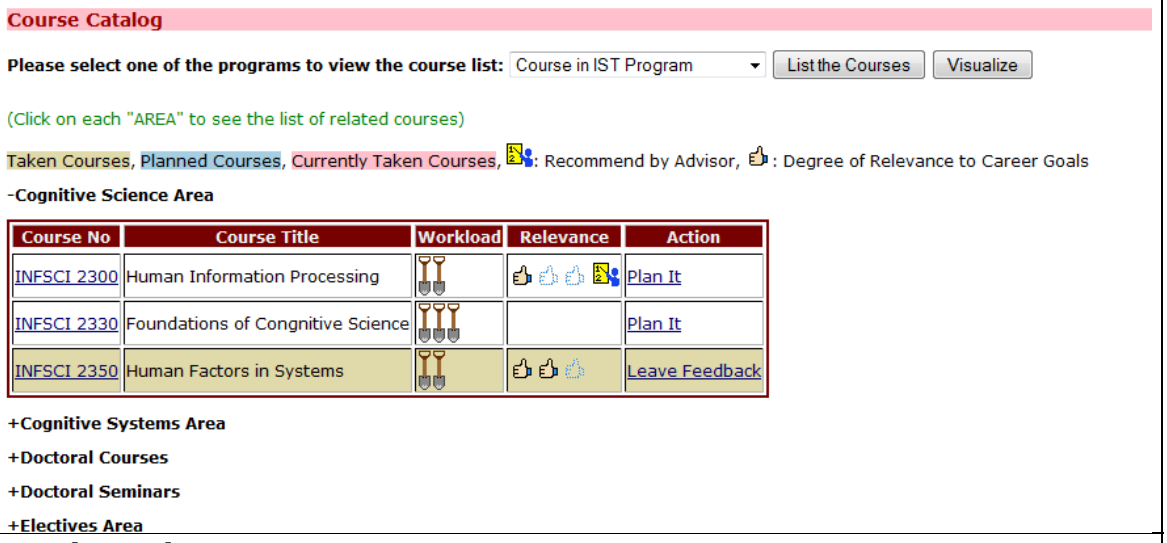
Name

Course Catalog

Evidence

Heuristic: Simple and natural dialog

The system clearly specifies to the user what the effect of each action is, and what the meaning of the content they see on the screen is



Explanation

The message at the beginning of the course catalog section indicates what actions on the part of the user will generate what output, and what each column on the output indicates

Benefit

Students who look at this get a clear picture of the courses that they have taken, planned and should be taking to achieve their respective career goals

Trade-offs

If the user has multiple career goals, it may not be very clear as to which career goal the courses listed are most relevant to

Relationships

HE19: Work load display

Submitted by

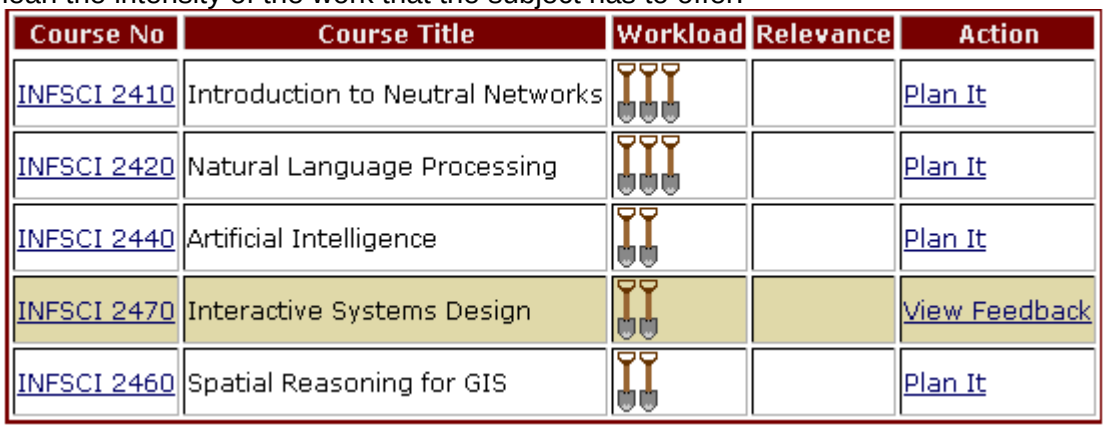
Sri Mandayam

HE19 -- Good Feature

Name
Work load display

Evidence
Heuristic: Simple and natural dialog

The indication of the work load displayed with the help of the number of shovels would mean the intensity of the work that the subject has to offer.



Course No	Course Title	Workload	Relevance	Action
INFSCI 2410	Introduction to Neutral Networks			Plan It
INFSCI 2420	Natural Language Processing			Plan It
INFSCI 2440	Artificial Intelligence			Plan It
INFSCI 2470	Interactive Systems Design			View Feedback
INFSCI 2460	Spatial Reasoning for GIS			Plan It

Explanation
The students who refer this can relate the workload to the effort that they would need to put into the subject.

Benefit
Helps and informs the user about the workload in a very visual way.

Trade-offs
If the user doesn't know or is not able to relate shovel and hard work associated to it, this feature would lead to confusion.

Relationships
HE18: Course Catalog

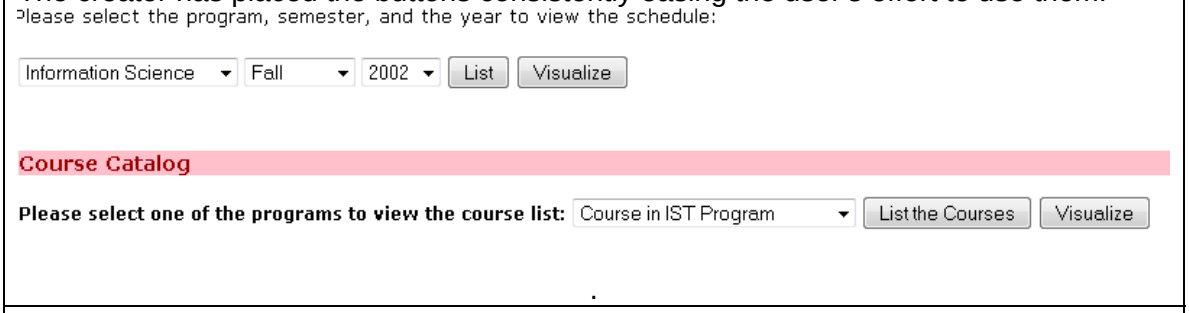
Submitted by
Abdul Raqeeb Abdul Aziz

HE20 -- Good Feature

Name
Maintaining button consistency

Evidence
Heuristic: Be consistent

The creator has placed the buttons consistently easing the user's effort to use them.



.

Explanation
The users can directly point to the right most button every time they want to use visualize functionality.

Benefit
User does not have to think twice before clicking the button in view of losing data or navigating through the wrong option.

Trade-offs
If the button positioning is swapped in other similar websites and if the user is used to such a configuration, the user might have difficulty in using this system for a while.

Relationships
HE21: Error message for "Visualize" button

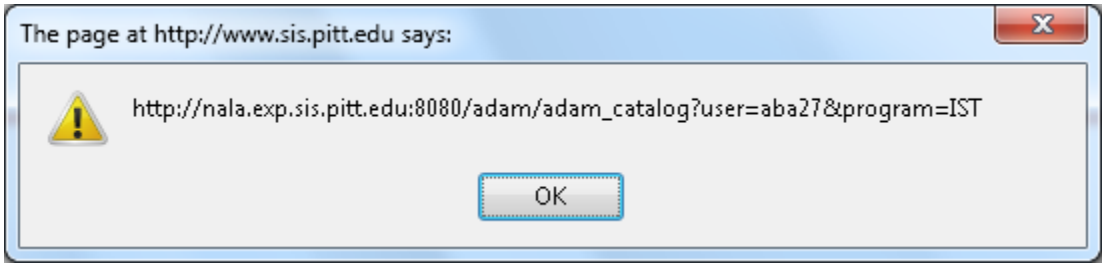
Submitted by
Abdul Raqeeb Abdul Aziz

HE21 -- Bad Feature

Name
Error message for “Visualize” button

Evidence
Heuristic: Good error messages

If the “Visualize” button is clicked an error message pops up which does not have any solution to the error.



Explanation
When the user clicks the visualize button in the Course Catalog webpage such an error pops up.

Severity
High: User does not get any result and has no idea what went wrong.

Solution
The error message should be meaningful to guide the user to resolve the issue.

Relationships
HE20: Maintaining button consistency

Submitted by
Abdul Raqeeb Abdul Aziz

HE22 -- Bad Feature

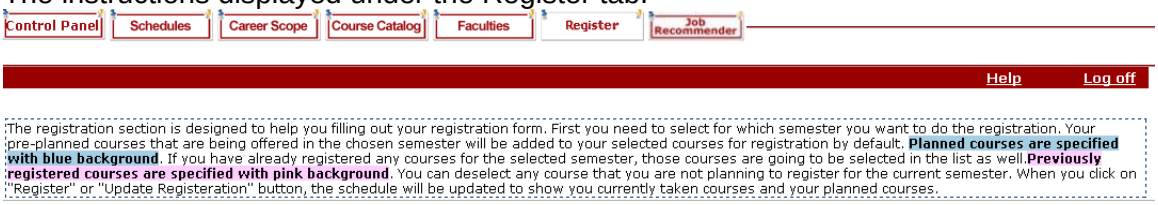
Name

Instructions in “Register” tab

Evidence

Heuristic: Minimize user memory load

The instructions displayed under the Register tab.



.

Explanation

The steps described the way the Register page needs to be used is not instruction wise but is like a paragraph.

Severity

Low: The user would not be able to reach to the last instruction unless he/she reads quickly. This might end up straining the user to use the Register functionality.

Solution

The instructions could have been displayed using bullets or numbering.

Relationships

HE23: Register for courses

Submitted by

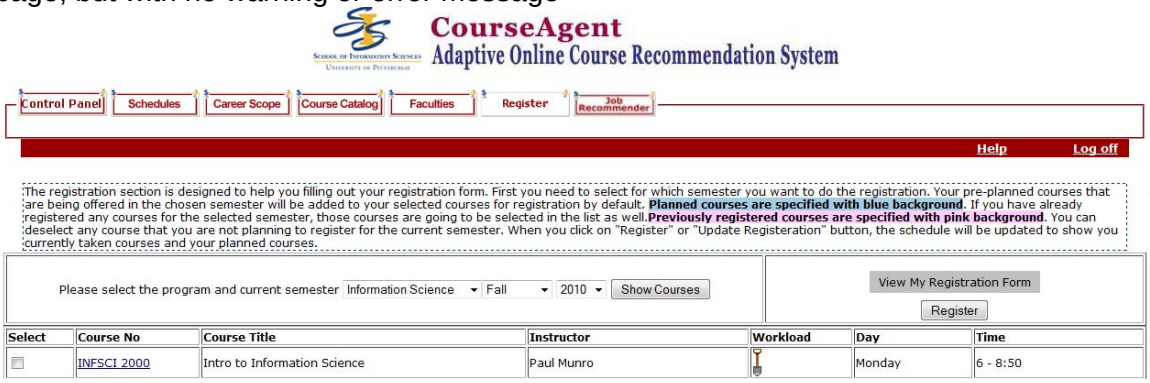
Abdul Raqeeb Abdul Aziz

HE23 -- Bad Feature

Name
Register for courses

Evidence
Heuristic: Provide feedback

When users don't select any course and try to register, they are redirected to the same page, but with no warning or error message



Explanation
When users don't select any course and try to register, they are redirected to the register page, without saying what happened (silent failure)

Severity
Moderate: User might not notice that no course was selected or could get confused.

Solution
Provide a message saying user has to select a course to register

Relationships
HE7: Confirmation for updating profile
HE13: Feedback to evaluation
HE22: Instructions in "Register" tab

Submitted by
Sri Mandayam

HE24 -- Bad Feature

Name

Help document

Evidence

Heuristic: Provide shortcuts

The help portion is one single long page with no navigation bar and no connection back to the main system.

CourseAgent
Adaptive Online Course Recommendation System

Course Agent

Welcome to the **SIS CourseAgent: Adaptive Online Course Recommendation System**.

SIS CourseAgent 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.

The SIS CourseAgent is a good tool to give you recommendation on courses that might interest you or has the most benefit to you. Based on advisor's recommendation and students' evaluations about each course, you could have a snapshot about what courses are useful for you according to your personal career goals and your progress of taking courses relevant to your personal career goals.

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Control Panel

Profile

Explanation

When the user requires help on a specific part of the system, he/she will be presented with the whole help document, which is not easy to read and provides no link back to the system.

Severity

High: This problem may slow down the users and frustrate them. Also, it is very likely that some users cannot find what they are looking for, especially if the system is going to expand to have more features and functions and thus, a larger help document.

Solution

Provide section-specific help with itemized lists, possibly FAQs, and links to relevant parts of the system. Also, help could appear in a pop-up window.

Relationships

HE2: Message on home page

Submitted by

Arash Farsi

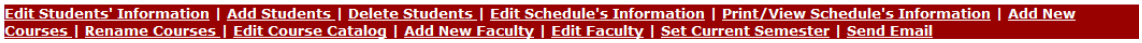
II. Administrator Interface:

HE25 -- Bad Feature

Name
Main menu options

Evidence
Heuristic: Minimize user memory load

The selection of one of the options in the administration menu is difficult.



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Explanation
The administrator must read each option in order to select the correct one for the task she will perform.

Severity
Low: Spending additional time to select the right option.

Solution
The menu should be categorized in Courses, Students, Faculty and Schedule. Inside each catgory should be displayed the more specific options.

Relationships
HE26: Main menu in “Add Student”
HE29: Additional options in the menu

Submitted by
Denis Parra

HE26 -- Bad Feature

Name

Main menu in “Add Student”

Evidence

Heuristic: Be consistent

When the administrator selects the option “Add student” the main menu is lost, as seen in the red-background bar

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Explanation

All the scripts in the administration section always show the main menu to facilitate the navigation to other options. This consistency is lost In the case of “Add Student”

Severity

High: Administrator doesn’t know how to come back to main menu or to select other options.

Solution

The main menu should be displayed in order to keep consistency and facilitate the navigation.

Relationships

HE25: Main menu options
HE29: Additional options in the menu

Submitted by

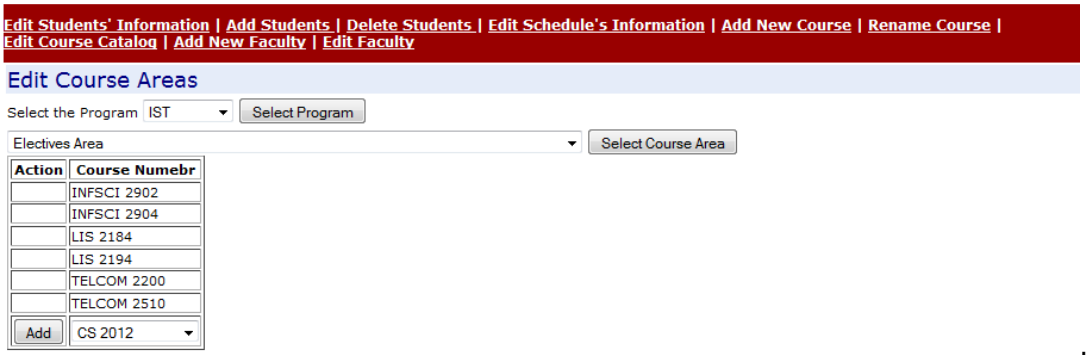
Arash Farsi, Denis Parra

HE27 -- Bad Feature

Name
Log out

Evidence
Heuristic: Provide clearly marked exits

Option to log out or close the administration session



Explanation
There is no option in the menu to logout or close the session, what can compromise security.

Severity
High: Administrator can compromise security of the system if she works in a workstation different than her own, by leaving the session open. As this is a web system, it is a feasible possibility.

Solution
Main menu should have an option to log out and close the session.

Relationships

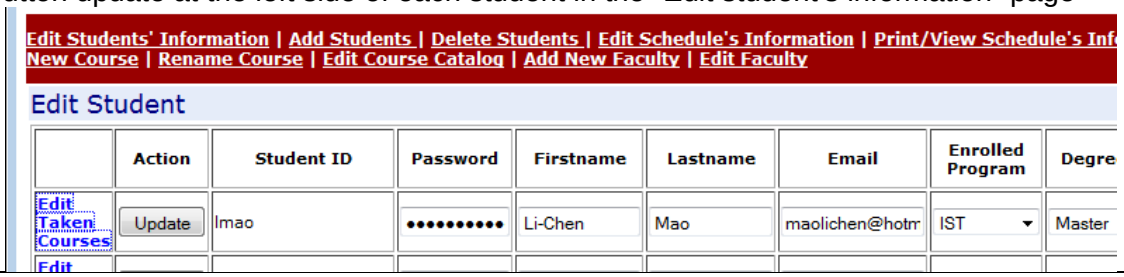
Submitted by
Arash Farsi, Denis Parra

HE28 -- Good Feature

Name
Update Button

Evidence
Heuristic: Provide Shortcuts

Button update at the left side of each student in the “Edit student’s information” page



Explanation
The button located on the left side of each row that presents the user information easies the process of updating user information.

Benefit
Prevents the administrator of doing additional steps in order to update information of specific users.

Trade-offs
It doesn’t have an message confirming that the administrator really wants to update that user’s information, what can lead to picking the wrong user.

Relationships

Submitted by
Denis Parra

HE29 -- Bad Feature

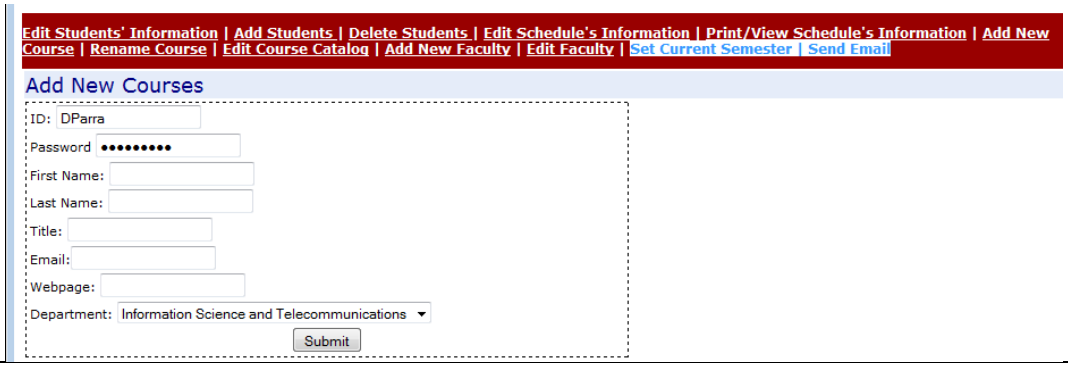
Name

Additional options in the menu

Evidence

Heuristic: Be consistent

Options “Set Current Semester” and “Send Email”



Explanation

The options “Set Current Semester” and “Send Email” does not appear always in the main menu. This lack of consistency makes the administrator to unnecessarily jump to different pages in order to select one of those options.

Severity

Low: This feature is not of big severity, but adds difficulty to find some options of administration.

Solution

Make sure that both options “Set Current Semester” and “Send Email”, are always present in the main menu.

Relationships

HE25: Main menu options
HE26: Main menu in “Add Student”

Submitted by

Arash Farsi, Denis Parra

HE30 -- Bad Feature

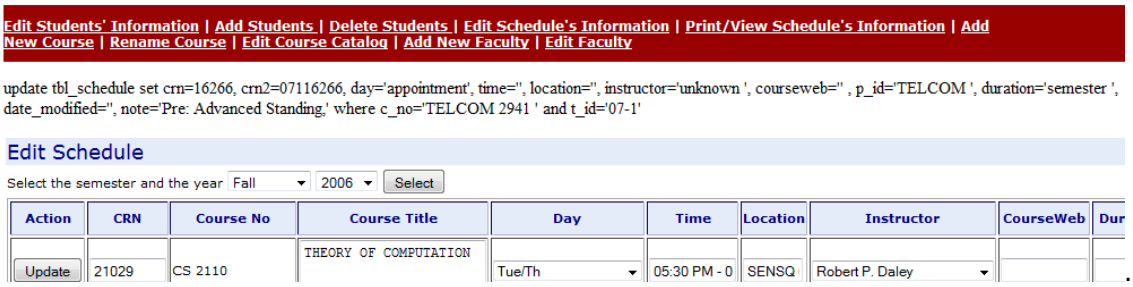
Name

SQL code as result of the action

Evidence

Heuristic: Speak the user's language

SQL code displayed as a result of updating a record in the DB



Explanation

SQL code is displayed after confirming that a course has been added or updated in the schedule.

Severity

Moderate: Although this could be seen as the language of the user (the administrator), sometimes this same interface is used by non-administrators to add new courses to the schedule of one term. The potential risk of showing a query that gives hints of the status of the DB is dangerous.

Solution

The administrator can think of the SQL information as useful to debug, but if there are other users using the same interface, this information should not be displayed. Other option is to create the notion of roles in administration, in such a way that the one who just enter information doesn't need to see that message

Relationships

Submitted by

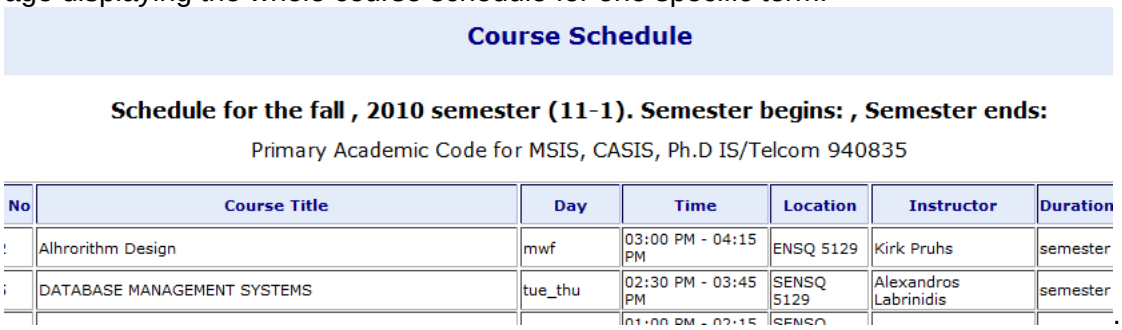
Denis Parra

HE31 -- Bad Feature

Name
Course Schedule

Evidence
Heuristic: Provide Feedback

Page displaying the whole course schedule for one specific term.



Course Schedule

Schedule for the fall , 2010 semester (11-1). Semester begins: , Semester ends:

Primary Academic Code for MSIS, CASIS, Ph.D IS/Telcom 940835

No	Course Title	Day	Time	Location	Instructor	Duration
	Alhrorithm Design	mwf	03:00 PM - 04:15 PM	ENSQ 5129	Kirk Pruhs	semester
	DATABASE MANAGEMENT SYSTEMS	tue_thu	02:30 PM - 03:45 PM	SENSQ 5129	Alexandros Labrinidis	semester

Explanation
The information of beginning and end of the semester is not displayed and there is no feedback to the user in order to know why is that information not displayed..

Severity
Low: Is not really severe since this information can be found in other pages of the University, but it discourages the user about trusting the system.

Solution
Make sure that the information is added in the DB.

Relationships

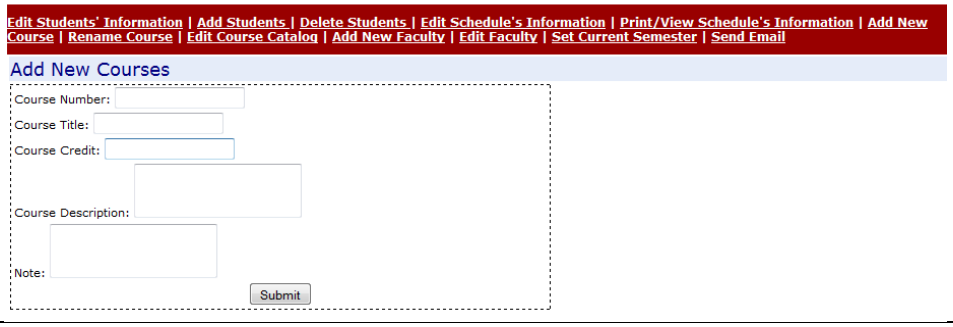
Submitted by
Denis Parra

HE32 -- Bad Feature

Name
Add new course

Evidence
Heuristic: Prevent errors

Form of the page “Add New Courses”



Explanation
When the administrator fills the information to add a new course, the system doesn’t provide a way to prevent her of making some errors, like adding a number of credits out of the norm.

Severity
Moderate: In some of the recommendation mechanisms of the system, this information could be used to calculate work load.

Solution
Provide a mechanism, either client or server side, to prevent the administrator to make an error when entering course credit or course number.

Relationships

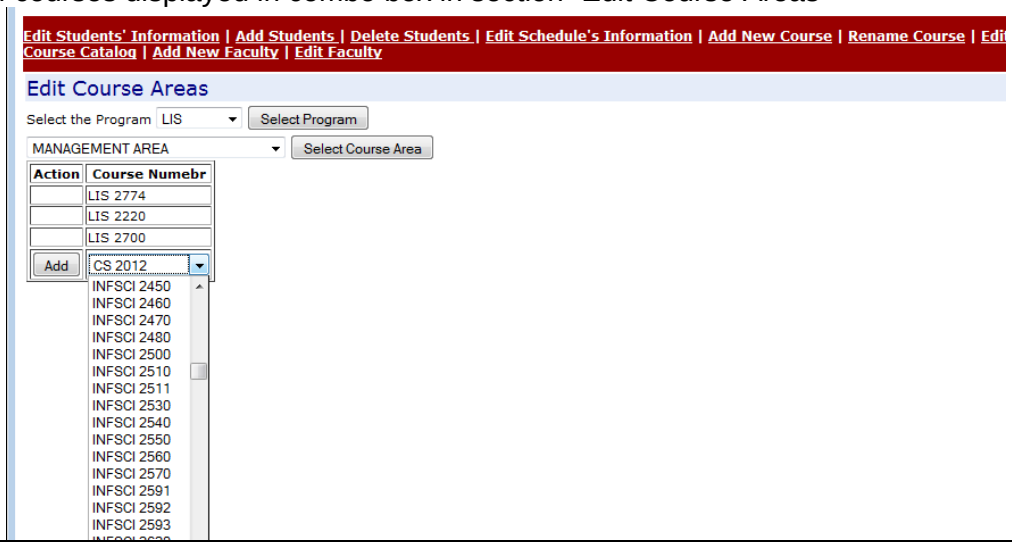
Submitted by
Denis Parra

HE33 -- Bad Feature

Name
Course list in combo box

Evidence
Heuristic: Minimize user memory load

List of courses displayed in combo box in section “Edit Course Areas”



Explanation
When the administrator wants to add courses to some specific area, a combo box with the list of all available courses in the system is displayed. This list is very long and it makes difficult to select one course without knowing exactly the course code.

Severity
Moderate: It can lead to additional time or mistakes in order to select the right course.

Solution
Change the component for one that can assist the user to select courses by filtering the field (CS, INFSCI, TELCOM) and then numbers. Also, add the chance to fin the course by title or by instructor.

Relationships

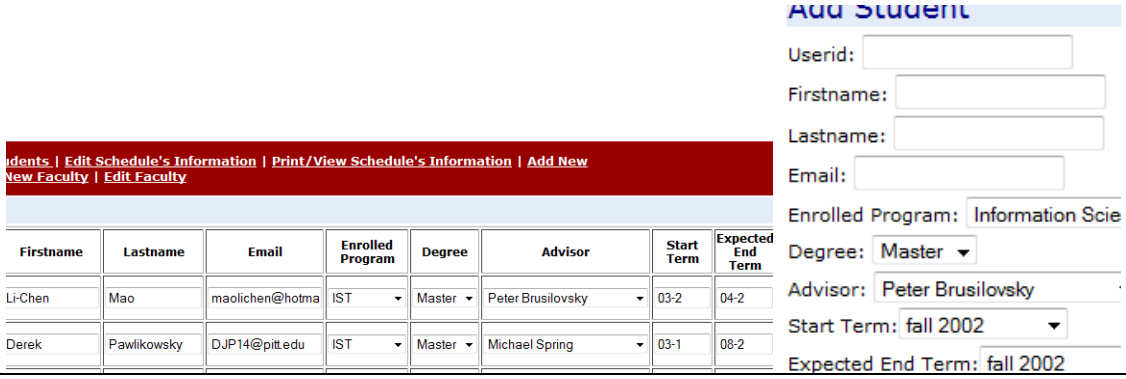
Submitted by
Denis Parra

HE34 -- Good Feature

Name
Consistency of terms

Evidence
Heuristic: Be consistent

Headers and the names of the fields in forms.



Explanation
The headers and names of the fields in forms are consistent, which helps to filter and identify information.

Benefit
Facilitate the administration by providing a common vocabulary to identify different entities.

Trade-offs
Consistency can lead sometimes to difficulty in displaying some terms, like “Expected End Term” as header of the table.

Relationships

Submitted by
Denis Parra

III. Summary

In this section, we summarize the heuristic evaluation using a table. In the table, we use the following numbers for the nine heuristics:

1. **Simple and natural dialog**
2. **Speak the user's language**
3. **Minimize user memory load**
4. **Be consistent**
5. **Provide feedback**
6. **Provide clearly marked exits**
7. **Provide shortcuts**
8. **Good error messages**
9. **Prevent errors**

Also, (+) denotes a good feature, while a (-) would indicate a bad feature (problem). Severity levels are as follows:

1. Low
2. Moderate
3. High

Obviously, severity does not apply to good features.

ID and Name	Heuristic	Good/Bad Feature	Severity
Student Interface			
HE1: Home page	1	(+)	-
HE2: Message on home page	7	(-)	1
HE3: Creating an account	1-2	(-)	2
HE4: Alignment of fields on the login form	4	(-)	1
HE5: Navigation bar and tabs	3	(+)	-
HE6: Naming convention for menu bar	2	(-)	1
HE7: Confirmation for updating profile	5	(-)	1
HE8: List of courses in a semester	3	(+)	-
HE9: Selecting multiple courses	3-7	(-)	3
HE10: Navigating back to the list of taken courses	6	(+)	-
HE11: Semester naming convention	2-5	(-)	1

HE12: Prompting the user to select a course to evaluate	9	(-)	1
HE13: Feedback to evaluation	5	(-)	2
HE14: Position of help/logoff links	4	(-)	1
HE15: List of career goals	2	(+)	-
HE16: Course information buttons	4	(-)	1
HE17: Career-related courses	1	(+)	-
HE18: Course Catalog	1	(+)	-
HE19: Work load display	1	(+)	-
HE20: Maintaining button consistency	4	(+)	-
HE21: Error message for “Visualize” button	8	(-)	3
HE22: Instructions in “Register” tab	3	(-)	1
HE23: Register for courses	5	(-)	2
HE24: Help document	7	(-)	3
Administrator Interface			
HE25: Main menu options	3	(-)	1
HE26: Main menu in “Add Student”	4	(-)	3
HE27: Log out	6	(-)	3
HE28: Update Button	7	(+)	-
HE29: Additional options in the menu	4	(-)	1
HE30: SQL code as result of the action	2	(-)	2
HE31: Course Schedule	5	(-)	1
HE32: Add new course	9	(-)	2
HE33: Course list in combo box	3	(-)	2
HE34: Consistency of terms	4	(+)	-

Now we start to do a few analyses on the data in the above table. Please note that any conclusion we make is only based on a limited number of observers and UARs.

We will focus on the bad features first. If we break down the problems by heuristics and student/admin interfaces, we get the following numbers:

1. **Simple and natural dialog**
    - Student: 1 Moderate
2. **Speak the user's language**
    - Student: 2 Low, 1 Moderate - Admin: 1 Moderate
3. **Minimize user memory load**
    - Student: 1 Low, 1 High - Admin: 1 Low, 1 Moderate
4. **Be consistent**
    - Student: 3 Low - Admin: 1 Low, 1 High
5. **Provide feedback**
    - Student: 2 Low, 2 Moderate - Admin: 1 Low
6. **Provide clearly marked exits**
    - Admin: 1 High
7. **Provide shortcuts**
    - Student: 1 Low, 2 High
8. **Good error messages**
    - Student: 1 High
9. **Prevent errors**
    - Student: 1 Low - Admin: 1 Moderate

So, on the student interface, heuristics “Provide feedback” and “Provide shortcuts” have the highest number of problems related to them. On the administrator interface, the problems are mostly related to “Minimize user memory load” and “Be consistent”. If we take an aggregative look at both interfaces, considering those four heuristics has the highest priority when trying to enhance the design.

From another point of view, when we look at the good features, there is no UAR that points to these heuristics: “Provide feedback”, “Good error messages”, and “Prevent errors”. It could mean that the designers would have to pay more attention to the importance of these heuristics to improve the interfaces.