Course-Management System: Final Report

Stuart Douglas
1214422
McMaster University
dougls2@mcmaster.ca

Matthew Pagnan
1208693
McMaster University
pagnanmm@mcmaster.ca

Rob Gorrie
1222547
McMaster University
gorrierw@mcmaster.ca

Derek Dagworthy
1214937
McMaster University
dagwordj@mcmaster.ca

ABSTRACT

A *design* project proposal for a course-management system is presented here. Such a system allows University students to enroll in courses, view their schedule and perform other course-related tasks from a web portal. The proposed project as well as suggested improvements are first explained. Four Canadian university course-management software surveys are then presented. Each survey has a brief description followed by a critique of the major usability flaws and strengths. Along with each survey, two of the most important features of each system will be further analyzed via hierarchical task analyses.

PROJECT PROPOSAL

The project proposed in this document is the design of a new university course-management system. Through scrutinization of several pre-existing systems, we will apply design concepts discussed in class to determine what features and design choices are crucial to the success of a course- management system's design.

It is commonplace for educational institutions to have one central course- management system which hosts all tools and information that students and staff may need to access. This includes tools to allow students to enroll in courses, view their schedule and view other course-related information. Additionally there are a variety of other tools to perform financial and administrative tasks, however this project's scope is focusing only on the course-related functions.

Course-management systems have achieved near omnipresence in the world of education, but there remains significant variability in their design, structure, and functionality. It is our goal to take the best aspects of the existing systems as well as consider the most prominent criticisms to develop a protoype of a new system.

In the following section we will introduce several possible improvements that could be made to these systems, informed by the system surveys below. It is these suggestions that we plan to incorporate into prototypes for later milestones.

Suggested Improvements to Existing Systems

There are a variety of improvements that could be made to course-management systems when compared to existing products. The software surveys identify several key areas of weakness, and solutions to these are presented below.

Dynamic Element

One of the highlighted points of weakness in all the systems surveyed is the ability to surface the most relevant data to the user quickly and consistently. To improve this aspect, the concept of an intelligent, "dynamic" element is proposed. This prominent element will be the first thing users see when accessing the webpage. Several factors including the current date and enrollment status will be used to determine which task the user is most likely to perform.

For example, when the user accesses the system during exam season, the element will display the student's exam schedule. During the course registration period, the element will display information related to course registration. If a user is not yet accepted into University, the element will display their application status.

This dynamic element will help users quickly find the information they are looking for by making information more visible and easier to access. If the user wishes to perform a less common task, all functions will continue to be displayed below in a static and consistent manner.

Improved Navigation

Many tasks performed by users of course-management software are broken into several steps. A weakness of the existing products is in visually showing the user at which step they are at. A proposal to improve on this is to include a navigation element when the user is engaged in a multi-step task. This element would show which step the user is currently on, and would include the ability to go back to a previous step, or jump ahead to the first uncompleted step.

This visual indicator would improve the user's comprehension of how the system works, and would give them the ability to better navigate between steps. It would also improve user satisfaction, as they are less likely to become impatient when they know exactly how many steps they have completed and how many remain.

Smarter Schedule Generation

Currently, the general process for selecting lecture, tutorial, and lab times when enrolling in courses can be broken down into the following steps. First, the user selects their desired and required courses. Secondly, they manually select times for each course, and the system generates their schedule. After viewing their schedule, users often have to go back and switch times to ensure there are no conflicts, or may wish to change times to have a more desirable schedule.

One important goal of the project is to simplify this process by employing a more intelligent schedule generating system.

After the users selects their desired and required courses, the system will generate several different timetables based on those courses. It will display all timetables that don't have any conflicts. These will be ordered based on perceived "desirability", which will be judged based on several factors including gaps between classes and start / finish times. The user will be able to filter certain schedules based on their own requirements and wishes, such as schedules that end after a certain time.

Implementing such a system would simplify one of the more tedious processes a user must perform, and will result in better schedules for users.

SOFTWARE SURVEY

Four course-management systems from Canadian universities have been selected for review. For each system, a brief description will be followed by a critique of the major usability flaws and strengths. From this, the main goals and tasks of users using the systems will be extracted. Finally, the two most important of those features will be further analyzed via hierarchical task analyses. Screenshots will be presented to reinforce the arguments in the critique for each software review.