

Course-Management System: Design Project Proposal

Stuart Douglas 1214422 McMaster University dougl2@mcmaster.ca	Matthew Pagnan 1208693 McMaster University pagnanmm@mcmaster.ca
---	---

Rob Gorrie ?? McMaster University ??	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. Five 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

Nam consectetur. Sed aliquam, nunc eget euismod ullamcorper, lectus nunc ullamcorper orci, fermentum bibendum enim nibh eget ipsum. Donec porttitor ligula eu dolor. Maecenas vitae nulla consequat libero cursus venenatis. Nam magna enim, accumsan eu, blandit sed, blandit a, eros.

Overview

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi commodo, ipsum sed pharetra gravida, orci magna rhoncus neque, id pulvinar odio lorem non turpis. Nullam sit amet enim. Suspendisse id velit vitae ligula volutpat condimentum. Aliquam erat volutpat. Sed quis velit. Nulla facilisi. Nulla libero. Vivamus pharetra posuere sapien.

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

Five 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.

McMaster University (current) – Mosaic

Description

The purpose of the software is to allow students to manage their courses (enrolling, dropping etc.), and view information about their current status (current timetable, enrollment status, financial balance etc.). The interface for the software consists of several distinct modules encapsulating different aspects of the software. These include Academics, Finances, Personal Information, and Admissions. The focus of this analysis is on two common tasks – enrolling in courses and viewing one's course schedule.

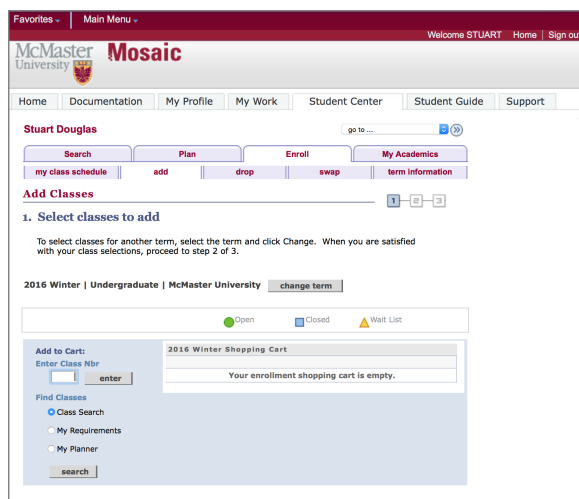


Figure 1: Selecting courses to enroll in – Mosaic

Critique

The largest usability flaws in Mosaic center around difficulty to access required information. Combined with an unintuitive and inconsistent navigation interface, the software is not very usable. The HTA for enrolling in a course demonstrates this through the large number of steps required to perform a routine and common task. Other functions are hidden behind dropdown menus, and are difficult to discover.

The navigation is separated into a top navigation bar separated by user-type (e.g. Students and Employees). Within the student center page, functions are separated into modules,

an effective strategy to group related functions. Navigating to one of the sub-functions (such as enrolling in a course) presents secondary and tertiary menus below the main one. Navigation within one of these is handled by blue text hyperlinks back to previous pages. Native back and forward browser functionality does not work. There is little visual indication of where the user is beyond the navigation bars at the top, which do not go to a depth sufficient to cover all pages used when performing common actions, such as enrolling in a course.

McMaster University (pre 2015) – Solar

Description

Nam consectetur. Sed aliquam, nunc eget euismod ullamcorper, lectus nunc ullamcorper orci, fermentum bibendum enim nibh eget ipsum.

Critique

Donec porttitor ligula eu dolor. Maecenas vitae nulla consequat libero cursus venenatis. Nam magna enim, accumsan eu, blandit sed, blandit a, eros.

Guelph University – WebAdvisor

Description

Guelph's Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi commodo, ipsum sed pharetra gravida, orci magna rhoncus neque, id pulvinar odio lorem non turpis. Nullam sit amet enim. Suspendisse id velit vitae ligula volutpat condimentum. Aliquam erat volutpat. Sed quis velit. Nulla facilisi. Nulla libero. Vivamus pharetra posuere sapien.

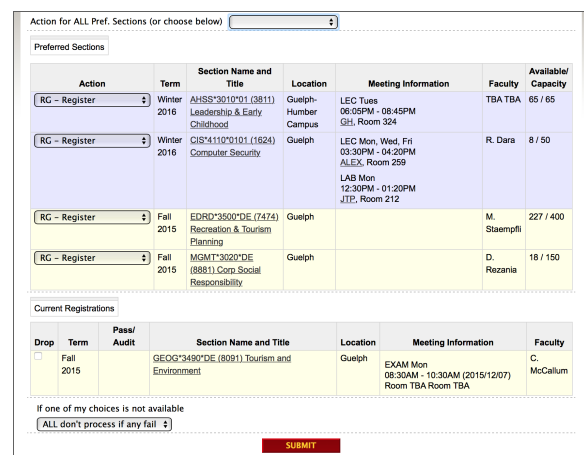


Figure 2: Registering for preferred courses – WebAdvisor

Critique

Aliquam erat volutpat. Sed quis velit. Nulla facilisi. Nulla libero. Vivamus pharetra posuere sapien.

Carleton University – ??

Description

Nam consectetur. Sed aliquam, nunc eget euismod ullamcorper, lectus nunc ullamcorper orci, fermentum bibendum enim nibh eget ipsum.

Critique

Donec porttitor ligula eu dolor. Maecenas vitae nulla consequat libero cursus venenatis. Nam magna enim, accumsan eu, blandit sed, blandit a, eros.

Waterloo University – ??

Description

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi commodo, ipsum sed pharetra gravida, orci magna rhoncus neque, id pulvinar odio lorem non turpis.

Critique

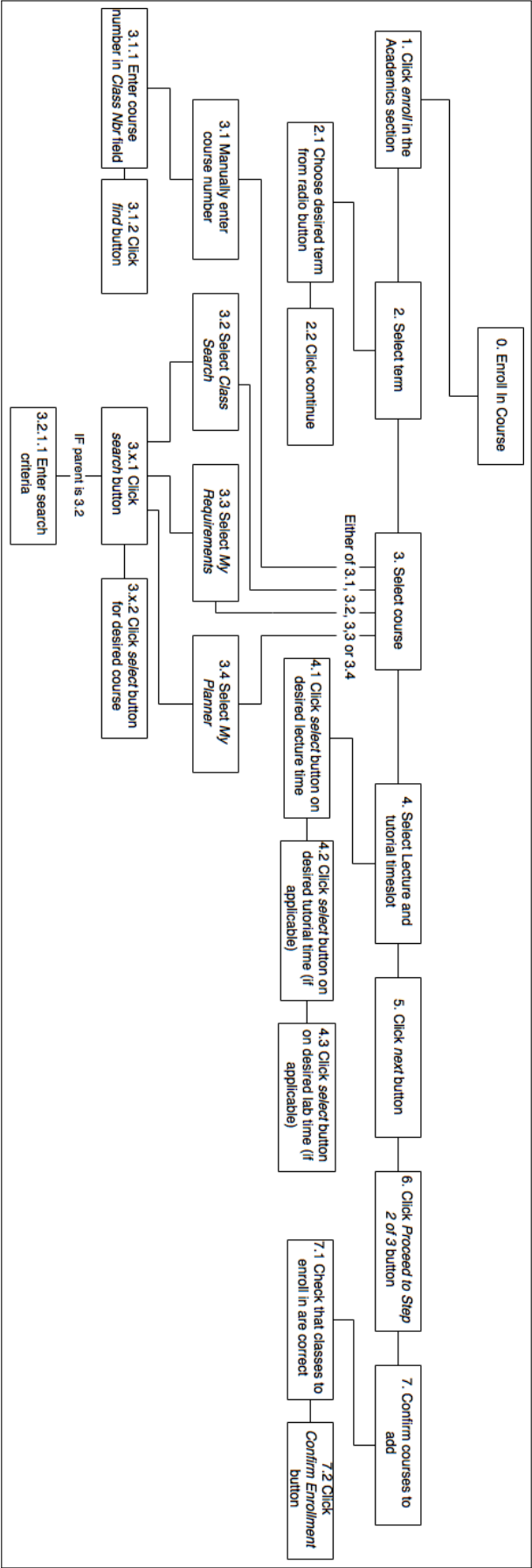
Nullam sit amet enim. Suspendisse id velit vitae ligula volutpat condimentum. Aliquam erat volutpat. Sed quis

velit. Nulla facilisi. Nulla libero. Vivamus pharetra posuere sapien.

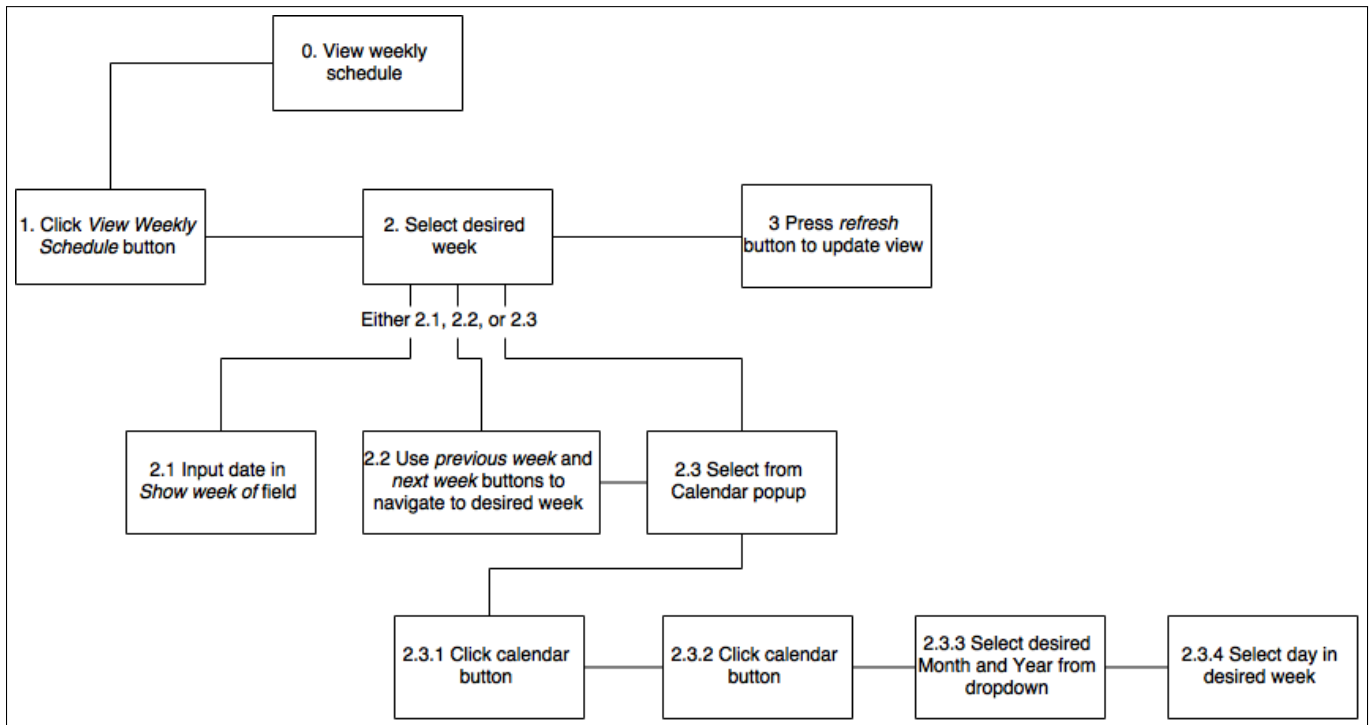
CONCLUSION

We have discussed several proposed improvements to a course-management system. These include a dynamic element highlighting the most-needed feature based on several factors, an improved layout with better indicators, and a more intelligent course scheduler. We have also provided a software survey for five Canadian university course-management systems. For each survey we critiqued the software as well as analyzed the two most important features via hierarchical task analyses, presented at the end of this paper.

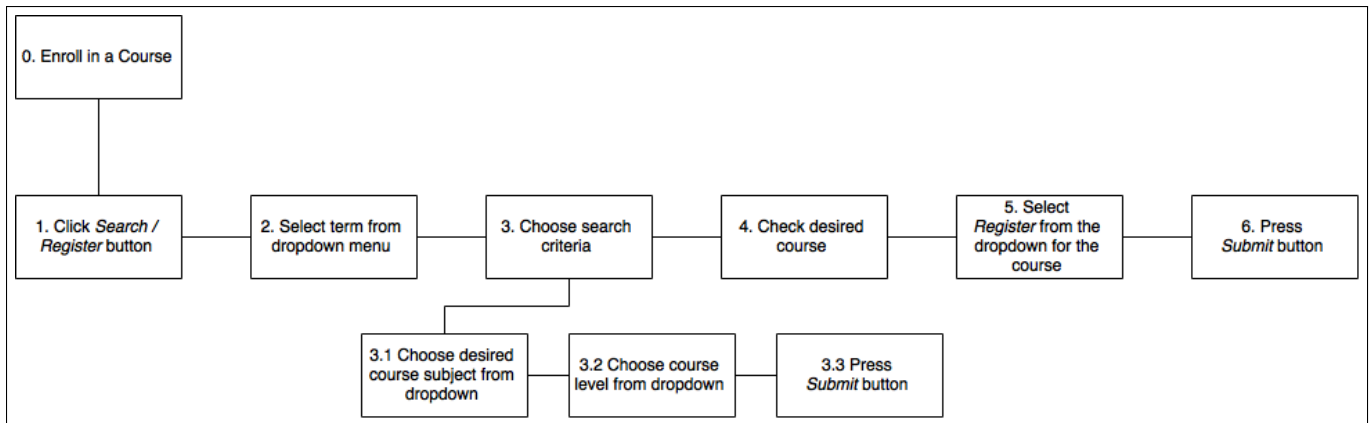
HTA - MOSAIC, ENROLLING IN A COURSE



HTA - MOSAIC, VIEWING WEEKLY SCHEDULE



HTA - WEBADVISOR, ENROLLING IN A COURSE



HTA - WEBADVISOR, VIEWING WEEKLY SCHEDULE

