CMSC 122 Project Proposal

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Project Title: "Schedulator"

Project Goals:
The goal of our project is to allow students to better find specific courses (one at a time) by refining course search results based on specifications they provide. We also hope to allow students to better visualize their schedules with our project by building in functionality to our program that will export their class schedule as a (Google and/or python-based) calendar series of events. This program will interact with users through a graphical user interface (GUI). A student will be able to input what classes he or she is currently taking, and then search for classes by applying various filters to specify what qualities s/he is looking for in his/her next class. The program will return a list of classes that meet those criteria, ranked by relevance, which the student can browse. Associated course evaluation and teacher evaluation information for each recommended class will also be presented with the search results and will also be used to rank the results. Selecting a course will add it to the student's schedule as well as produce a calendar of what his/her schedule currently looks like. Once the class is added to the schedule, the student can return to the homepage and find another class with new criteria and a new schedule, until s/he selected all the classes s/he want to take.

The student will be able to filter the classes by inputting: the maximum number of hours they want to spend on the class, a minimum "agreeability" score for teacher and class quality, the subject/department, and the days of the week the class meets. The program will also filter out any classes that meet at times in which the student is already in class (based on their current schedule). Hours spent on the class and scores for quality will come from averaging information from previous evaluations.

Source of the Data:
We will be scraping data for classes in every department from the my.UChicago.edu classes page/portal and extracting their respective meeting times, as well as course/professor evaluations. We then expect to store this scraped data in a SQLite database for analysis. Time affording, we also hope to be able to take advantage of the python calendar library or the Google Calendar API to allow us to display our output in a calendar/schedule format.

Basic Sketch of the Work Required
  Components:
- Main program (including GUI-interpreting functions, web scraping functions, functions to query the SQL database for relevant results, and functions to create the output)
- GUI
- Database (using SQLite)
- Export into an ical event to display on a calendar (or at the least a graphical representation of a schedule of some sort)

  Description:
In order to collect the data we need, we expect to scrape class data from both the UChicago Course Evaluation website as well as the My UChicago's course website using Python's BeautifulSoup Library. We will scrape the Course Evaluation sites to gather data such as the low, high, and average number of hours a class entailed in order to help students decide how to organize their schedules. We also hope to gather

quantitative evaluation data on student responses for instructor and course experiences (e.g. percentage of students that strongly agreed the instructor presented the course in a clear way, percentage of students who thought the demands of the class were reasonable). The My UChicago course website will be scraped to gather meeting-time information (time of day, days of the week) for all available classes, as well as course title/number, and the course instructor if available.

In scraping these websites, we also hope to use a database and programming language such as SQL that will allow us to store the information scraped in an easily accessible and efficient manner. Being able to store course evaluation in a database ahead of time will make course searches and calendar making quick. Additionally, we expect to utilize python's "calendar" library to help format the data of our calendar and/or use the Google Calendar API in order to create usable/exportable calendars for student use. Finally, the deliverable of our project will be in the form of a GUI/webpage in which students can utilize filters and input data regarding classes they are required to take, times/days which cannot have classes, amount of time they can dedicate to a single class, and other potential filters.

Timeline (tentative):

	Assignments	Goals
Week 4		Write code for scraping 1) class search site 2) course evaluations
Week 5	PA3	Store code in a database (SQLlite)
Week 6		1) Create database filter 2) Create GUI
Week 7	PA4	Finish up GUI interface
Week 8		Connect to calendar output
Week 9	PA5	1) Debug 2) Wrap up
Week 10	Presentation	