CS Advisory Planner

Enhanced Context Diagram, User Stories & Feature Definitions

A CS Advisory Planner is proposed to complement, facilitate, and enhance the academic advising process involving students and faculty within the Computer Science program at Metropolitan State University of Denver.

This document provides information intended to support the development of such a product, and to enhance materials previously generated.

Version Fall 2014 – 1.1

Purpose[1]

The purpose of this project is to make a software system that will assist students in keeping track of their required curriculum throughout their attendance at MSU Denver within the Computer Science program. The system will keep track of what prerequisites are needed and what prerequisites are met by each student throughout their attendance in the program. The product will allow advisors to look up student data and quickly assist in the shaping of their schedules. It will enable students to request future classes so that the faculty and staff of the Computer Science department can determine the current demand from students for each class. The software system will also include features to assist faculty in making schedules for future semesters for the Computer Science program.
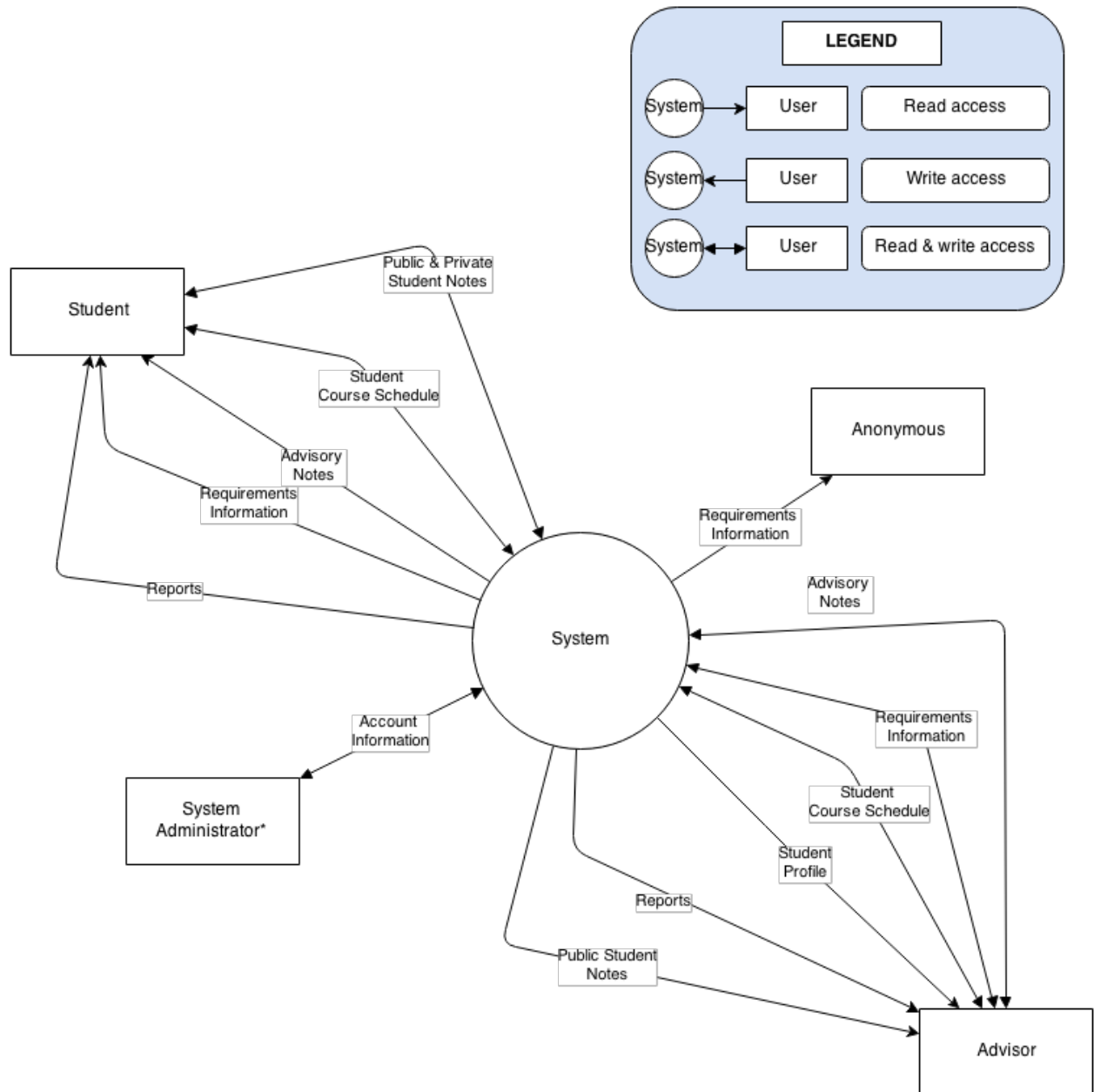
Scope

The system's user interface will be a website and will be supported by a local web server. The web server will handle requests from the front end, manipulate information stored in the database and send back appropriate information. The system will provide the students or interested parties with information about classes they need in order to complete the Computer Science program as well as prerequisites for those classes. Enrolled students will be able to enter information about their classes as well as enter notes relating to their schedule. They will also be able to retrieve any saved information as well as notes entered by advisors. Advisors have the ability to retrieve student profiles from the system and enter notes relating to the students schedule or future plans. Advisors will also have the ability to generate statistical reports based on data entered by students. In addition, Advisors can also add or edit information about classes. System administrators will have all the same abilities that the advisors do. They will also be able to edit account information and change the account type.

Demographics

This product will be used within Metropolitan State University of Denver by students enrolled or interested in the Computer Science program and by faculty of the Math and Computer Science Department.

---

[1] The details included on this page are pulled from the original documentation of the project and modified to reflect the new context diagram and user stories included here.

CS Advisory System
Context Diagram

LEGEND

System → User		Read access
System ← User		Write access
System ↔ User		Read & write access

Student

- Public & Private Student Notes
- Student Course Schedule
- Advisory Notes
- Requirements Information
- Reports

System

Anonymous

- Requirements Information

Advisor

- Advisory Notes
- Requirements Information
- Student Course Schedule
- Student Profile
- Reports
- Public Student Notes

System Administrator*

- Account Information

*System Administrator also inherits all information flows associated with Advisor.

Definitions

Users:
See Identified Stakeholders under User Stories.

Advisory Notes
Notes entered by advisors regarding students' scheduling information.

Public Student Notes
Notes entered by students regarding scheduling information.

Private Student Notes
Any ulterior notes entered by the student.

Student Profile
This includes advisory information, personal schedule data and any information entered by the student.

Reports
Statistical analysis of: data entered in by Computer Science Students, class information, and enrollment information.

Account Information
This includes the amount of access an account has and any other information associated with it.

Student Course Schedule
Student Profile: This includes advisory information, personal schedule data and any information entered by the student.

Requirements Information
Classes a Computer Science student needs to complete in order to finish their degree. This will also include what prerequisites are required for each class.

CS Advisory Planner User Stories

The user stories presented below were generated by student stakeholders with several years of domain knowledge. The user stories are intended to be used as a tool to communicate with key stakeholders in a process of eliciting and defining product requirements. The user roles for each stakeholder are not intended as full personas, but as limited definitions of general user roles as they apply to the context diagram and to support user stories.

The avatar in the top left corner of each user story matrix indicates to which stakeholder the user story applies.
User stories are grouped by feature then sorted by priority.

Identified Stakeholders:

* Advisor

A member of the Computer Science Department's Faculty who is currently authorized to advise students with their college schedules. Advisors will utilize the CS Advisory Planner to assist students in creating a realistic and useful course schedule. Advisor as defined here is separate from a professor. Any advisor has the capability of advising any student.

* Student

A currently enrolled Computer Science student seeking assistance with their course schedule. A student will use the CS Advisory Planner to help them develop a realistic course schedule for the CS major that provides a path to graduation.

* System Administrator

A system administrator maintains the data within the system, supports user access issues, and also has the same access as an advisor. It's the System Administrator's job to ensure all users have proper access to the most up-to-date information possible.

* Anonymous

Any individual that is accessing the CS Advisory Planner but has not authorized themselves as another user role is an anonymous user. Has access to otherwise public information that is stored within the CS Advisory Planner, such as information in the public MSU Denver course catalog, as well as prerequisites for classes. An anonymous user will use the freely available information for easy reference, and possibly for evaluating whether the Computer Science major is the right fit for them. They cannot, however, access any of the scheduling, note-taking or report functionality.

* Images by WULAX are taken from OpenGameArt.org (http://opengameart.org/content/lpc-medieval-fantasy-character-sprites) and have been made available by the author under the Creative Commons and GNU licences.

Definitions:
Priority - A rating of the essentiality to the referenced stakeholder for the initial version of the CS Advisory Application; Ranked 1 (low) - 10 (high).
Est. Effort - The estimated effort to implement the user story. Ranked 1 (low) - 10 (high).
Feature - The feature to which the user story is categorized.

	As any user
Priority: 9	**I want** the system to be secure
Est. Effort: 9	**so that** no one else can access my information
Feature: Security	

	As an Advisor
Priority: 10	**I want to** view a student's profile
Est. Effort: 8	**so that** I can help advise him or her
Feature: General	

	As an Advisor
Priority: 7	**I want to** view all the classes that a student completed at MSU Denver
Est. Effort: 5	**so that** I can estimate where a returning student is at in a CS program
Feature: General	

	As an Advisor
Priority: 7	**I want to** view all the classes that a student is currently taking at MSU Denver
Est. Effort: 5	**so that** I can advise him or her on choosing classes for the upcoming semester
Feature: General	

	As an Advisor
Priority: 7	**I want to** view all the classes that a transfer student is currently taking at other school(s)
Est. Effort: 5	**so that** I can advise him or her on choosing classes for the upcoming semester at MSU Denver
Feature: General	

	As an Advisor
Priority: 6	**I want to** add classes to the class list
Est. Effort: 6	**so that** I can maintain the classes
Feature: General	

	As an Advisor
Priority: 4	**I want to** view all the classes that a student hasn't completed due to his or her academic history
Est. Effort: 9	**so that** I can generate a report that suggests a graduation path for this student
Feature: General	

	As an Advisor
Priority: 4	**I want to** edit a student's course schedule
Est. Effort: 7	**so that** I can help assemble each semester's schedule for a student's future semesters
Feature: General	

	As an Advisor
Priority: 6	**I want to** to add notes to a student's profile
Est. Effort: 6	**so that** I can communicate with the student about their schedule.
Feature: Notes	

	As a Student
Priority: 6	**I want to** to add private notes to my profile
Est. Effort: 3	**so that** I can add information that is about my schedule but not specific to any class
Feature: Notes	

	As a Student
Priority: 6	**I want to** to add public notes for advisors to my profile
Est. Effort: 3	**so that** I can communicate to an advisor about my schedule.
Feature: Notes	

	As a Student
Priority: 6	**I want to** to access advisors' comments on my profile
Est. Effort: 2	**so that** I can receive communications from advisors about my schedule.
Feature: Notes	

	As a Student
Priority: 6	**I want to** to access my notes on my profile
Est. Effort: 4	**so that** I can view all notes easily and in context with my schedule
Feature: Notes	

	As an Advisor
Priority: 5	**I want to** to access a student's notes
Est. Effort: 3	**so that** I can receive communications from a student about their schedule.
Feature: Notes	

	As an Advisor
Priority: 4	**I want to** to review a student's notes alongside their profile
Est. Effort: 4	**so that** I can easily deliver focused, specific responses to a student's notes and/or profile.
Feature: Notes	

	As an Advisor/Student
Priority: 10	**I want to** view a list of all courses offered by the institution which are directly related to the Computer Science curriculum
Est. Effort: 3	**so that** I can navigate courses easily.
Feature: Class View	

	As an Advisor/Student
Priority: 7	**I want to** a list of courses which includes for each course, a title, course call number, CRN number, course schedule, and professor
Est. Effort: 3	**so that** I can quickly view vital information about the course.
Feature: Class View	

	As an Advisor/Student
Priority: 8	**I want to** search courses by title, course call number, or CRN number so that I can find a specific course
Est. Effort: 5	**so that** I can easily access the course I am looking for.
Feature: Class View	

	As an Advisor
Priority: 7	**I want to** search for a certain class based on its prerequisite, number or name
Est. Effort: 9	**so that** I can help a student check to see if he or she meets the prerequisite to get into that class
Feature: Class View	

	As a Student
Priority: 7	**I want to** know what classes are being offered next semester
Est. Effort: 4	**so that** I can request certain classes
Feature: Class View	

	As a Student
Priority: 7	**I want to** know what classes are required
Est. Effort: 4	**so that** I can meet the required classes for the major
Feature: Class View	

	As an Advisor/Student
Priority: 6	**I want to** have a detailed view for a course which includes title, course call number, CRN number, course schedule, professor, availability (by semester), prerequisites, time of day offered, course description, and curriculum requirements to which the course applies
Est. Effort: 3	**so that** I can have all relevant course information in one place.
Feature: Class View	

	As an Advisor/Student
Priority: 6	**I want to** query for a list of courses which meet certain curriculum requirements
Est. Effort: 7	**so that** I can find an appropriate course for a given requirement.
Feature: Class View	

	As a Student
Priority: 5	**I want to** view a list of courses which are offered on given days of the week
Est. Effort: 5	**so that** I can schedule a course into an existing schedule.
Feature: Class View	

	As an Advisor/Student
Priority: 4	**I want to** filter courses that are offered during free times in a student's published schedule
Est. Effort: 7	**so that** responsibilities scheduled do not overlap.
Feature: Class View	

	As an Advisor
Priority: 8	**I want to** access all the reports that associated with a student's interests
Est. Effort: 4	**so that** I can analyze data that will answer them
Feature: Reports	

	As an Advisor
Priority: 7	**I want to** generate a report for the expected graduation time of a student
Est. Effort: 4	**so that** I can help guide a student along their educational path
Feature: Reports	

	As an Advisor
Priority: 7	**I want to** generate a report that gives the requested times students can take classes
Est. Effort: 4	**so that** classes can be scheduled for more students to be able to attend this class
Feature: Reports	

	As an Advisor
Priority: 6	**I want to** generate a report for the failure rate of a class
Est. Effort: 4	**so that** I can better predict the class load of this class in a future semester
Feature: Reports	

	As an Advisor
Priority: 6	**I want to** generate custom reports
Est. Effort: 7	**so that** I can view specific data.
Feature: Reports	

	As an Advisor
Priority: 5	**I want to** generate a report for the student interest of a class.
Est. Effort: 4	**so that** I can better predict the class load of this class in a future semester
Feature: Reports	

	As an Advisor/Student
Priority: 4	**I want to** generate a report that gives a suggested student schedule
Est. Effort: 8	**so that** I can more effectively help the student with their schedule
Feature: Reports	

Appendix: Feature Research

This appendix contains research relating to features necessary for users of the system. The features included in this section are reports, notes, and requirements information (named the Class View). These analyses were used to inform user stories as well as the context diagram. The intent is to serve as a means for eliciting, specifying, and validating requirements. The premise is that such anticipatory documentation, driven by and in conjunction with user stories, may prove to be more effective than other forms of software requirements specifications.

Reports

Reports are something that can be run by advisors to give details about specific statistics that give back info on students or classes. These reports will help serve the faculty and students in advising and scheduling. Below are examples of reports. These reports are, and not limited to

Class Interest

This report gives statistics on the classes students currently have an interest in. This will allow advisors and faculty make up coming semesters schedules as they can see what classes are being requested by students.

Expected Graduation Time

This report will give the estimated graduation time of a student(s) based on classes taken and there mock schedules. This report will also help in the scheduling of classes for more senior level classes in future semesters.

Suggested Schedule

This report is for both students and advisors. With this report one can get a suggested schedule for the remaining of their academic carrier, based on what classes one still needs to take, and how many credits one can take in a semester.

Requested Class Times

This report gives the statistics on when students are requesting classes. With this information advisors and faculty could change the timing of certain classes to allow more students to take them who can not be on campus at certain times.

Notes

Notes are a communication tool, to be used for advisors and students to share thoughts or feedback about the student's schedule, as well as enabling a student to document thoughts or details important to them about their college career but not necessarily specific to a particular class in the course schedule.

Access

Notes appear on the student profile page, available alongside the scheduling functionality. This enables more contextual communication between student and advisor, since the user can review notes while reviewing the schedule. Access to notes would simply be accessing the student profile in question and viewing the notes that appear on that screen, this will include all notes from the student and advisors. A precise location on the page can be determined later, but some potential locations are along the right or left sides, or along the bottom of the screen. Some different alternatives are explored in the appendix below.

Student Notes versus Advisor Notes

The only users that can add notes to a particular student profile are the student himself/herself (no other students) or any Advisor user. So aside from different access to student profiles, there are effectively no differences between student notes and advisor notes, with the exception of any design choices made later on. The one difference is that a student should be able to add private notes that only he or she can access.

"Conversations" using Notes

All notes are bundled together in the same Notes area on the screen. All notes from any user are displayed in the same area with a displayed username differentiating the author of individual notes. A benefit to this approach is that notes are a part of the same "conversation" persisted across the lifetime of the student profile, which allows ongoing context and history as the student schedule is developed.

Visibility

Notes will always be visible when viewing the student profile and schedule. Private Student Notes should only be visible to the student, and public notes authored by advisors or students should be visible to all users with access to the student's profile.

The Class View

The class view is a complete overview of all classes associated with a computer science degree in an easily understandable, and searchable fashion. This view allows the advisor and student to see the Name, CRN, Description, and requirements for all the classes available.

Accessing the Class View

The class view can be accessed via the top menu bar of the website.

Using the Class View

The class view Contains a list of all classes directly related to a Computer Science Degree.

Search Bar

There is a search bar in the top right hand of the page which can be used to search for a specific class by CRN number or class title.

Column Titles

Each class occupies a single row. Each row is divided by Class Title and CRN. The classes can then be sorted by CRN and Class Title for ease of use.

Class

Each class can be clicked, in which the class will expand and the Description and requirements can be viewed. The expanded classes required classes can also be clicked, taking the user directly to the required classes column.