Graduation Plan Optimizer

Comp 680 Advanced Topics in Software Engineering Software Proposal

Jesus Moran Perez, Daniel Hunt, Chattan Singh, Eric Vance

February 1, 2017

Project Objective

To provide new and returning students at California State University Northridge (CSUN) with an adaptable plan to graduation, along with possible upcoming semester schedules. The website will save students plans to graduation for future reference. Possible semester schedules will include class times and professors, along with Rate My Professor ratings. The ratings will also include reviews about the class being considered if there are any. Since user interface is very important, the website will be focused on providing an easy to understand user interface. This will help minimize the confusion that usually happens when selecting classes for a major. Many students experience the inconvenience of not getting the classes they need. By selecting what classes the student wasnt able to enroll into, the website will build a new semester schedule and plan to graduation.

Technology Stack

Front End: HTML5, Javascript, CSS3
Backend: PHP, MySQL, Perl
Framework: CakePHP
Server Host: CSUN Webdrive Test/Production
OS: RedHat
IDE: PHPStorm, DataGrip, VIM
Team Management: Slack
Code Management: Git, GitHub

Sprint 1

Goal: During sprint one the team will focus on building to core functionality into the the web application. By the end of this sprint the user should be able to create a graduation plan anonymously or save within their account, view the graduation path graphically and text format, change add classes, comment on classes.

User Stories:

1. As a freshman who knows exactly what degree I want, I want to know the classes and order of classes I need to take.

   Tasks:

   (a) Add Enter Name or Anonymous option to the GUI
   (b) Add a LogIn functionality
   (c) Link the LogIn to the Database
   (d) Add a dropdown that allows the user to choose a major
   (e) Add an algorithm that generates class schedule from major option
   (f) Link the class schedule to the Database
   (g) Add all possible classes to the database

2. As a freshman who knows what I want to study, but doesn't know what degree or classes apply to it, I want to know which classes I should take and in what order.

   Tasks:

   (a) Add Interest choices a user can select from
   (b) Develop an algorithm that converts users interests to degree options

3. As a freshman who is not sure what I want to study, I want to list some interests and get different schedules of classes I may be interested in and what degree that would lead to.

   Tasks:

(a) Add a field of interest Textbox

(b) Develop an algorithm that takes in what field the user wants to study and converts it to degree options

4. As a freshman who knows, doesn't know, or has an idea, I want to know if I chose this major, how long it would take me to complete that degree and what type of jobs and their average salaries on the current market.

Tasks:

(a) Add a button that generates the time it would take to finish the degree

(b) Add a button to show what types of Jobs and the average salaries are available with chosen degree

5. I want to be able to swap in different classes and have my schedule and long term plan change accordingly.

Tasks:

(a) Add the GUI that turns the generated class schedule into a calendar view

(b) Add functionality that allows users to swap classes as long as it fulfills the degree requirements

6. I want to be able to define my availability and have my path to graduation change based on that.

Tasks:

(a) Add GUI option that allows user to type in availability based on a weekly schedule

(b) Develop an algorithm that takes the users schedule and generates the best available plan for that semester

(c) Add a Rating System to the GUI and link it to the Database

(d) Allow students to leave comments on the separate classes in the rating system

Sprint 2

Goal: By the end of sprint two, the user should be able to view possible schedules (class times) for the upcoming semester. The system should be able to rearrange the schedule if the user cant take certain classes. The user can then select schedules by priority and view ratings of the professor from RateMyProfessor.com. The user will be able to export the graduation plan by email or add to calendar.

User Stories:

1. I want to be able to see the different professors of the different classes and their ratings from rate my professor.

Tasks:

(a) Add the search feature to the GUI

(b) Get the data from Rate My Professor and import it to our database

(c) Develop a system that updates Rate My Professor data on a weekly basis

(d) Allow users to search by professor or by class

2. I want to be able to rate these professors and provide feedback to other students that are thinking about taking them.

Tasks:

(a) Add the rating feature the Rating System GUI and allow users to add their ratings

(b) Add feature that allows user to leave feedback in their rating

(c) Add a textbox that shows what other user have said about that professor

3. I want to see the path other students chose and how it compares to mine.

Tasks:

(a) Add a button that allows user to see other plans in the database from other students in the same major

(b) Anonymize and student data that is shown to the user

4. I want to be able to see my progress towards graduation.

Tasks:

(a) Add a GUI component that shows the students progress towards graduation

(b) Develop an algorithm that takes a user's current classes and shows them how many and which they have left

5. I want to see other options of classes that will fit in my schedule and choose from them.

   Tasks:

   (a) Add a UI feature that gives students options of classes that will fit their schedule
   (b) Develop an algorithm to find these classes

6. As a student, I want to be able to choose multiple degrees from the same college and follow the generic plan in case I want to switch later on. (ie. be able to take the generic classes that will count for either path that they take).

   Tasks:

   (a) Add GUI component that allows users to choose and save multiple degree plans
   (b) Develop an algorithm that generates generic plans based on major options for that semester