Proposal: Implementing Student Major Assistant

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Abstract

A major concern for many college students is to graduate with minimal student debt. If a student is able to choose a major as soon as they can, they would not spend tuition money on courses that they were not required to take. I plan on implementing a web based application that would assist a student with choosing a major and planning a course path towards graduation. A successful implementation would be a new application that schools can use to assist their students choose an education path sooner rather than later.

1 Introduction

1.1 Purpose

For many students entering a college or university for the first time can be daunting. For one, some students cannot afford to enter higher education without having chosen a major from the beginning. Unfortunately, some declare majors too soon and realize that they do not want to pursue their chosen major. They are often left with two options, continue on the same path in order to graduate on time, or change majors pushing their graduation another semester or longer. Other students may face a different problem. It may be the case that they do not declare a major until they are deep into their education and realize that the courses they have taken may not be associated with their newly chosen major. Additionally, scheduling classes can become a headache, especially with majors like computer science where some required courses are not offered every semester. Furthermore, if you don't know the prerequisites or the time of course offerings for required computer science majors, you may miss the opportunity to register and as a result push your graduation an additional semester or even worse, an additional year. As the saying goes, time is money, so it is in the student's best interest to graduate as soon as possible.

I plan on implementing an application that would minimize such problems. The primary purpose of this application would be to assist students decide on a major by taking into account transfer credits and interest. Secondary, would be the function of assisting with class scheduling. If time permits, as part of the application, I would like to add the feature of notifying students that they can register into a class that was previously full. Pacific Lutheran University (PLU) lacks such an application that is vital to students. I feel that this would assist students to come out of college with a degree that would help them find a satisfying career in a timely manner.

1.2 Research

I have previously taken a course in database management which would assist me when creating the back-end database for the application. I would need to get a hold of dummy data or create my own to populate my database. I understand that this application would follow the client/ server model. Besides that, I would need to do more research on reading from a web page to pull information into the application. From there, in order to create a pleasant user interface, I would need to learn CSS, XHTML, JavaScript and possibly other languages that I am not aware of that could assist me with this process. Additionally, I will need to understand the workings of web services. I hope to learn and understand the principles to these required tools. Knowing that I will need to gain so much knowledge to even begin is intimidating, but also exciting because I would be increasing important skills to present to future employers.

2 Goals

2.1 Educational Objectives

My educational principle objective is to gain as much experience and understanding of the process of application/ software development. The following objective would be learning in demand skills and languages that would make me marketable to employers. Some of these skills include a solid understanding of the web/server model, database management, web services, scripting, and the experience on working on a near year long project.

2.2 Functional Objectives

The primary functional objective would be to have a working web application with the ability to assist a student decide on a major based on transferred credit and the Strong Interest Inventory. Secondary would be the additional function of planning course loads per semester. And lastly, would be the ability to send a text message to alert students of open positions in full courses.

2.3 Success Criteria

Upon completion, measuring the success of this project would be in the amount of new skills and knowledge gained. In addition, delivering a working application with one of the three objectives would render success.

3 Predicted Requirements

3.1 Cost/ Workspace

Estimated approximate costs are minimal. Most of the information that I will need to learn can be pulled from the internet. But if I do implement the function that alerts students through text message the availability of a course, I may come across some service fees. More research would

need to be done in order to concretely state the cost. I do not anticipate requiring a project room at this moment since I would not need to store extra supplies or materials. I would however be in need of a CSCE account to be used as a web server

4 Predicted Challenges

4.1 Challenges

I have never created a project of this scope; therefore I do anticipate many challenges. The first challenge I foresee is my lack of knowledge with the storage of the Strong Interest Inventory. I am not aware if there is information stored in PLU's databases for a student that contain results from the inventory, or if all I would have to work with is a PDF document. In order to prepare for this I would need to contact Career Development to get a better understanding of how the results are processed and stored. Similarly, grabbing the information needed in real time from a website like banner would be a challenge. Other challenges could include the accessibility of PLU's databases that contain student records and courses/ majors information. Would I be able to access this information? In this case, I will need to contact the appropriate staff member(s) who would be able to inform me of what information I would be able to use for my application. Additional challenges could come across as unexpected expenses. The best preparation for these and all challenges would be contacting the appropriate PLU staff early in the semester in order to create an alternative plan, as well as have early prototyping.

5 Time line

5.1 Tentative Schedule

Month	Objective
September	For the project and course I will create a project website. I will begin research on what I should be learning, if there are any similar applications that could assist me in understanding the implementation, begin contacting personnel for proper permissions and access, and begin learning new languages.
October	Begin work on Requirements document. Gather necessary information for the Design document. Continue learning and practising new languages by creating small scale prototyping of user interface. Possibly meet with staff members to discuss PLU's databases and possible web hosting.
November	Work on design document. Begin small scale implementations by creating necessary databases and dummy information.
December	Present design document. Continue with databases and create use case queries.
January	Take J-Term course. Works on business logic layer.
February	Connect UI with DB create and implement test use cases.
March	Flesh out bugs and issues, modify application as needed begin implementation of "waitlist" notification.
April	Continue integrating the notification via text to the application.
May	Finalize the application by making necessary adjustments to maintain functionality. Present at Academic Festival. Turn in final paper.