Lab 1 – Product Draft

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Table of Contents

List of Figures

List of Tables

1 Introduction

College is supposed to be a time of self-improvement and learning, and while it can sometimes be difficult and stressful, whether that is because of a heavy course load, difficult material, or adjusting to the rigors of college life, there is no need to make things unnecessarily difficult for students who are trying to sign up for their new semester. One of the main problems with online scheduling for college classes seems to stem consistently from the way that the current applications handle scheduling and conflicts. College students and their advisors can often spend overly excessive amounts of time trying to figure out timing conflicts when preparing to register for classes. Required classes may sometimes overlap with each other or students could have other commitments that make it even more challenging to successfully schedule needed courses to finish their degrees. GradMap is a new application that aims at trying to correct these problems and bridge the gap left by traditional scheduling applications.

In most cases, one of the biggest issues that students are initially challenged by is simply understanding the courses required to successfully complete their chosen degree. Many schools do provide students with a sheet that lists the classes that the student should take, but there is no insight into which courses should be taken when and in what order it would be best to complete them. Often, selecting the wrong courses can add a semester or more to the degree program and students can often spend extra time trying to navigate the degree requirements and still not understand what they should do (Abele). Degree maps can sometimes help to alleviate some of this stress, but even then, there is a chance that the maps can be incomplete and fail to highlight critical courses that must be taken in the academic term listed in order to graduate on time (Abele). There is also the problem of "hidden prerequisites," which are courses that are not listed as required in the course catalog but are listed as a pre-requisite to one of the required courses for the degree (Abele).

Another problem that students can often face is the fact that classes are finite. There are only so many classes open for a given course and those classes only have a certain number of available seats. Students can often find that a required course is not offered in the semester that they need it, is offered without enough available seats for everyone who needs the course, or is offered at a time that conflicts with other required courses (Abele). When a required class is only offered at certain times and those times conflict with the student's other required courses, students may get "stuck" and be unable to register, which can lead to a delay in graduation due to the additional semesters that may be needed just to complete their degree requirements.

As a result of insufficient class registration systems, universities can have lower graduation rates due to people not being able to complete classes and advisors spend more time than necessary trying to look for accommodation for student schedules. The goal of GradMap is to challenge this ongoing problem by using a tailored UI that responds to user input to accurately and efficiently assist students and advisors with creating the best possible schedule each semester in order to ensure that course requirements are met as quickly and easily as possible. GradMap will aim to include options that are tailored to the student's major degree requirements, the pre-requisites that will best help them to further understand the course material in the required

courses, the courses that are offered in a given semester, and student time restraints because of conflicting schedules.

Stress is a part of college life, but there is no reason that graduation should be harder to achieve just because of scheduling errors that make it hard to fulfill degree requirements and the possibility that a student may have to add on more semesters than they planned for, which could lead to drop-outs due to financial strain. GradMap aims to help students overcome these challenges by implementing a system that will make scheduling a breeze and reduce stress on the student. The long-term goal of this application is to help make sure that more students successfully complete their degree and enter the community after graduating with all of the tools and knowledge that they need to be successful in their field, without compromising their pocket book or school/life balance.

2 Product Description

Our solution is GradMap, a web application that helps college students and advisors create seamless, conflict-free, and degree compliant schedules in a matter of minutes. GradMap works by building personalized class plans based off of each individual student's degree requirements, time availability, and personal preferences. Its real-time smart suggestions and conflict alerts set it apart from the competition. This is truly a graduation success platform that keeps students on track, eliminates registration headaches, and helps to promote graduation success by helping to eliminate the confusion and uncertainty of vague degree requirements and confusing course pre-requisites.

2.1 Key Product Features and Capabilities

GradMap provides students and advisors with a reliable, easy to use system that makes signing up for classes a breeze. Unlike current traditional competitors such as Degreeworks, Gradmap combines degree requirements, course availability, personal preferences/time constraints, and advisor collaboration into one complete platform. Through GradMap, students and advisors can sort through available courses each semester, see the courses that the student should be taking next to work towards the completion of their major, see which pre-requisites they might need or that might be suggested to assist with understanding the course material, and determine which classes are available without overlapping with pre-selected conflict times. Students will be able to designate times that they have prior engagements, such as work schedules or other classes, so that they do not have to worry about accidental course overlap. The overall goal of GradMap is to use advanced UI interfaces to make scheduling more stress-free and to make it easier for students to achieve their degrees in the most efficient way possible. By accomplishing this goal, GradMap can help to decrease the overall time and money that may be

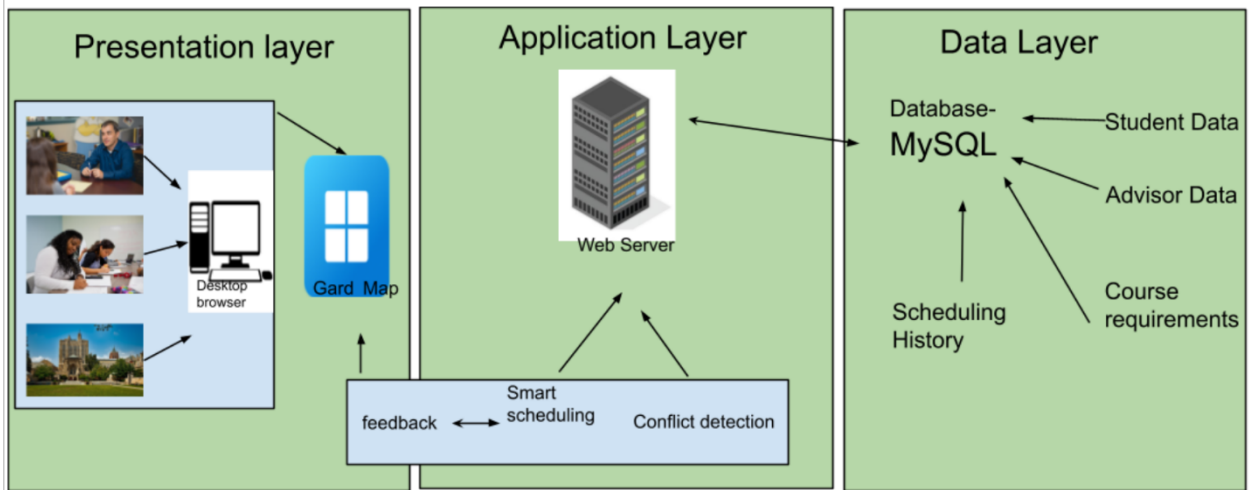
needed because of the previous slow and confusing systems that could lead to unnecessary courses and extra semesters, improving graduation rates as a result.

2.2 Major Components (Hardware/Software)

GradMap will be an online system that can be accessed on any PC or smartphone. It will make use of the major operating systems, including Windows, MacOS, and Linux, and various web servers such as Apache, Nginx, and Microsoft IIS, making it accessible and able to be used by any University's favored platforms. The program will focus most on the use of Java for the server-side language used to create the website and GradMap will make use of MySQL as the major database storing information such as schedules, course requirements, and user data. The way that GradMap is set up means that, according to the MFCD (as seen in Figure 1), GradMap's actual appearance on the web browser is the Presentation Layer, or what everyone sees when they click on the link. The application layer consists of the server being used for GradMap, which handles the smart scheduling aspects of the application, as well as the ability to detect conflicts in schedules. The final layer, the Data layer, includes the database that runs in the background, which holds all of the software parts of the application, including user data, course requirements, and scheduling history to help make sure that the student is staying on track to complete their degree and graduate on time.

Figure 1

GradMap Major Functional Component Diagram



GradMap will include a variety of software in order to enable all of the tasks that will be required of the site. First will be an authenticate user system which will handle the secure login information and provide access to accounts for both students and advisors. Next, GradMap will be capable of auto-building a draft of a class schedule using pre-inputted degree requirements, current course availability, and designated student time restraints while also using advanced conflict detection systems to detect overlapping class times, problems with pre-requisites, and

excessive credit load in real time so that students and advisors instantly know of any conflicts that may require resolution prior to registration. In addition, the system will be able to make sure that the proposed plan is degree-compliant by conducting a type of "Fact-checking" against the degree requirements to ensure that the student is staying on track and completing the courses that they need to graduate. Next, the system will check any time conflicts and offer the student and advisor alternative course suggestions that will still help the student move towards their expected graduation without having to guess at what courses are useful for their degree and taking the risk that they may then have to find ways to potentially make an extra semester doable just because they picked an alternate elective that does not help towards the completion of their degree. Finally, the system will send the proposed schedule to the advisor, who will then assess the plan for approval or rejection while the system records feedback to then be sent to the student. Once the student receives feedback via email, they can then either sign up for classes or try to rearrange their schedule to try for approval once again.

3 Identification of Case Study

- For whom is this product being developed? Why?
- Identify case study group—the small group of users who will use app prototype and provide feedback.
- Who else might use this in the future?

4 Glossary

- Definitions, acronyms, or abbreviations used in this document. This section should only include those terms or abbreviations that are not commonly known or are unique to your product.
- Terms should be bolded followed by a colon and the definition.

<Note: This must start at the top of a new page>

Example:

Radio Frequency Identification (RFID): an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. An RFID tag is an object that can be attached to or incorporated into a product, animal, or person for the purpose of identification using radio waves.

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