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1. Introduction

Over the years universities have faced an increase in challenges when it comes to helping students graduate on time. Rising enrollment numbers and more complex degree requirements have made academic planning significantly more complicated. Many students are balancing full course loads as well as employment, internships, and families. These other obligations make manual degree tracking every semester challenging and error prone. Academic advisors face inefficiencies within existing systems. Many of these challenges come from outdated degree planning, inefficient course registration systems, as well as student obligation and conflicting scheduling. Students are now often faced with balancing full course load while maintaining jobs, families, and other responsibilities making it more difficult to manually track their degree requirements. There are many students that can experience delays in graduation because they cannot accurately track their degree progress or due to time conflict with other commitments and are unable to schedule the courses necessary for the degree requirement. Academic advisors can also face significant challenges with current systems. Advisors are often responsible for reviewing students' degree progress and helping identify any potential issues, while helping manually create semester plans. They often spend a significant amount of time manually reviewing student schedules, creating and degree plans, and proof of courses that students are registered for. This can be very time consuming and be prone to error especially when trying to line up all pre and co requisites to ensure students graduate on time. Existence such as degree works do not always provide real-time schedule and data and automated conflict detection which can result in student often Mission required courses or misunderstanding course requirements

and prerequisite sequences which leads to an extended graduation timeline and increased financial burden.

A solution to this problem must integrate life course data, degree requirements, and student preferences all into one singular platform. The system must be able to detect conflicts including overlapping class times and missing prerequisites. It should also be able to support both students and advisors and make it a clear and easy visualization of the degree progress while being optimal and scheduling based off of the users real life time constraints.

Grandmap is my team's proposed solution for these challenges. Gradmap is a web-based platform designed to integrate degree requirements, real-time course schedules, and automated conflict detection into a user-friendly system. GradMap will focus on academic planning functionality and conflict detection. The system will be integrated within a university's existing system providing universities with a more intelligent and integrated solution. GradMap is intended for use by students and academic advisors at participating universities. With the ability to provide students with personalized semester planning and giving advisors the ability to be more efficient. GradMap's main goal is to reduce graduation delays for students, improve graduation rates for Universities, and provide an easier integrated system for advisors to help guide students. This will happen through real time course scheduling, automatically validating pre and co- requisites, detecting time conflicts and scheduling overlaps, visual degree progress tracking, and being able to support both student and advisor roles.

2. Product Description

GradMap is a web based application meant for scheduling and degree planning to assist college students and academic advisors in creating conflict free course schedules and structured

degree plans. Universities increasingly face challenges related to overlapping class times and conflicts between academic requirements and personal commitments which can contribute to delayed graduation. The system addresses common challenges such as overlapping class times, unmet prerequisites, and conflicts between academic and personal commitments that frequently delay graduation by integrating degree requirements, real time course availability, student specific constraints, and pre and co reqs all into one system. The primary objective of GradMap is to streamline the scheduling process by integrating degree requirements, course availability, and student constraints into a single platform. By automating schedule generation while preserving advisor oversight, GradMap reduces manual workload, minimizes scheduling errors, and supports on time graduation. Gradmap aims to support on time graduation, reduce financial and academic setbacks caused by delayed course planning and provide universities with a more efficient and effective way of academic planning.