CS 411: Project Track 1 - Stage 1

EnrollMints: A refreshing take on the course enrollment process

1. **Project Summary**:

    EnrollMints seeks to revolutionize the course registration experience offered by the Illinois Self-Service portal by addressing key deficiencies we observed in the current system. By creating a new course registration site, our goal is to enhance the academic experience by providing a comprehensive solution that not only streamlines the registration process but also offers advanced features such as a dashboard for tracking degree progress, detailed course and professor information, course reviews, and tailored course suggestions based on interests and requirements. This holistic approach ensures students are well-informed and in compliance with university policies, thereby simplifying the complexities associated with managing degree requirements and course enrollments.

    The usefulness of our application is rooted in its ability to consolidate critical information and functionalities into a single, user-friendly platform, significantly improving upon the fragmented and cumbersome process currently in place. Unlike the existing self-service portal, which requires users to navigate through multiple pages to access course details, reviews, ratings, and enrollment options, our application offers a one-stop solution for all registration-related needs. By integrating a dashboard summary that provides real-time updates on degree completion progress and implementing an efficient waitlist management system with visibility into queue positions, our application not only addresses the existing system's shortcomings but also introduces innovative features that enhance the overall user experience. The introduction of such a system is a step towards mitigating the administrative hurdles faced by students, thereby allowing them to focus more on their academic pursuits and less on navigating bureaucratic challenges.

2. **Description**

    Our proposed application represents an enhancement to the existing course registration system within Illinois Self-Service. It aims to address several deficiencies identified in the current system based on our experiences as students. The following key issues have been observed in the current setup:

    a. Lack of Comprehensive Course Information: The current system provides only a brief course description and instructor information, failing to offer additional details such as breadth area categorization and other pertinent course-related information.

    b. Inadequate Support for Degree Requirement Tracking: Students often struggle to manage complex degree requirements, especially within programs like the MCS,

which necessitate fulfilling specific breadth areas and advanced course criteria. The current system does not facilitate tracking or warn against potential violations.

c. Absence of Requirement Enforcement and Alerts: The current system cannot enforce or notify students about important regulations and restrictions. For instance, F-1 students may only count one online or distance education course, up to a maximum of three credits, toward full-time registration per term, a rule not clearly emphasized.

d. Neglect of Assistantship-Related Adjustments: The system does not adapt degree requirements according to students holding assistantships. For instance, students with 50% assistantships may have reduced credit hour requirements and extended degree timelines, which the current system does not consider.

e. Absence of course waitlist functionality: The current system does not offer any waitlist management feature for course registrations, leading to potential challenges for students seeking to enroll in high-demand classes.

In summary, our proposed course registration application aims to provide a comprehensive and professional solution that streamlines the registration process, enhances degree requirement management, and ensures adherence to university policies for an improved academic experience.

We aim to solve these problems by creating a new course registration site that helps students keep track of their progress throughout the degree if they are satisfying the requirements as per the university policies and ease the process of registration by maintaining a waitlist. We will have a dashboard to keep track of the progress made by the student concerning the various requirements. We will also have a page for each course to view additional information about the course and professor and course reviews. We will also provide suggestions about courses based on their interests and breadth requirements.

3. **Creative Component**

a. The dashboard serves as a pivotal feature within our application, offering students a dynamic tool to monitor their degree progression comprehensively. This tool will aid students stay on top of the various degree requirements and can focus on making the right choice of courses freely without having to juggle numerous sites to make sure they are making the right choice.

b. Additionally, we will implement a course recommendation system tailored to individual interests and breadth requirements, further enhancing the academic experience. This, coupled with the dashboard will help students make sure they are on track to complete their degree without any hiccups.

4. **Usefulness**

a. Currently, users need to navigate through various pages to gather comprehensive information, such as course breadth details, grade disparity,

reviews, ratings, workload details and to enroll in courses. There are a number of sites with this functionality, such as the DARS Audit and the Course Explorer. It would be significantly more convenient to access all these in a singular location, alongside the ability to register for courses directly. We aim to consolidate all these elements into one application.

b. It is difficult for a student to check degree progress. The DARS audit provides some of this information, but the audit is often not helpful in showing how we can fulfill the requirements needed, and sometimes it does not show the full requirements. We intend to solve this by providing a dashboard summary and suggestions for courses students can take.

c. The existing self-service portal lacks a feature to automatically place students on a waitlist for courses, requiring them to actively monitor their emails for any available spots. Our approach is to implement a first-come, first-served reservation system, potentially including visibility into one's position on the waitlist.

5. **Realness**

The course data will come from the course catalog REST API resources, located at https://courses.illinois.edu/cisdocs/api. These resources return the data we need in XML format, so we will have to do work to convert these into usable tables, which should be fairly doable using existing libraries. In addition, we want this data to be useful to a student, so we are most likely going to populate made-up data to represent individual data for each student. A reach scenario involves being able to connect our project to Shibboleth enabling students to directly log in to the platform so that we can see real students' data, and we will see how feasible this is as we work on the rest of the functionality.

6. **Functionality**
a. Log in (email, password): Since this is an improvement on Self-Service, we will assume that everyone logging in already has an account, and to validate the account we would search for that combination of username and password to ensure it exists.

b. Dashboard (credits completed, breadths(completed, incomplete), button(Suggestions, Registration)))
   i. Each account will be associated with credits that have already been registered and completed as well as the major information for each student and the requirements for courses they need to take. This will all be displayed here, and from here we will also be able to link to the other pages listed below.
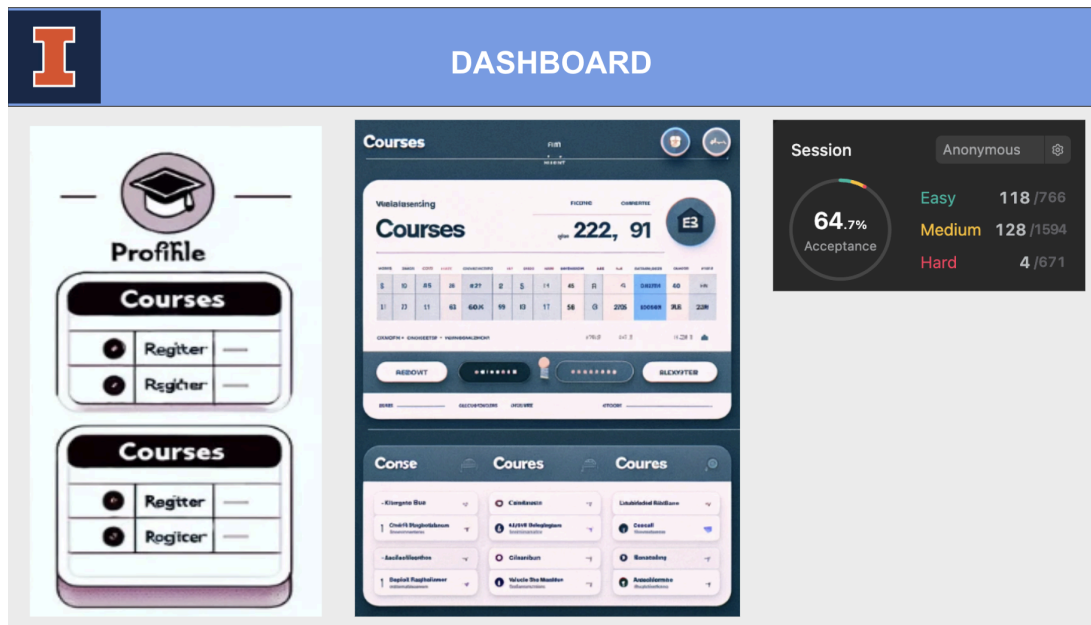
c. Registration: The Registration page allows users to register for more courses. The user will be able to enter a CRN which will be used to search the table with courses and register for the class if there is space in that class. The act of registering adds them to the class roster, updating the database. If the class is full, they can choose to add themselves to a waitlist instead.

d. Suggestions page & Breadth & depth table
   i. The Suggestions page queries the requirements the student needs to fulfill and displays some courses they can take to fulfill the requirements, as shown below.

Suggestions

Breadth	Advanced Coursework
Security and Privacy (Collapse) • CS 461, 463, 562, 563	CS 543
Interactive Computing (Expand)	CS 511
Artificial Intelligence (Expand)	CS 512

e. Course List + Course Information (Reviews, Workload, General Course Attributes)
   i. There will also be a page where the users can simply browse the available courses, as shown below.

Browse 156 CS courses   Q

156 CS courses   Q
156 CS courses   Q

CheckBox options:
- Option 1
- Option 2
- Option 3
- Breadth4 Option4

CS 100	CS 101	CS 102
Computer Science Orientation	Intro Computing: Engrg & Sci	Little Bits to Big Ideas

CS 105	CS 107	CS 124
Intro Computing: Non-Tech	Data Science Discovery	Intro to Computer Science I

ii. Each course has a number of attributes, some of which we will add, while others already exist in the API. We will add an area to show reviews of the course and how the workload is, as well the general information like the meeting time, professor name, enrollment status, etc. These will be shown when the user chooses to see the information for a particular course.

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- Meeting Time: 9:30 MW
- Professor: Da Legend
- Enrollment Status: Full
- CRN: 31355

- Workload: A few quizzes, attendance required, semester-long project
- Reviews:
  - Student A: Awesome Class!

7. **Project work distribution:**
   - *Front-end:*
     - Dashboard: Ashwath
     - Courses: Vinay
     - Suggestions: Vishal
     - Individual Courses: Vibhav
   - B*ack-end:*
     - Dashboard: Vinay
     - Registration: Vibhav
     - Suggestions: Vishal
     - Courses: Ashwath
   - SQL queries: Vinay, Ashwath, Vibhav, Vishal