CourseCraft

Surreal Engine - Mikita Belausau, Ryan Coslove, John Hoban, Dorion Hobot, Nicholas Makar

1. Introduction

We are building a course management system, called CourseCraft, to combine all activities related to course scheduling and administration into a single online tool.

Webreg and Canvas are two critical tools at Rutgers University, and other universities use similar software. We want to combine their separate functionalities into one program to offer a more centralized resource and better overall user experience for administrators, professors, and students.

2. Proposed System

In one centralized website, Deans, Professors, and Students will be able to access multiple features that Canvas and Webreg provide separately. Deans will be able to create courses. Professors will be able to register to teach those courses, assign the courses' meeting/lecture times, create assignments, input grades, create announcements, and allow overall clean professor-to-student communication. Students will be able to register for the courses, view their current GPA, calculate potential GPAs, view their grades, submit assignments, receive alerts and announcements. There will be a navigation bar at the top of each user's home page to transfer between different portals (example - from home to Degree Navigator to view GPA or from home to Course Management to view assignments for a class). The creation of new assignments or grades will have the system automatically contact the students of this notification.

This will be created with Dash and interact with a database on a virtual machine. The database will hold information such as user login credentials, students enrolled in classes, courses professors are teaching, student and course majors, etc.

2.1 Functional Requirements

- A user will be able to securely enter valid login credentials in reference to a database (held on the virtual machine) to log in to a user's appropriate and personalized home page.
- A user will be able to navigate a homepage that allows a user to perform user-specific permissions and contains access to the user's personal information as referenced in a database.
- A user with the Dean role will be able to access the Course Registration page and create courses that will be stored in the database as accessible courses to professors and students.
- A user with the Professor role will be able to access the Course Registration page and register to teach a course in the database created by a Dean and assign the class time schedule, saved in the database as accessible to students.

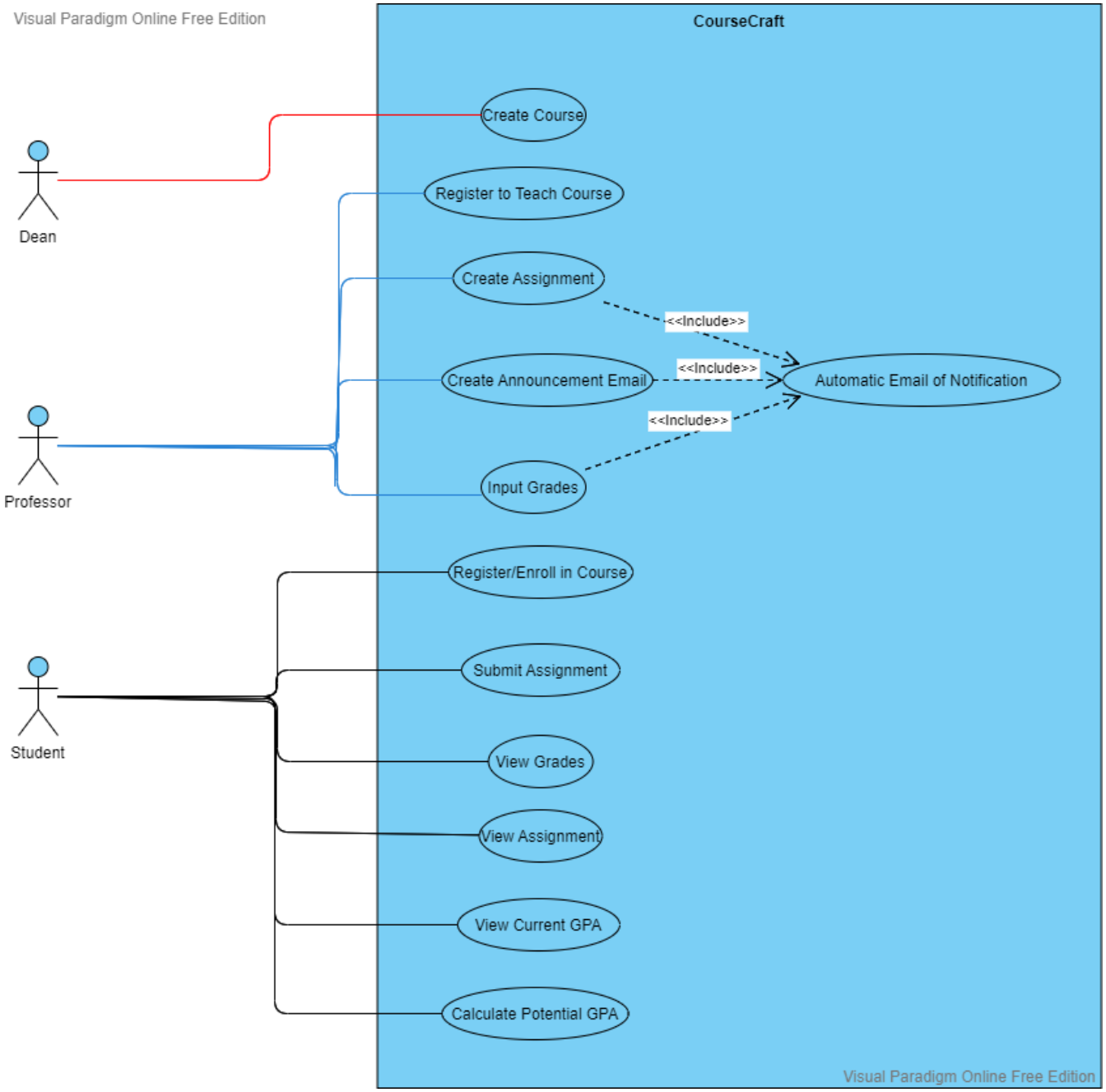
- A user with the Professor role will be able to access the Course Management page and create announcements, create assignments, and input grades for their registered course(s) that will all be saved in the database and will notify the students registered for that course of the professor's action.
- A user with the Student role will be able to access the Course Registration page and register for courses from the database to create an appropriate schedule within the university's class-time, credit-intensive, and major-intensive limits.
- A user with the Student role will be able to access the Course Registration page and view their course schedule.
- A user with the Student role will be able to access the Course Management page and access their course's pages, view and submit assignments, view grades, all referenced and saved in the database.
- A user with the Student role will be able to access the Degree Navigator page and view their current GPA as referenced in the database, as well as calculate their potential GPA.
- A user with the Student role will automatically receive notification emails whenever a new assignment has been created, a grade has been imputed or changed, or a professor has sent an announcement, for their respective courses.

2.2 Non-Functional Requirements

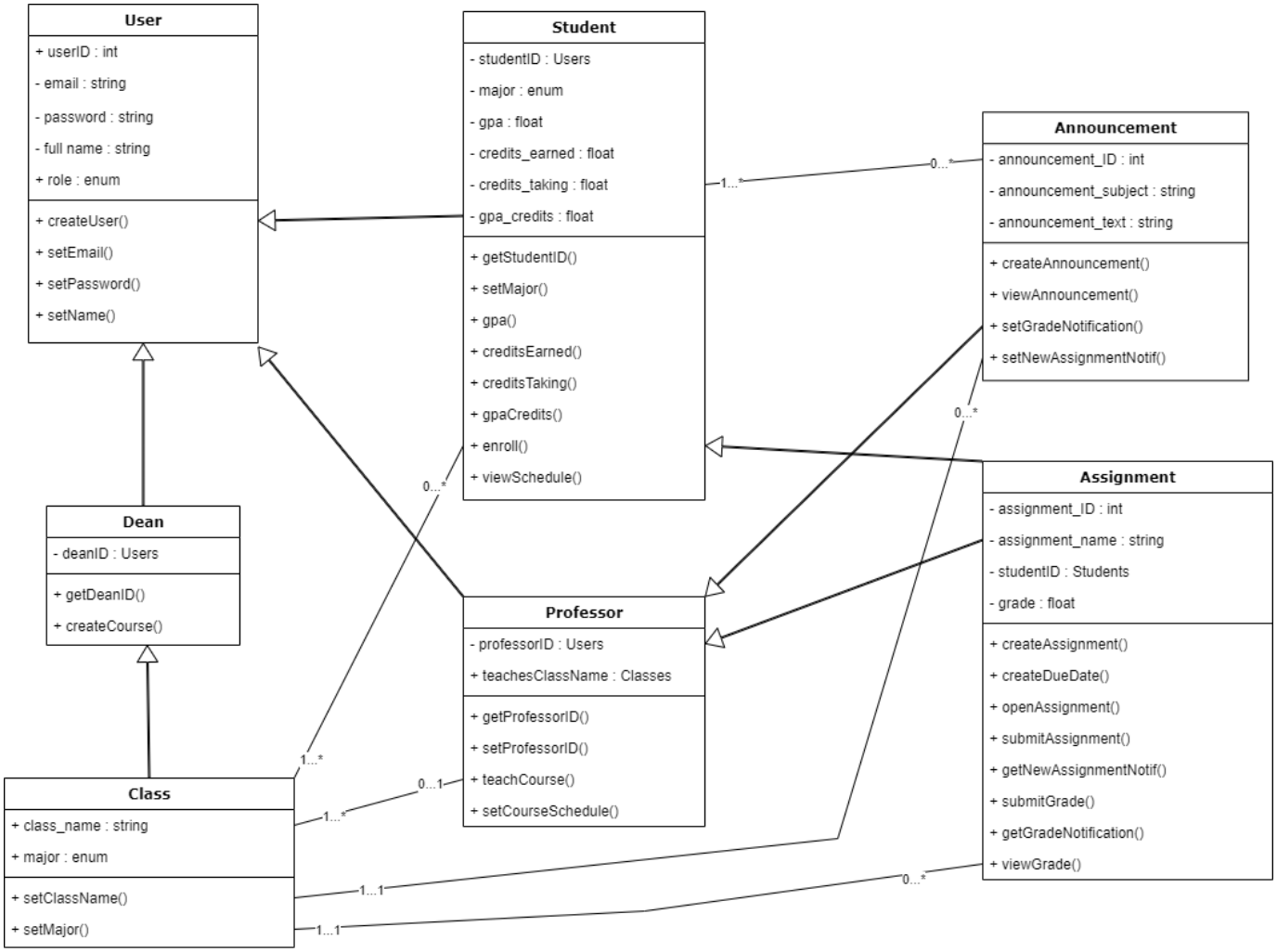
- A user will be able to enter valid credentials safely stored in a database and be securely redirected to their appropriate home page and information without risk of losing private information, accessing another user's information, or accessing inaccurate information.
- A user will be able to access the software and their information at any moment in time, 24 hours a day, 365 days a year, without risk of failure.
- The system will generate and maintain identification numbers for users, assignments, announcements, and grades.
- The system shall support 1,000 simultaneous users at all times.
- The system shall run on any browser client, regardless of operating system.

2.3 System Models

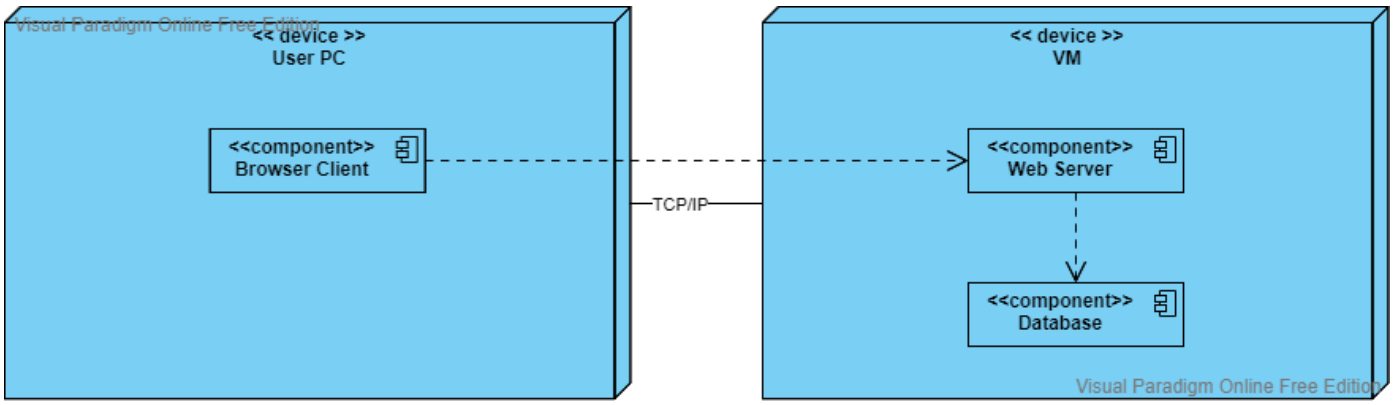
2.3.1 Use Case Diagram



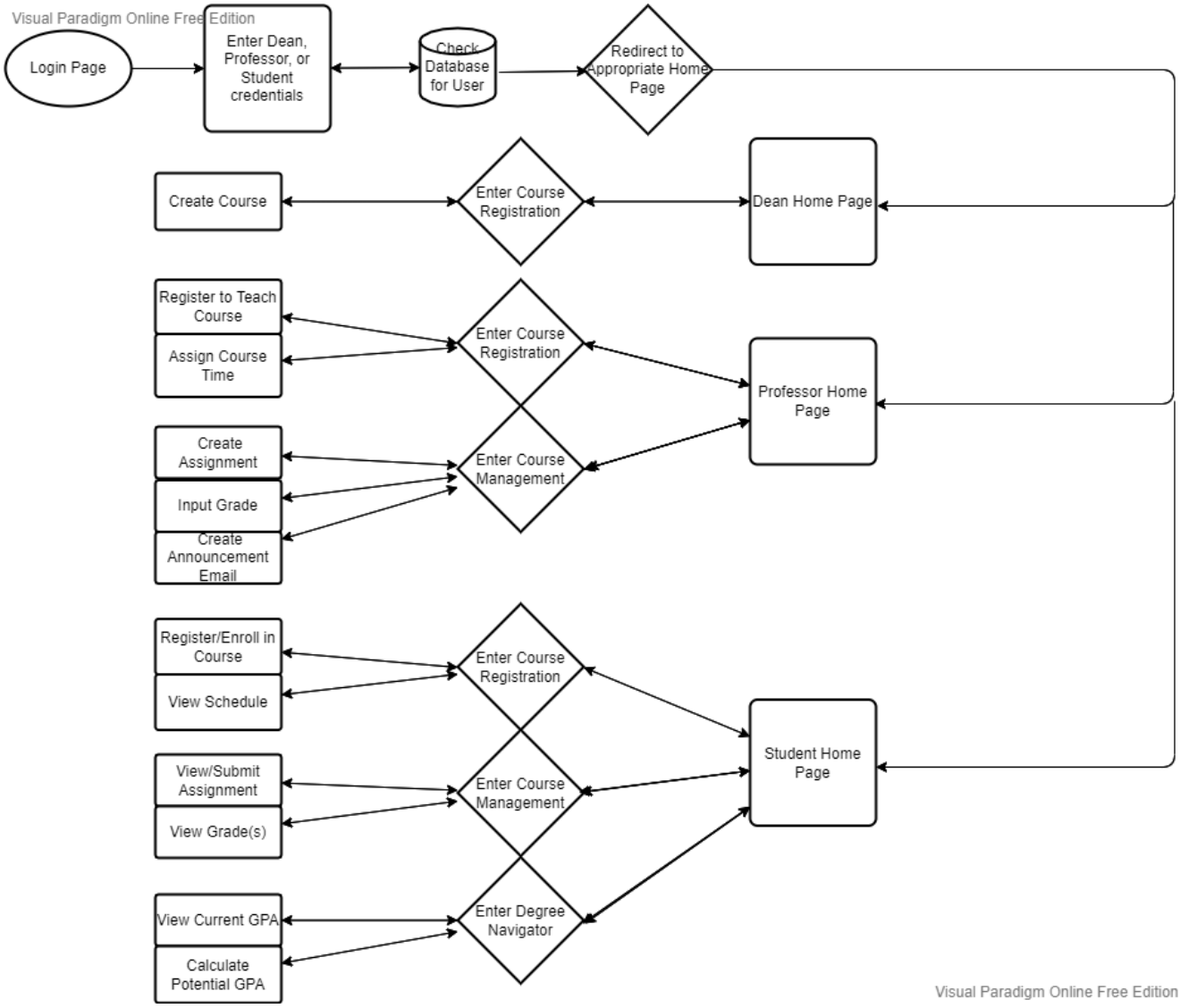
2.3.2 Class Diagram (or Activity Diagram)



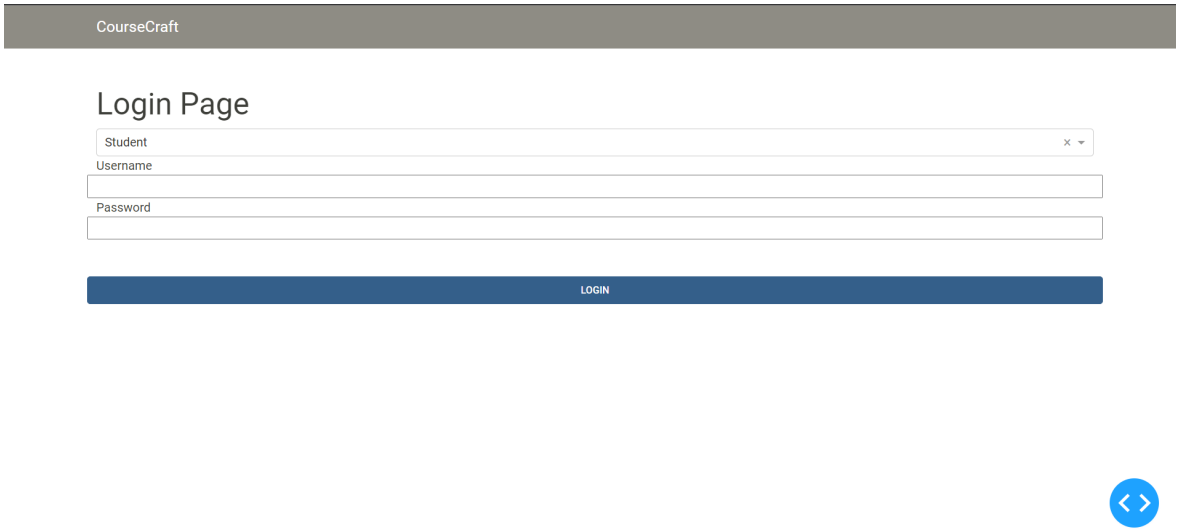
2.3.3 Deployment Diagram

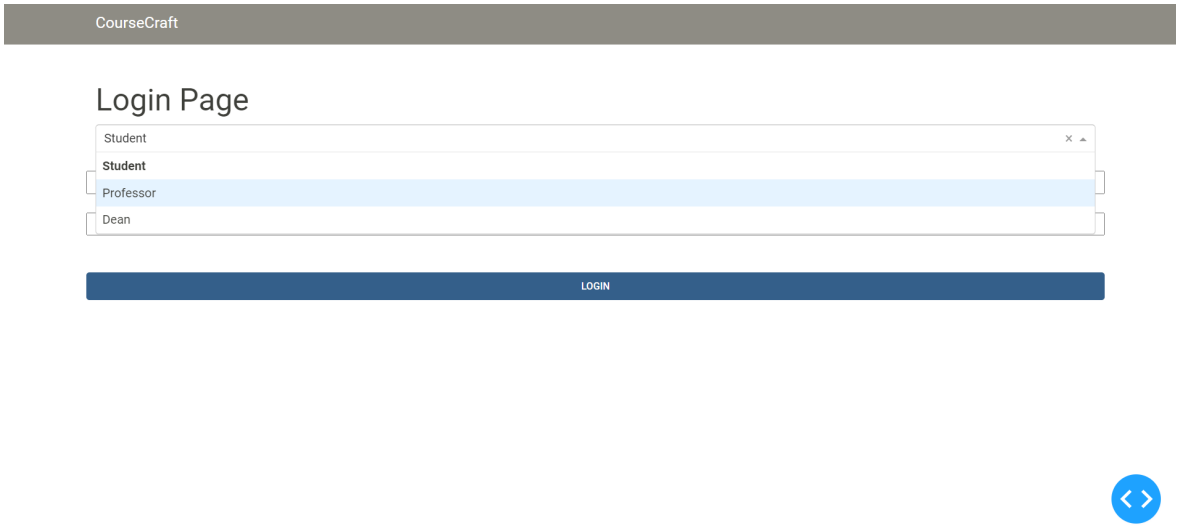


2.3.4 User Interface

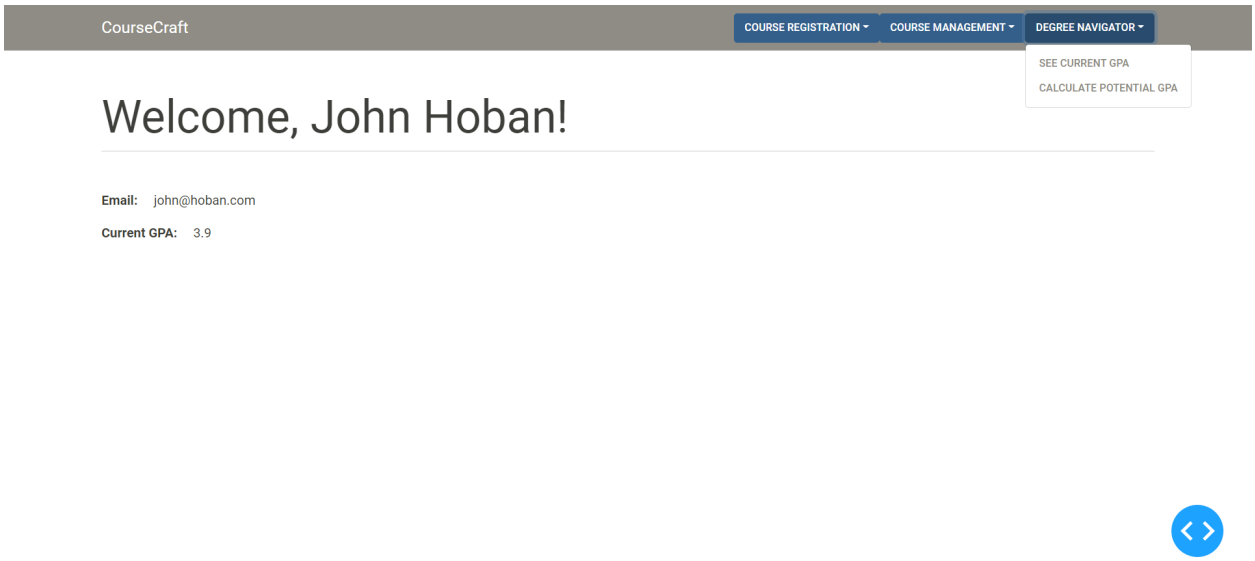


Screen mockups below:

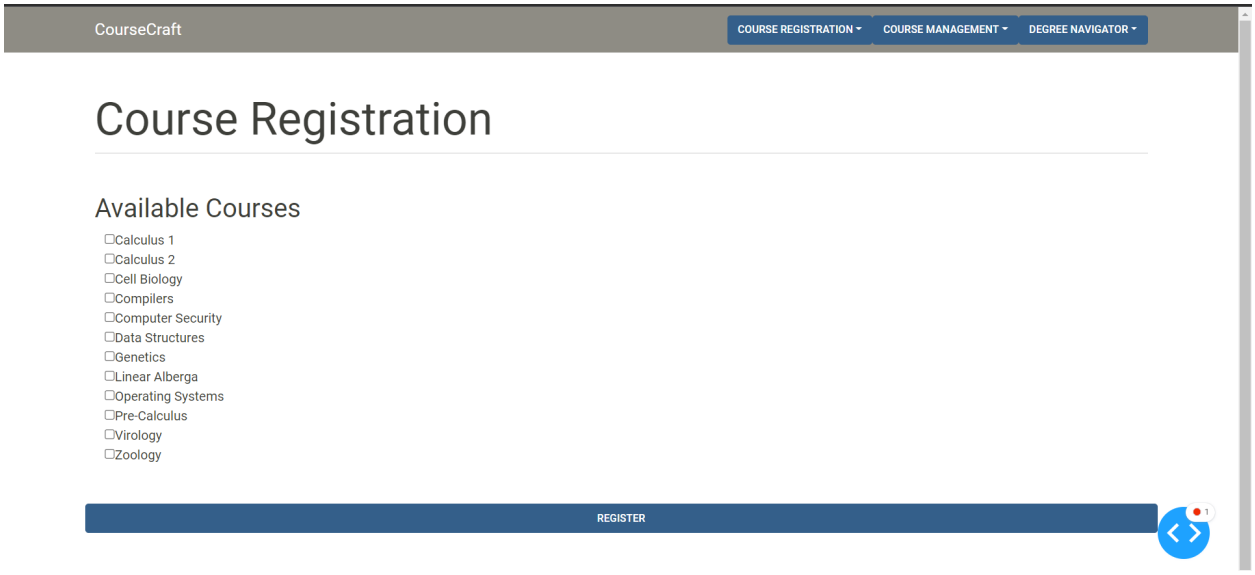




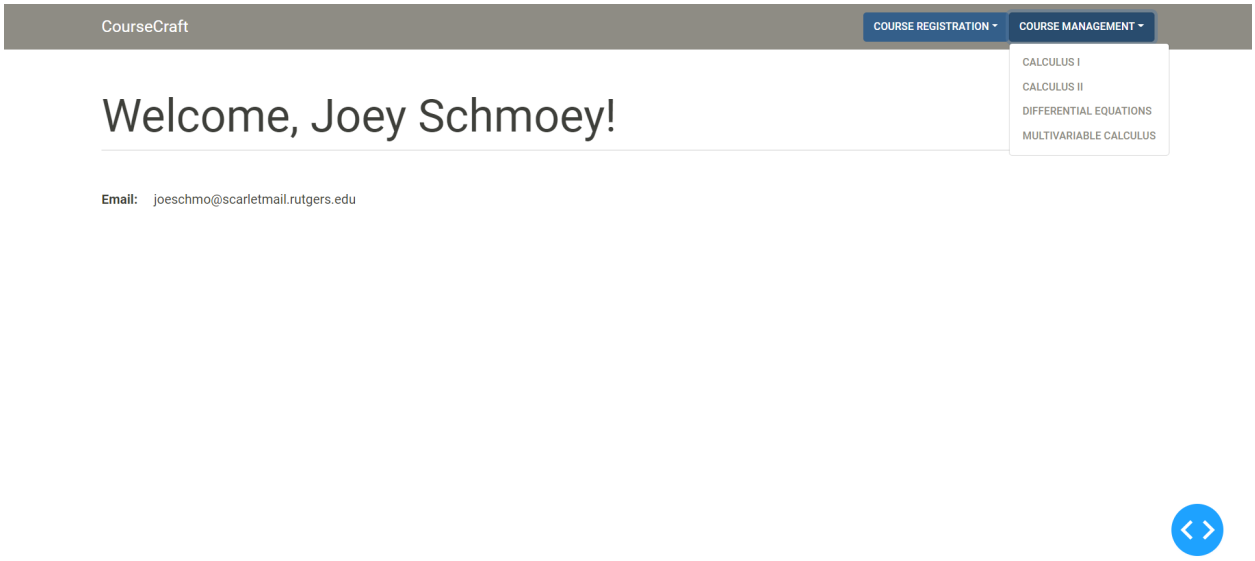
Example Student Home Page:



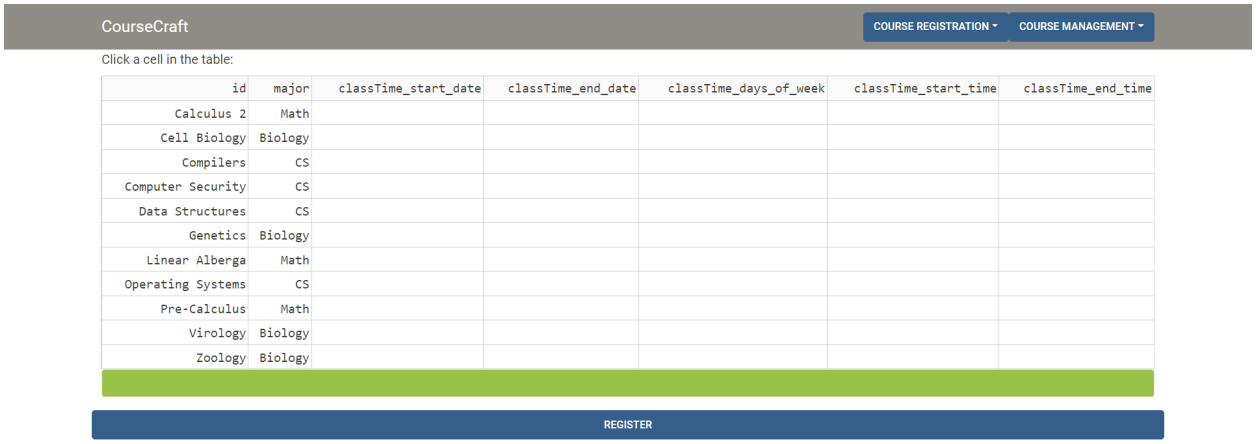
Example of Student Registering for Classes:



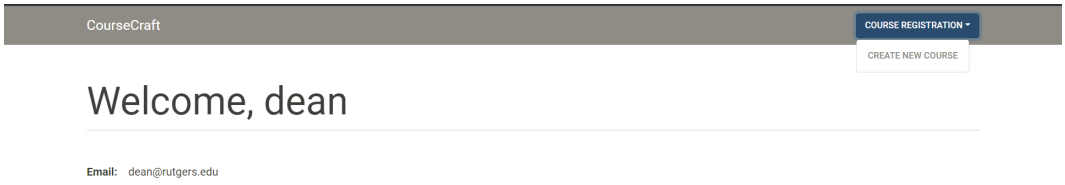
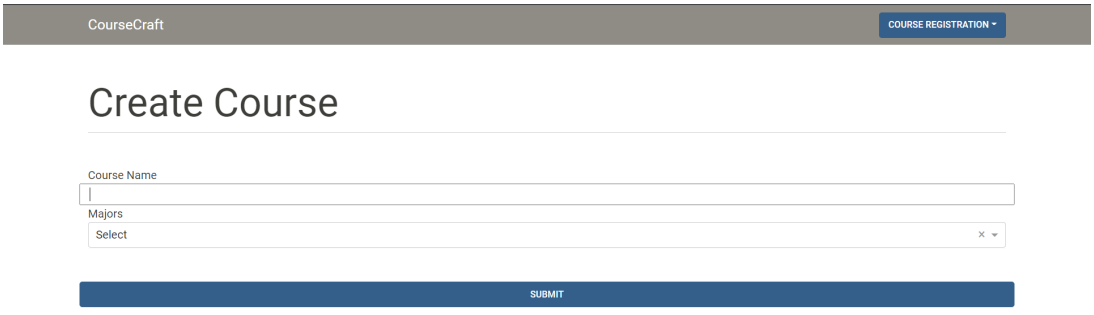
Example Professor Home Page:



Example of Professors Registering to Teach a Class:



Example Dean Home Page:



Example Dean Creating a Course: