

Title: UIUC Coursehub

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Project Summary:

Our project will be a web application which displays GPAs, general statistics for a variety of courses offered at UIUC across different departments from Summer 2010 to Fall 2021, along with student reviews and ratings on those courses on various metrics. This data will be accessed through a database in the backend.

Users will be able to select a course, its year, its term, its department, an instructor, or many different combinations of these categories to display GPAs and reviews for a course. This would require a database schema which fits the normal forms, and processes for rejecting search requests which cannot be possible. Additionally, to display average GPAs and their relevant statistics, math must be done, as well as potentially complex graphing.

Furthermore, users can select a course section and write reviews for the course, being displayed if another user who searches for the course clicks on it. Logic should be implemented where a particular user cannot submit multiple reviews for one course section. Instead, after every subsequent review from the first, the previous gets overwritten in favor of the new review.

Project Description:

Currently, all the information that students can find on the course website are the project description, class timings and the course instructor. Students find it hard to choose a course from about 50+ courses per department just based on this limited information. In such cases, students resort to asking around about the courses to their peers and seniors who have already taken these courses in the previous semester. Most common questions are about how difficult the class is and the average number of hours per week that the course consumes. The average gpa is also a major concern when it comes to choosing a course. Not only is this a very rudimentary and slow approach, students often fail to find enough peers to ask these questions unless they have access to a large network of students.

We aim to resolve this issue by presenting them with a web application that can allow a student to see general trends in student success in classes, based on different factors such as the distribution of student gpa in previous offering of the class with the associated instructors. We also present them with student reviews on each course that include ratings on difficulty, workload and usefulness. The combination of student reviews and hard data on GPAs can be displayed all in one place for easy access, with easy to understand statistics and student-based metrics, allowing the student user to choose the courses that best fit their needs and schedule.

Project Usefulness:

There are websites such as waf.cs.illinois.edu that aim at providing visual metrics over UIUC student data, but accessing the data can be quite confusing as the visualization categorisations are quite broad and finding the exact average gpa for a particular subject is pretty overwhelming as there is no straightforward method for the same. The website uiucmcs.org also exists that allows students to respond with their reviews of subjects, but it only allows users to review a limited number of online courses that are restricted to the CS department and it does not present any GPAs over time. That is, it lacks a variety of factual statistics regarding the courses too.

Our application will merge the two websites' concepts together as a hub for course information presenting both factual information such as average gpa and course offering details over the time span from 2010-2022 and peer-based information such as reviews and ratings for particular course offerings.

Project Realness:

The GPA csv dataset is publicly available on github due to the requests made under Freedom of Information Act (FOIA #16-456, and others) for *"the grade distributions by percent and/or letter grade, for every class [...] at the University of Illinois at Urbana-Champaign"*. Every record in this dataset contains information about courses offered from 2010-2021 such as Title, year, term, department, Number and Instructor along with the student grades. It is to be noted that courses with 20 or fewer students are excluded in the dataset. This data would be queried and manipulated to present statistics on the course and department level.

Apart from the data that we already have, the website will collect data over time when students add reviews for every course that they have already taken in the previous semesters. Additionally, along with the reviews, students can input more information such as course difficulty, typical number of hours worked on the course per week, usefulness rating and so on. This data will further be aggregated amongst all the reviews to be presented as average student ratings for each course.

A low fidelity UI mockup:

Sign in

Email *

Password *

Forgot your password

Sign up - Don't have an account

Create your Account

Name *

College / Degree *

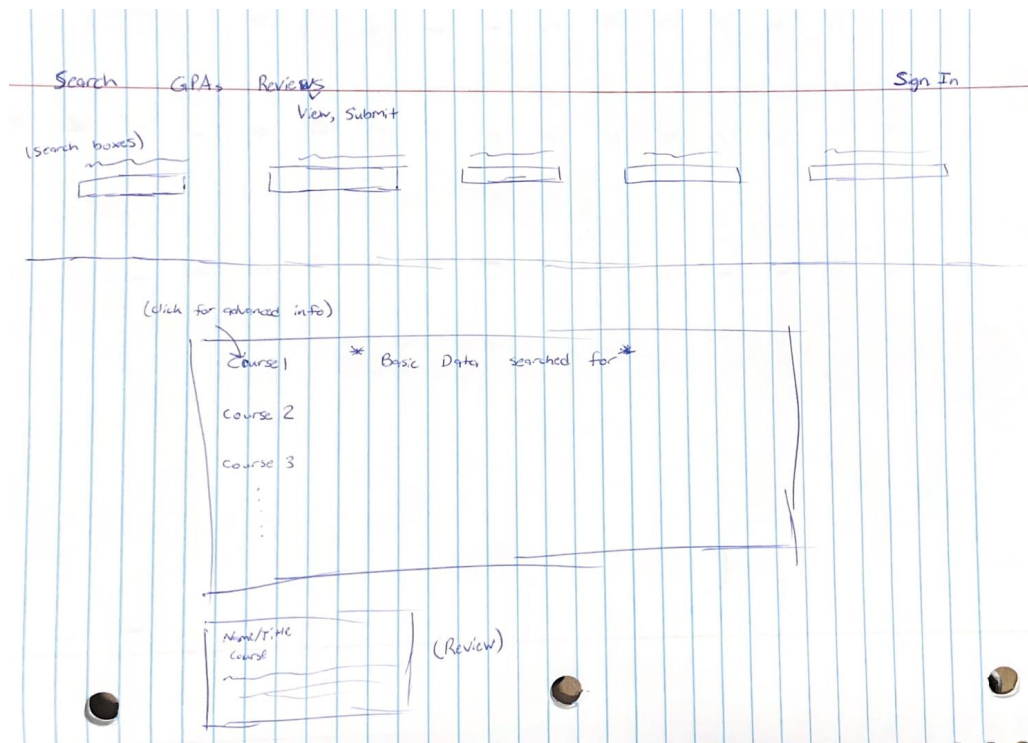
College mail Id *

Password *

Details

Department *

Starting Semester *



COURSE PAGE :

CS 491 CAP - COMPETITIVE CODING

course average GPA: 3.98

avg workload : 13.5 hours

difficulty rating : 3.5/5

usefulness : ★★☆☆

user REVIEWS:

Sandhya - Fall'22 DR: 3.5 VS: 2★ WL: 12 hrs
Good course. 10/10.

Safin - Spring'21 DR: 3.5 VS: ★★ WL: 14 hrs
I didnt find this course useful. Wouldnt recommend

Project Functionality:

If a user is interested in looking through course information they can choose their department and they will be presented with a list of courses along with course level information and statistics like avg gpa, difficulty level and so on. If the user is interested in a particular course they can either search up the course through a list of options or click on the course from the previously mentioned course list and the course level information will be presented in detail along with course reviews and ratings by other students if any.

If a user is interested in posting a review they will have to create an account if they have not done so already and this account information will include their illinois email address along with information such as department and from which semester they have enrolled in UIUC. Once they sign in they'll be eligible to post reviews in the courses offered in their previous semesters along with prompts for user ratings on different metrics like course load, difficulty level and so on. Once the review is posted the aggregate rating information for each course will include the posted review's rating too.

Some creative components could be having an "autocorrect" function for the user, which displays the most relatable search term for a course, course number, instructor, or otherwise given the volume of different courses and their combinations. Including an algorithm which enables such pattern matching could help.

Another creative component would be to have a function that can display multiple search terms/courses side-by-side and include comparative statistics for the user to weigh each option. The difficult part of this is making a new display format from whatever will be used as the standard, along with determining which statistics should be used to compare.

Project Work Distribution:

- Safin Akash (santon21) - Account creation and validation.
- Sairam Penumarthy (sairamp2) - Fetching course details based on search query.
- Nithin Balaji (ns49) - Data conversion and manipulation for stored gpa.
- Sandhya Rao (sp84) - Store and manipulate reviews and rating information.

We believe that this is not a fixed distribution but rather a rough idea of the distribution as it would not be possible to uncover additional follow-up work and the hidden difficulties of these sections until at later stages at which point we would have to re-distribute the work for fairness.