Insightify

Project Summary

Selecting a course(s) is often a challenging task for every student due to a lack of proper data and reviews. Students must navigate multiple course websites, talk with other students, and search for reviews on review pages or any social media platform such as Reddit. Our intention is to streamline all this process into a single one-stop destination where a student can get almost any information they need about a particular course to help them make a choice about whether that course is right for them or not. Also, instructors can get a better understanding and insights about the course structure and assignments from multiple data points and metrics generated from student activity.

Description

This tool collects, assembles, and visualizes multiple data points at assignment level granularity for different courses offered at UIUC every term. This tool displays data at different levels of a course - from assignments, and exams to the entire aggregated course level. Each student can also review the course at an assignment level and provide his/her difficulty level. This data will be useful for both students and Instructors.
With the help of this application, instructors can gain a detailed understanding of student performance and use the information to improve the learning environment for upcoming semesters. They can organize the course appropriately based on their understanding of how the students do on each assignment.

Usefulness

Students can check this tool to decide whether to pursue a course in a particular term or not depending on their analysis of the data points.

There are course review websites such as MCSCourseReviews and course score provider tools such as this one, but these tools work at the course level and do not provide information about the course structure and individual assignment difficulty and workloads. Students often struggle to find proper reviews which will cover the course content and assignment level metrics. This tool will fill this void by providing detailed metrics at a very granular level in a visually appealing manner.

Instructors can use this tool to understand the performance of students at a granular level and use the data to further enhance the course experience for future semesters. They can understand how the students perform in each assignment and structure the course accordingly.

Realness

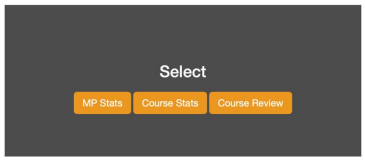
Some of the data like course offerings, aggregated score data, terms offered, etc is already present within the university here. For assignment/submission-related data we can source the data from grading platforms like PrairieLearn APIs if possible, else we can auto-generate the data.

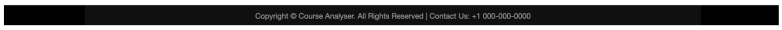
Functionality

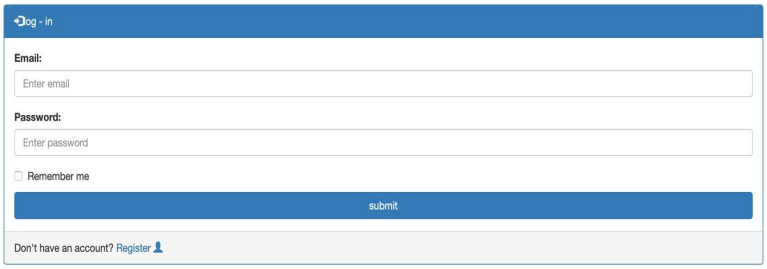
1. Create a new review for a course/assignment (only for students)
2. Update or delete already existing reviews (only for students)
3. Query and visualize multiple reviews and metrics for a course both at the course and assignment level including but not limited to:
    a. Average course score, mean, median, min, max, and percentile scores(p10, p20, p30, etc) at term/aggregated level.
    b. Course structure: number and types of each component - assignments, exams, projects, research, etc
    c. Reviews: both for individual assignments as well as for an entire course.
    d. Assignment level metrics: workload, topic, difficulty, score distribution, submission metrics

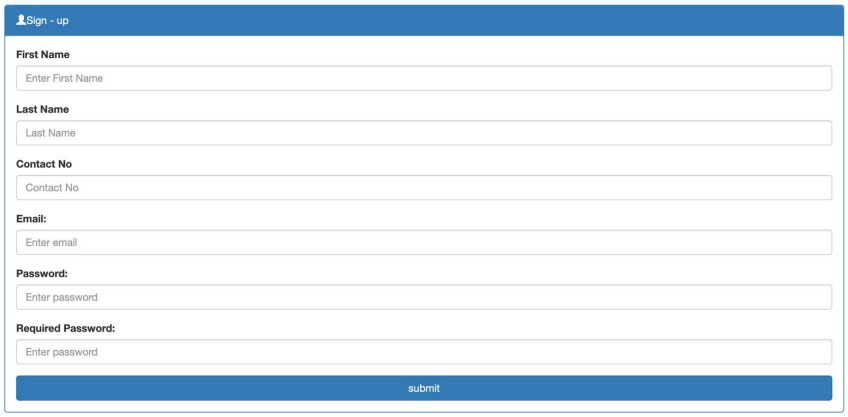
We store data for multiple entities like courses, students, assignments, instructors, user identity, and reviews. These entities hold data such as course score, credits, term, instructor, identity (username and passwords, access control), student netId, personal information, assignment and submission data such as unique identifiers, scores, submission count, number of lines of code, category, topic, etc. Review data contains text reviews, workloads, difficulty, rating, etc.

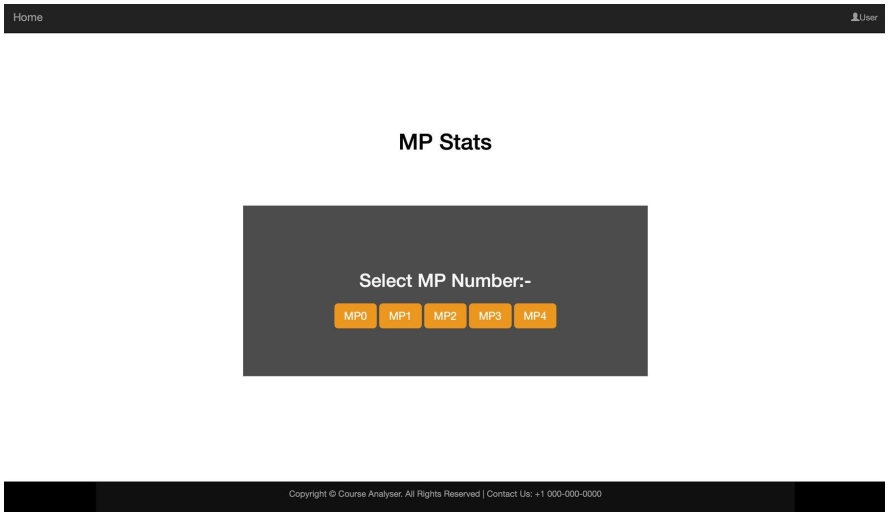
Low fidelity UI mockup







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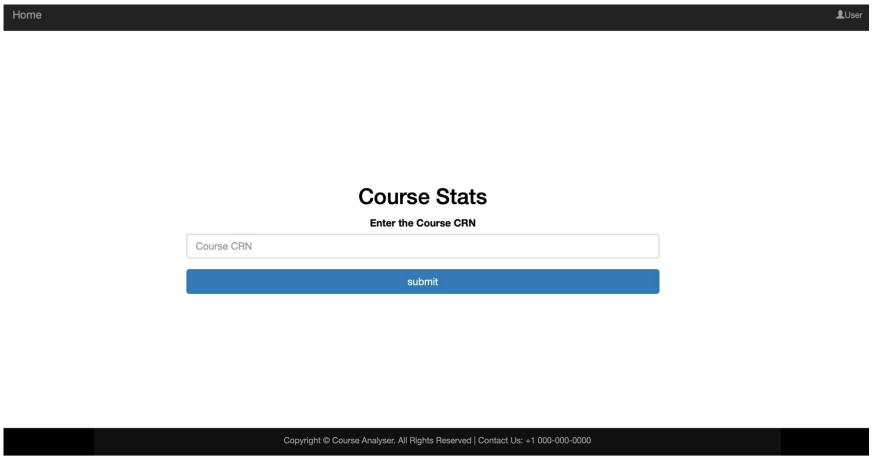
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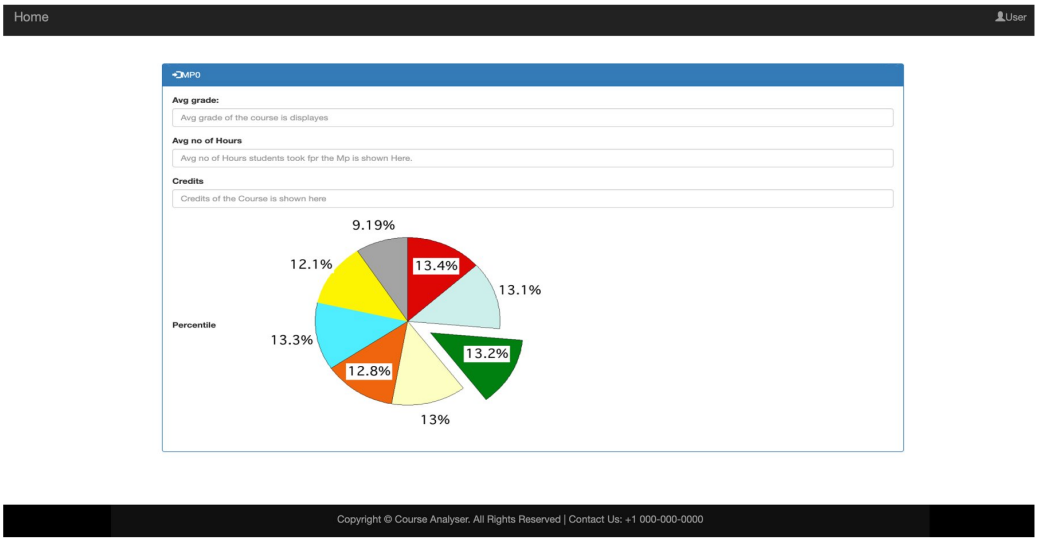

Project work distribution

1. Bala Sukesh (bbelide2): BackEnd (API creation and testing), Business logic
2. Ruthwik Pala (ruthwik2): BackEnd(End-to-End testing), Data access layer
3. Sri Lekha Kodavati (sk121): BackEnd (Authentication layer), Front end/ Views
4. Satvik Pandey (satvikp3): BackEnd (DB design and Query layer), Service integration, deployments, and operations.