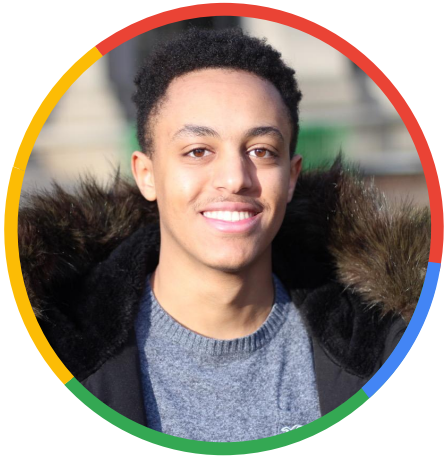
CourseFYI

An online platform for students to rate and review classes at their institution without administration bias

The Team



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Project Introduction

Let's Meet Luke

Our Manager 😀

Luke is a current student at Google University. He wants to sign up for classes this coming fall, but has no idea what to pick because:

- Is lacking enough opinions from friends to make a good decision
- Has no idea how hard any of his potential classes are
- The course evaluations he has are missing information

How Can *We* Help Luke?

1. Provide a clean and easy way to search for classes
2. Give Luke access to an assortment of meaningful infographics to analyze a class
3. Allow Luke to contribute to the community by giving him a platform where his opinion on a class can be used to help others

Now, Luke is completely informed about what classes he wants to take, yay! Not only that, but now for next term he knows where he will be reviewing his classes!

Existing Systems

Decentralized Platform

- Course information is spread across multiple platforms
- Different rating scales make understanding ratings difficult

Misleading Information

- Discrepancy between expected workload and actual workload
- Course difficulty/workload varies depending on the instructor

Hidden Information

- Grade distributions for may courses are never released
- Many platforms do not show reviews students write for classes during end of term evaluations

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Our Solution

Centralized Platform

- All information regarding a course will be in one area
- Filter based search to find classes relevant to the user
- Easily navigate to corresponding instructors' ratings from a course

Student Driven

- All metrics are based on student ratings
- Student comments/reviews are easy to find

Meaningful Data

- Numerous infographics valuable to course selection
- Generates a grade distribution based on user data (optional)
- Filters out hateful/abusive reviews

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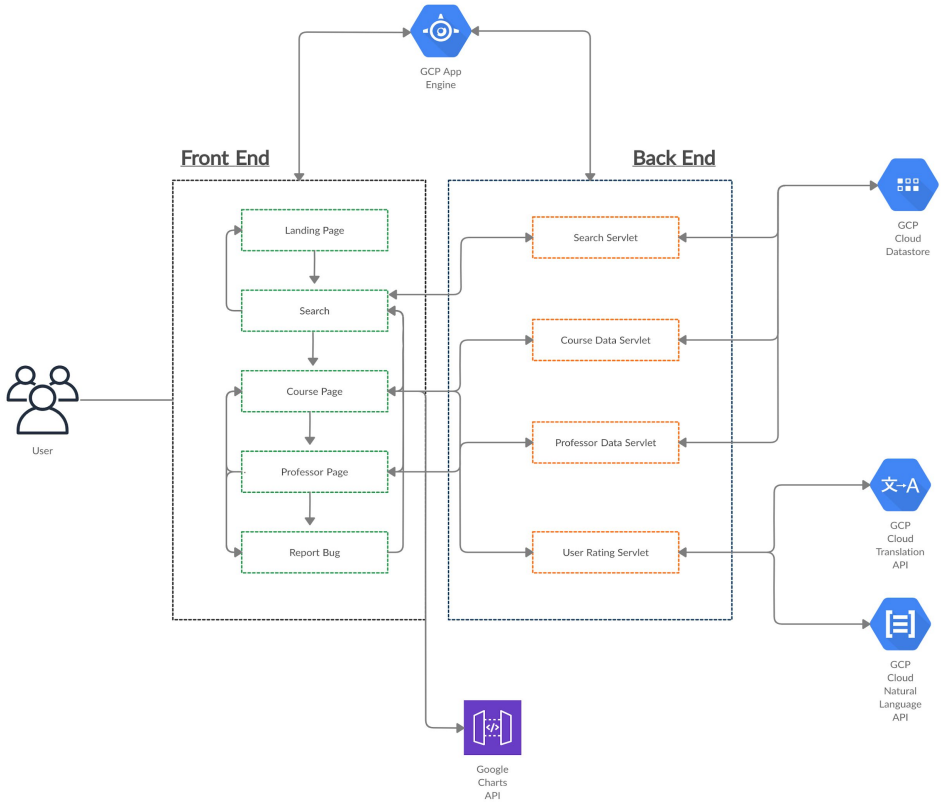
Implementation

System Architecture

- Front End
  - JavaScript
  - HTML
  - Google Charts API
- Back End
  - Java Servlets
  - GCP App Engine
  - GCP Datastore
  - GCP Translation
  - GCP Cloud Natural Language



OAuth & Search

Login Process

- Check if user's email is valid and if so, obtains organization (school) of user.
- For admin-restricted pages, only validate specific emails.

Search Page JS

- Format user-inputted search queries and sends to Search Java Endpoint
- Populate search results section with exact, similar, or no course matches with a corresponding message.

Search Page Java Endpoint

- Query database for all courses fitting the user-defined specifications.
- Return an array of Course objects, if found, and corresponding message.

Fuzzy Search Functionality

- If exact course matches do not exist in database, fuzzy search is performed.
- Search filters are slightly relaxed and database is queried again.

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Charts

Course Page Java Endpoint

- Queries database for all ratings related to the specified term.
- Returns a course data object holder containing lists of data points for all rating

Course Page JS

- Formats data into its unique arrays and feeds the data to the Google Charts API
- Generates five infographics
- Populates comments section with student comments

Professor Page Java Endpoint

- Queries database for all ratings related to the specified professor.
- Returns a professor data object holder containing lists of data points

Professor Page JS

- Formats data into its unique arrays and feeds the data to the Google Charts API
- Generates two comparison charts
- Populate comments section with student comments

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Sentiment & Perspective Analysis

Rating JS Page

- Grabs user-inputted review add construct body request to pass into DataServlet
- Clears, fills out, or verifies form fields depending on user request.

Data Processing Endpoint

- Decodes body request sent from JS and decomposes it into all elements necessary to create our “Rating” Entity
- Performs API-related scores.
- Constructs Rating Entity together with the calculated scores and body request sent from JS

Sentiment Analysis Functionality

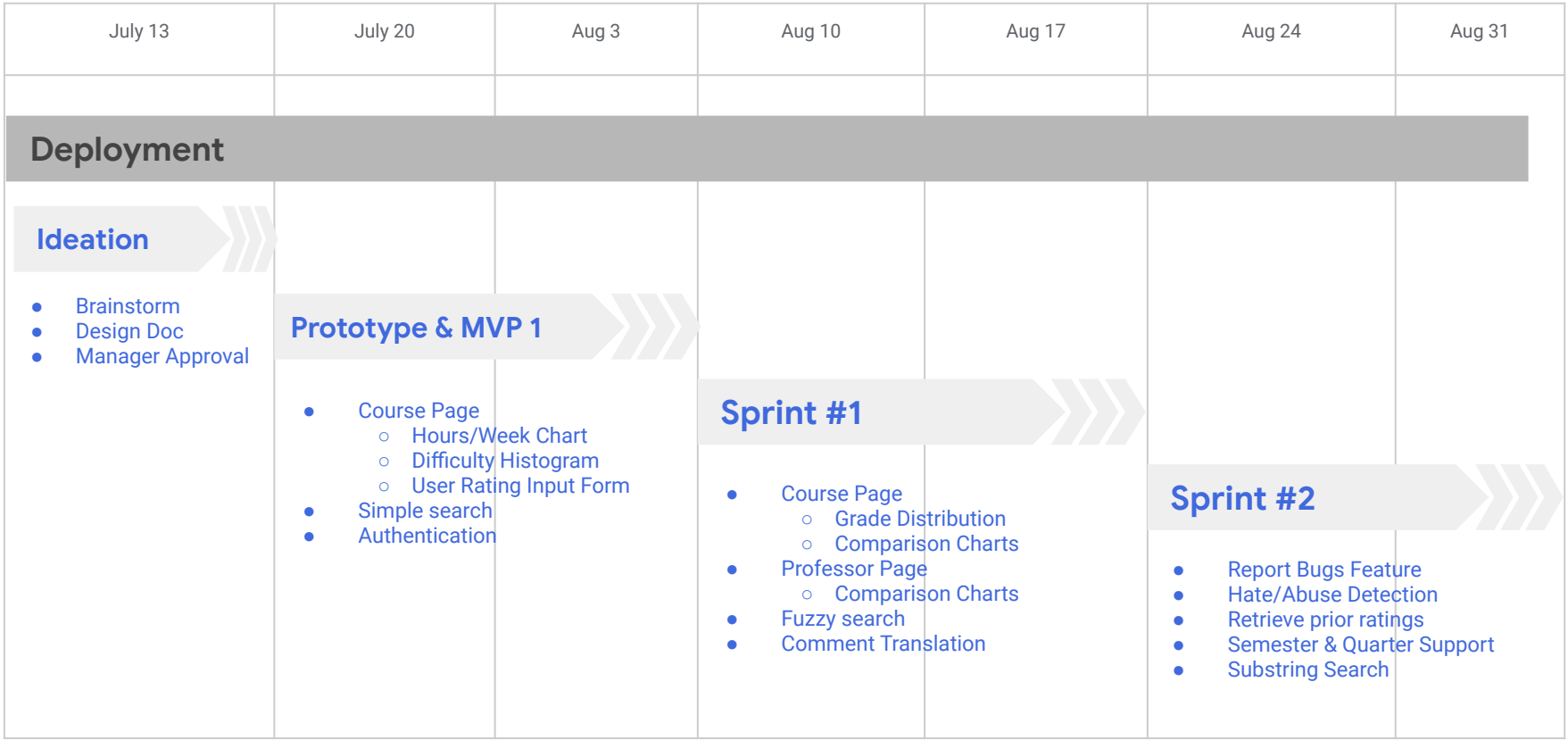
- Inputs document into the LanguageServiceClient to get the Sentiment of the text.
- Return the positive/negative score given by Sentiment.getScore()

Perspective Analysis Functionality

- Establishes an HttpURLConnection with the CommentAnalyzer portion of the API and creates a JSON Object representing the body of the request
- Reads response of the CommentAnalyzer and stores the toxicity value
- Any comment with a toxicity score above 0.9 will be replaced by: "Could not show comment due to toxicity."

Timeline & Demo

Project Timeline



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Future Ideas

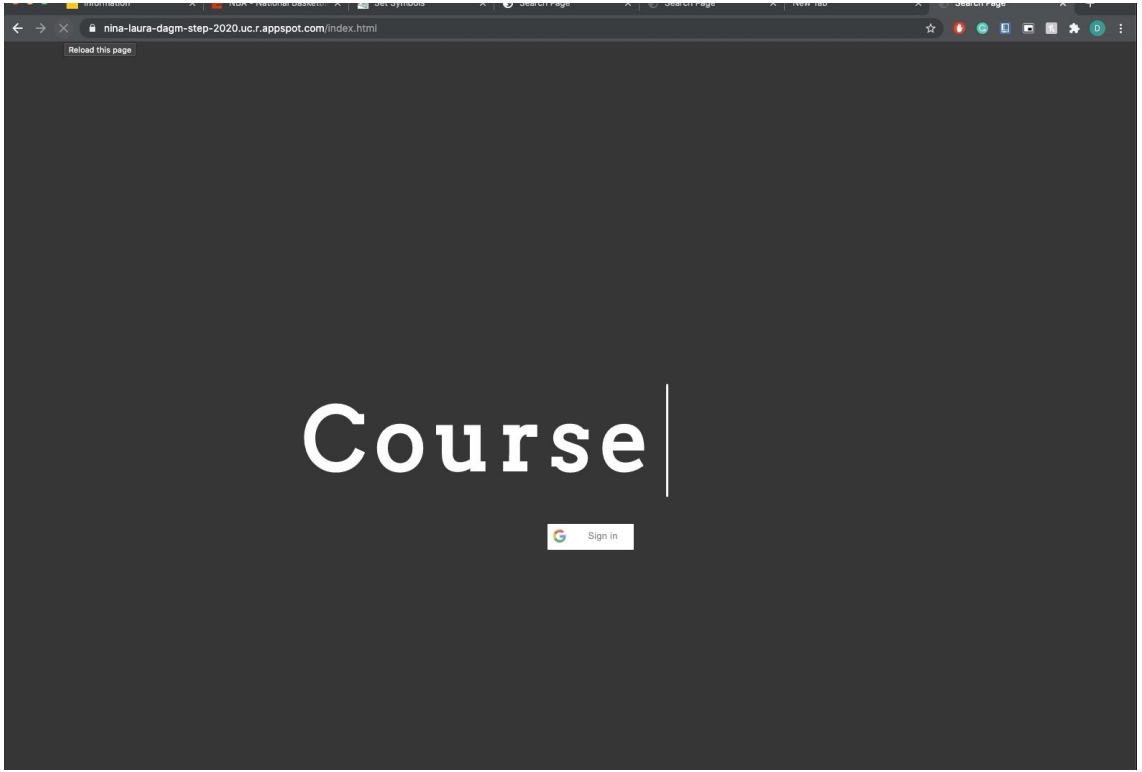
Next Steps

1. Cloud Tasks to batch data for quicker loading times on the application
2. Making the site mobile friendly
3. Advance search to factor in pre-reqs for courses
4. Implementing a social feature that allows user to see who in their social network has taken this class before

Thank You
Q/A

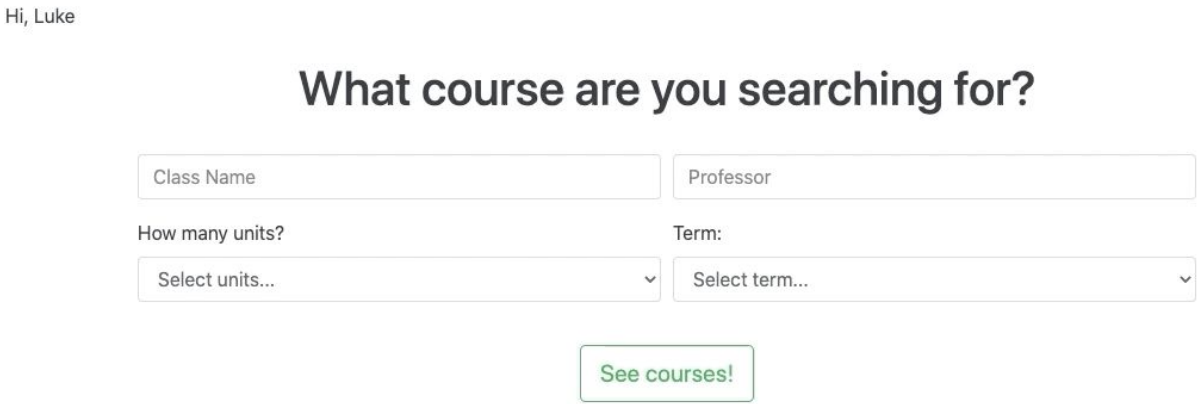
Authentication

- Google oAuth
- Automatic school recognition



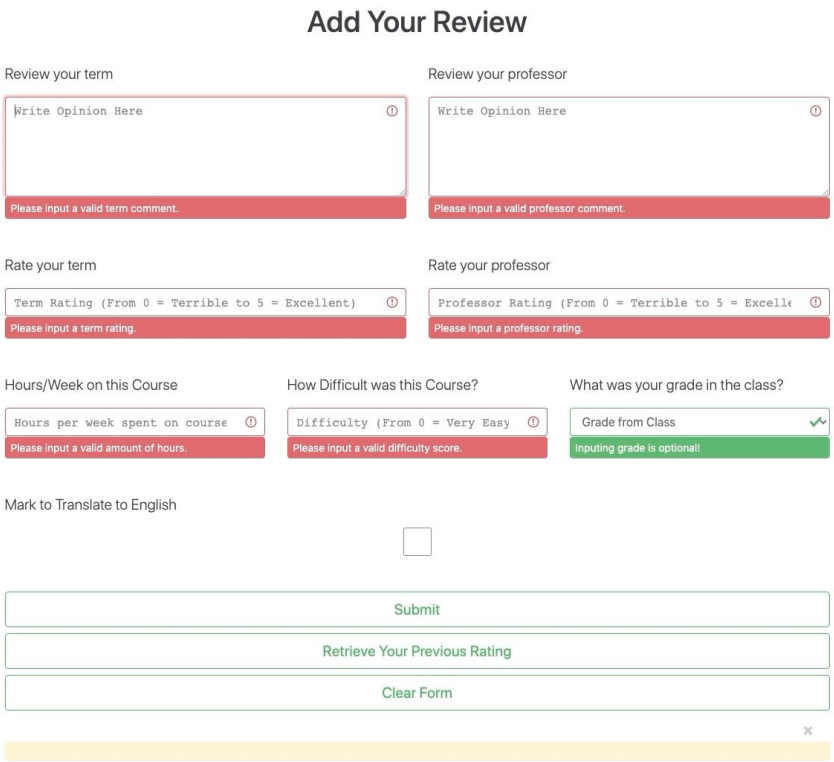
Search

- Exact Search
- Fuzzy Search
- Substring Search



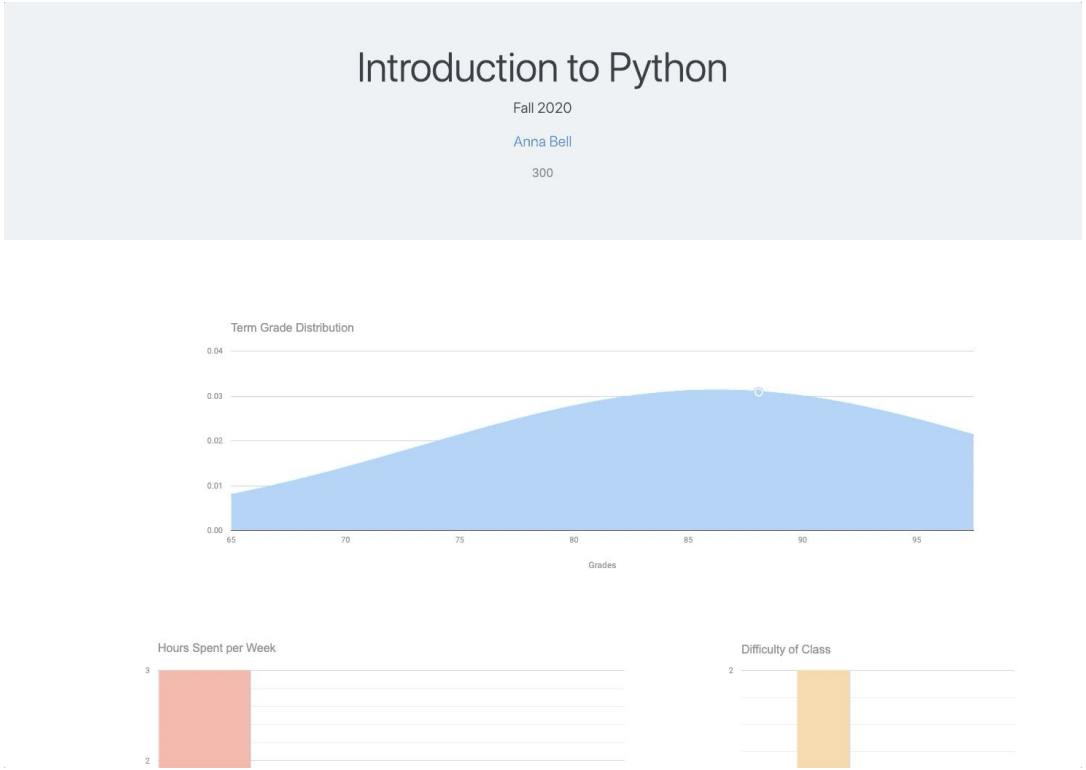
Ratings

- Sentiment Analysis
- Toxicity Monitoring
- Translation
- Validation



Course Review

- Grade Distribution
- Difficulty Histogram
- Hours/Week Histogram
- Term Rating Comparison Charts



Professor Review

- Course Difficulty Comparison
- Course Perception Comparison
- Professor Comments