Exploding Unit's GPA Calculator

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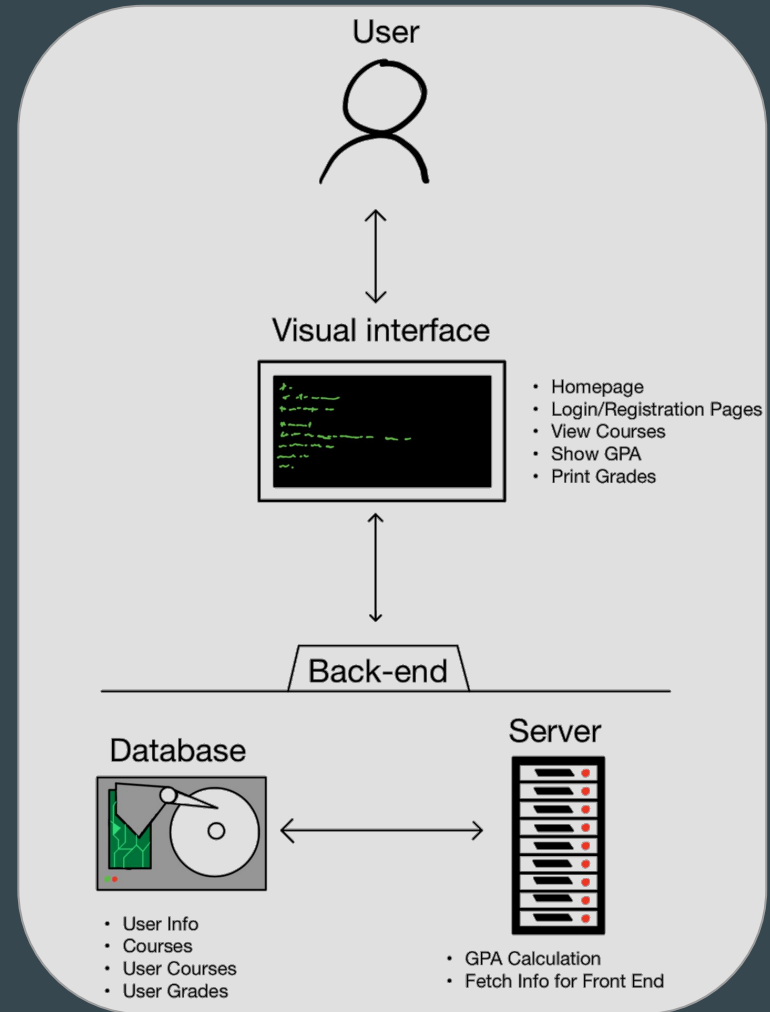
Project Description

- Allows users to easily store their grades and calculate their GPA as well as add current classes with expected grades.
- User adds classes from either the CU Boulder Engineering classes that currently populate our database or add/delete their own classes.
- Once courses set in My Courses, grades can be set in Current GPA page. Once the grades are set, the site will calculate the GPA based on the grades/classes input
- Once grades are set, user can go to print page to print a table of their courses, course hours, and respective grade points as well as a cumulative GPA based on their inputs

Tools Utilized

- VCS REPO - GitHub
- Database - PostgreSQL
- UI Tools - HTML, EJS
- Deployment Environment - LocalHost
- Framework - Node.js

Architecture Diagram

- User interacts with the front end pages, changes are sent to the back end.

- Server adds/removes classes, users, and grades to the database

- Server fetches info from database to display for the user

- Server also handles the GPA calculation

Home Page

- The homepage has a short welcome and description of the webpage

- Explains what the website does and how to use it.

- The user is encouraged to start using the site by using the "login" or "register" buttons at the bottom of the page.

Login/Register Page

- If the user attempts to login with an unknown username, it will state so and prompt the user to register

- If the user inputs a username that already exists into the register, it will not let the user register and state the username already exists

- If the user inputs an incorrect password, it will catch the error and not proceed and state that an incorrect password was entered

My Courses

- User courses that are currently being taken are grabbed from the database and displayed to the user

- User can delete their currently taken courses from this page using the delete button. The button calls /mycourses/delete

Add Courses

- The preloaded courses are written within the insert.sql and then inputted into the courses table when the page is loaded.
- The courses table also allows for the user to add any class they want if the course is not already provided.
- The /courses/addnew function takes the inputs of the user and creates the class information and adds the course to the courses table. This course will remain there until the user selects to "Add" to transfer the course into the user_course table.
- When the user adds a course the create.sql checks to see if the prefix and number are unique to all other classes before adding the course.

GPA Page

- Uses the courses that have been selected to populate a table.

- The courses on the table are then selected from the available dropdown forms that allows the user to select the grade they got for that course.

- The calculator takes the total quality points from each course and divides that by total credit hours taken.

Print Functionality

- Uses the courses for the user to populate table with course name, credit hours, and GPA for the course.

- Has projected GPA based on grade values given in current GPA page

- Displays GPA at top of page

- Has 'Print' button that loads the print functionality of the browser with the loaded page with Projected GPA

Challenges Encountered

- We had an issue when adding a class any class with the same id would be added as well, even if it had a different prefix.
- The database had to be reworked a number of times throughout the project while all the pages were being created and we were discovering what information we needed to have access to.
- In testing we found that if the prefix was greater than 4 characters the website would return an error, so we limited the character allowed to be entered to in the text box to 4 characters as CU course prefixes are only 4 letters long.

Demonstration Video