# CSE 183 Final Project: Course Planner App

## Team Members

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## Overview

This web app is a comprehensive course planner that allows students to manage their coursework in a seamless manner. Users can easily add, edit, and delete courses and categorize them by their organized status, whether they have taken the course, plan to take it, or want to take it. This allows for easy management of coursework and ensures that users can meet their academic requirements.

The web app also facilitates collaboration among students, as users can share their coursework with others, find students taking the same class, and make informed decisions about what classes to take. This feature helps create a supportive community of learners and enhances the academic journey.

The grade calculator feature enables users to calculate their final course grade and current GPA based on the courses they have taken. This feature is particularly useful for students who need to maintain a certain GPA or want to track their academic performance.

# Data Organization

To achieve the desired functionality, we have implemented the following database tables in our models.py file. These tables are used to hold important information about the current user, schools/universities, courses, and grades.
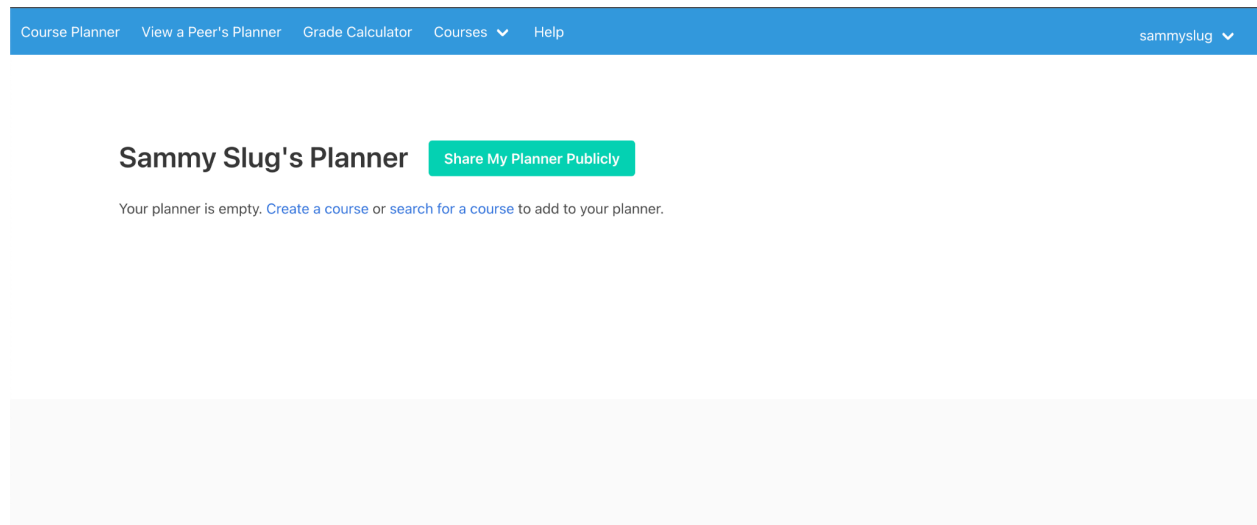
**Database Tables**

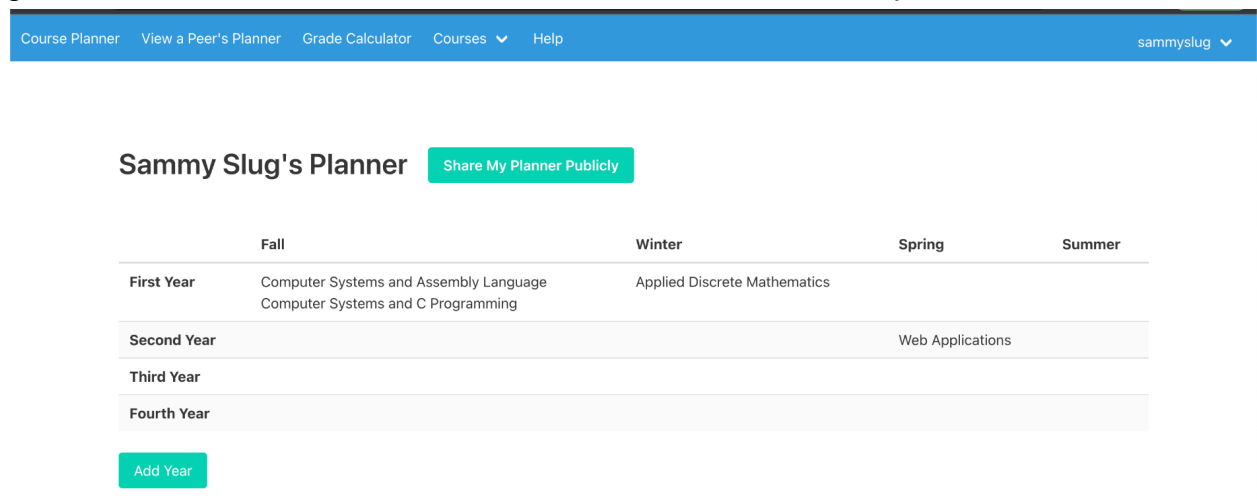| | |
|---|---|
| **school** | The 'school' table stores information about a school such as the school's name, its corresponding abbreviation, the state in which the school is located, and the abbreviation associated with that state. |
| name | |
| abbr | |
| state | |
| state_abbr | |
| **course** | The 'course' table stores information about a course, including the course name, abbreviation, number, description, credits, instructor, quarter(s) offered, and year offered. It also includes a created_by field to ensure that courses are unique and private to users. This course information is editable on the Course Search page, after a user searches for a course. |
| name | |
| abbreviation | |
| number | |
| description | |
| credits | |
| instructor | |
| offering | |
| year | |
| created_by | |
| **student** | The 'student' table contains information that is tied to the user profile. It includes a 'user_id' field, establishing a connection to the respective user. Additionally, the table features a 'school_id' field, linking to the associated school. The table captures the start and end dates of the student's academic journey, as well as their declared major. Lastly, the table incorporates a 'shared_planner' field, determining whether |
| user_id | |
| school_id | |
| grad_start_date | |
| grad_end_date | |
| major | |

| | |
|---|---|
| shared_planner | the user's planner is shared with other students. |
| **course_taken** | The 'course_taken' table stores information about courses that have been added to the planner. The 'user_id' field establishes a connection with the respective user, while the 'course_id' field links to a specific course in the course table. Additionally, the table includes fields indicating when the course was taken, denoted by the 'year' and 'season' fields. The 'status' field indicates the course's current status, such as enrolled or dropped. Furthermore, the table records the grades received by the student through the 'grade' and 'final_grade' fields. |
| user_id | |
| course_id | |
| status | |
| season | |
| year | |
| grade | |
| final_grade | |
| **course_grade_categories** | The 'course_grade_categories' table stores information about the course assignments, grade, and weight that the user saves. The 'user_id' establishes a connection with the respective user. The 'course_taken_id' field establishes a connection to the courses that the user has taken. The 'category_name' field where people input their assignment categories e.g homework, quizzes, final along with their respective grade and weight. |
| user_id | |
| course_taken_id | |
| category_name | |
| grade | |
| weight | |

# Pages & User Stories
## Course Planner (User Story 5)

| Course Planner | View a Peer's Planner | Grade Calculator | Courses ⌄ | Help | | sammyslug ⌄ |

**Sammy Slug's Planner**  [Share My Planner Publicly]

Your planner is empty. Create a course or search for a course to add to your planner.

This is the Course Planner's main page, where users can view their personalized planner. Upon creating a new account, the planner will be empty, and users will be guided to either create or search for courses to include in their planner.

| Course Planner | View a Peer's Planner | Grade Calculator | Courses ⌄ | Help | | sammyslug ⌄ |

**Sammy Slug's Planner**  [Share My Planner Publicly]

| | Fall | Winter | Spring | Summer |
|---|---|---|---|---|
| **First Year** | Computer Systems and Assembly Language<br>Computer Systems and C Programming | Applied Discrete Mathematics | | |
| **Second Year** | | | Web Applications | |
| **Third Year** | | | | |
| **Fourth Year** | | | | |

[Add Year]

Once courses are added to the planner, users can now view their customized planner. The planner displays the specific year and quarter when each class was added. It's important to note that the planner accommodates a minimum of four years and a maximum of six years. In the screenshot below, you can observe a  planner spanning up to six years.

Lastly, users have the option to make their planner visible to others on the main page by simply clicking the "Share My Planner Publicly" button. This will make it so other users have the option to view their planner in the "View a Peer's Planner" page. The screenshot below shows the button after it was clicked. If they click the button again it will revert back to the "Share My Planner Publicly" button and unshares the user's planner.

## View a Peer's Planner (User Stories 9, 10, 11)



On the "View a Peer's Planner" page, users can view planners shared by other students, if the user has agreed to share their planner by clicking the "Share my planner publicly" button on the main page. The webpage gets the list of students that have shared their planner and makes it available for the user to browse through, seeing what their name and major is, as well as what school they come from. The page introduces the user on the mechanics of the page upon the first load.

By clicking on a user, it highlights the button as green, and displays their planner, as well as displaying their major, full university name, and state the university is located in.



If a user has a fifth and/or sixth year course in their planner, the table will extend accordingly.



Users can search for specific users that have shared their planner, by clicking on "Search By User" highlighted in blue, and typing the user's name in the search bar, it returns a list of users with a similar username. Notice that the query can match with any user that starts with the query, which means it returns a list of users that start with the

query. We can see in the figure above that searching for the user starting with "art" returns the only user starting with the query "Arty".



Users can also search for other users with a specific major, by clicking on the "Search By Major" button and typing a major, it returns a list of users that matches the start of their major with the query. We can see in the figure above that searching for the major starting with "Computer" returns users with the major starting with the query "Computer", which excludes the user "Arty" as that user is an Art major.

## Grade Calculator  (User Stories 6, 7, 8)



The Grade Calculator page provides users with the ability to assess their current grades in different classes. By inputting assignment categories (such as homework, quizzes, and finals), along with the corresponding percentages and weights, users can determine their overall grade. Moreover, they have the option to save this information for future reference and make any necessary modifications. Additionally, users can experiment

with different scenarios to estimate their GPA and conveniently update their final grades accordingly.

## Courses ➤ Create Course (User Story 1)



Create Course page for adding a course. When the user enters course information and clicks the Submit button, the course is added to the All Courses page, and becomes searchable on the Course Search page.

## Courses ➤ Course Search  (User Story 5)

### Course Search

**Course Name**

**Course Number**

| Exactly ⌄ | 183 |

**Credits**

**Offering**

Fall
Winter
Spring
Summer

**Year**

Submit

**1 Result(s):**

**CSE 183 - Web Applications**                                                                                    ✏

**Name:** Web Applications

**Description:** Web Applications

**Credits:** 5

**Instructor:** 👤 Massimo DiPierro

Courses created with the Create Course page (described above) become searchable on this Course Search page. The user can search by course name, number, credits, offering, and year. When the user clicks Submit, the course results appear at the bottom of the page. For each result, the user has the option to add the course to their planner, edit the course, or delete the course from their planner.

## Courses ➤ Course Search ➤ Add Enrollment (User Story 1)



Click the plus icon on a course result after a valid search query. When the user updates the enrollment information the enrollment is inserted into the course_taken table and can be viewed in the user planner or at Courses ➤ Enrollment History

## Courses ➤ Course Search ➤Edit Course (User Story 2)



Click the pencil icon on a course result after a valid search query. When the user updates course information and clicks the Submit button, the course information will be updated everywhere.

## Courses ➢ Enrollment History (User Story 5)

This page shows the courses that you have the status of "enrolled","taken","withdrawn","dropped".
Use this page to edit or delete these courses from your account.

Note that deleting a course on this page will only remove your enrollment. To delete the course itself go to the course search page.

| Course | Description | Term | Final Grade | Status | | |
|--------|-------------|------|-------------|--------|---|---|
| CSE 143 | Natural Language Processing | Third Year Winter | A | Enrolled | ✏️ | 🗑️ |
| CSE 183 | Web Applications | Third Year Spring | A- | Enrolled | ✏️ | 🗑️ |
| CSE 101 | Intro to Data Structures and Algorithms | Second Year Winter | None | Taken | ✏️ | 🗑️ |

The "enrollment history" page presents a list of courses that have been added to the planner. This page serves the purpose of allowing users to view, edit, or remove these courses from their planner.

## Courses ➢ All Courses (User Story 5)

Only public courses and courses you create will be shown here.

**My Courses**

| Abbr ⇅ | Number ⇅ | Description | Credits ⇅ | Offering ⇅ | Year Offered ⇅ |
|--------|----------|-------------|-----------|------------|----------------|
| CSE | 183 | Web Applications | 5 | Spring | 2023 |
| CSE | 143 | Natural Language Processing | 5 | Winter | 2023 |
| CSE | 101 | Intro to Data Structures and Algorithms | 5 | Winter | 2022 |

**Public Courses - CSE 2023-24**

| Abbr | Number | Description | Credits | Offering | Year Offered |
|------|--------|-------------|---------|----------|--------------|
| CSE 12 | 12 | Computer Systems and Assembly Language | 7 | Fall, Winter, Spring | 2023-24 |
| CSE 13S | 13S | Computer Systems and C Programming | 7 | Fall, Winter, Spring | 2023-24 |
| CSE 16 | 16 | Applied Discrete Mathematics | 5 | Fall, Winter, Spring | 2023-24 |
| CSE 20 | 20 | Beginning Programming in Python | 5 | Fall, Winter, Spring | 2023-24 |
| CSE 30 | 30 | Programming Abstractions: Python | 7 | Fall, Winter, Spring | 2023-24 |
| CSE 101 | 101 | Intro to Data Strutures and Algorithms | 5 | Fall, Winter, Spring | 2023-24 |

On the "all courses" page, users can find a collection of courses that includes those they have created and courses that are public for the upcoming school year.

# Help

## Need Help?

### Getting Started

First, go to the **Create Course** page under the Courses menu, and create the courses you want. The courses you create will be displayed on the **All Courses** page under the Courses menu. Once you are finished creating courses, you can go to the **Course Search** page under the Courses menu and look for a course that you have created. When you click Submit on the Course Search form, you can then add a course to your planner, edit a course, or delete the course from your planner. Your planner on the home page will be updated with your changes accordingly.

### Calculating Grades

Once you have added courses to your planner, you can calculate your grade for a course and your overall GPA after taking a course on the **Grade Calculator** page. First, choose a course from the dropdown menu, and click Add Row to enter an assignment grade. Once you are done adding your assignment grades, you can click Save.

Your overall grade in the class according to the assignments you have entered will appear in the Average Grade box. Click on the dropdown menu next to the box and select the letter that matches your grade. When you are finished, click Submit Grade to see the course grade added to the GPA Calculator. Your GPA and Credits will be updated according to your changes.

### Sharing Planners

To help your academic planning, you can view a peer's planner! Head over to the **View a Peer's Planner** page and search by user or major, and click on a user to view their planner.

Help page with information on getting started, adding courses to your planner, calculating grades, and sharing planners. Hyperlinks to other pages included.

# Profile

**Username**

sammyslug

**Email**

sammyslug@ucsc.edu

**First Name**

Sammy

**Last Name**

Slug

**Major**

CS

**Grad Start Date**

05/31/2023

**Grad End Date**

06/21/2023

**University**

University of California, Santa Cruz

Submit

The profile page allows users to access and review information associated with their account, as well as make changes to the fields.

## Improvements

### Course Recommendations

One feature we had wanted to integrate into our application, but were unable to due to time constraints, was the capability to recommend courses to add to the planner. This functionality would have involved comparing the courses already added to the planner with the major's required courses for the student.

Another feature we wanted to add was to have another status called "Planned" so that they could build their planner along with the classes that they plan to take.

### Public Courses

On the All Courses page of our application, we have a table for Public Courses or courses generally needed among multiple users of different majors. Currently, we have included CSE courses offered for the upcoming school year, but if we had more time, we could improve this to display the courses according to a few different user selections/filtering features:
- Filtering by school year (2022-23, 2023-24)
- Filtering by department (CSE, CMPM, MATH, etc.)

We were also planning on adding a button to allow the user to add a Public Course to their planner straight from this All Courses page.

### Multiple Planners

Our original idea was to be able to create multiple planners but due to time constraints we were not able to do this.

## Course Planner API

## Course

This section denotes all of the calls that are made in regards to the course section of the application.

| HTTP Type | Method Name | Route | Description | Return values |
|---|---|---|---|---|
| GET, POST | create_course | course/create<br><br>Uses: course.html | Form page for creating a course | form: py4web Form |

| | | | Inserts course into data base on a form accept | |
|---|---|---|---|---|
| GET, POST | edit_course | course/edit/<courseId: int><br><br>Uses:course.html | Form page for editing a course<br><br>Updates course into data base on a form accept | form: py4web Form |
| GET | course_list | course/all<br><br>Uses: courses_list.html | Returns a list of all the courses created by the user using the | rows: pydal row object<br><br>get_user_courses_url: string |
| GET | get_user_courses | course/user/all | Returns a list of courses created by the user | rows: pydal row object |
| GET | get_courses | get_courses | Helps build planner | id:int<br>courses: pydal row object<br>courses_taken: pydal row object |
| GET, POST | search_course | course/search<br><br>Uses: search_course.html | Handles form generation for search page<br><br>On form accepts rows of db query results which are data for the course results list. | searchForm: py4web Form<br>rows: pydal row object<br>DETAIL_FIELDS= list of strings |
| GET | add_course | course/add/<courseId: int> | Enrolls user in the selected courses | 200 OK |
| POST | share_courses | share_courses | Update the status of a user's shared_planner in the student table to be true/false | 200 OK |
| DELETE | delete_course | course/delete/<course Id:int> | Deletes a course that a user has created if no user is enrolled in the course. | 200 OK |

# Enrollment

This section denotes all of the calls that are used within the enrollment section of the application.

| HTTP Type | Method Name | Route | Description | Return values |
|---|---|---|---|---|
| GET | course_history | course/history | Gets all the enrollments that the user has and returns then as rows alongside course data. | rows: pydal row object |
| GET, POST | edit_course_taken | course/taken/edit/<course_takenId:int><br><br>Uses: course.html | Form page for editing a user enrollment<br><br>Inserts course into data base on a form accept | form: py4web Form |
| DELETE | delete_course_taken | course/delete/<courseId:int> | Deletes a enrollment from a user and removes it from the planner. | None. |

# Shared Planner

This section denotes all of the calls that are used within the shared planner "View a Peer's Planner" section of the application.

| GET | get_planners | get_planners | Gets a specific student's planner information, as well as relevant information about the student | Multiple rows as List String |
| GET | get_shared_users | get_shared_users | Get the list of users that have shared their planner. In addition, get their username and school abbreviation | rows as a list, modified to include name and school as strings. |

| GET | get_shared_status | get_shared_status | Get the shared_planner of the current user | boolean |
|-----|-------------------|-------------------|--------------------------------------------|---------|
| GET | get_shared_users | get_shared_users | Get the list of users that have shared their planner. In addition, get their username and school abbreviation | rows as a list, modified to include name and school as strings. |
| GET | get_shared_status | get_shared_status | Get the shared_planner of the current user | boolean |

## Grade Calculator

| HTTP Type | Method Name | Route | Description | Return values |
|-----------|-------------|-------|-------------|---------------|
| GET | get_grade_categories | grade_categories | Be able to get grade categories, weight and grade for each grade category.. | 200 OK |
| POST | post_grade_categories | grade_categories | Be able to post grade categories, weight, and grade into the database | 200 OK |
| POST | submit_grade | submit_grade | Be able to update the user's final grade into the database. | None |
| GET | get_my_courses | get_my_courses | Get the current user's courses for the dropdown in grade calculator | courses_taken: pydal row object |

# Profile

| HTTP Type | Method Name | Route | Description | Return values |
|---|---|---|---|---|
| GET, POST | profile | user/profile | Handles the form submission for the user profile page. It extracts the necessary form data, updates the corresponding records in the database, and redirects the user to the "index" page. | schools: pydal row object |
| GET | universities | universities | Get universities for the profile page. | 200 |
| GET | me | me | Get information of the user from the auth table and student table for the profile page. | 200 |