

# CSE 183 Final Project: Course Planner App

## Team Members

Name	UCSC Email	GitHub Username
Jeffrey Gu	jrgu@ucsc.edu	drunkNH
Colby Frey	csfrey@ucsc.edu	ColbyFrey
Neeha Ravula	nravula@ucsc.edu	neeharavula
Vincent Jay Olandria	volandri@ucsc.edu	volandri
Jasmin Perez	jpere131@ucsc.edu	jpere131

## 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.

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## 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

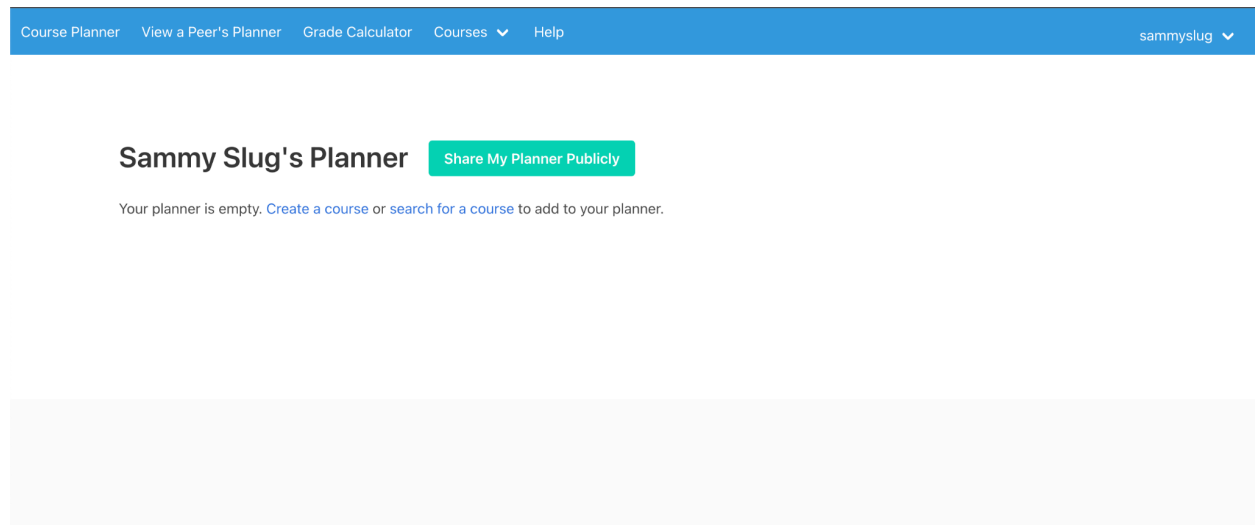
<b>school</b>	The 'school' table stores information about a school such as the school's name, its corresponding abbreviation, the state in which the school is located, and the abbreviation associated with that state.
name	
abbr	
state	
state_abbr	
<b>course</b>	The 'course' table stores information about 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	
<b>student</b>	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.
<b>course_taken</b>	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	
<b>course_grade_categories</b>	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	

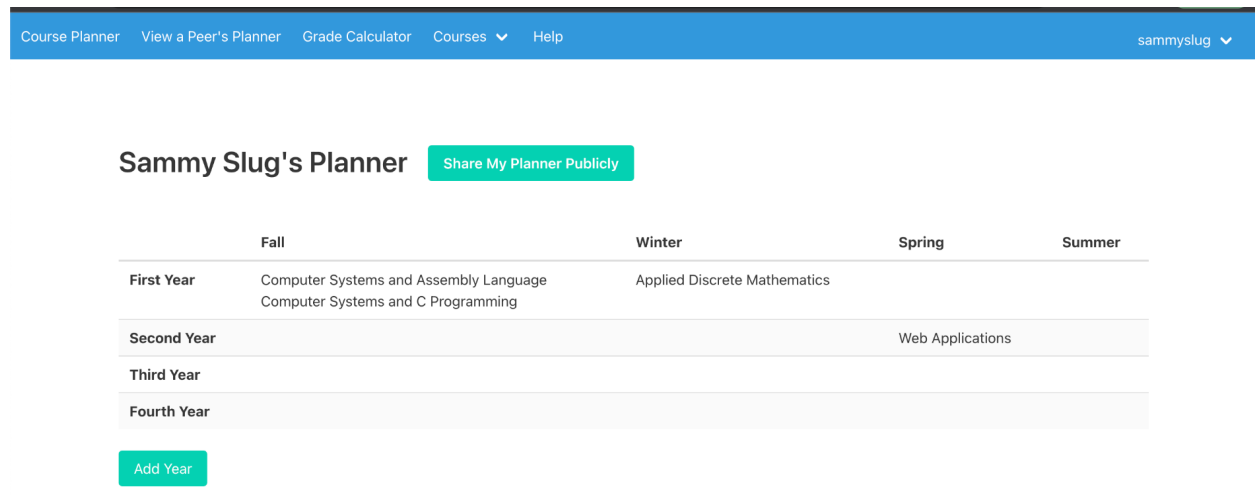
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## Pages & User Stories

### Course Planner (User Story 5)



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.



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.

Sammy Slug's Planner

Unshare My Planner

	Fall	Winter	Spring	Summer
First Year	Computer Systems and Assembly Language Computer Systems and C Programming	Applied Discrete Mathematics		
Second Year			Web Applications	
Third Year				
Fourth Year				
Fifth Year	Beginning Programming in Python			
Sixth Year		Programming Abstractions: Python		

Delete Year

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)

[Course Planner](#)
[View a Peer's Planner](#)
[Grade Calculator](#)
[Courses](#)
[Help](#)

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View a Peer's Planner

Users and their major is shown on the right. To get started, click on a user to view their planner! The format is [ Name | Major | University ].

You can search by user or by major by clicking on the corresponding buttons on the right and typing your query in the search bar!

Search by User

Search by Major

Search

test | Computer Science | UCD

we | Computer Science | UCI

demo | Computer Science | UCSC

arty | Art | UCSC

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.

[Course Planner](#)
[View a Peer's Planner](#)
[Grade Calculator](#)
[Courses](#)
[Help](#)

### demo's Planner

Computer Science  
University of California, Santa Cruz  
California

	Fall	Winter	Spring	Summer
1st Year	Calculus for Science, Engineering, and Mathematics Programming Abstractions: Python			
2nd Year		Introduction to Data Structures and Algorithms Computer Systems and Assembly Language and Lab		
3rd Year			Computational Models	
4th Year				Web Applications

Search by User

Search by Major

Search

test | Computer Science | UCD

we | Computer Science | UCI

demo | Computer Science | UCSC

arty | Art | UCSC

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.

[Course Planner](#)
[View a Peer's Planner](#)
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[Help](#)

### test's Planner

Computer Science  
University of California, Davis  
California

	Fall	Winter	Spring	Summer
1st Year				
2nd Year				
3rd Year				
4th Year				
5th Year	Artificial Intelligence			
6th Year		Web Applications		

Search by User

Search by Major

Search

test | Computer Science | UCD

we | Computer Science | UCI

demo | Computer Science | UCSC

arty | Art | UCSC

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

[Course Planner](#)
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### arty's Planner

Art  
University of California, Santa Cruz  
California

	Fall	Winter	Spring	Summer
1st Year	Intro to Art			
2nd Year				
3rd Year				
4th Year				

Search by User

Search by Major

art

arty | Art | UCSC

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”.

The screenshot shows the 'we's Planner' interface for Computer Science at the University of California, Irvine. The main area displays a table with columns for Fall, Winter, Spring, and Summer, and rows for 1st Year, 2nd Year, 3rd Year, and 4th Year. The 1st Year row shows 'Web Applications' under the Fall column. On the right, a sidebar contains search filters. The 'Search by User' button is active, and the search results list 'test | Computer Science | UCD', 'we | Computer Science | UCI' (highlighted in green), and 'demo | Computer Science | UCSC'.

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 screenshot shows two calculators side-by-side. The 'Grade Calculator' on the left has a dropdown for 'Choose a Course' and a table for calculating course grade using percentages. The table has columns for 'Category (Optional)', 'Grade (%)', and 'Weight (%)'. It contains three rows with example categories: 'e.g Assignment', 'e.g Projects', and 'e.g Exams'. Each row has input fields for grade and weight, and a red 'X' button to delete the row. Below the table is an 'Add Row' button. A 'Save' button is also present. At the bottom, there is an 'Average Grade' section with a dropdown for 'Percentage' and a 'Submit Grade' button. The 'GPA Calculator' on the right has a title 'GPA Calculator: Calculates GPA from letter grades and credit points'. It contains a table with columns for 'Course', 'Grade', and 'Credits'. The first row has 'Beginning Python' in the Course column, an empty Grade field, and '5' in the Credits column. Below the table, there is a 'GPA' field with a value of '0' and a 'Total Credits/Hours' field with a value of '0'.

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)

[Course Planner](#) [View a Peer's Planner](#) [Grade Calculator](#) [Courses](#) [Help](#) nravula

Name

e.g. Web Applications

Abbreviation

e.g. CSE

Number

e.g. 183

Description

e.g. This course introduces the design of Web applications.

Credits

e.g. 5

Instructor

e.g. Sammy Slug

Offering

Fall

Winter

Spring

Summer

Year

e.g. 2023

Submit

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 Planner](#) [View a Peer's Planner](#) [Grade Calculator](#) [Courses](#) [Help](#) nravula

### 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)

The screenshot shows a modal window titled "Add 'rksovhnn Course' to planner" with a red 'x' icon in the top right corner. The modal contains three dropdown menus: "Offering taken" with "Summer" selected, "Enrollment Status" with "Enrolled" selected, and "Year Taken" with "First Year" selected. Below these is a green "Add course" button. The background shows a course card for "CSE 183 - Web Applications" with a pencil icon in the top right corner. The course details include "Name: Web Applications" and "Description: this course teaches you about things". At the bottom of the modal, the text "Year: 2023" is visible. The bottom of the page shows a course card for "CSE 86 - nkzbespz Course" with a plus icon, a pencil icon, and a trash icon.

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)

The screenshot shows the "Edit Course" form for "CSE 183 - Web Applications". The form has a blue header bar with navigation links: "Course Planner", "View a Peer's Planner", "Grade Calculator", "Courses", and "Help". The user's name "colby" is in the top right. The form fields are: "Name" (Web Applications), "Abbreviation" (CSE), "Number" (183), "Description" (this course teaches you about things), "Credits" (5), "Instructor" (Bob Billy), "Offering" (a dropdown menu with options: Fall, Winter, Spring, Summer), and "Year" (2021). A green "Submit" button is at the bottom. The footer shows the URL "127.0.0.1:8000/courseplanner/index".

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)

Course PlannerView a Peer's PlannerGrade CalculatorCourses ▾Help

nravula ▾

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	<div><div></div><div></div></div>
CSE 183	Web Applications	Third Year Spring	A-	Enrolled	<div><div></div><div></div></div>
CSE 101	Intro to Data Structures and Algorithms	Second Year Winter	None	Taken	<div><div></div><div></div></div>

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)

Course PlannerView a Peer's PlannerGrade CalculatorCourses ▾Help

nravula ▾

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	<a href="#">Year Offered</a>
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

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


**Username**  
sammyslug


**Email**

**First Name**

**Last Name**

**Major**

**Grad Start Date**  
 

**Grad End Date**  
 

**University**  
 ▾

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.

<b>HTTP Type</b>	<b>Method Name</b>	<b>Route</b>	<b>Description</b>	<b>Return values</b>
GET, POST	create_course	course/create  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>  Uses:course.html	Form page for editing a course  Updates course into data base on a form accept	form: py4web Form
GET	course_list	course/all  Uses: courses_list.html	Returns a list of all the courses created by the user using the	rows: pydal row object 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 courses: pydal row object courses_taken: pydal row object
GET, POST	search_course	course/search  Uses: search_course.html	Handles form generation for search page  On form accepts rows of db query results which are data for the course results list.	searchForm: py4web Form rows: pydal row object 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/<courseId: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 them as rows alongside course data.	rows: pydal row object
GET, POST	edit_course_taken	course/taken/edit/<course_takenId:int>  Uses: course.html	Form page for editing a user enrollment  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