

## **Studdy System Write-Up**

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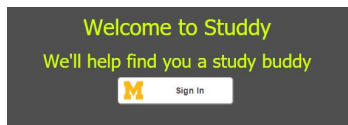
### **Introduction**

For our final project we created a web app called Studdy using libraries and frameworks that we learned about in class, such as AngularJS, Javascript, and jQuery. We also make use of Google APIs, U-M APIs, Google Firebase, and Bootstrap CSS. The goal of our project was to address the lack of tools available to help students form and organize study groups when they may not be acquainted with many of their classmates. To do this we constructed a system to allow users to create and organize study groups by class and by location using their University of Michigan accounts and to be able to easily coordinate with others to form dynamic groups over the course of a semester. Our application consists of several pages, including a login page, a search page to search for available groups, “Join Me” and “Join Others” pages to create or join groups, and the group page where users can view details about groups as they form.

Because the U-M API enforces the same-origin policy, we need to use a browser extension called “Allow-Control-Allow-Origin”, which enables cross origin resource sharing. This was necessary in order to make the functionality using the U-M API work correctly. The extensions works by adding the header that allows for resource sharing to the response that the browser receives from the GET request to the API.

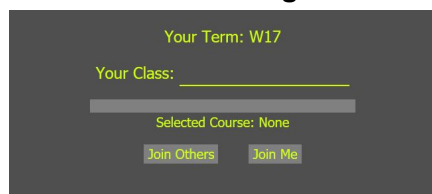
To get started visit: [studdy-db032.firebaseio.com](https://studdy-db032.firebaseio.com)

### **Login Page**

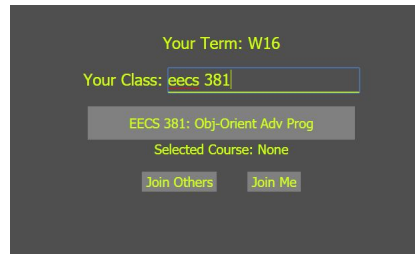


Our login page, uses Google’s authentication API which takes advantage of the Oauth 2.0 protocol for login. We used Oauth to ensure that only college students (specifically UM) get to access and form study groups on the UM campus. The resulting Oauth object is then passed directly to Firebase which also uses Google authentication to verify the user’s authenticity. The page’s javascript is set to automatically use a University of Michigan account for the requested Google log in and the database permissions on Firebase include rules to ensure that only University of Michigan accounts can be used to create and join groups. When the “Sign In” button is pressed, the user’s Michigan account will be authenticated. If the user is not already logged in to their Michigan account, a popup window will open where they can sign in through the school’s authentication system. Once the user has successfully logged in, the “Sign In” button will change to a “Sign Out” button and a “Get Started!” button will appear that will allow them to continue to the search page. Setting up this sign-in was convenient for our group because we could access the username of each student who uses our app and add/remove data from the database at different parts of our code. This prevented the need to use cookies which can easily be set by a third-party to impersonate students.

### **Search Page**



From here users can select the class for which they want to form a study group. When the user enters a search query a list of classes is pulled from the U-M API and displayed below the search bar.



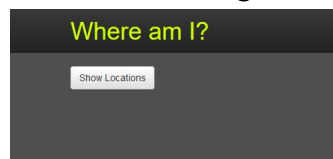
Search interface showing the following elements:

- Search bar with text: "Your Term: W16"
- Search bar with text: "Your Class: eecs 381"
- Dropdown menu showing: "EECS 381: Obj-Orient Adv Prog"
- Status text: "Selected Course: None"
- Buttons: "Join Others" and "Join Me"

Once the results are displayed users can click the class they want to select it. Selecting a class enters a user's username and class name into the User table of our database. Once a class has been selected the user will click either "Join Me" to create a new study group for this course or "Join Others" to search for preexisting groups for the course in real-time. The search function is not case sensitive.

A search page allows us to collect uniform and reliable course selection info from users. Users don't have to remember the full course code or number, and don't need to worry about formatting their input in a certain way. The search page allows the user to input a wide variety of possibly queries, and outputs a uniform and reliable course code based on their ultimate selection. This way, we can increase ease-of-use and prevent errors in input or in group forming.

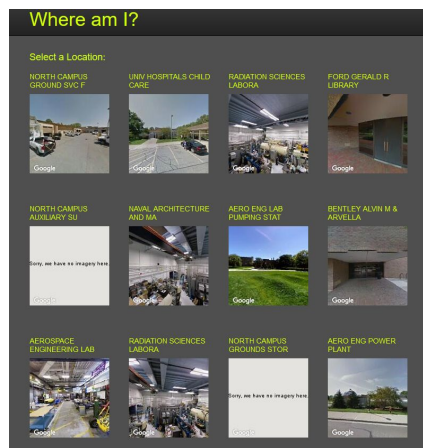
## Join Me Page



Join Me Page interface showing the following elements:

- Title: "Where am I?"
- Button: "Show Locations"

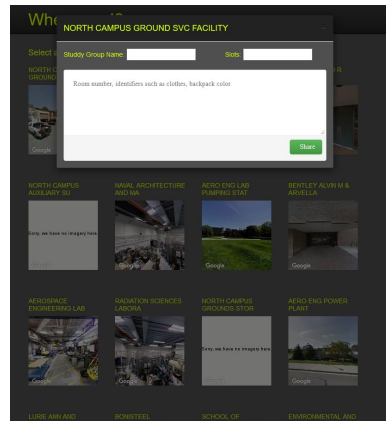
Users who want to make a new group will be directed to the Join Me page, which uses the U-M API to display all of the buildings near their location in a grid. We started out with a type of loading page because it takes some time to get a response back from the navigator.geolocation function call. From here the user can select which building their new group will meet in.



We designed the grid to make it easy for users to find and select their location. We included images taken from Google's Street View API in order to provide a visual reference to the user for each building.

Selecting a building triggers a pop up where users can fill in a form with their desired group name, the number of slots in the group for other students, and descriptions of their location in the building and their appearance.

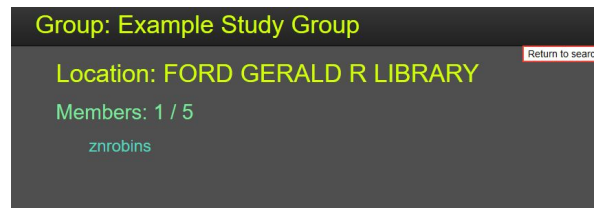
The stakeholders we talked to during our prototyping stage mentioned that allowing the user to provide a description of themselves would make it easier for other group members to find them.



### Join Others Page

Users who want to find an existing group to join will proceed from the Search page to the Join Others page. Here we will display a textual list all of the available groups for the selected class and a map showing where these groups are located. Our initial design only included the list; however, after getting feedback from testers during our prototyping stage about possibly adding a map, we realized that the map would be necessary to allow users to efficiently locate study groups near their own location.

### Group Page



After the user creates or joins a group, they will be redirected to the Group Page, which displays the group's name, location, and members. From here they can also click "Return to Search" if they wish to start over or join a different group.

### Conclusion

We designed our app to be simple so that users can quickly log in to create or join a study group. There aren't any well known apps for creating a study group, so we hope that this will help students from all walks of life. Research shows that forming study groups helps improve academic performance and reduce dropout rates, especially for international students who may not know many other students.

### Work Division

Kelvin Tam - Join Others Page  
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Karl Kalina - Search Page  
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