

Design Document

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Executive Summary

Booth is a mobile app designed to transform the collaborative study experience for college students on campuses everywhere. Our project addresses the need for efficient study space utilization and fosters real-time connections among students on campus. Booth enables users to seamlessly locate and join study sessions, visually identifying study spots through pictures and detailed information shared by peers.

With this app, students will be able to enhance their time studying by choosing study sessions that are custom to what they need most. From the student who wants to study for a test with his/her friends during a gap in their schedule, to the TA who wants to broadcast their skills to the class when they host a study session, this app will be for everyone no matter the educational discipline. This app will have a lot of possible uses, and based on the needs and wants of the students using the app, we can continue to add more features until we have the best collaborative study app for the study community.

Features

- **Location-based Study Spot Map**

A screen so the user can not only view a list of who is studying on campus but also a visual representation of the campus and where people are studying dictated by icons.

- **Tutor/TA Usability**

A way for TAs and tutors to assign themselves this role in the app, and broadcast their services to whoever can be located in the Discover section.

- **Discover Classmates/Study Partners**

A filter is included in Booth to allow users to find people in their classes or similar majors that they don't know yet. They will have the ability to host these sessions themselves and broadcast them to whoever is interested.

- **Study Session Visibility**

Users will have the option to choose who is allowed to join their booth study session (Friends, classmates, everyone). Their session will be invisible to everyone else on the list and map.

- **Study Habits Analytics**

Based on the data Booth takes on your study habits (longevity, classes, people, etc.), it will create a section that tells you everything about your study habits that will ultimately give you a better studying experience.

Background Section

Idea Space

The purpose of Booth is to provide students with a more effective way to study, connect, and pair with other students in their institution. It addresses the lack of tools available to students to create study sessions that further improve their knowledge in a subject. Booth also provides a more efficient way to pair students with others of similar proficiency for group projects. By providing a more centralized platform, students are able to better connect and collaborate with others as well as better understand the material of their classes.

Similar Ideas

- **Snapchat**

Snapchat provides a feature where users are able to see the location of their friends on the platform. However, Snapmap is limited to only providing the locations of friends alone and becomes redundant when there are none nearby. In addition, Snapchat is built as a social media platform and provides no methods for users to meet other people. Therefore, it is unlikely to assist a user in finding capable study partners.

- **Discord**

Discord provides users with the ability to join communities of people who share the same interests and goals which provides a more effective way to create connections with one another. The platform provides users the ability to call and text each other as a group or one on one. It is an effective way to host and join study groups and ask questions that other users may know. However, studying in-person can provide a more efficient session as well as create more meaningful connections with peers.

Booth is specifically designed to connect students with one another as well as provide a more efficient way to find study groups nearby. Through the use of data analytics, Booth can suggest suitable partners to users. Contrary to Snapchat and Discord, both of which lack this feature. Additionally, Booth can give suggestions of locations where users can go to when creating a study session.

Required Technology

- **Flutter**

The Flutter framework will be used to build the app. This framework is used to develop apps across multiple platforms. The goal is for the app to be available to both Android and iOS users. As such, the use of Flutter will help make this achievable.

- **Firebase**

The Firebase Realtime Database will be used to read data from and write data to the app. This is a cloud-hosted database that stores data in a JSON format. It is compatible with Flutter, making it suitable for cross-platform apps. With this database, both Android and iOS users will receive real time updates - eliminating the need to constantly refresh the app.

- **AWS**

AWS will be used to host the app. This is a good option for hosting the app due to AWS's reliability. Additionally, it provides the ability to scale the app up if needed.

Assets and Engines

We will be creating custom features based on the application's requirements, while also utilizing pre-built components, libraries, and SDKs offered through Flutter, AWS, and Firebase to aid in development. We will also be integrating maps and location services. This will likely be achieved through APIs provided by mapping services like Google Maps.

Software/Hardware Requirements

As we will be developing a mobile application, the only major requirement is for a user to have access to a mobile phone. This could be an Android or IOS-enabled device. Users must also have access to the internet while using the application, as well as grant their permission in order to use location functionality.

Use Cases

Number	Use Case 1
Title	User Signs Up
Preparer	Leena Butt
Actor/User	College Student
User Story	As a college student, I want to create an account on Booth.
Course of Events	<ol style="list-style-type: none">1. The user opens the app2. A sign in screen is displayed with a link to register instead of signing in3. The user clicks the link4. A registration page is displayed5. The user fills in the required information and presses the register button
Exceptions/Alternative s	None
Related UI	See Sketch 1

Number	Use Case 2
Title	User Logs In
Preparer	Leena Butt
Actor/User	College Student
User Story	As a college student, I want to log in to my Booth account to find study sessions.
Course of Events	<ol style="list-style-type: none">1. The user opens the app2. A sign in screen is displayed3. The user enters their credentials and presses the login button
Exceptions/ Alternatives	None
Related UI	See Sketch 2

Number	Use Case 3
Title	User Views the Map
Preparer	Brayden Neal
Actor/User	College Student
User Story	As a college student, I want to have a visual map representation of where my friends are studying on my campus so I can choose who to go and study with.
Course of Events	<ol style="list-style-type: none"> 1. The user taps the Map tab of the Navigation Bar 2. The user taps all of the filter buttons that pertain to what kind of study session is desired <ol style="list-style-type: none"> i. Class ii. Tutors iii. Time iv. Location v. Visibility
Exceptions/ Alternatives	<ul style="list-style-type: none"> • If the User is a tutor or TA, they will have access to more filters such as available students that require tutoring
Related UI	See Sketch 3a See Sketch 3b

Number	Use Case 4
Title	User Creates Session
Preparer	Brayden Neal
Actor/User	College Student
User Story	As a college student, I want to be able to let my friends and fellow classmates know I am studying at the library until 3pm and anyone is welcome to join me.
Course of Events	<ol style="list-style-type: none"> 1. The user taps the "Create a Booth" button on the home screen 2. A Screen should slide up showing a series of inputs for the user to customize what there study session is like 3. The user fills out as many inputs as they want such as: Start/End Time, Location, Seats Available, People in your party, Subject, Visibility 4. The user taps the Create Booth Button and their session is included on the map, and listview for other users
Exceptions/ Alternatives	<ul style="list-style-type: none"> • If they have the role of TA or Tutor, they will have other inputs such as Price, section to tutor on, documents to upload, etc.
Related UI	<p>See Sketch 4a - Student</p> <p>See Sketch 4b - Tutor/TA</p>

Number	Use Case 5
Title	User View Sessions
Preparer	Nelson Tran
Actor/User	College Student
User Story	As a student, I am curious what study sessions are currently going on right now in my area and what topics they are studying.
Course of Events	<ol style="list-style-type: none">1. The user opens app2. The app contacts the server and gathers the list of sessions in their community3. The app calculates the distance from the user to each session4. The app displays a list of session sorted by distance5. The user may optionally sort and filter the given list6. The list is updated in real time when a session ends or is added
Exceptions / Alternatives	None
Related UI	Sketch 5

Number	Use Case 6
Title	User Searches Other Users/Communities
Preparer	Nelson Tran
Actor/User	College Student
User Story	As a student, I would like to join groups specific to my institution and keep studying with peers that I get along with.
Course of Events	<ol style="list-style-type: none"> 1. User goes to search tab/page 2. User types name of institution or types '@' before a username to search for people 3. User can click the '+' icon to add users/institution
Exceptions / Alternatives	None
Related UI	Sketch 6

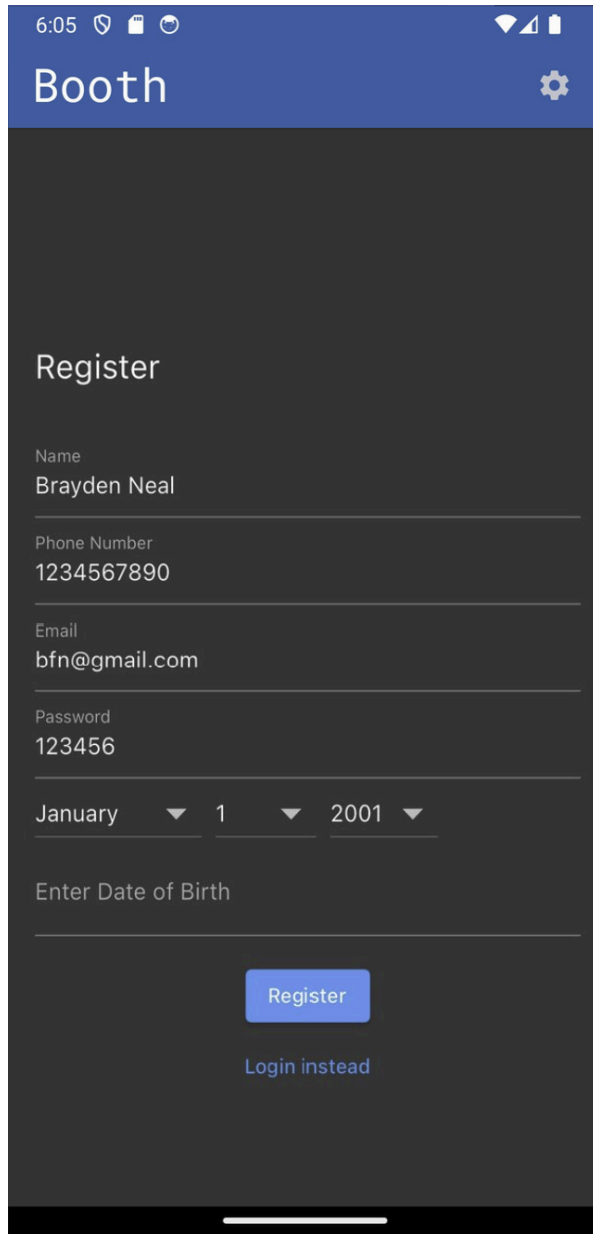
Number	Use Case 7
Title	User Views Study Analytics
Preparer	Leena Butt
Actor/User	College Student
User Story	As a college student, I want to keep track of my study habits.
Course of Events	<ol style="list-style-type: none"> 1. The user opens the app 2. The user logs in (if not already logged in) 3. The user presses the Usage tab 4. A page with study habit analytics is displayed
Exceptions / Alternatives	None
Related UI	Sketch 7

Number	Use Case 8
Title	User Creates Profile
Preparer	Joel Guillen
Actor/User	New Student Account User
User Story	The user has found the "Booth" mobile application and has decided to register a new account. They will now add their personal information to aid them in finding study partners with similar availability and courses.
Course of Events	<ol style="list-style-type: none"> 1. User selects "Create New" 2. The user adds their full name 3. The user selects an institution 4. The user selects their state of residence 5. The user adds the city they reside in 6. A university major is selected 7. The user can then add all their current courses 8. The user can add their availability by writing inside the text boxes for each day of the week 9. The user will then click the "Confirm" button and their information will be safely stored
Exceptions / Alternatives	None
Related UI	Sketch 8

Number	Use Case 9
Title	User Views Another Profile Page
Preparer	Joel Guillen
Actor/User	College Student
User Story	The user has found another student they are interested in learning more about. They decide to click on their name and navigate to their main profile. Here, they review their relevant information and decide they would make a good study partner. After careful consideration they decide to send a friend request.
Course of Events	<ol style="list-style-type: none"> 1. The user is browsing users within their major 2. They see another student that they would like to learn more about 3. The user then clicks on their name and is sent directly to their profile 4. They notice they have a similar availability and share some of the same courses 5. They decide to send the student a friend request
Exceptions / Alternatives	None
Related UI	Sketch 9

UI Sketches

Sketch 1



6:05 [status icons]

Booth [gear icon]

Register

Name
Brayden Neal

Phone Number
1234567890

Email
bfm@gmail.com

Password
123456

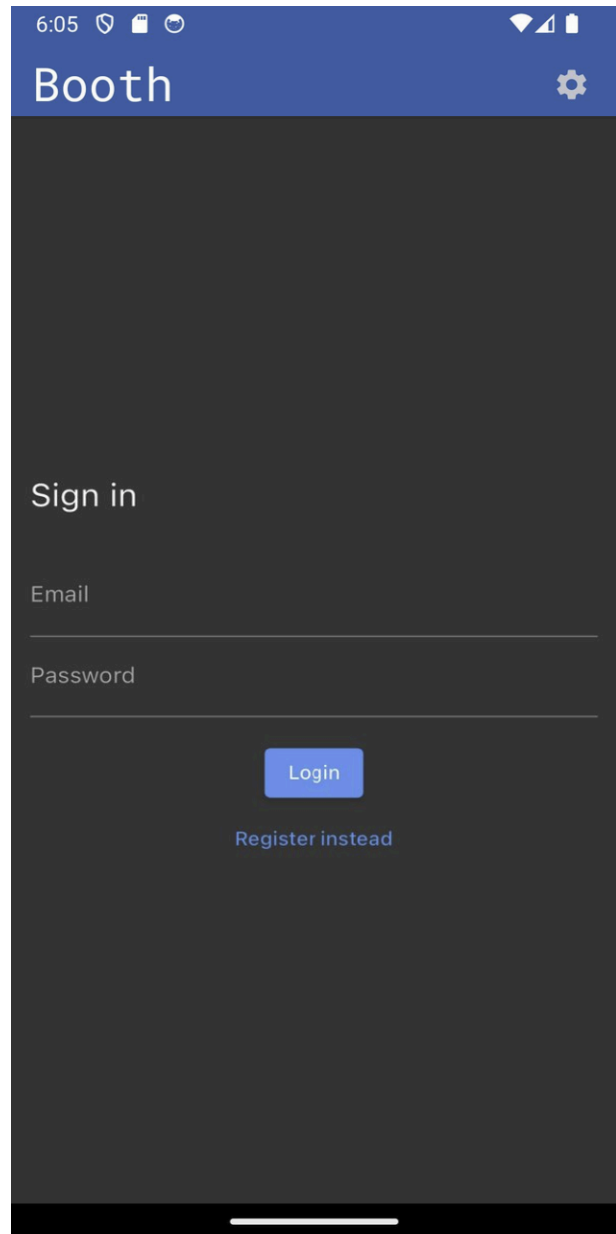
January ▼ 1 ▼ 2001 ▼

Enter Date of Birth

Register

Login instead

Sketch 2



6:05 [status icons]

Booth [gear icon]

Sign in

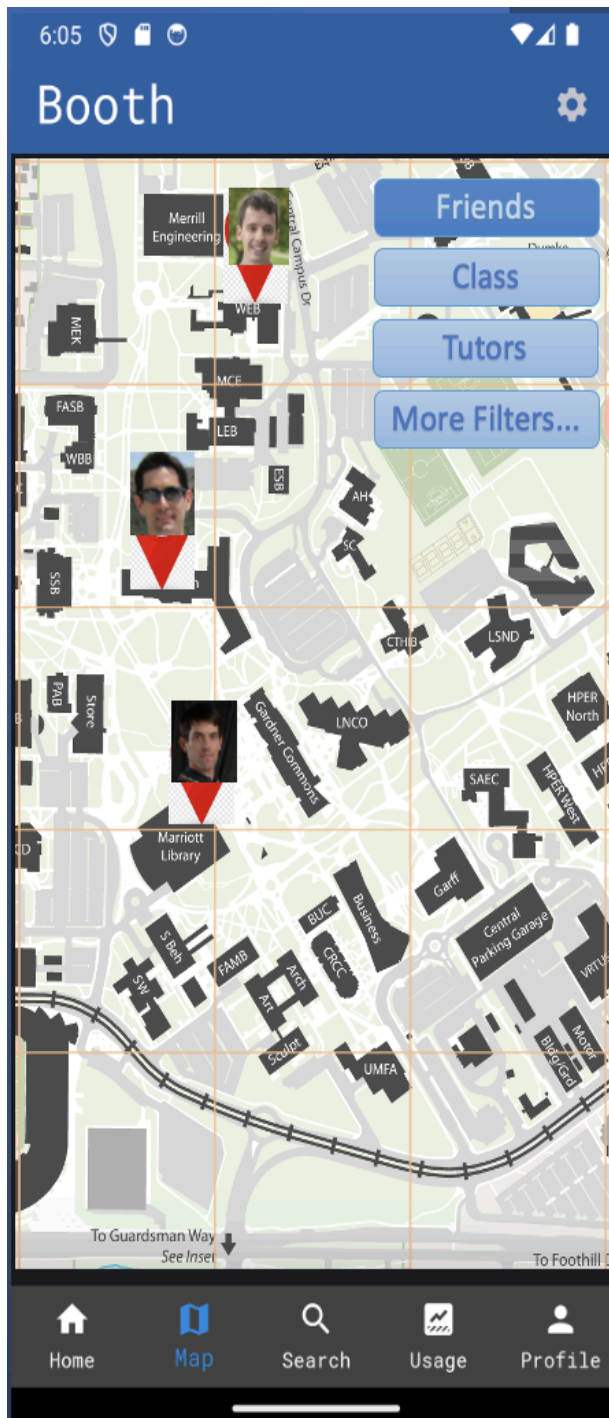
Email

Password

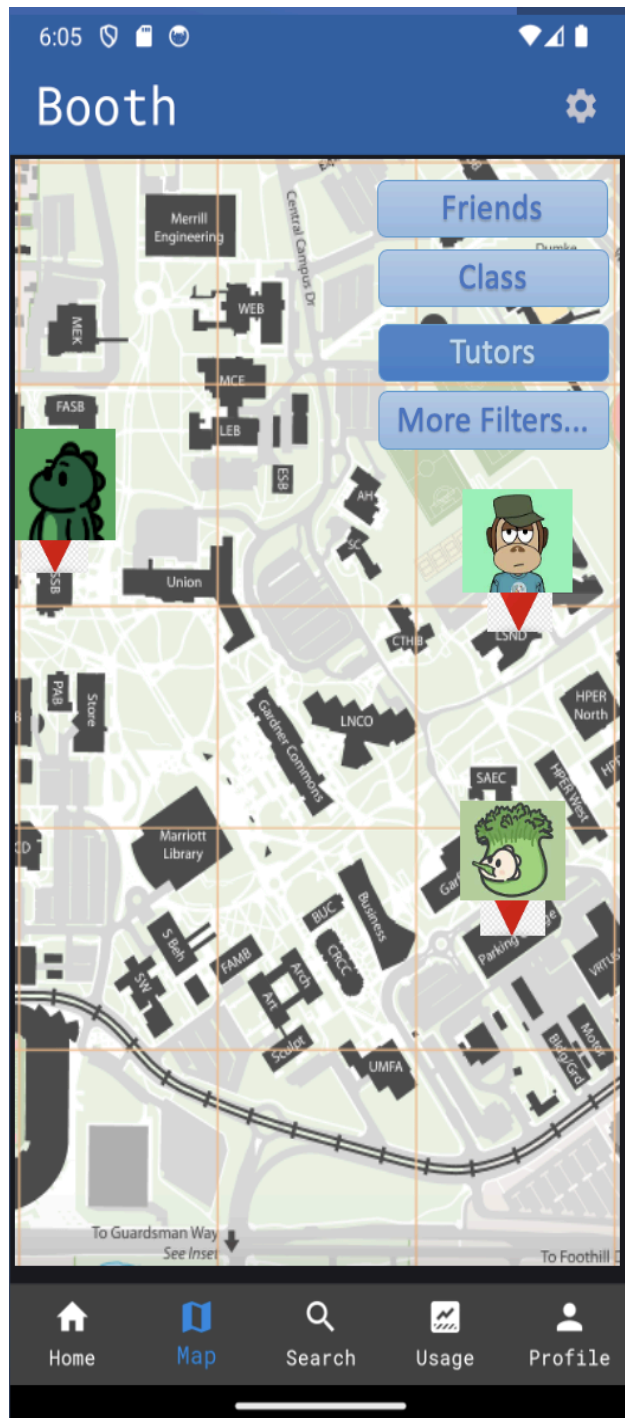
Login

Register instead

Sketch 3a



Sketch 3b



Sketch 4a

6:05 [status icons]


Booth [gear icon]

Create Booth Session!

End Time

Seats Available

Location Description

Your Party  +

Subject

Visibility
(Only your friends can see)

Home Map Search Usage Profile

Sketch 4b

6:05 [status icons]


Booth [gear icon]

Create Booth Tutor Session!

End Time

Seats Available

Location Description

Attendees  +

Subject

Visibility
(Only your friends can see)

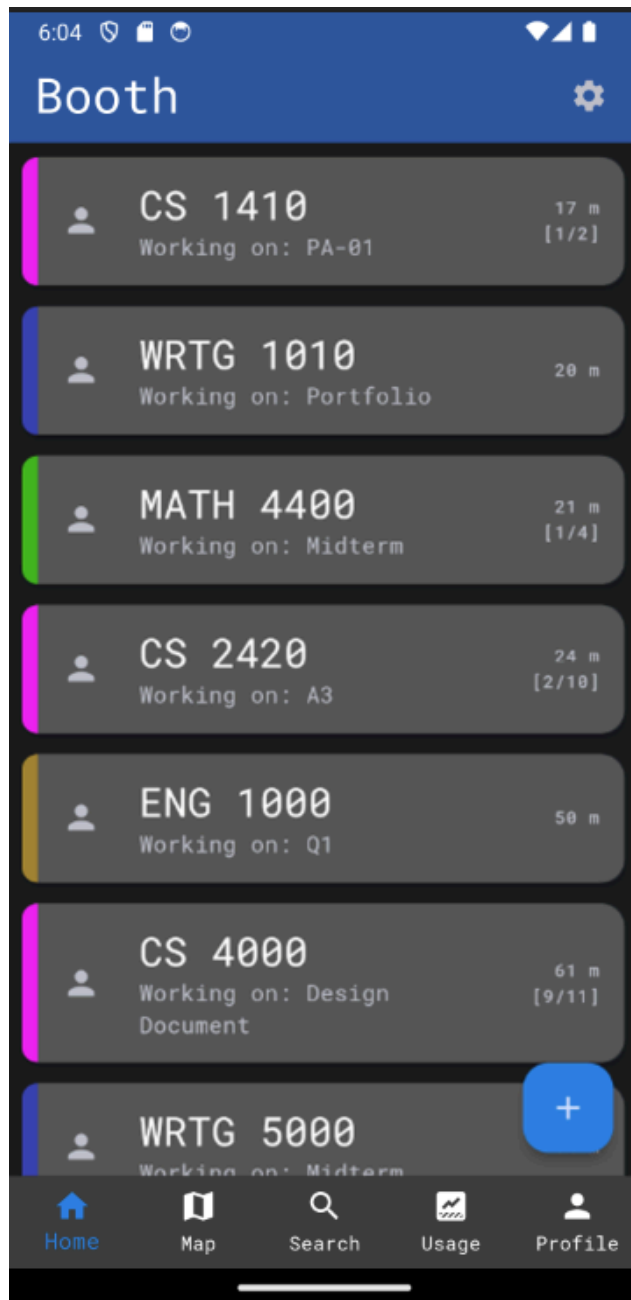
Price

Topic

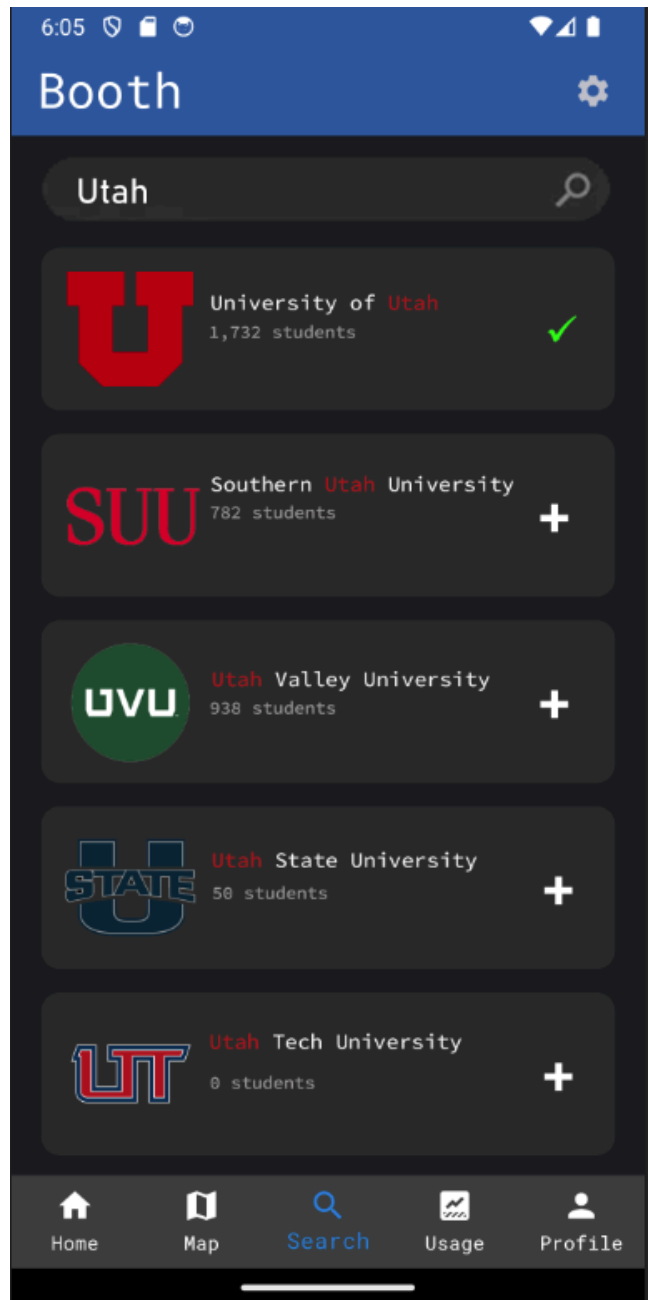
File Uploads

Home Map Search Usage Profile

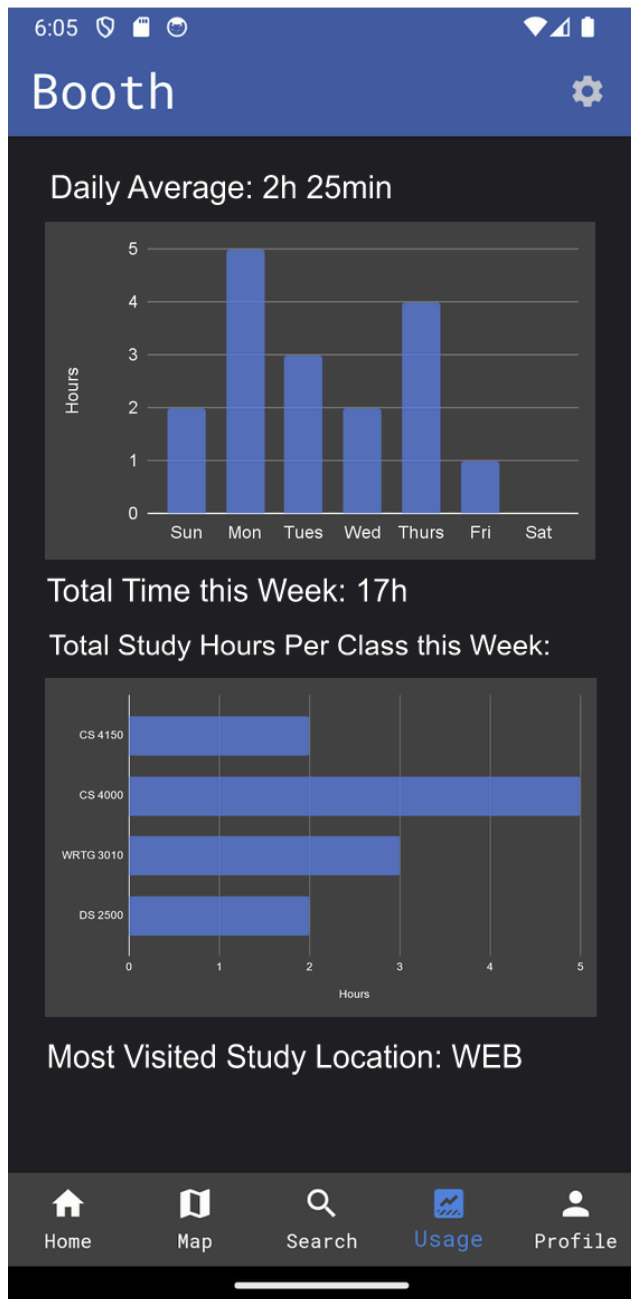
Sketch 5



Sketch 6



Sketch 7



Sketch 8

6:04

Booth

Create Profile

Add Image

Name

John Smith

Institution

University of Utah

State

UT

City

Salt Lake City

Major

Computer Science

Courses

CS 3500

+ Add Course

Availability

SUN	MON	TUE	WED	THU	FRI	SAT
N/A	11am-3pm	2pm-5pm	*	*	*	*

Cancel

Confirm

Sketch 9

6:04

Booth



John Smith

University of Utah:
Computer Science

Study Preferences

▪ Spaced Repetition

▪ Flashcards

Courses

Availability

▪ CS 3500

▪ CS 3130

▪ MATH 2270

▪ Monday

▪ 2pm-5pm

▪ Tuesday

▪ 11am-2pm

▪ Thursday

▪ 11am-1pm

▪ Friday

▪ 8am-10am

Back

Add User