

Project Title	1
Team Members	1
High Fidelity Prototype.....	1
User Research	2
Target Users	2
Research Methods	2
Persona.....	2
Scenario.....	3
Interviews.....	4
Interview Questions	4
Interview Review	5
Features	5
Continuous Geolocation Tracking	5
Combined Cookies and Email Verification	6
User Privacy Protection	6
Sketches	8
Student Interface	8

Project Title

Attendance Verification System

Team Members

Boray & Miko

High Fidelity Prototype

<https://www.figma.com/design/lyM7kV8afB1D426xZqnPk9/CS-257-Lab7-Attendance-Verification-System?node-id=0-1&t=JSpB9TVyj1knFm1g-1>

User Research

Target Users

Students at a college, professors, and admins (graduate students who manage the app)

Research Methods

Interviewed 2 students

Persona

Name: Alex Johnson

Age: 21

Occupation: Undergraduate Student at St. Bonaventure University

Major: Business Administration

Technology Proficiency: Moderate – Comfortable using smartphones and web applications.

Background

- Alex is a junior at St. Bonaventure University and often participates in various campus events, including lectures, workshops, and performances that offer extra credit.
- Typically uses a smartphone for daily activities, including scanning QR codes and accessing web forms.

Goals

- Wants to easily confirm attendance at events to earn extra credit.
- Seeks a straightforward process that does not consume too much time or effort.
- Values privacy and wants assurance that personal data will not be misused.

Frustrations

- Has encountered attendance systems that allowed students to “scan and dash,” leading to unfairness in grading.
- Feels uneasy about sharing location data, fearing it may be used for purposes beyond event attendance verification.
- Dislikes overly complicated processes that require multiple steps or information.

Tech Usage

- Frequently uses his smartphone for apps, social media, and browsing.
- Familiar with QR codes but prefers not to have to rescan those multiple times during an event.

Scenario

Title: Confirming Attendance at a Campus Event

Context: Alex has learned about a workshop on career development that offers extra credit for attendees. He is excited about the opportunity to enhance his resume while earning points toward his grade.

1. Arrival: As Alex arrives at the event, he notices a QR code displayed at the entrance.
2. Scanning the QR Code: Alex pulls out his phone, scans the QR code, and is directed to the attendance form. He appreciates that the scanning process is quick and easy.
3. Location Tracking: After scanning, Alex is prompted to allow location tracking for the duration of the event. He is initially concerned about privacy but feels reassured when he learns that the app will only track his location for the event's length and that no one (including professors) will have access to his exact location.
4. Form Submission: The form requires him to enter his university email for verification. Alex feels this is reasonable, as he is already accustomed to using his email for various university-related tasks.
5. Email Verification: After submitting the form, he receives a verification link via email. Although it adds an extra step, he understands that this helps prevent cheating, which he supports.
6. Event Participation: Alex enjoys the workshop, knowing that he is marked as present throughout the event. The geolocation tracking gives him peace of mind since it ensures that he is being accountable without compromising his privacy beyond the event.
7. Post-Event: After the event, Alex receives a confirmation email thanking him for attending and reminding him of the extra credit awarded. He appreciates the transparency in how his data was used and the assurance that it would not be sold to third parties.

Conclusion: Alex's experience with the attendance verification system is positive. The combination of QR codes, geolocation tracking, and email verification not only helps

maintain the integrity of attendance records but also respects his privacy concerns. He feels confident using the system in the future, knowing it is designed with user needs in mind.

Interviews

Interview Questions

General Understanding

1. What are your initial thoughts on using QR codes and geolocation tracking for attendance verification?
2. Have you participated in events where attendance was tracked before? If so, what was your experience like?

Usability

3. How comfortable are you with scanning QR codes? Do you foresee any challenges with this process?
4. Would you find it easy to follow the steps of scanning a QR code and submitting your attendance?
5. What device do you typically use to access forms or apps? Are there any concerns about compatibility?

Geolocation Tracking

6. How do you feel about the idea of continuous geolocation tracking during an event?
7. What privacy concerns do you have regarding the collection of your location data?
8. Would you be comfortable allowing an app to access your location for the duration of an event? Why or why not?

Email Verification

9. What are your thoughts on providing your university email for attendance verification?
10. How do you feel about receiving a verification link or code via email to confirm your attendance? Is this something you would find helpful?

Privacy and Security

11. How important is it for you to know how your data (like location and email) will be used and protected?

12. What kind of privacy measures would make you feel more comfortable using the app?

Feedback on Features

13. Are there any features you believe are essential for this system that we have not discussed?

14. Do you have any suggestions for how we can improve the user experience?

Interview Review

Design Principles

The design principles that guided our decisions for the attendance verification system included usability, privacy, and accessibility. Usability was prioritized to ensure that students could easily navigate the system, from scanning QR codes to completing the attendance form. We aimed for a straightforward user experience, minimizing unnecessary steps to enhance efficiency. Privacy was a major concern raised during the interviews, leading us to implement features that protect users' location data while still allowing for effective attendance tracking. Lastly, accessibility principles were considered to ensure that all students, regardless of their tech-savviness or device compatibility, could engage with the system comfortably.

Features

Continuous Geolocation Tracking

Overview: The web application tracks a student's location from the moment they scan the QR code until the event concludes. This tracking is crucial for verifying attendance duration.

Functionality:

- **Location Monitoring:** Upon scanning the QR code, the app begins to track the student's GPS location.
- **Time Frame:** The location is monitored for the duration specified by the event creator (input by admins), ensuring students are present for the entire event.

Privacy Considerations:

- **Anonymity:** The system saves attendance data as "fully attended" without exposing students' exact location data to professors or admins.

- **Data Handling:** Location data is securely stored and only used for attendance verification, in compliance with privacy regulations.

Benefits:

- Ensures students remain at the event for the required duration.
- Protects student privacy while still maintaining a reliable attendance record.

Combined Cookies and Email Verification

Overview: To further discourage cheating, the system employs a combination of cookies and email verification.

Functionality:

Cookies:

- When a student submits their attendance form, a cookie is set on their device to prevent multiple submissions from the same device.
- This mechanism helps track whether the form has already been submitted, ensuring that students cannot submit multiple entries by simply refreshing or returning to the form.

Email Verification:

- After submitting their attendance, students must provide their university email address.
- A verification link or code is sent to the provided email, which students must click or enter to confirm their attendance.

Benefits:

- The combination of these methods reduces the likelihood of multiple submissions and enhances the integrity of the attendance data.
- Email verification adds an extra layer of accountability, linking attendance to a valid university email address without requiring students to create a full account.

User Privacy Protection

Overview: The design prioritizes student privacy, especially concerning location data.

Functionality:

- Admins and professors do not have direct access to individual location data; instead, they receive anonymized attendance records.
- The system includes a clear privacy policy outlining how data is collected, used, and protected.

Benefits:

- Builds trust among students regarding the handling of their data.
- Encourages student participation by ensuring their location privacy is respected.

Sketches

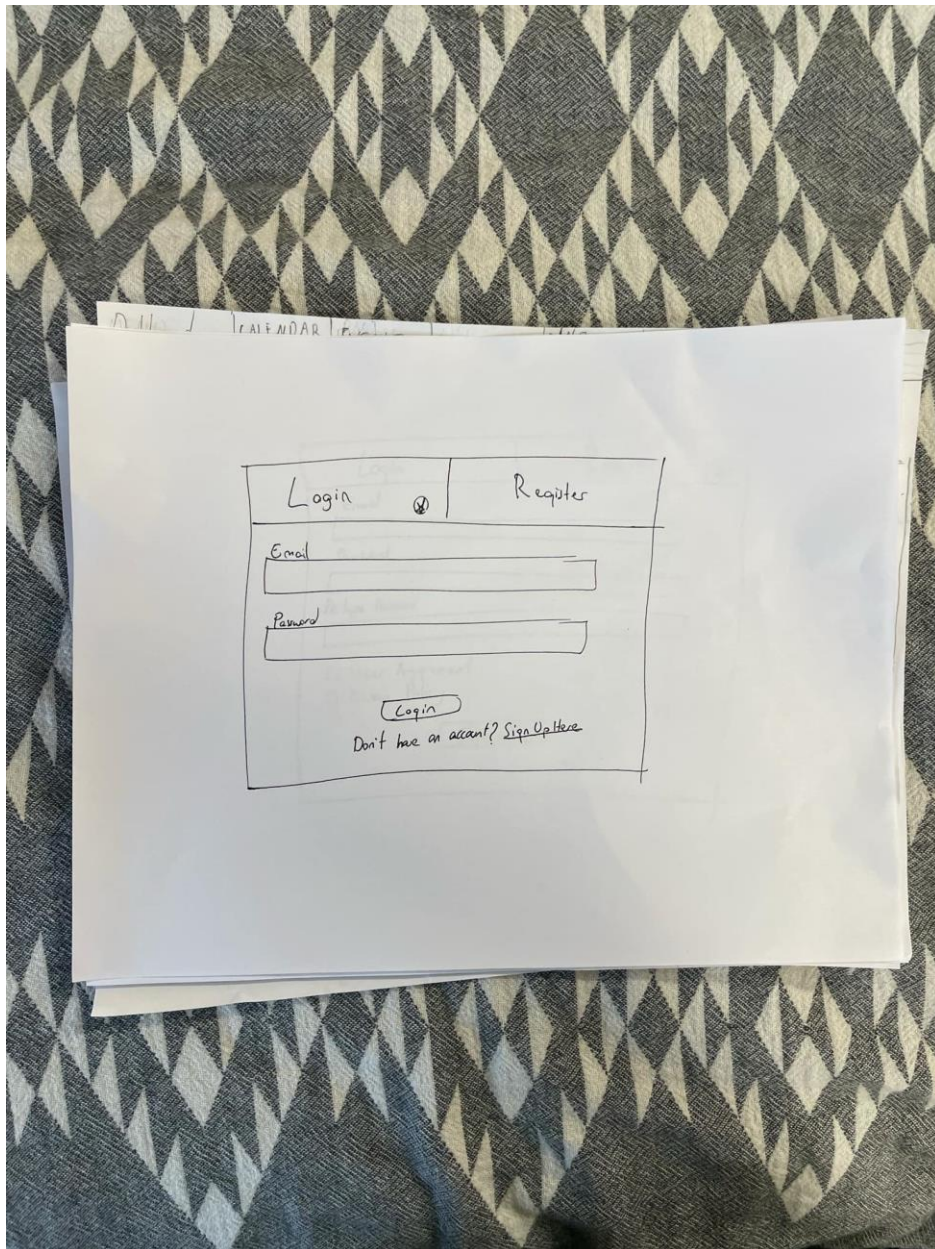
Student Interface

A hand-drawn sketch of a student form titled "STUDENT FORM". The form is enclosed in a rectangular border and contains the following elements from top to bottom:

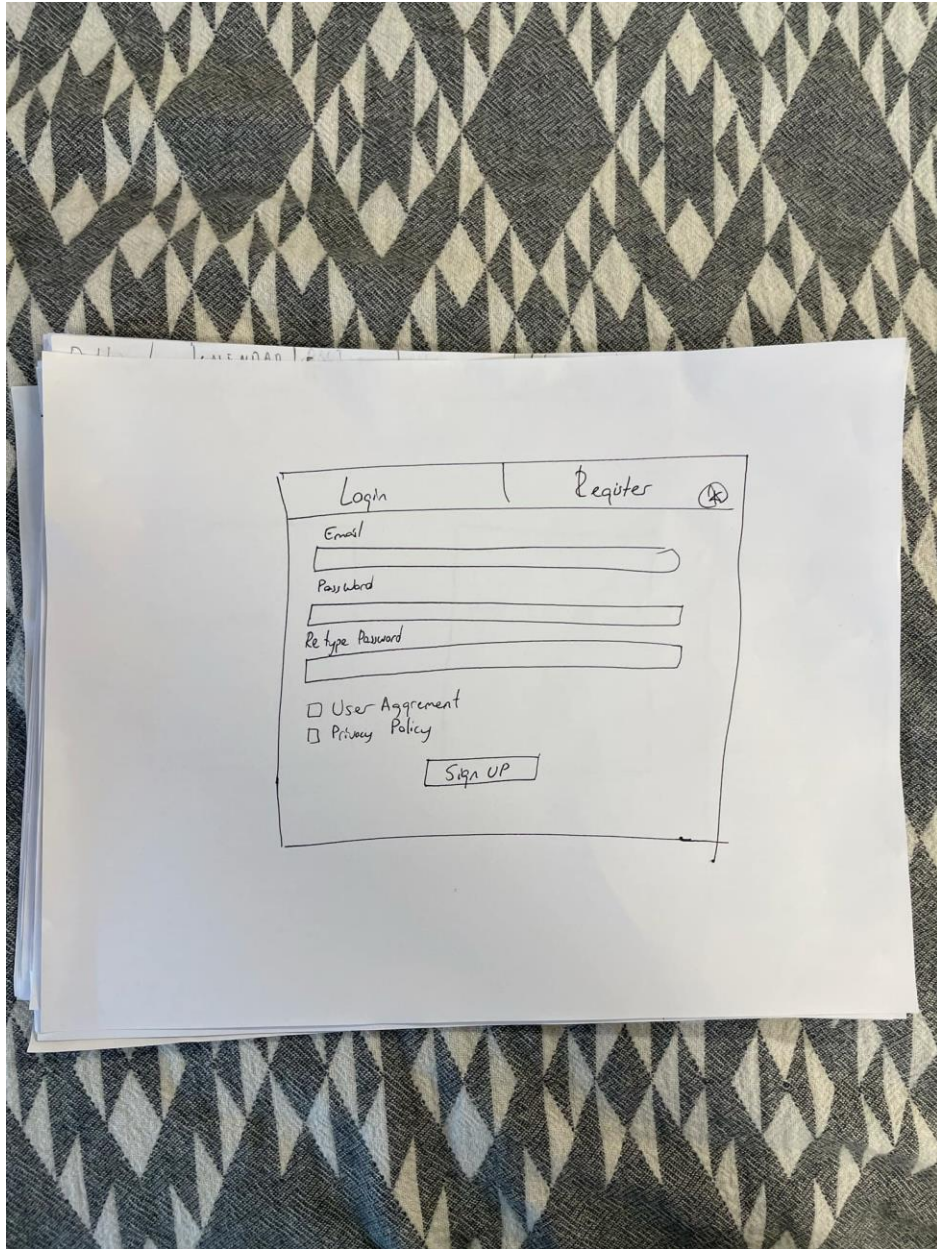
- A label "NAME" above a horizontal input field.
- A label "STUDENT EMAIL" above a horizontal input field.
- A label "STUDENT ID" above a horizontal input field.
- A label "PICK CLASSES" above a horizontal input field.
- A label "PICK PROFESSOR" above a horizontal input field.
- A label "UPLOAD PICTURE" above a square input field.
- A small square checkbox at the bottom right, with the text "ACCEPT TRACKING TERMS" written below it.

The web form that will be displayed to students when they scan the QR code. After scanning the QR code, students will be taken to this form and then asked to fill out all the information and upload a photo from the event. After everything is uploaded, the student will be taken to a page that will measure their location as long as it is open. All information will be automatically sent to selected teachers when the student's location is in the appropriate area for the duration of the event.

Professor and Admin Interface

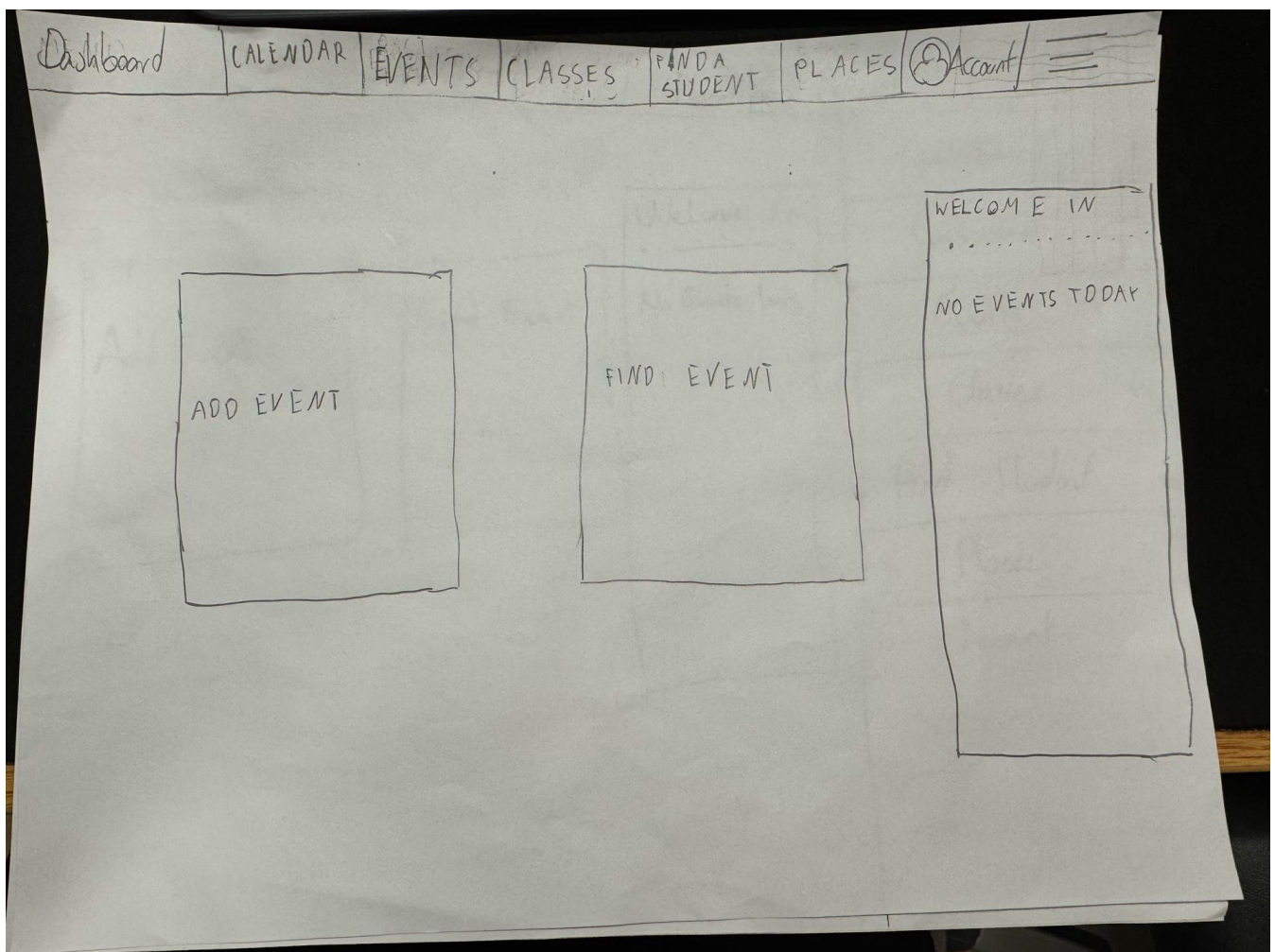


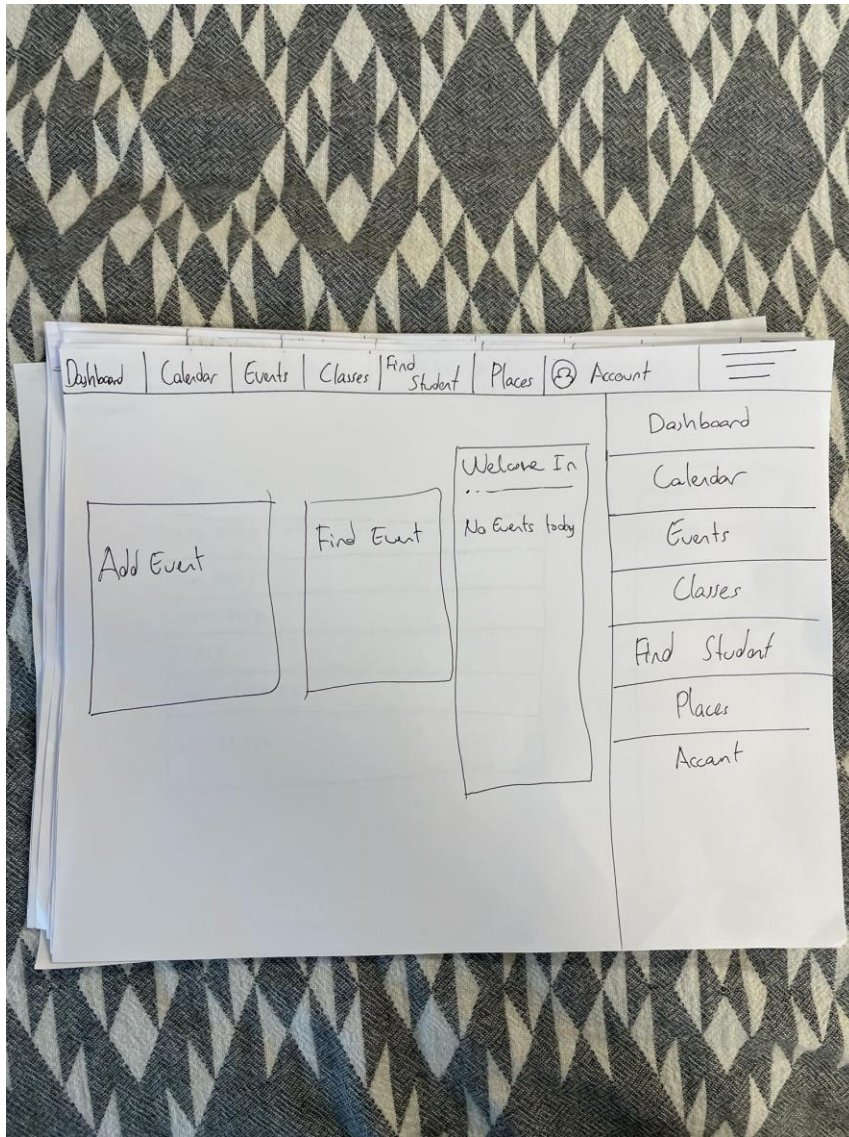
Page where admins and teachers can register for our application. Contains basic information about logging in such as email and password. After pressing the login button, when the password and email are accepted by the system, the user will be logged into their account.



A page where teachers and admins will be able to register their account using their training email. After successful registration, teachers and admins will be able to log in to the application using the data used to register.

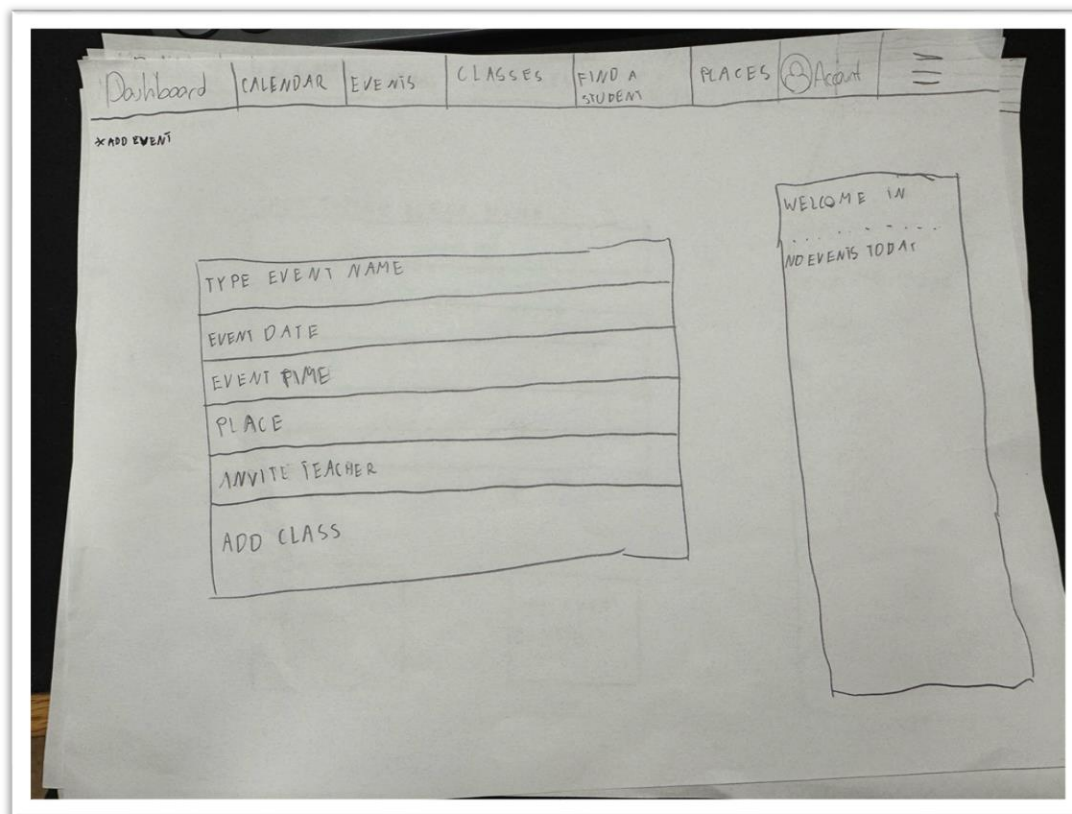
The home page of the application, which contains the main menu bar, which contains the dashboard, calendar, events, classes, find student, find a student, places, account, and the menu button. After clicking on each of these links, the user will be redirected to each of the appropriately paired pages. After pressing the menu button, the menu will expand. On the right side, there is a widget informing about the events of the day. The main menu bar and this widget remain unchanged on each of the pages. Below the main menu bar on the home page, there are two buttons find meeting and add meeting, which, when clicked, will take us to the appropriate pages.

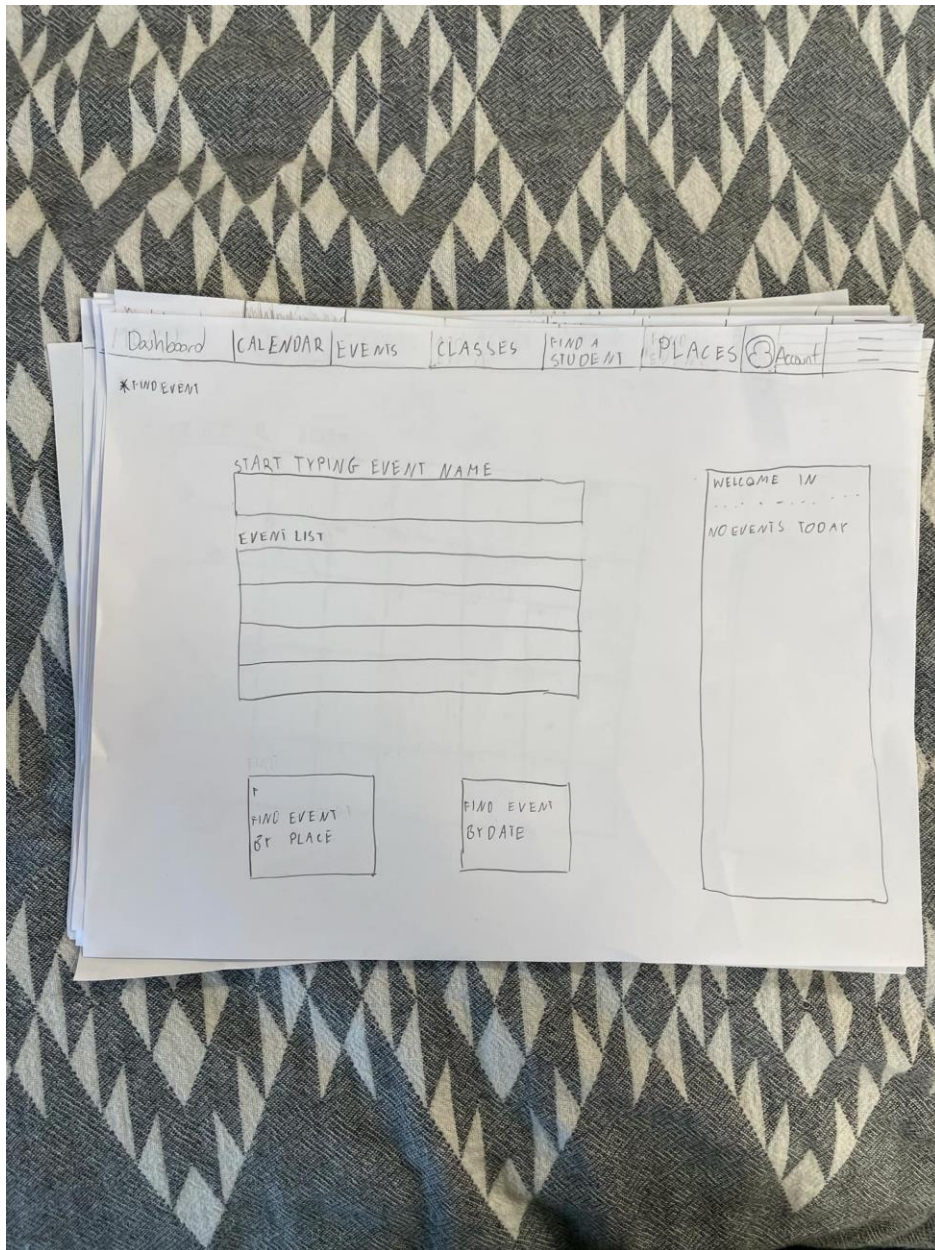




As on every home page the menu and widget remain unchanged. This sketch shows what happens when you press the menu button. The menu will expand.

After pressing the add event button from the home page, we will be transferred to this page. As on every home page the menu and widget remain unchanged. A form will be displayed that the teacher or admin will have to fill out if they want to create an event. After filling in all the information and pressing the submit option, the event will be created.

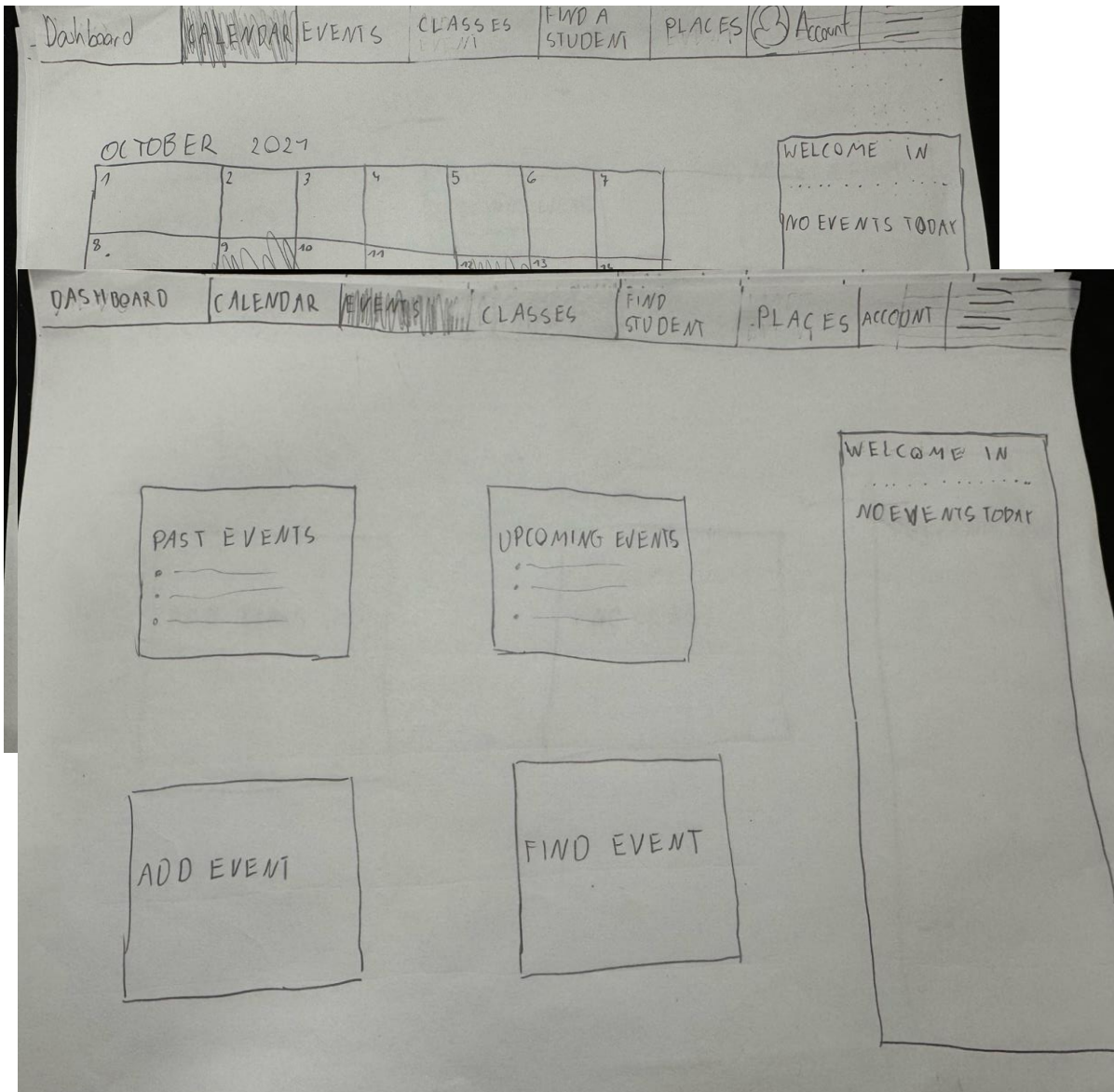




As on every home page the menu and widget remain unchanged. This page will be displayed when the user presses find event. He will have 3 options to choose from: searching for an event by name, location and date. When he starts typing, a list of events will be displayed that corresponds to what he entered.

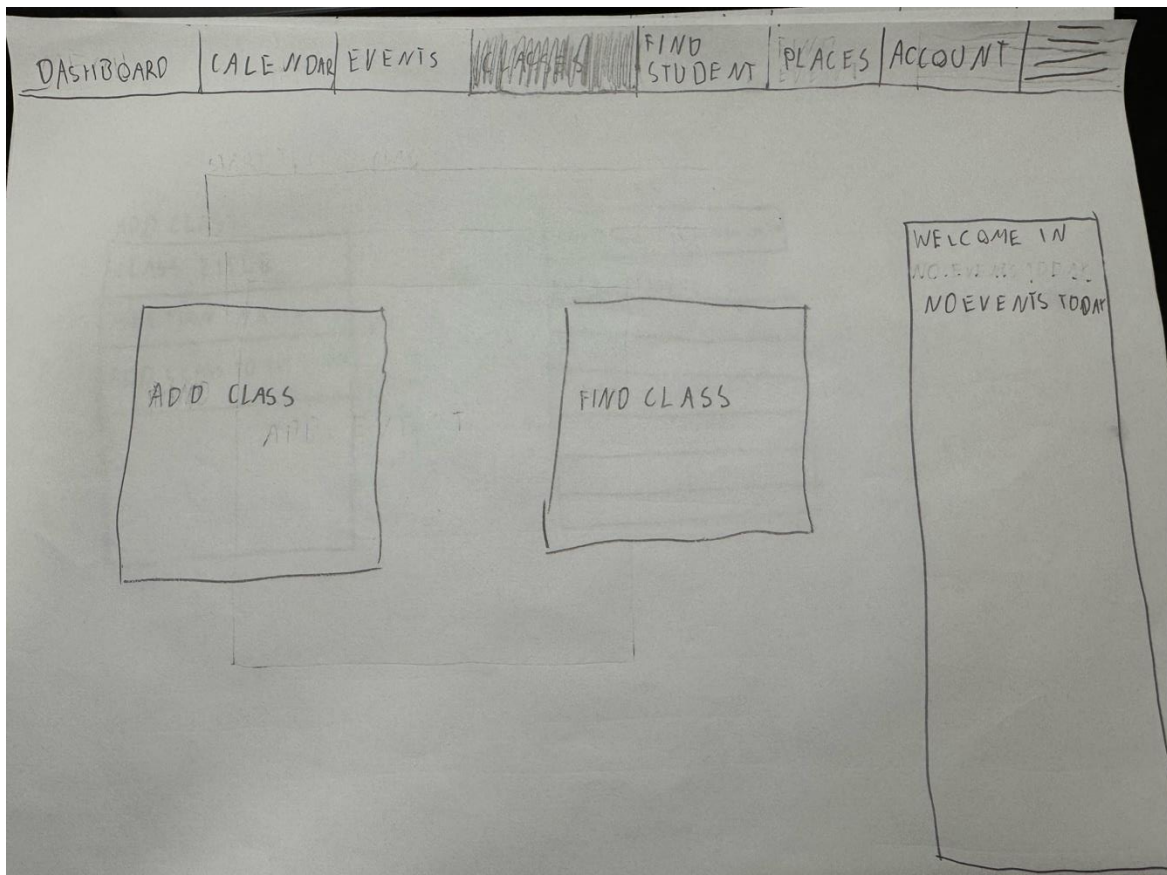
As on every home page the menu and widget remain unchanged. This page shows a calendar. On the calendar we will be able to see all available events in each month. After clicking on a given day, we will have the option to create a new event.

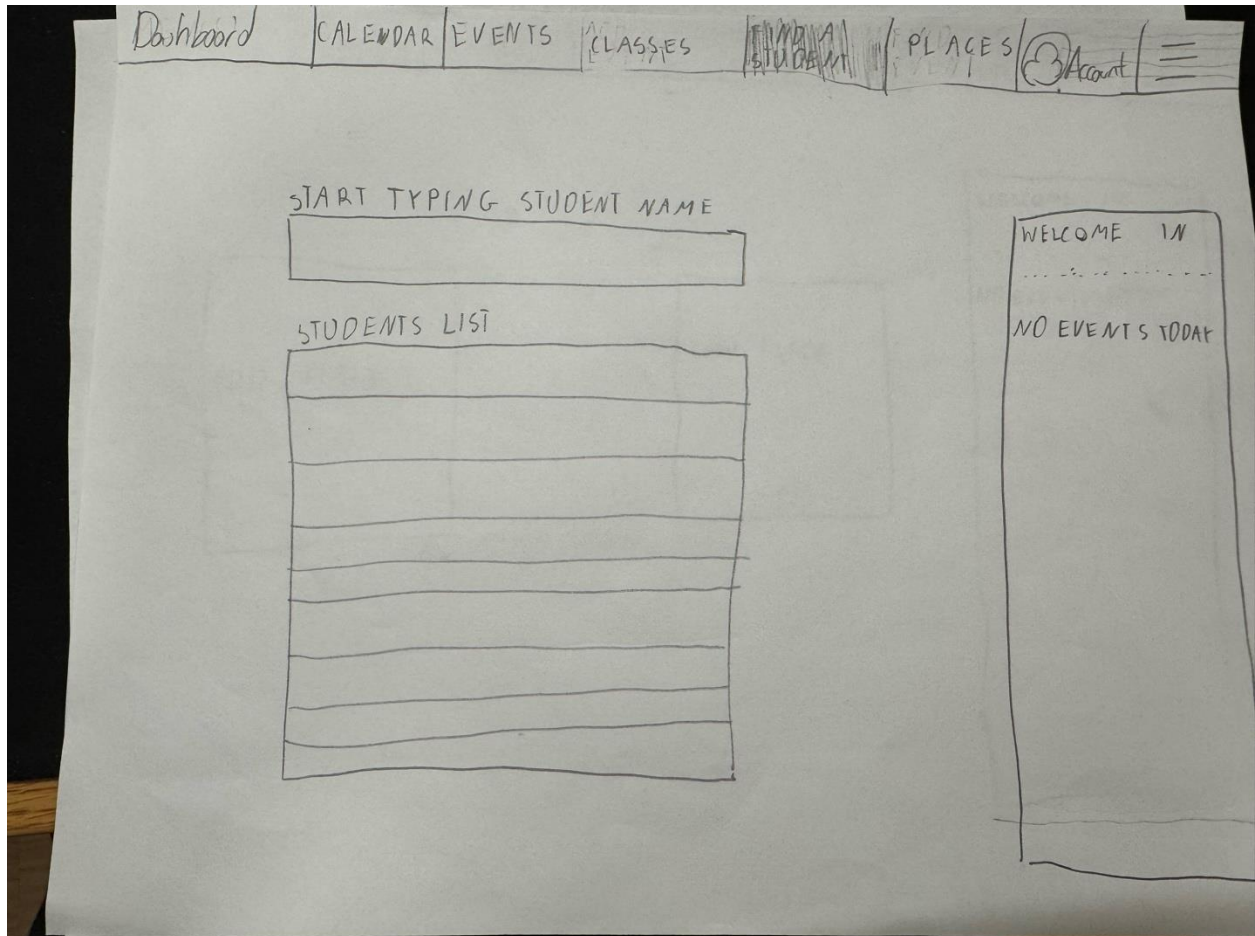
As on every home page the menu and widget remain unchanged. This page is displayed after pressing the events button and four windows are displayed: past events, upcoming



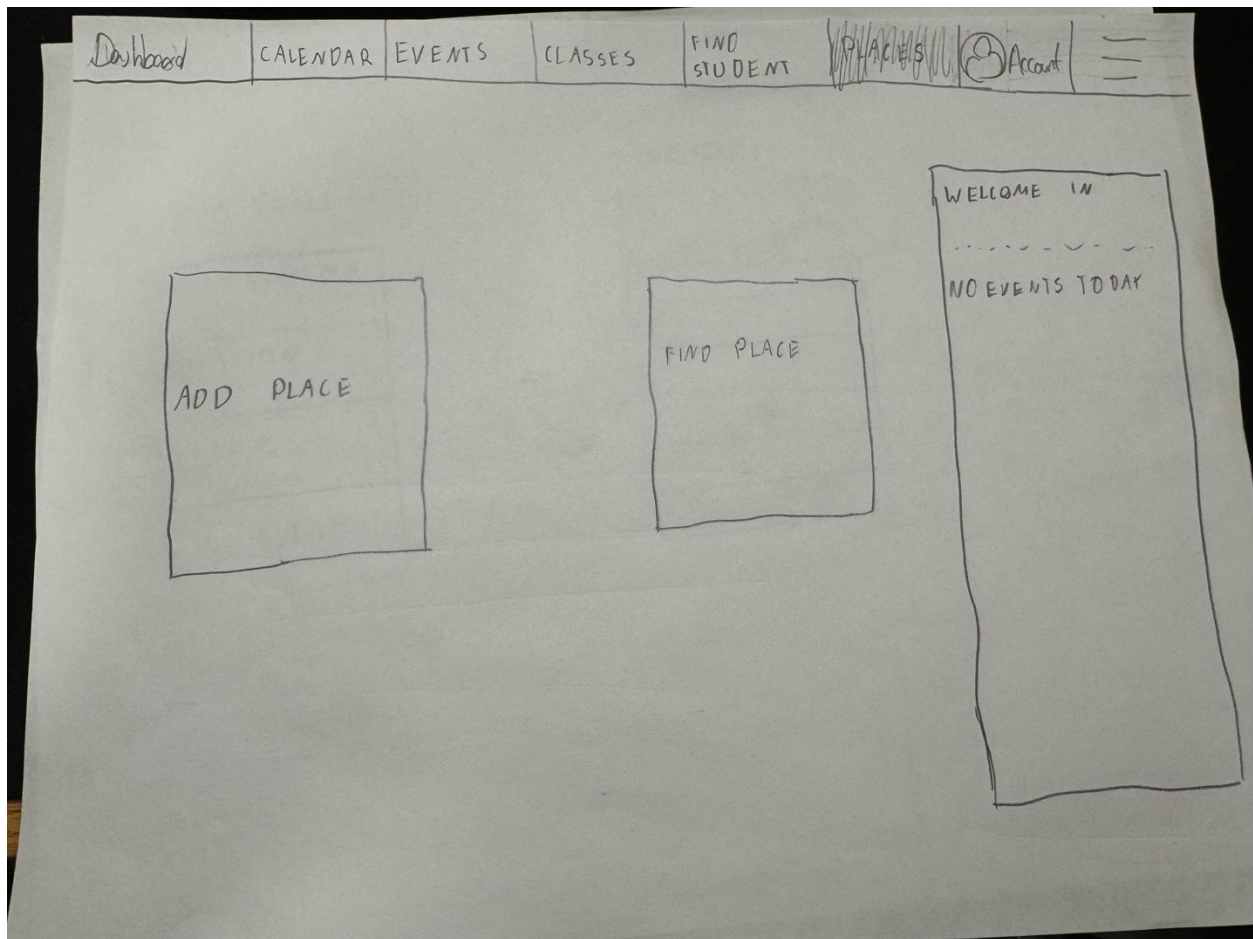
events, add event, find event. After pressing each of the windows, the appropriate information or functions are displayed.

As on every home page the menu and widget remain unchanged. This page is displayed after pressing the class option. On this page, two windows are displayed which, after pressing, allow you to create a new class which can then be assigned to an existing event or search for an existing class.

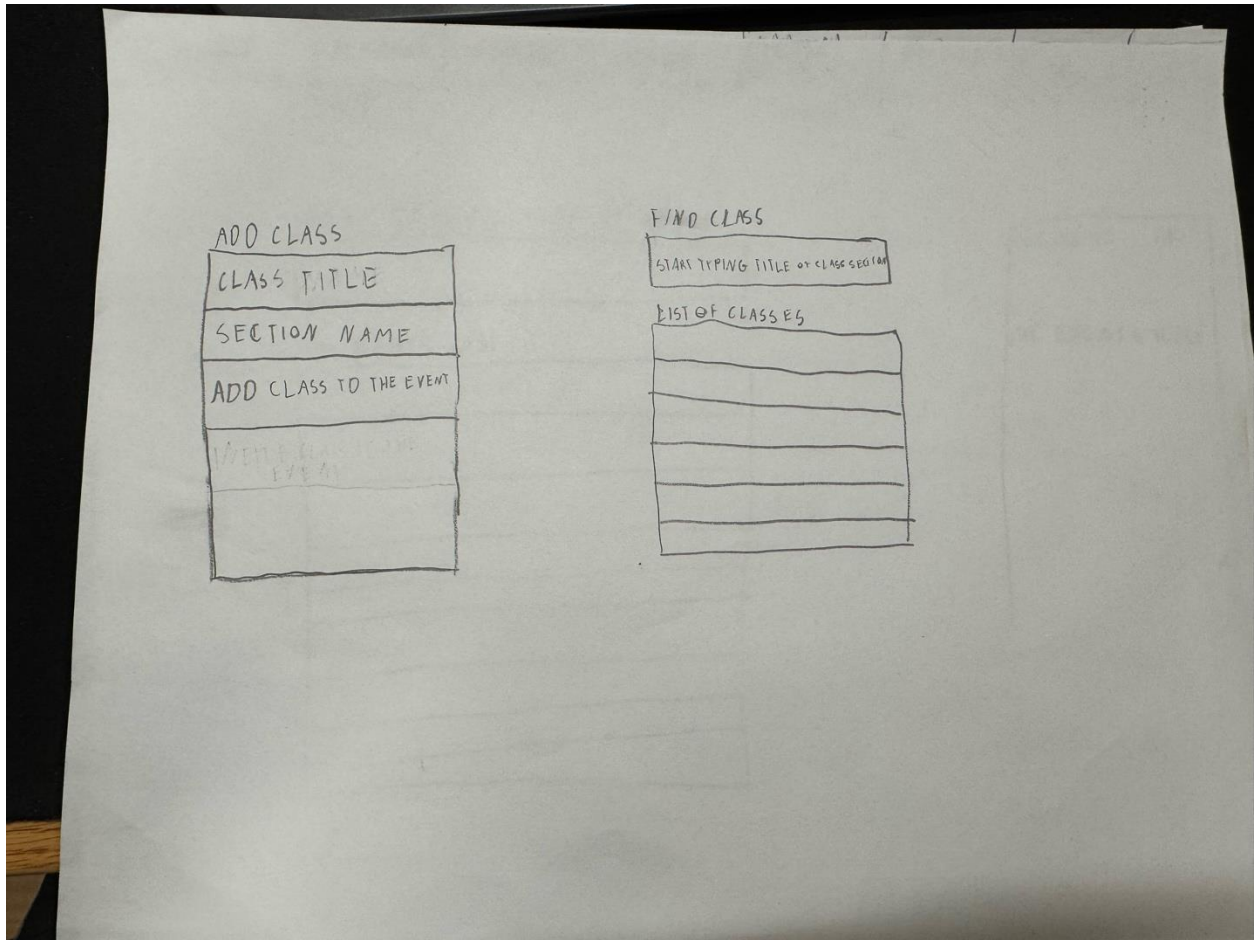




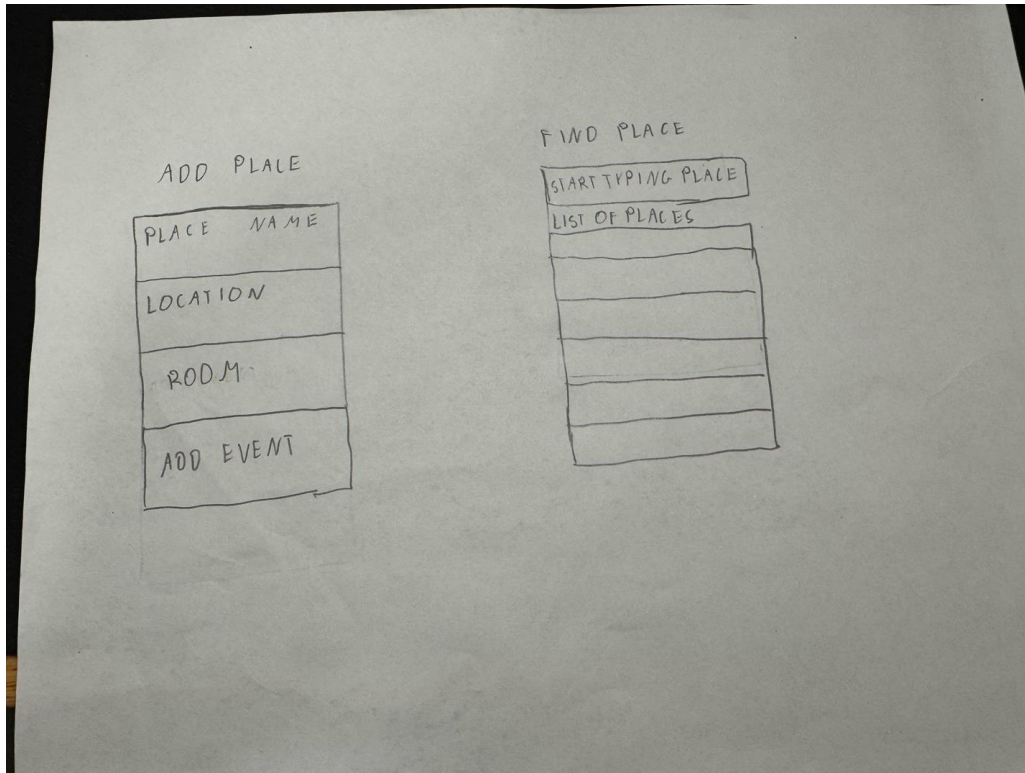
As on every home page the menu and widget remain unchanged. This page is displayed when you click the find student button. It displays the option to search for a student by their name and a list of all students whose name was matched.



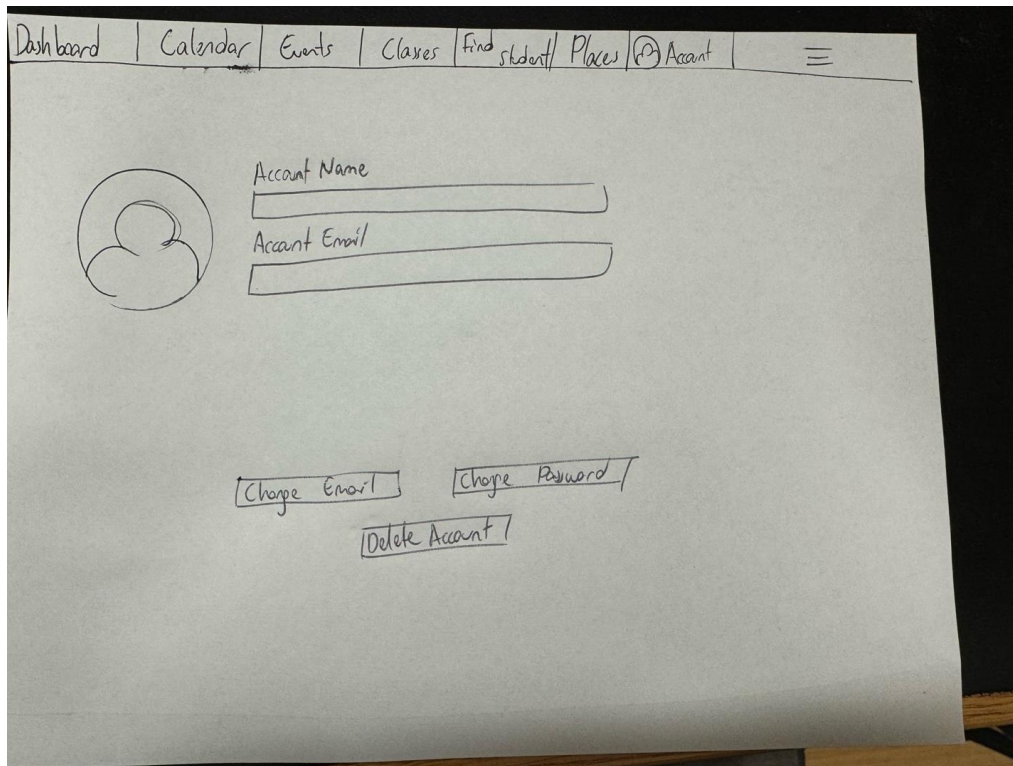
As on every home page the menu and widget remain unchanged. This page is displayed when we click the places button. Two windows appear that allow us to add or find a place that has already been created. After clicking on the appropriate window, we will be transferred to the appropriate page.



Here we can see what happens after pressing the add class or find class option. We can add a class to an already created event or find an already created class and join it.



Here we can see what happens after clicking the add place or find place option. We can match the place to a given event or create a new place. When creating a new place we have options such as name, location, room and the option to add an event to a given place.



Account page where we can see all the user information, as well as the ability to change the password, email, or delete the account.