Jadon Burgadt
Abraham Newcombe

**Thump**
*A Pulse Alternative*



**Roles:**
Jadon Burgadt:
- Recorded user feedback for future reference and design improvement
- Analyzed their feedback through different research methods
- Used HCI principles as well as user feedback to identify common frustrations and issues with Pulse
- Created initial design sketches

Abraham Newcombe:
- Brainstormed ideas to solve problems with the existing Pulse design
- Analyzing and identified tasks essential to the design
- Created task scenarios with storyboard

## Problem and Solution Overview

The current app for SCSU course management (Pulse) has many usability issues, making it difficult and unsatisfying for students to use efficiently. The Pulse app is extremely inefficient at accessing course materials, tracking assignments, managing academic progress, and much more. The app is typically very slow, has a cluttered interface, and lacks intuitive navigation, which makes the overall experience feel terrible. We could make a much-improved student course tracking app by improving the design and usability of the complaints stated above.

## Design Research Goals, Stakeholders, and Participants

Our design research focuses on understanding what *Thump* users truly need. We want it to suit the needs of university students, faculty members, and other related people who want to use our learning management system to stay updated with academic notifications, grades, and more. Our goal was to identify pain points with platforms like Pulse to explore opportunities for improvement.

## Participants and Their Backgrounds

We selected three primary user groups for our research:
1. Undergraduate SCSU Students *(3 to be particular)*
2. Education Faculty *(Jadon's aunt, who is a teacher and works with course management software daily to organize multiple classes)*
3. An IT administrator *(Jadon's uncle, who has thorough experience with building and maintaining management softwares of various types)*

These participants were selected because they represent the core user base for which we are making this app. The diverse perspectives of these groups will help us design for usability and efficiency for our target users.

**Research Methods**
We employed a combination of user interviews, contextual inquiries, and surveys to gather qualitative and quantitative insights:
- **User Interviews:** We conducted structured interviews with students and an education faculty member to understand their frustration with pulse and to see what features they want to be improved.
- **Contextual Inquiry:** Observed how students and IT navigate Pulse in real time, identifying issues with the workflow.
- **Surveys:** Created an online Google survey and distributed to friends that attend SCSU to identify common pain points and to evaluate interest in new features.

We chose these methods because they allow for an in-depth understanding of user experiences while also collecting legitimate user feedback from the groups of people we want to make this app for.

## Design Research Results and Themes
Based on our design research with our participants, we identified several recurring themes and challenges that improved our design process.

**Common Themes and Problems**
1. **Limited Offline Access** - There was a lot of frustration over the inability to download course materials for offline viewing, as well as the inability to view recorded lectures and large documents.
2. **Disorganized Notifications** - Pulse notifications were often cluttered, delayed, and hard to find once cleared.
3. **Grade Visibility Issues** - Many found it difficult to navigate their grades and also showed frustration in finding the updates efficiently.
4. **Assignment Tracking Difficulties** - Assignments were not displayed in a clear, centralized way, making it difficult to manage deadlines efficiently.
5. **Slow Performance and Crashes** - Some users reported that the Pulse app was prone to slowdowns and crashes.

**Updated Themes and Insights**
As we sorted through our findings, we gained additional insight into our design:
- **Customizable Notifications:** Users want more control over notifications, such as by filtering by priority, type (assignment deadline, announcement, etc), and more.

- **Intelligent Reminders and Study Planning:** The students suggested features like *improved* automated reminders for upcoming assignments as well as a further improved built-in planner/calendar.
- **Faster Access to Key Features:** Throughout all test groups, there was a demand for a better home dashboard that immediately shows the most relevant updates to reduce the number of clicks to find assignments and grades.
- **Basic Access to Broken Features:** Options like downloading offline and viewing lectures and large documents, as well as optimized performance, need to be held paramount in our design.

These updated themes and insights will further help us refine our app's features. By doing this research, we have ensured we not only improve on existing problems but also introduce smart improvements that are tailored to our target groups' needs.

**Answers to Task Analysis Questions**
**Who is going to use the design?**
Students who wish to access D2L Brightspace on their phones with a user-friendly interface.

**What tasks do they now perform?**
Students may access their course's content, upcoming assignments and their dates, grades, and notifications, and download individual files to be viewed offline.

**What tasks are desired?**
1. Viewing assignment dropboxes in both the calendar and course pages (currently not visible in the course's page)
2. Allow users to create plans (to-do lists) and set their own priorities and schedules for assignments/tasks.
3. The ability to easily download all of a course's content for offline viewing, and perhaps a toggle to automatically do so for every class.
4. Layout customization. While we can attempt to provide a more intuitive user interface up to our standards, ultimately, the user should have options to tailor it to themselves.
5. An onboarding process that introduces the user to all of the available features.
6. View and reply to discussion posts in-app (instead of redirecting to browser).
7. Direct in-app messaging (other students, professors)

**How are the tasks learned?**
Trial and error through looking at and trying to use the interface. The proposed onboarding process could accelerate the user's learning stage.

**Where are the tasks performed?**
Wherever someone would prefer to use their mobile device (on the go, at home, between classes).

**What is the relationship between the person and data?**
In Pulse, students do not input any data within the app. Namely, you cannot submit assignments, nor reply to discussion posts (you are redirected to the website). This should be rectified in our improved design. However, they do consume data such as course content, assignment due dates, notifications, and grades.

**What other tools does the person have?**
The web version of D2L Brightspace.

**How do people communicate with each other?**
There are no in-app discussion boards; they are only available in the web version. Contacting professors or other students must be done in person or with email or messaging apps.

**How often are the tasks performed?**
Checking grades, notifications, or content could happen multiple times daily, meaning these common tasks should have efficient navigation. Other tasks, such as downloading course content, must be done once per piece of content, which is tedious.

**What are the time constraints on the tasks?**
Students may require prompt access to information pertinent to classes or exams, so the app must be quick to navigate. Assignments and quizzes have deadlines.
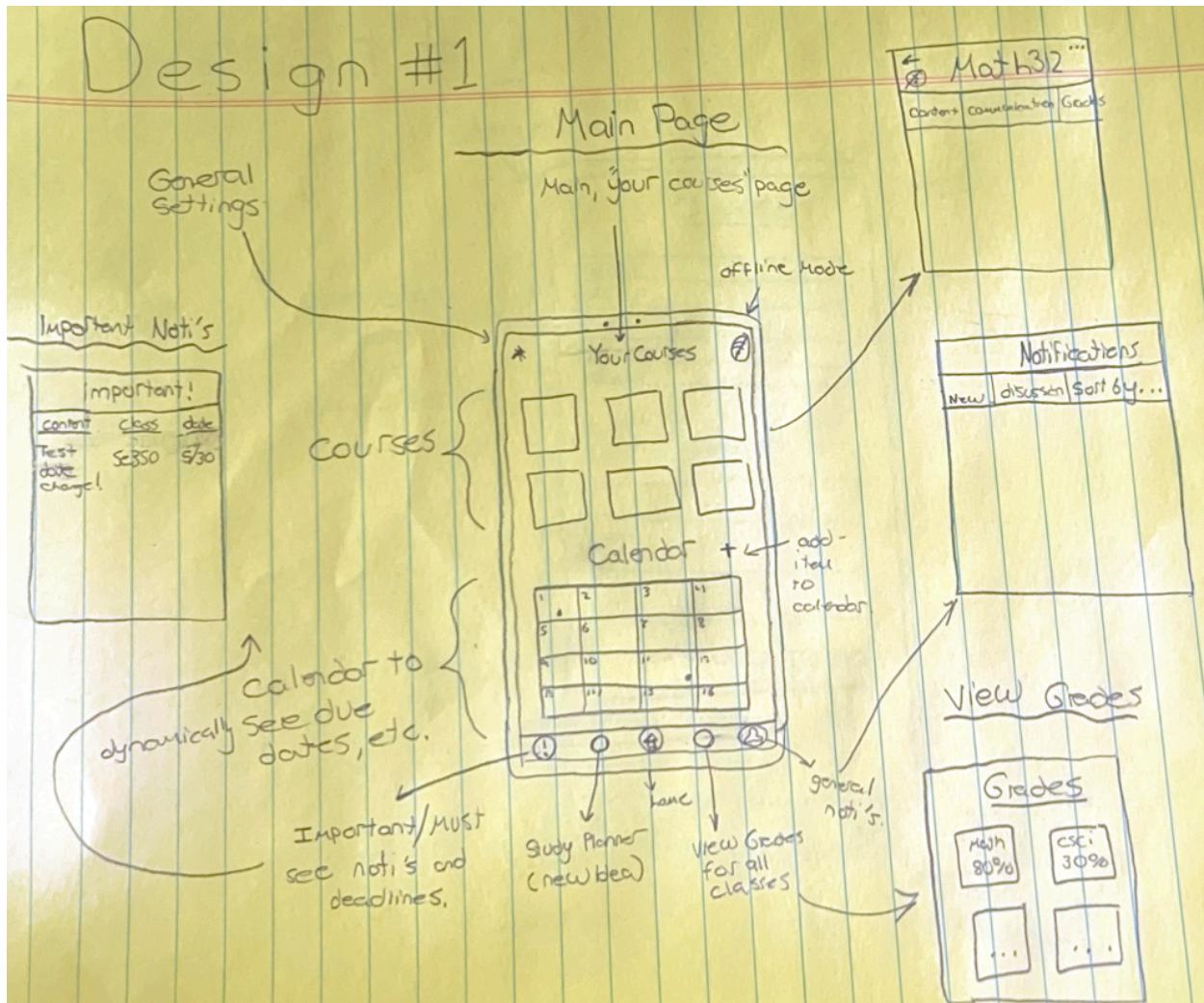
**What happens when things go wrong?**
An error message would appear on screen detailing the error and a number to call for technical support.

**<u>Proposed Design Sketches</u>**
After analyzing Pulse, we found that the layout of the app is generally good. Our issues with the app are mostly in the functionality rather than the layout. Because of this, you may see that our designs are fairly similar to the app; this is because of our previous reasoning. While it is similar, you will see that we have made significant changes to the foundation of the app that we think would significantly improve the experience.
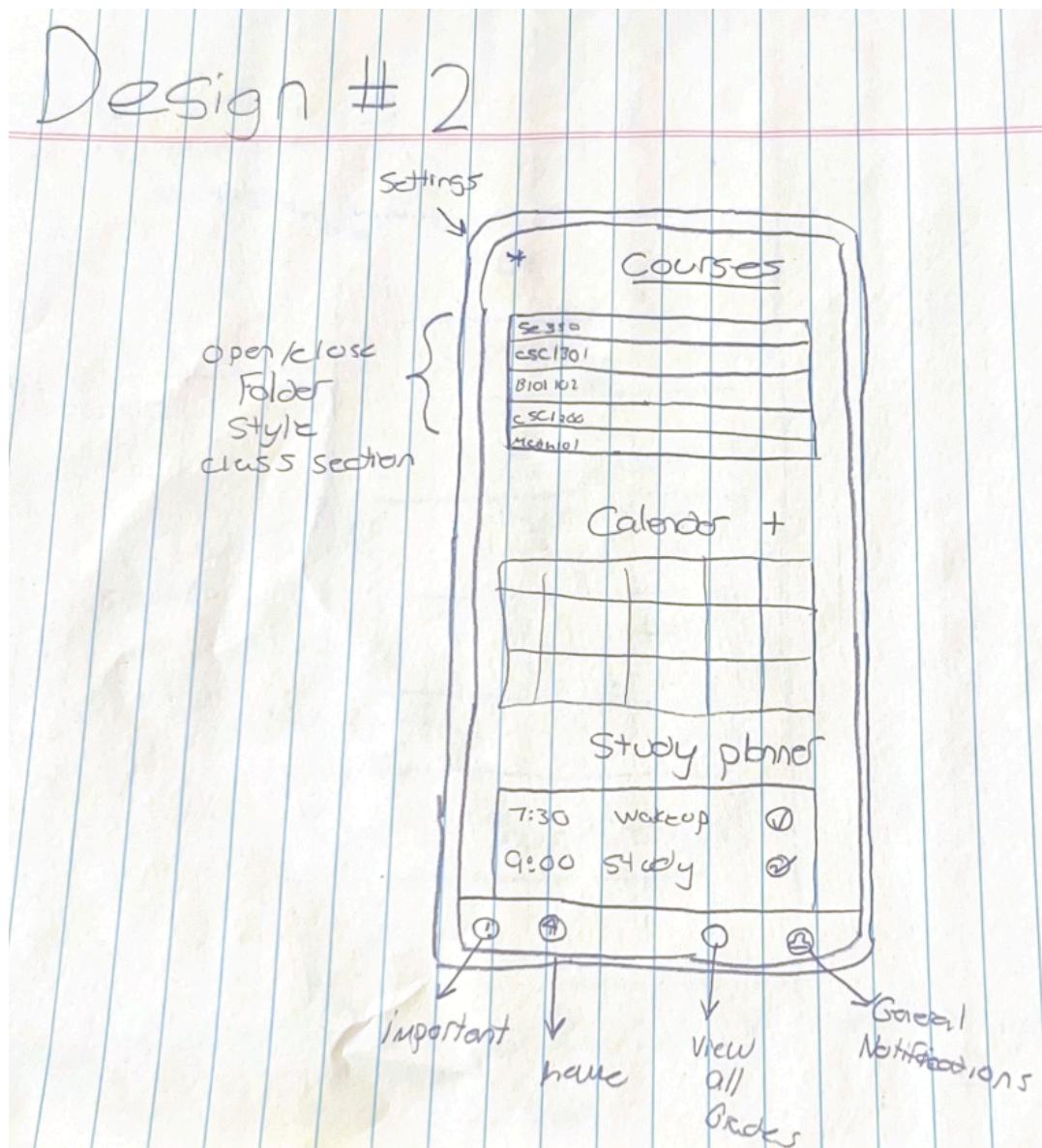
**Design #1:**

In this design, we can see multiple improvements:

- In this design, as well as our others, we have designed this to be usable for mobile use. We do not need to make it PC accessible because D2L can simply be used in that situation.
- Interactions:
    - The main page looks different now. Here, we can see we added a settings icon in the top left, added a button for offline mode (which will be covered soon), changed the layouts of the courses for a less cluttered look, added a calendar for further convenience, and added more icons on the navigation bar.
- Our vision for offline mode is to gray out all content that is unavailable offline. For example, if a student goes to a course and they have not downloaded their lecture videos, they will be greyed out to show they are inaccessible.
- Pulse has a calendar feature, but we find it to be very inaccessible. Putting it on the main page, as well as improving its general design, will make it a stronger feature of this app.

- We have 5 buttons in the navbar: Important/Crucial notifications, study planner, home, view all grades for all classes, and general notifications.
- A study planner is a new idea we came up with. We are thinking it could be interesting to have a checklist every day. This could look like this:
6:30 AM: Wake up
7:30 AM: Start Studying
9:00 AM: Run

...

...
- When clicking on a course, the users will now be able to click an icon to download specific materials for offline use.
- This is the general design used here. As stated before, we didn't have many issues with the general layout of pulse, so we don't think we need to make many changes to pages like "notifications" and "view grades", only minor ones.

**Design #2:**
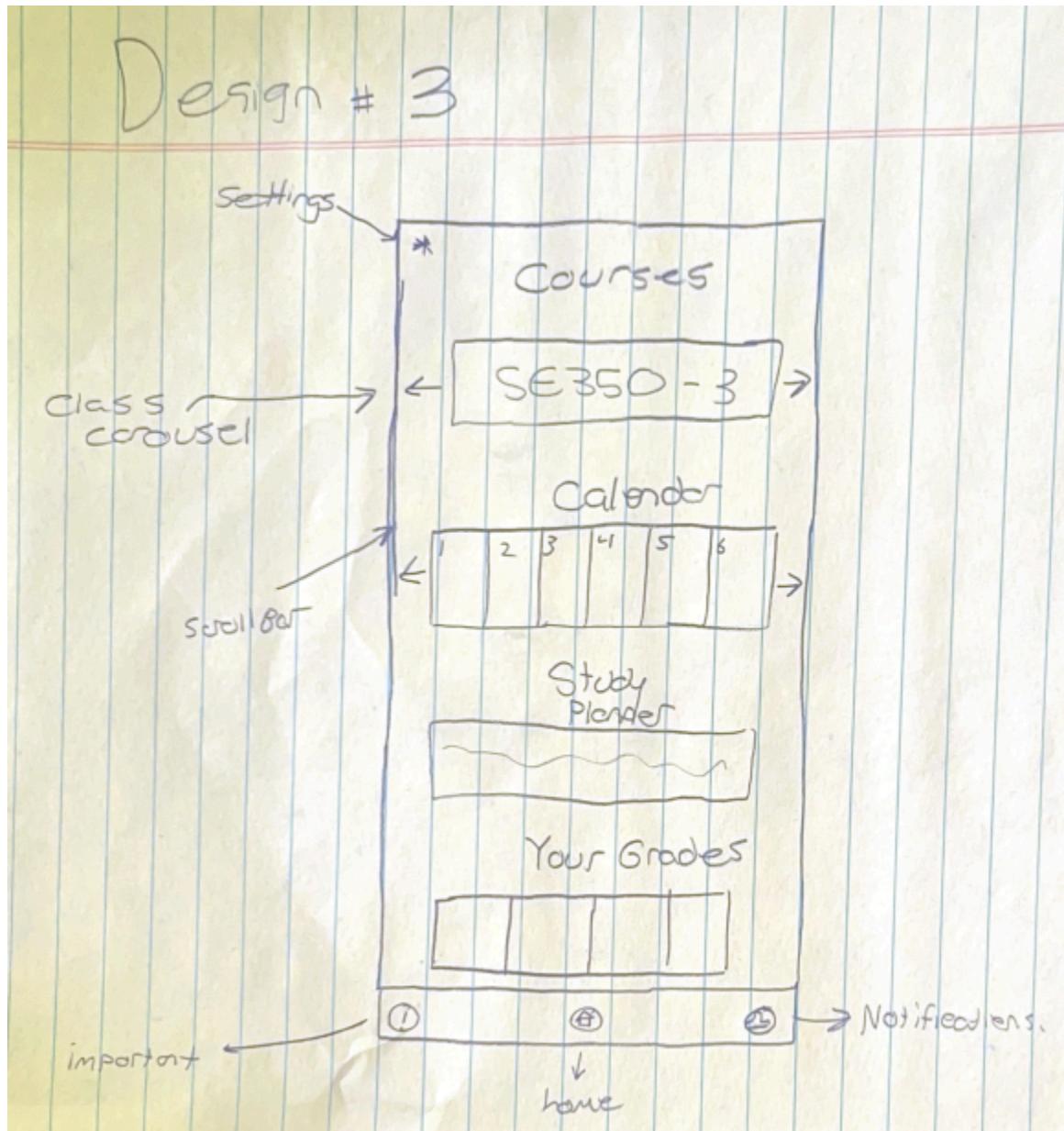
This design offers a new approach to our first design.
- This design is, again, in mobile view.
- This new design offers a different way for the user to interact with the app. The courses are now in a binder/folder style, where you click on each one, which it then expands.
- We put the study planner in the main screen to leave the nav bar less cluttered.

This design offers a unique approach. Here, fewer elements are being shown, but they appear to do more. This gives a different feel to the user and allows them to do tasks in a different flow.

**Design #3:**

In our third design, we tried to make it even more simplistic for the user to understand.
- Only 1 course is shown per page, with the option to scroll left and right on a carousel between courses.
- The calendar has been shortened to create more space, the user can also scroll through this feature.
- The Study planner has stayed on the main screen in this design as a way to free up clutter in the nav bar.
- As we can see now, the navbar is very clean and spread out.

While the second and third designs are unique, the first one is our favorite. Overall, we like the layout of our first design and think it is the most accessible for any kind of user. While the second and third designs aim to minimize the clutter of the first design, we still believe the first design is very clean. For these reasons, we will be continuing with the first design.

**Written Scenarios**
**Viewing and submitting assignments in the course page**
1. Tap on a course in the homepage
2. Click the "Assignments" tab and choose from the list of assignments
3. Tap the "Submit" button
4. Choose as many files as needed
5. Tap "Finish" to submit selected files

**Manage activities in the study planner**
1. Tap on the study planner icon (at the bottom, second from the left)
2. Tap the "+" button or an existing activity
3. Fill out or edit the information

## Storyboards of the Selected Design



**Main Page**

≡ Your Courses

Calendar

User taps on a course to view its page

**Course Page**

← MATH312

Content | Assignment
Assignment 1  3/5/5 11:5
Assignment 2 12/17/5
etc...

User taps on assignments tab, then taps on one of the available assignments

**Assignment Info**

← Assignment 1
Due Date March 15, 2025

☐ Submit

User can view assignment information and submit files

**Submit files**

← Submission
File1.docx

Choose more files to upload...

Finish

Choose files (will use default file selector provided by OS) and tap finish to complete submission



≡ Your Courses

Calendar

User clicks study planner icon

≡ Study Planner
‹ March 14, 2025 ›
Friday
08:00 Calculus!! MATH221
09:00 Class 2
10:00 Study
11:00

User can tap + or an existing item to add/edit activities

edit name ↓

← Calculus
☑ ☐ ☑ ☐ ☑ ☐ ☐
M Tu W Th F Sa Su
03:00 - 09:00
Priority 5
Description
MATH221

Confirm

User can add/edit the activity as needed