Edhub: Students Organized
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2h: Final Report

Team Members:

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Problem and Solution Overview:
Being a student brings to mind images of stressful all-nighters studying for tests, doing homework, and researching dozens upon dozen of sites, which is not including the multiple sites that teachers use for each individual class. A major problem facing students is the extraneous amount of time to open up what they need to do a single assignment, being forced to keep track of the location and password for all of their classes websites, confusing file organization, and difficulty getting help on assignments. Our proposed solution is an all in one website/application where students can have their class subjects and interests all in one easy to manage location. The website will allow students to see how subjects are interconnected, keep their files sorted, and be able to get help on difficult concepts from other students in their class.

Contextual Inquiry Target, Stakeholders, and Participants:

We performed three contextual inquiries from people with different levels of computer knowledge at the University of Utah. While doing the contextual inquiry, we followed the master/apprentice approach, and would observe the interview participants where they would normally study (Marriot Library, WEB, Union).

Jared is a freshman at the University of Utah who is currently studying for a Chemistry BS, and has minimal experience in the usage of computers. His workload is light, but he has to use 5 different websites for all of his classes and homework. The results is that he has an overly complicated logging in system since he only needs to access the sites at most twice a day and in order to log into one website he must first go through CIS to Canvas to WebAssign or another class. The contextual inquiry took place at the University of Utah Library.

John is a senior student at the University of Utah who is currently pursuing an undergraduate degree in Computer Science. He uses a variety of websites, Canvas, Github, Stackoverflow, tutorialspoint and more for his schoolwork. This results in him having to keep tabs of many different usernames and passwords so that he could log into them which makes him a prime example of a student who has a large workload in comparison to the previous student. The contextual inquiry took place at the University of Utah at the WEB.

Avisha is a junior at the University of Utah currently focusing on her degree in Middle Eastern Studies. Many of her courses depend on reading assignments which are posted as PDFs on Canvas or are scattered around the web as articles, and files. She spent a lot of time collecting the material for her upcoming assignment by either opening them in multiple tabs, downloading them as offline files or printing them as web pages. If a tab was accidentally closed, she had to repeat the process from starting point (Canvas) to locate the lost assets. She also expressed her frustration with the lack of a selective chat mechanism for students, and proper Q&A modules per assignments. She explained how one needs to scan the entire discussion board or an entire thread to see if her question has been asked before or has been answered. The contextual interview was conducted at the residence of the student where she usually studies.

Contextual Inquiry Results and Themes:

All of the participants that we had interviewed had problems with how their current bookmarking system works and had complaints for how all of their online sources were spread across many different sites.

According to the contextual inquiry results, the most common complaints was that people would have to go through many roundabout ways in order to access all of the websites that they need in order to accomplish their school work. This could be getting to an assignment where one of the people had gone through 3 different links and signing in twice in order to be able to see, or to be able to see the grades for their assignments. This lead us to realizing that the primary concern for people is that these websites are making getting important information difficult and leads them to have to go through different links in order to get to where they want.

All the participants had their own way of staying organized for school. Some leave it all to CIS, but others utilize their own bookmarking system in order to better organize their time. Even with that students still had difficulties being able to manage their deadlines for assignments. This was primarily due to the lack of having a central location with all of their deadlines and would have to check each site separately to see when the next assignment would be and when they would do. This would cause unneeded stress in some of them due to having forgotten an assignment and having to turn it in the assignment or quiz late.

During the inquiry we had also discovered when people are using specific sites they only need access to a few pages of that site and often the format of the website would have excess amount of links that are unnecessary and often prove to be cumbersome(such as the chat link on Canvas which is for the entire class only, and does not allow specific groups to have their own chat). This was seen when some of the participants complained about websites such as Canvas having too many links that neither the students nor the teacher uses. When inquired about the organization the participants would say that they prefer a more customizable assignment where they could remove the parts that they did not use or that the teacher left purposefully blank and be able to organize it in the way best for them. This complaint went well beyond canvas and to other sites that the student would visit. Which leads to the possibility of allowing customization in our current application, but more research will have to be done to see if this would be the best path to go along.

Answers to Task Analysis Questions:

Who is going to use the design?

The design is going to be used by anyone who is involved in education. This includes formal and informal forms of education. Primarily, the design will be used by college students and professors who struggle with managing their resources.

What tasks do they now perform?

Currently, the above population accesses several resources in multiple formats at the same time in order to accomplish their studying and homework assignments. They pull up one tab on their computer or browser that has the assignment declaration. Another that has their notes and class slides, and more still that will actually be used to submit or work on their assignments (Microsoft Word, Google Docs, IDE's, etc.), all while having their own notebook open next to their text book opened to the current chapter. For example, Jared would be logged into WebAssign while using Campus Information Service (CIS) and Canvas just to access his assignments. When he didn't understand something, he would turn to his textbook for help, or the web for examples. Furthermore, WebAssign's examples often were not sufficient for him so he had to then go to YouTube for additional help. The disconnect here would lead to him not focusing on the assignment as much as he could have, and possibly lead to them procrastinating.

What tasks are desired?

The desired tasks are variable depending on the specific student. But in general the desired tasks are those that keep the student focused and help facilitate quicker completion of their assignments. In all the inquiries, it was clear that with having resources spread out it put more of a strain on the students attention. We aim to have all the needed resources or tools in a more easy to access format so that opening up YouTube videos won't lead to watching videos of animals. In extent, throughout the inquiries, with the bias of them all being U of U students, the subjects had to log into CIS and then into Canvas just to access class materials. This could be made easier by making it only one task located in close proximity to others they have to do more often.

How are the tasks learned?

These tasks have been learned through what has been the "norm" from other classes. This is how it is for a majority of classes and online resources, so the students and teachers fall into the same patterns when making and using new resources.

Where are the tasks performed?

Primarily, the tasks are performed through an electronic environment (on computers), on the internet as well as on their local machines. However, this is not the only place they will occur. A user could need to check an assignment's status on the way to school or work. One may see what work they still have to do on the train home. Users will often perform these tasks

while in their normal study environment, be that the library, a coffee shop, or at their own home. These tasks could even be performed while a student is at school, and in class. For that reason our design must be compact and versatile to accommodate all these possibilities.

What is the relationship between the person and data?

The student requires the data to facilitate their learning and to complete their assignments. Data from assignment specifications to third party examples is an integral part of of the user's experience.

What other tools does the person have?

Canvas, CIS, YouTube, WebAssign, PDF Viewers, PowerPoint, Khan Academy, and Class Websites are all other tools that the users can utilize to complete their educational tasks. Many more tools also exist in the non digital realm. This includes notebooks, binders, daily planners, calendars, and various folders to hold their work.

How do people communicate with each other?

In our project scope, people communicate through online material, chat channels and emails. Online materials is broad and vague, so some examples include: comment sections on videos, assignment postings on class websites, discussion boards and announcements on class websites, and online videos themselves.

How often are the tasks performed?

Studying and homework tasks are performed every day by students and teachers alike. The smaller tasks such as switching tabs, logging on to websites and accessing multiple avenues of material are performed countless times during any given session.

What are the time constraints on the tasks?

With the sheer amount of times that the tasks are performed the time restraints on facilitating them have to be very strict. To be clear this is in reference to our designs tasks of bring material together. If it takes too long to access the material it makes the design a waste. In regards to the tasks performed by our user base currently, the time restraints are ofen imposed by the person administering the course.In formal education this would be the teacher or professor and would lead to variable time restraints.

What happens when things go wrong?

Ultimately when the transition through and availability of these resources aren't streamlined enough it can lead to very poor productivity and procrastination. In drastic cases, this can also easily impede learning. For example having to check in on three different sites to see if you have any homework could make it very easy for a student to forget their work or not

turn in an assignment. The resources may also be hard to interpret, so a user may misinterpret a posting or due date leading to an impact on their overall grades, wellbeing, and learning.

Proposed Design Sketches:

Design 1: Boards

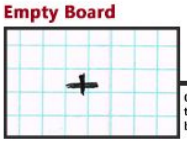
Our first design is a smart, modular node system, intended for students, that allows for generating complicated/simple and interconnected graphs (boards), consisting of nodes representing topics. Each node can include multiple modules, such as images, videos, rich text, formulas, discussion and QA threads. Each board has sharing properties similar to Github. All boards are stored on a single account on one website along with authorization permission for quick login to other platforms. Boards can be public or private, and support the following sharing properties:

Clone: A clone is a copy of a board that lives on your account. Clones are fully disconnected from original boards, and thus don't allow syncing.

Fork: A fork is a personal copy of another user's board that lives on your account. Forks allow you to freely make changes to a board without affecting the original. However forks remain attached to the original, allowing you to submit a sync request to the original board to update your fork with updates from the original while keeping your changes in place.

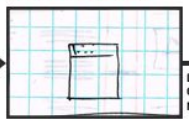
Collaborator: A collaborator is a person with editor access to a board who has been invited to contribute by the board owner.

Empty Board



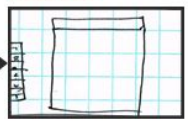
Clicked on the + button

Board Initialized

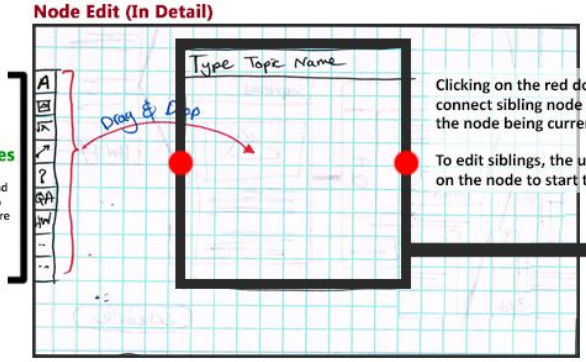


Double Clicked Created Node

Node Edit



Node Edit (In Detail)

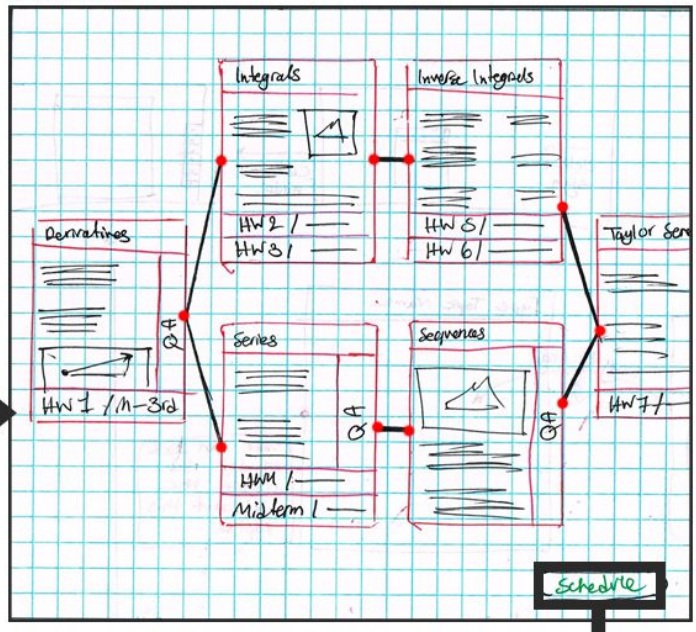


Modules
Can be dragged and dropped to the node are

Clicking on the red dots will create and connect sibling node (related topic) to the node being currently edited.

To edit siblings, the user can double click on the node to start the editing process.

Relation View



Clicking on the schedule from the Relation View takes the user to the Schedule View.

Schedule view allows the user to zoom in-out on their schedule to display desired timeline.

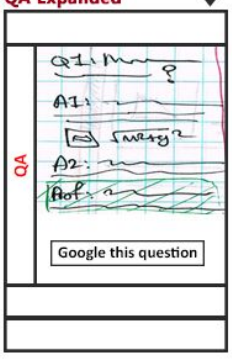
Students can also drag-drop nodes to intervals to create/modify their schedule.

QA Collapsed

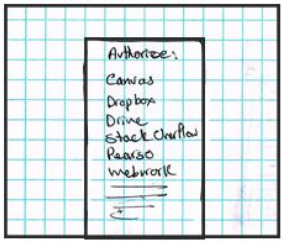
Topics in public boards can have a dedicated QA module, with other website members responding and interacting with each other.

Questions can also be searched on Google.

QA Expanded

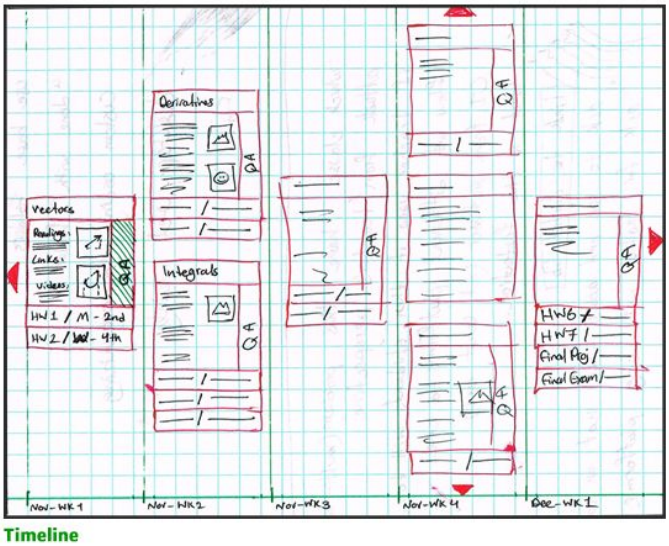


Account Authorization



Users can authorize their account with other platforms for easy access and integration of existing data & content.

Schedule View



Timeline

Clone | Fork

Public boards have the above two options, similar to Github.
Clone: A clone is a copy of a board that lives on your account. Clones are fully disconnected from original boards, and thus don't allow syncing.

Fork: A fork is a personal copy of another user's board that lives on your account. Forks allow you to freely make changes to a board without affecting the original. However forks remain attached to the original, allowing you to submit a sync request to the original board to update your fork with updates from the original while keeping your changes in place.

In addition, board owners can add collaborators to thier boards. This is applicable to both private and public boards.

Design 2: Bookmarks

The second design is a bookmarking plug-in system where when a student opens a new tab automatically they will have access to all of their class necessities. This includes: sites where the students needs to use to do their homework(Github, webAssign)(figure 1), calendar information (class due dates, private and group meetings), getting help from other students (through suggested videos, or discussion boards), being able to chat with people from specific classes or self made groups,(figure 2) and being able to keep their files organized by having more specific pages of when whichever class they want (figure 3).

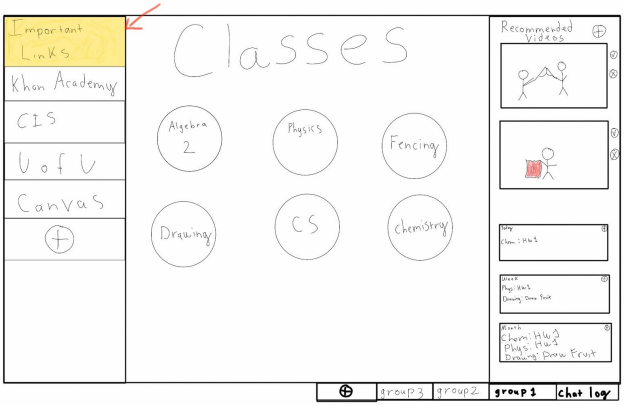


Figure 1

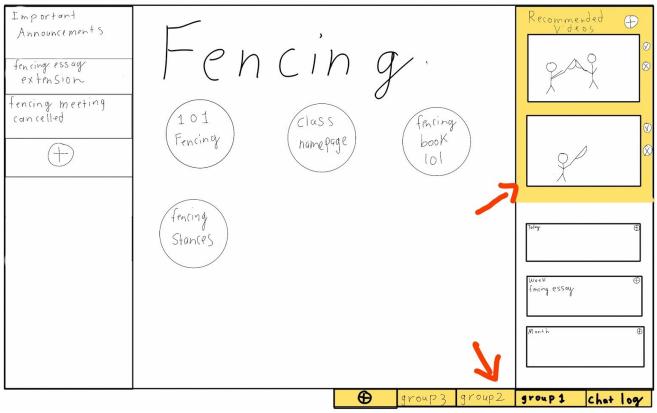


Figure 2

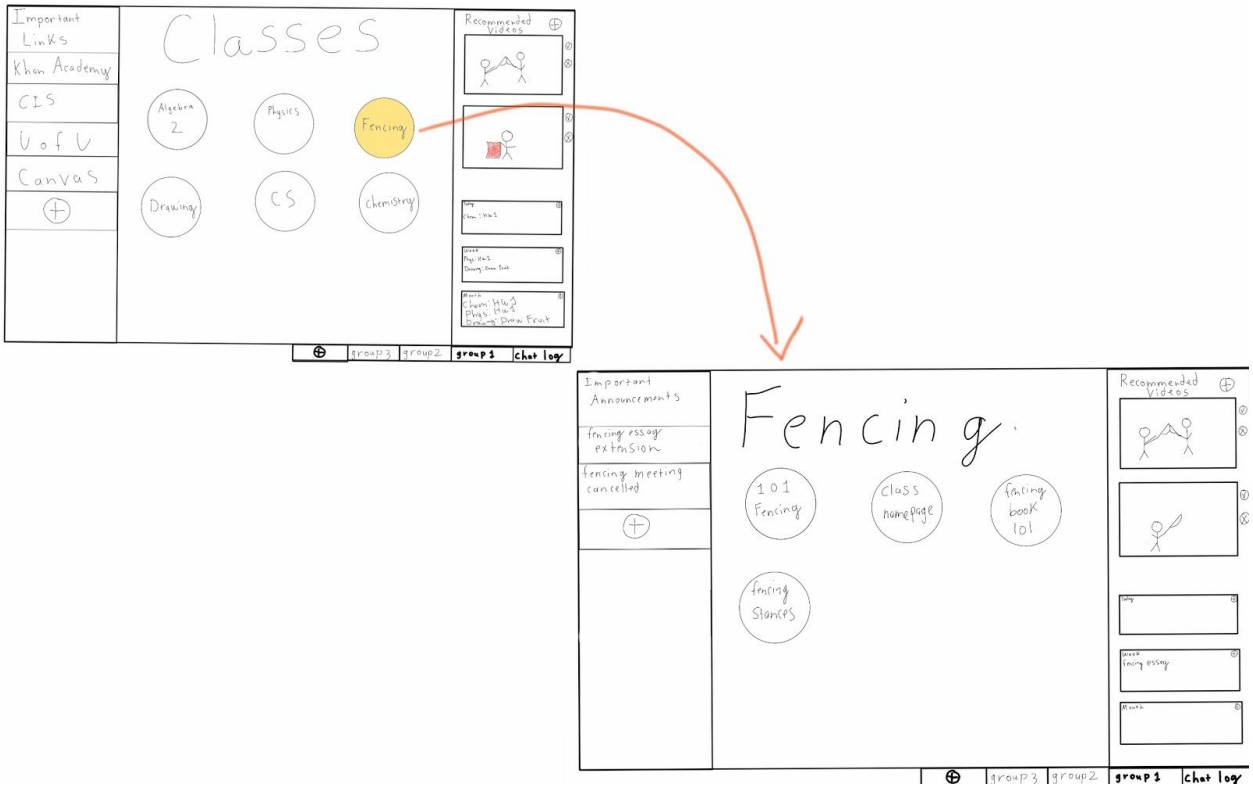
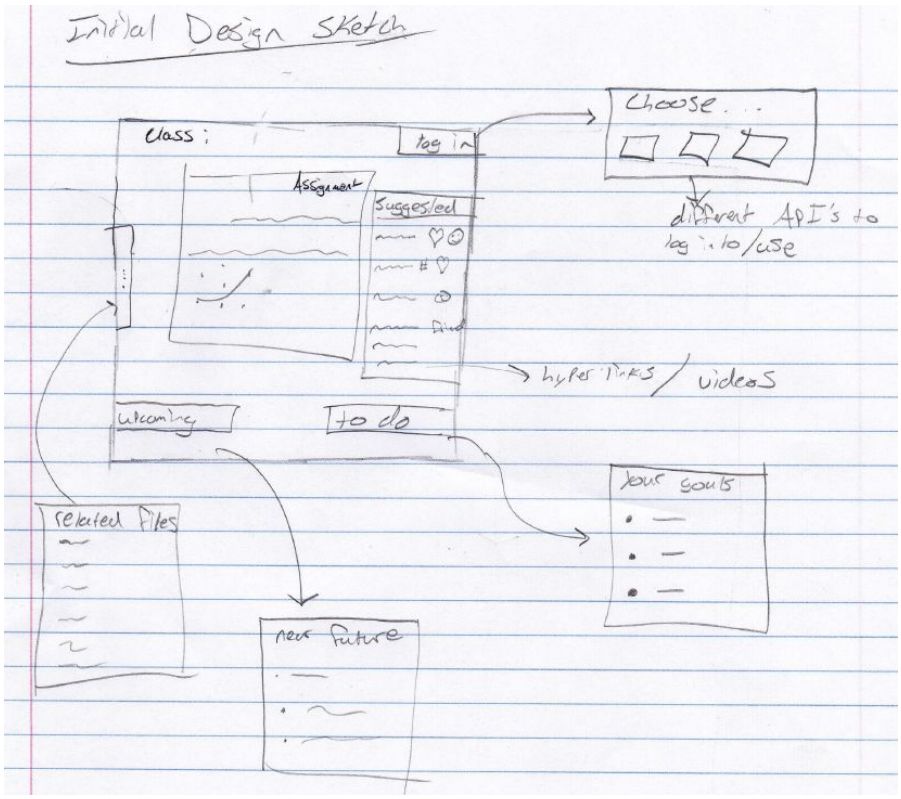


Figure 3

Design 3: Mobile App

Our third design follows more of a compact design focus with an emphasis on having the most needed and relevant information at one's fingertips. The view draws inspiration from common mobile applications, lending to the smaller nature of the screen. Here a user, or student would have most of what they need to complete an assignment all in one place. With links to sign into different websites, the user can customise what material they want the program to compile for them. Each arrow here depicts either a menu or separate view that will be displayed when the uses presses them. The menu allows for students to log into all of their classes other websites by logging into this one, keep track of each classes assignment separately or together and finding useful resources within the suggested box for each class.



Written Scenarios:

Scenario 1:

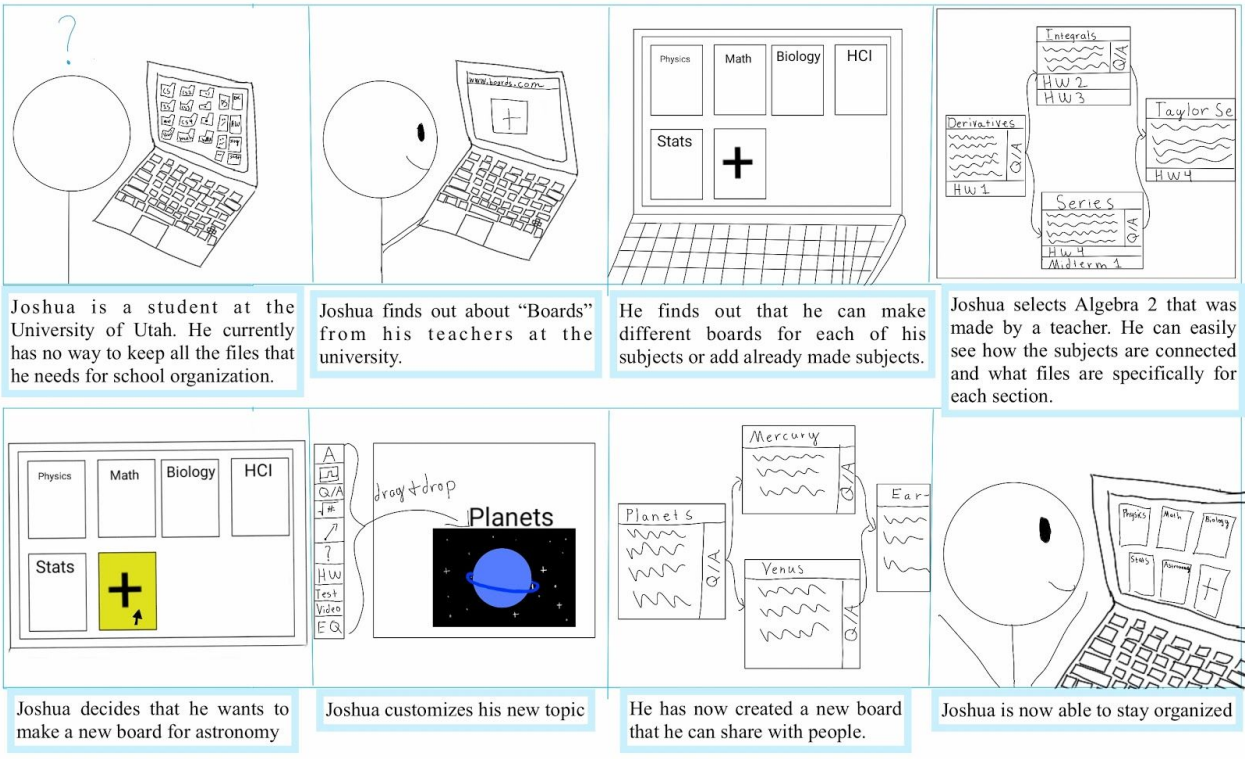
Joshua is a new student at the University of Utah, and has realized that being a student comes with a considerable amount of online requirements and files he needs to keep track of. When he goes to class he finds out from his teachers about a website called BOARDS, which he was told would help him keep all of his files organized. While looking at BOARDS he realizes that he can make new boards or add a pre-existing board, such as one of his university classes(Physics, HCI, Statistics). Joshua selects Algebra 2 which was already created and sees all of the assignments that he needs to do for class and how they are all connected. He finds this helpful, but realizes that he would like to also like to have a board for his favorite subject Astronomy, even though he isn't taking a class for it. He selects the + button on the homepage of the webpage and is given an array of options(add photos, videos, texts, new sections, or formulas) that he uses to customize a new subject. Once Joshua is done finishing his new subject he is able to share his board with other people or just keep it for himself for study purposes.

Scenario 2:

Anna is a student at the University of Utah who is currently taking HCI or CS5540 and has an assignment due soon on Storyboards. She tries to figure out how to start the assignment on her own, but is still confused on what steps are necessary to start the assignment itself. While searching online for better examples Anna remembers that her class, which is on the website BOARDS, has a Q/A section. Anna goes to the Q/A section and finds a question someone else asked which was "How to start assignment 1 ". She looks through the answers people posted for that question, and has a slightly higher level of understanding, but is still confused so she goes to the the section in BOARDS pertaining to what she is confused about. Anna sees that the teacher had posted a video that would help with her assignment. She watches the video and is now able to finish her assignment.

Storyboards of the Selected Design:

Keeping the environment uncluttered to allow focus on content



Searching for help on a topic