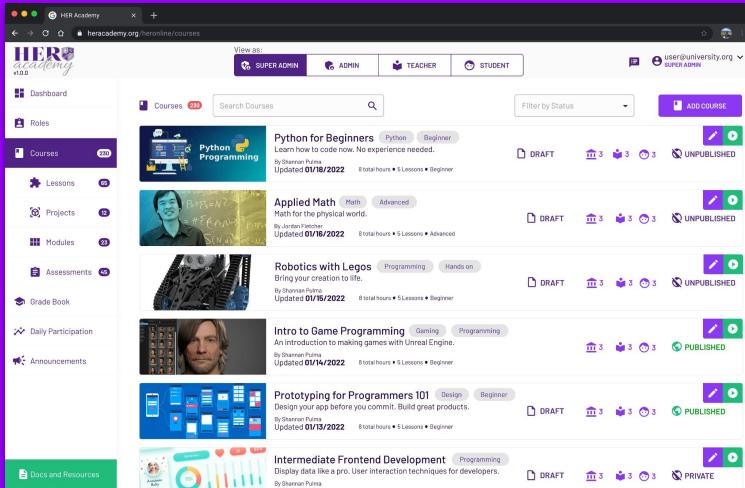


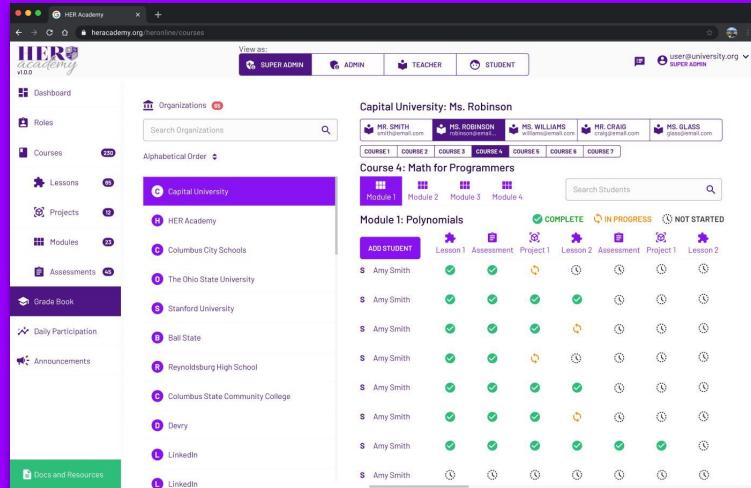
# HER Academy

Designing how Teachers and Students learn to become designers and creators of computing technology



The screenshot shows the HER Academy platform's Courses section. The left sidebar includes links for Dashboard, Roles, Courses (400), Lessons, Projects, Modules, Assessments, Grade Book, Daily Participation, Announcements, Docs and Resources, and Help. The main area displays five course cards:

- Python for Beginners** (Python • Beginner) by Sherry Puma, Updated 01/18/2022, 8 total hours • 5 lessons • Beginner. Status: DRAFT.
- Applied Math** (Math • Advanced) by Sherry Puma, Updated 01/18/2022, 8 total hours • 5 lessons • Advanced. Status: DRAFT.
- Robotics with Legos** (Programming • Hands on) by Sherry Puma, Updated 01/15/2022, 8 total hours • 5 lessons • Beginner. Status: DRAFT.
- Intro to Game Programming** (Gaming • Programming) by Sherry Puma, Updated 01/14/2022, 8 total hours • 5 lessons • Beginner. Status: PUBLISHED.
- Prototyping for Programmers 101** (Design • Beginner) by Sherry Puma, Updated 01/13/2022, 8 total hours • 4 lessons • Beginner. Status: DRAFT.



The screenshot shows the HER Academy platform's Organizations section. The left sidebar includes links for Dashboard, Roles, Courses (330), Lessons, Projects, Modules, Assessments, Grade Book, Daily Participation, Announcements, Docs and Resources, and Help. The main area displays a list of organizations:

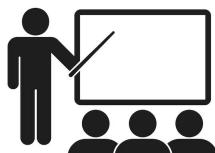
- Capital University (selected)
- HER Academy
- Columbus City Schools
- The Ohio State University
- Stanford University
- Ball State
- Reynoldsburg High School
- Columbus State Community College
- Devry
- LinkedIn

At the top right, there is a list of users: Mr. Smith (mrsmith@email.com), Ms. Robinson (robinson@email.com), Ms. Williams (williams@email.com), Mr. Craig (craig@email.com), and Ms. Glass (glass@email.com). Below the organizations, a course titled "Course 4: Math for Programmers" is shown with its modules: Module 1: Polynomials, Module 2, Module 3, Module 4. A student named Amy Smith is tracked across these modules with status indicators (COMPLETE, IN PROGRESS, NOT STARTED).

# HER Academy traditionally taught computer science in person and in the classroom

But the world changed during the pandemic. How could they continue to empower children to become creators and designers of technology through computer science both online and in the classroom?

HER Academy needed an online platform that could work across mobile and desktop devices to continue providing education to underrepresented racial and ethnic groups, children from rural or economically impoverished communities and children with neuro-diverse learning styles in a new world that requires a remote or hybrid presence. Our data shows that a majority of our users spend a majority of their time on mobile devices and on laptops to complete their classroom assignments. They needed an accessible way to continue progressing with their computer science education.



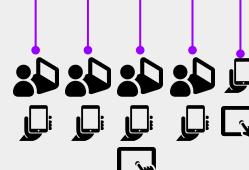
Finish

- Sales
- Support
- Administration



Support

Teacher



Students

# Talking to Customers

After seeing that HER Academy currently taught their courses in person and stored their teaching materials in Google Drive, we determined that our target audience was very broad.

In order to understand these personas, we spoke to people internally at HER Academy, as well as teachers, administrators and students across the country in both private and public educational systems ranging from universities, high schools, middle schools and elementary schools.

We learned that HER Academy has a particular structure for teaching courses with defined informational relationships. We also learned that users all use either mobile or desktop devices for nearly all educational-related content.



# Major Pain Points

Some of the major pain points came from the inability to interact during the COVID-19 pandemic. Institutions were not prepared to switch from a completely in-person classroom and workplace to a completely remote classroom and workplace. Along with that, preparing for what was after the pandemic, a hybrid environment, was not something that was taken into consideration.

## Before COVID-19

All at school



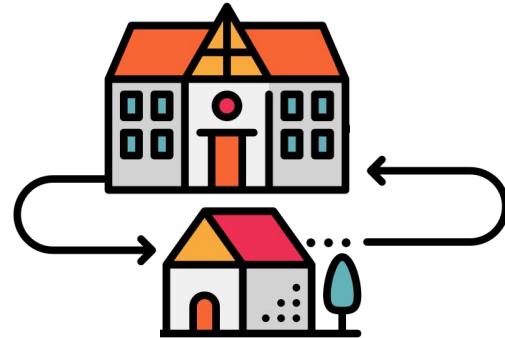
## During COVID-19

All at home



## After COVID-19

At home and school



# Major Pain Points

We also noticed the business was unable to scale past a certain point. HER Academy is a business with 3 people. They were responsible for selling, building, and carrying out the courses all in person. This made it very difficult to reach their audiences.

**Manual Process**



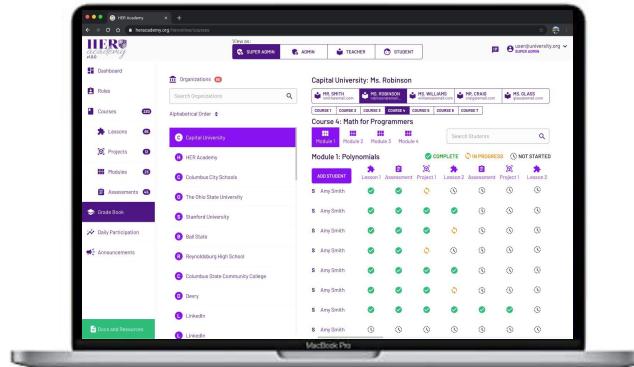
**Automated Process**



# Main Objective

Creating a web application that could act as a shuttle for distributing and managing educational content, clients, location and time was our primary goal.

We determined that our main objective is to automate the processes of the organization, clients and users by building a platform that could be accessed on smart phones, tablets, laptops, and desktops. Our users were people internal to HER Academy, Administrators at each Organization as well as their teachers and students.



# Starting with Questions

We created a list of “How Might We...” questions to help us better align our user’s tasks and goals:

1. How might we provide an experience that is engaged and valuable to our users?
2. How might we allow them to access their most critical information through their mobile devices?
3. How might we provide a tailored experience that allows each user type to see what is important to them?

# Discovery Path Drafting

## Discovery path card exercise

For each customer type, we wrote 3 steps showing how that customer goes from discovery to starting to use the product.

	CUSTOMER/ ACTOR	DISCOVER	LEARN	START
1	Super Administrator	They join HER Academy and are given the task to administer the web platform	Internal members at HER Academy	Given access by the business owner
2	Administrator	Trade shows, visit from HER Academy, LinkedIn Connection	Follow up meeting	Purchase a license
3	Teacher	Their employer purchases the platform or asks them for their buy in	HER Academy Demo and/or their Organizational Admin	Given access by their Admin
4	Student	They take a class from an instructor using the platform	The teacher (eventually videos and docs)	They are granted access through the teacher

# Core Experience Drafting

## Core Experience card exercise

We wrote 3-4 steps showing our customer's core experience with our service.



# Surveys: Internal and External Feedback

We sent out a survey to our internal and external partners to quickly inquire what were their biggest pain points in other applications they are using with their current institutions. The purpose was to discover potential quick wins or simple improvements that could be executed quickly and that would give us an edge over our competition.

We want the ability to integrate with the school system's student record software so that students and grades can be calculated in an automated fashion.

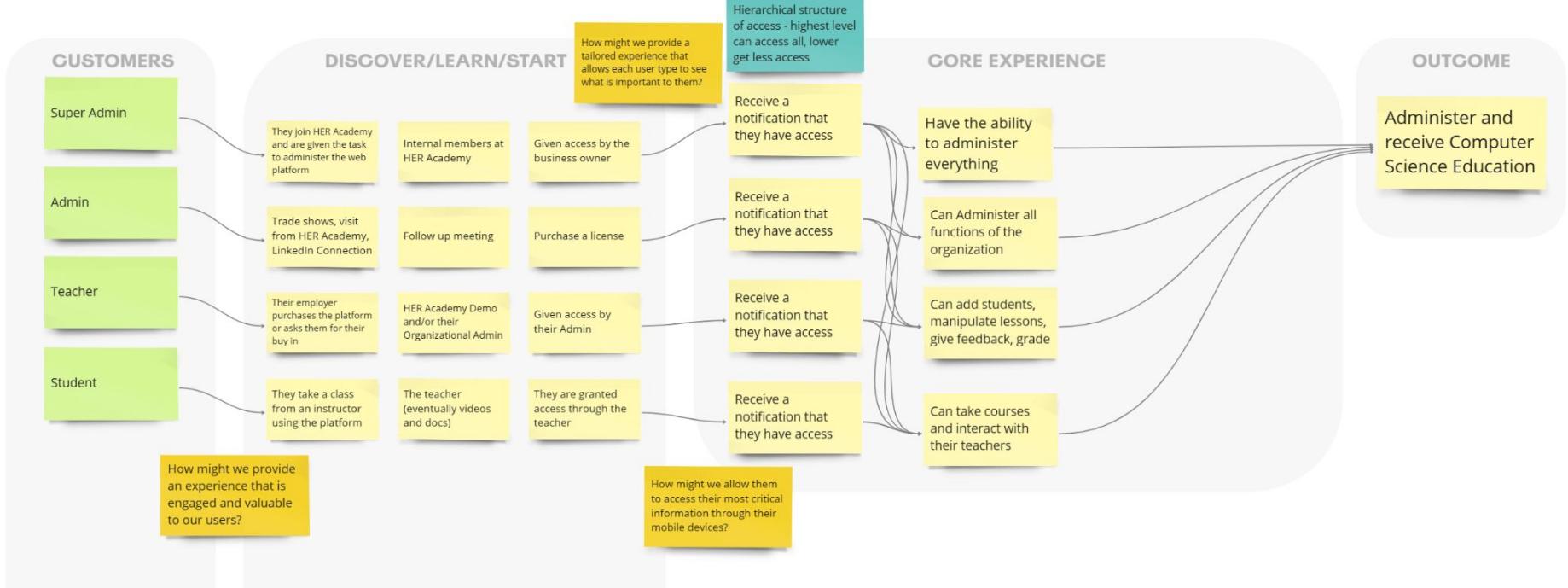
**Some of the feedback we got back was:**

1. Some school systems give grades and others do not. It should be an optional feature to include grading in the platform
2. Teachers would like the ability to collect notes related to anything in the entire platform and only have access to it for themselves without sharing it with others

# Mapping

We built a simplified diagram showing how customers and other actors interact with our product/service.

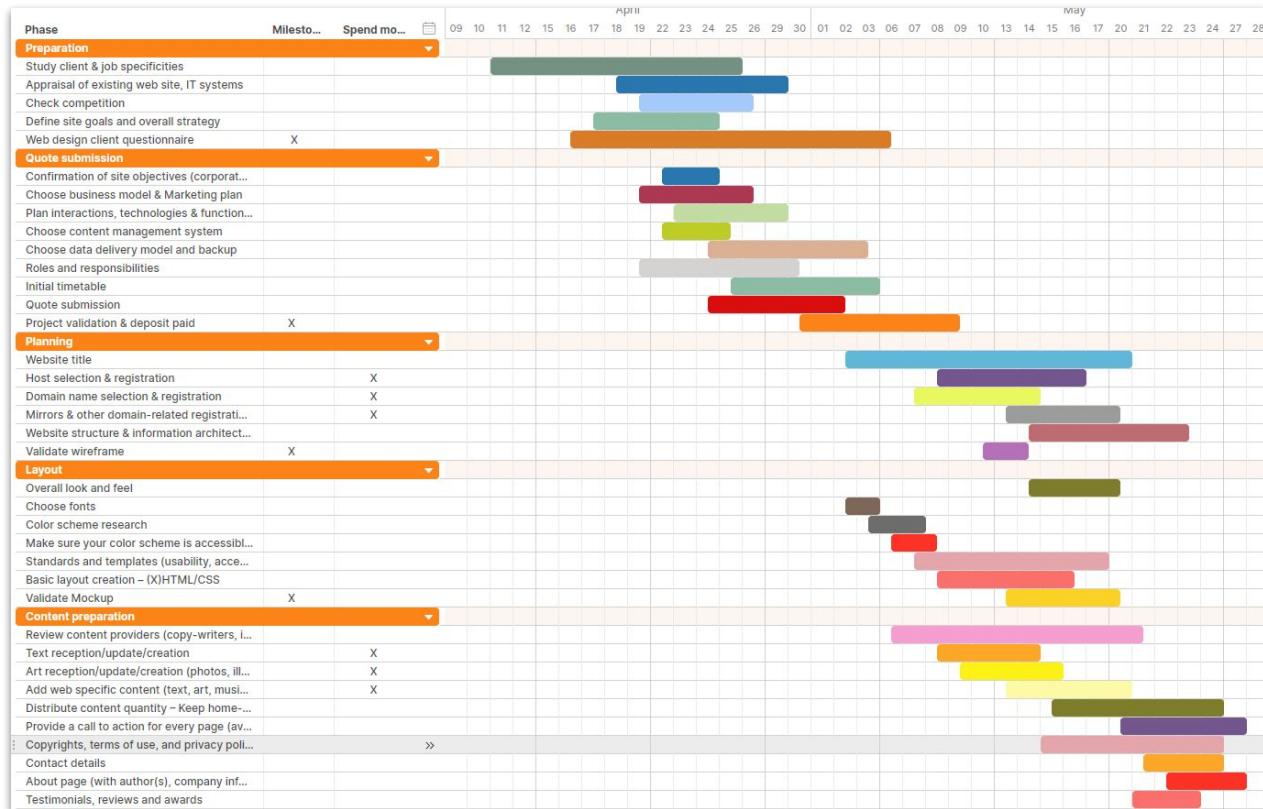
Complete online course platform  
HER Academy is the online platform for schools  
Market Saturation  
Time to market  
Resources



# Planning

## Project Planning

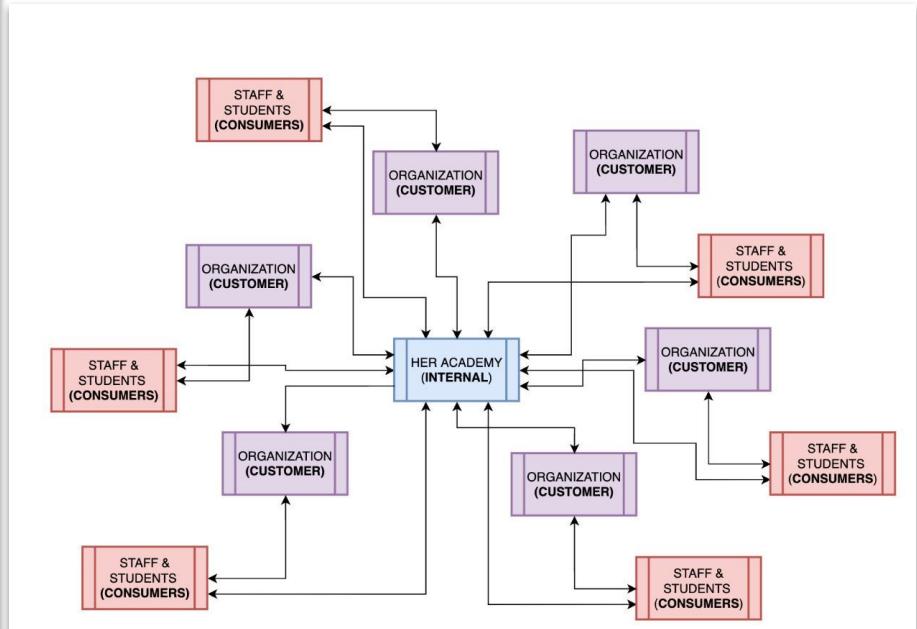
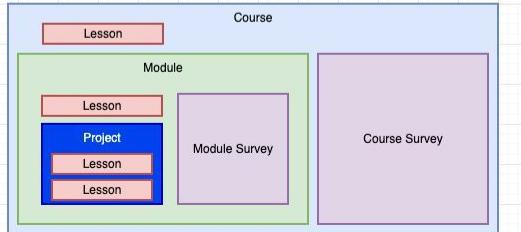
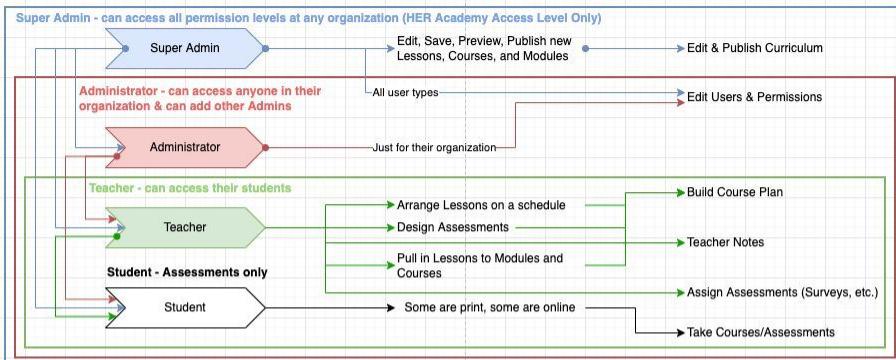
Based off of the exercises that we completed at this point, it was time to plan out the length and schedule of the project.



# Sketching

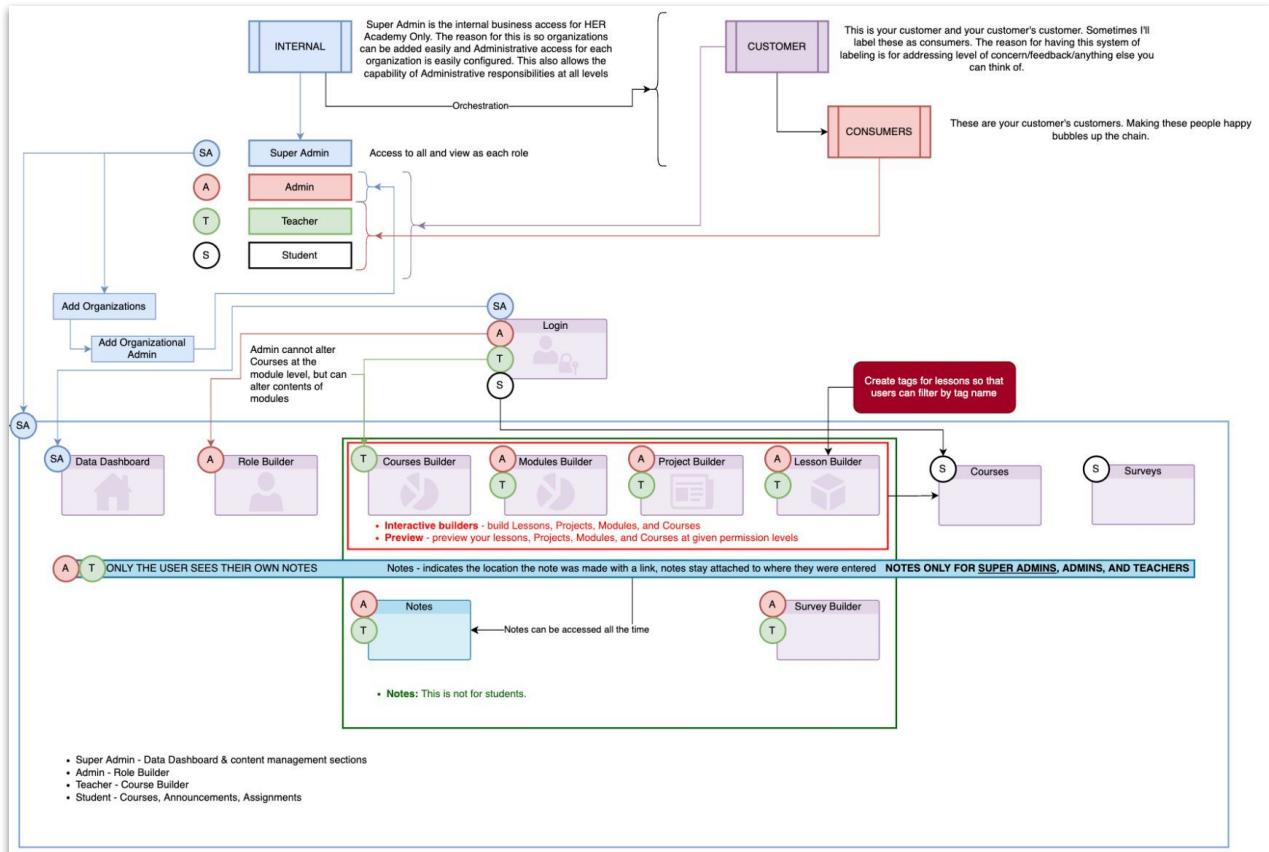
Product designer project brief for Todd:

[https://docs.google.com/document/d/12y0abParZ2ULn-QB5DbUpYSFEI\\_9XZ7FqzKmtG6zdUk/edit](https://docs.google.com/document/d/12y0abParZ2ULn-QB5DbUpYSFEI_9XZ7FqzKmtG6zdUk/edit)



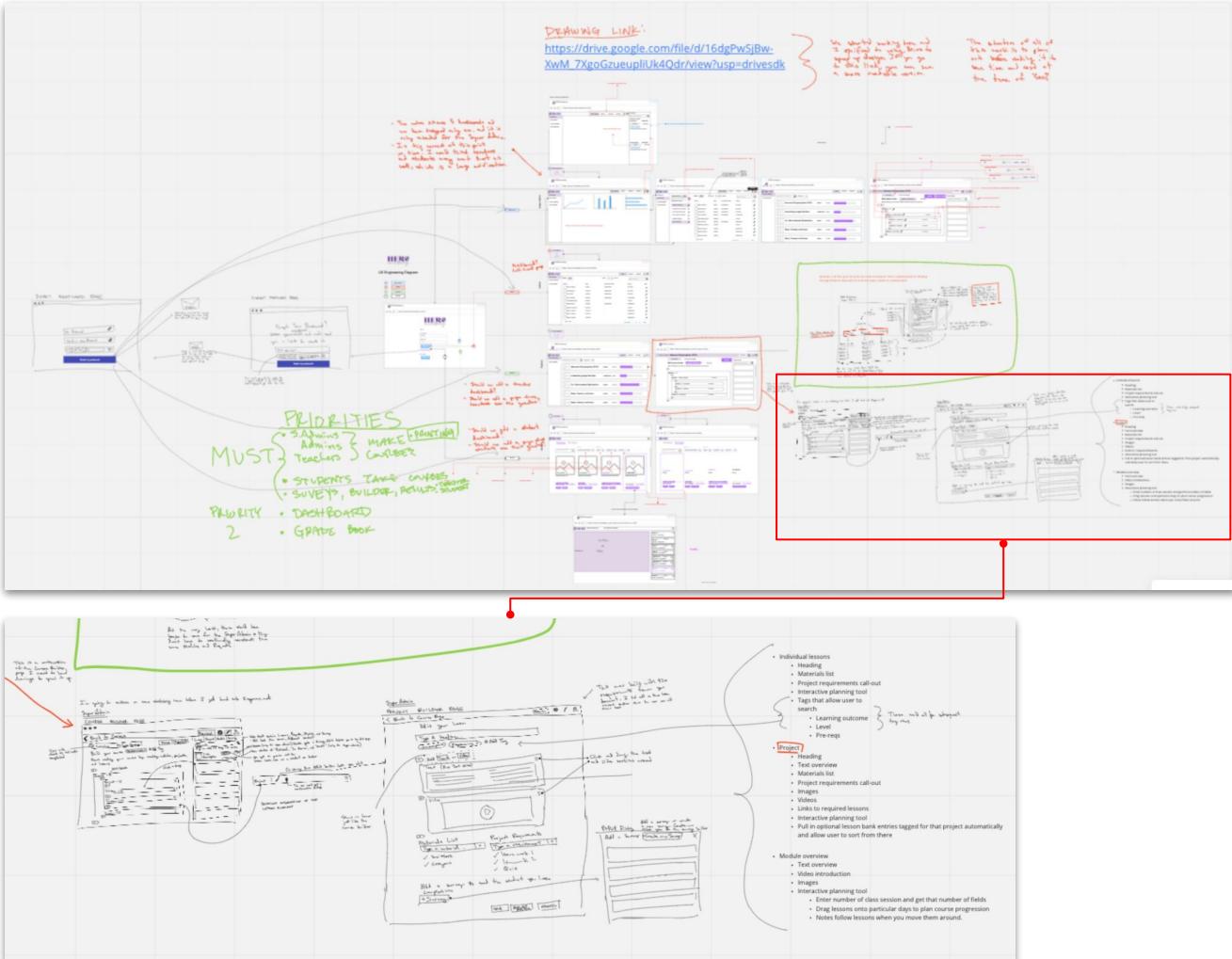
# Sketching

In order to take into consideration all of the possible users, we did a very high level pass at the application instance level. To the right is a sight map including Super Admin, Admin, Teacher, and Student access levels



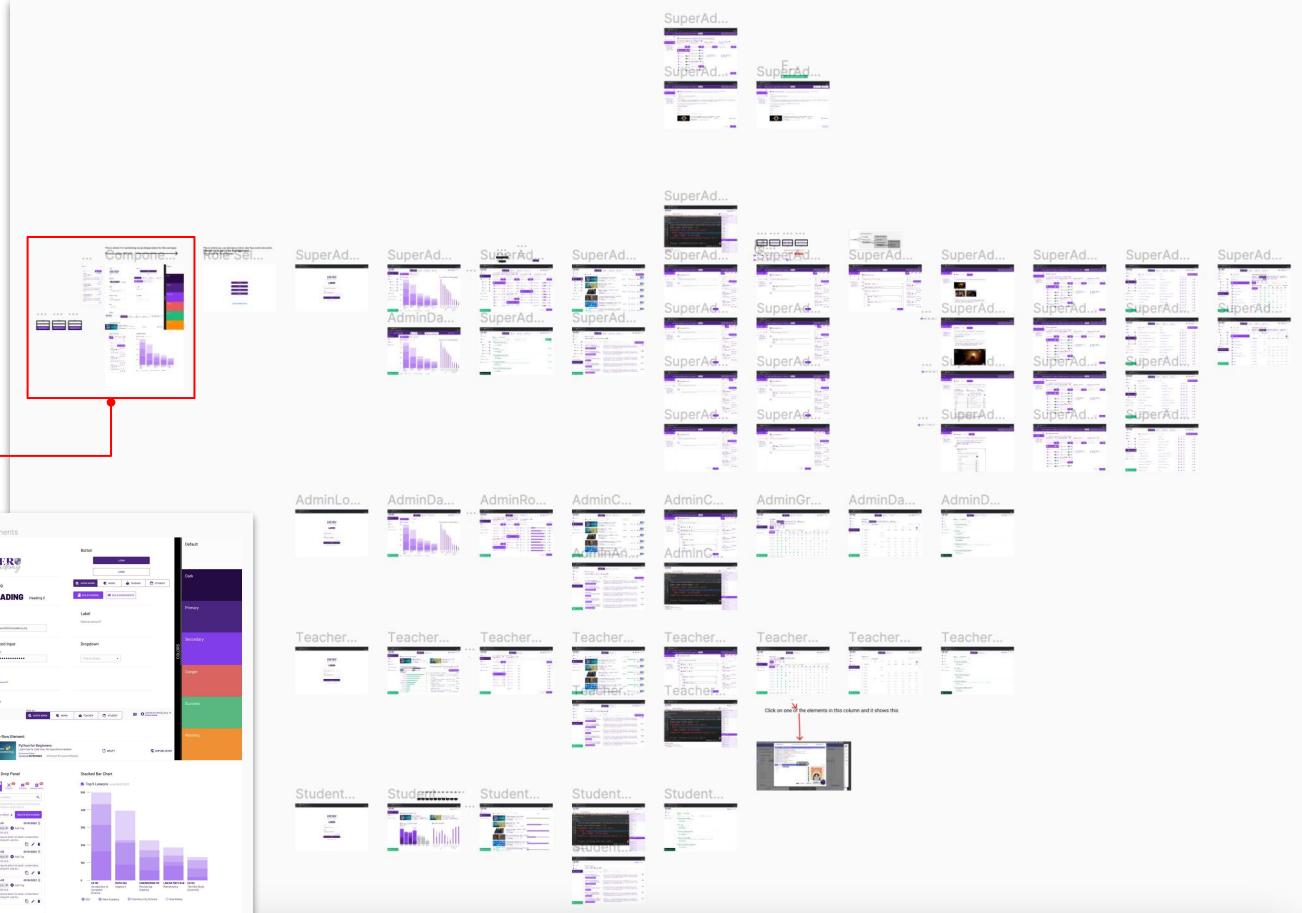
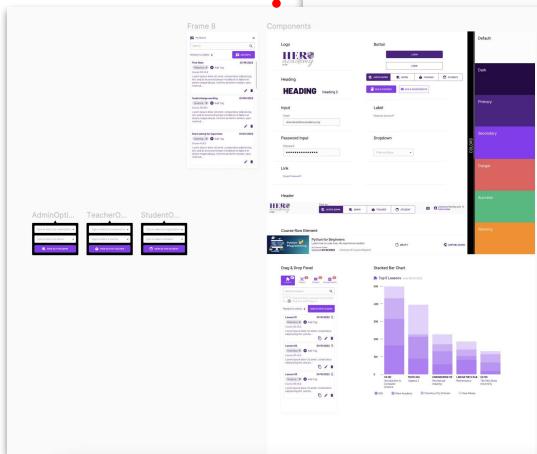
# Storyboarding

To speed up the process since the storyboard was getting a bit big on an older computer, I used my iPad and Miro to start drawing on top of the draw.io storyboard to continue down the path until we hit a point of where we were ready to start prototyping.



# Prototyping

After we finished storyboarding, we started prototyping in Figma to further flesh out the idea and get ready for usability testing. I generated the color scheme and a hand full of **reusable components** for the Design.



# Prototyping

Here are the **reusable components** and the color scheme used for the prototype. I prototype at a “Cinderella” level for speed. This means that it is good enough for a small project with an extremely tight deadline. Since we are going to build the app with a no-code tool, there can be pixel-perfect refinement at that stage. This follows the GV Design Sprint methodologies, which really gets ideas out fast and keeps the momentum up on projects.

Default
Dark
Primary
Secondary
Danger
Success
Warning

COLORS

# Prototyping

This is the Project Permissions page where a member of HER Academy can assign permissions to Organizations and their different levels of users.

The screenshot shows a web browser window for 'HER Academy' at the URL [heracademy.org/heronline/courses/course/course-overview/823484823848283484](https://heracademy.org/heronline/courses/course/course-overview/823484823848283484). The page title is 'Intro to Parabolic Math in relation to celestial bodies, gasses, vacuums, and spectral matter'. The top navigation bar includes 'DRAFT', 'PUBLISH', and 'PREVIEW' buttons. On the left, there's a sidebar with 'Curriculum' and 'Project Permissions' tabs, with 'Project Permissions' selected. A note says: 'You must have the Curriculum and Course Permissions tabs checked to preview and publish your course.' The main content area is titled 'Project Permissions' and shows 'Now viewing Students at Capital University in Debra Robertson's Math Group'. It lists organizations like Capital Univ., HER Academy, Columbus Cit., OSU, Stanford Univ., Ball State, Reynoldsbu..., and CSCC, each with a switch to grant 'ACCESS TO COURSE'. It also lists individual users: Bill Robertson, Mary Sanders, Gerti Smith, Sally Mander, and Debra Robertson, each with a switch to grant 'ACCESS TO COURSE'. There are search bars for 'Search Organizations', 'Search Admins', 'Search Groups', and 'Search Students'. Buttons for 'Alphabetical Order' and '+ Org' are present. A note on the right says: 'Select a teacher on the lower left to view groups of students' and 'Select a teacher and Group on the left to view students'. At the bottom are 'CANCEL' and 'SAVE' buttons.

# Prototyping

This is the Curriculum Builder for Courses page where a member of HER Academy can drag and drop different pieces of courses as well as edit the contents, remove components, or construct new ones.

The screenshot shows a web browser window for 'HER Academy' at the URL [heracademy.org/heronline/courses/course/curriculum/823484823848283484](https://heracademy.org/heronline/courses/course/curriculum/823484823848283484). The page is titled 'Extra Solar & Interstellar Parabolic Math; Math 875-A' and is marked as 'DRAFT'. On the left, a sidebar lists 'Curriculum' (checked), 'Course Overview' (unchecked), and 'Course Permissions' (checked). A note states: 'You must have the Curriculum, Course Overview, and Course Permissions tabs checked to preview and publish your course.' The main area is titled 'Build and edit courses' and contains a 'Course title' field with the value 'Extra Solar & Interstellar Parabolic Math; Math 875-A'. Below this are three main components: 'Lesson' (with a plus icon), 'Assessment' (with a plus icon), and 'Module' (with a plus icon). The 'Module' component is expanded, showing a 'Project' section (with a plus icon) which in turn contains a 'Lesson' section (with a plus icon). To the right, there are navigation links for 'PUBLISH' and 'PREVIEW', and a sidebar with icons for 'Lesson' (85), 'Project' (12), 'Module' (23), and 'Assessments' (45). At the bottom, there are 'CREATE NEW LESSON', 'Lesson 01' (1/16/2022, Robotics, Add Tag, Course 123.45.6, content placeholder), 'Lesson 02' (1/16/2022, Interface, Add Tag, Course 123.45.6, content placeholder), and 'Lesson 03' (1/16/2022, Science, Add Tag, Course 123.45.6, content placeholder).

# Prototyping

This prototype has a lot of pages, so I'll share one last view of what a student view will look like.

Student Dashboard

The dashboard displays a summary of recent course access and weekly activity. It includes a bar chart of time spent on courses this week and a bar chart of assessment results across various subjects.

Day	Time Spent (hrs)
Sunday	12 hrs
Monday	4.5 hrs
Tuesday	3.5 hrs
Wednesday	12 hrs
Thursday	10.5 hrs
Friday	5.5 hrs
Saturday	2.5 hrs

Subject	Score
Math	85%
Science	78%
History	82%
English	75%
Art	88%
Music	70%
Physical Education	80%
Technology	72%

Courses Page

The Courses Page lists several courses with their descriptions and progress bars indicating completion status.

- Python for Beginners: Progress 100% (Completed)
- Applied Math: Progress 50% (In Progress)
- Robotics with Laptops: Progress 20% (In Progress)
- Intro to Game Programming: Progress 10% (In Progress)
- Prototyping for Programmers 101: Progress 5% (In Progress)
- Intermediate Frontend Development: Progress 5% (In Progress)

Course Page

The Course Page for "Python for Beginners" shows the course content, a code editor with a PyCharm interface, and a terminal window displaying a command-line session.

```
mosh@mosh-feghahmedani:~/PycharmProjects/HelloWorld$ python3 app.py
Enter your birth year: 1982
Traceback (most recent call last):
File "/Users/moshfeghahmedani/PycharmProjects/HelloWorld/app.py", line 20, in <module>
    age = 2020 - birth_year
TypeError: unsupported operand type(s) for -: 'int' and 'str'
```

About this course

Last updated: 2023-09-01 by moshfeghahmedani

Announcements Page

The Announcements Page displays a feed of recent updates from the system.

- Lecture Rescheduling (Sent by user 09/09/2023 at 10:00 AM PT)
- New Course for Beginners (Sent by user 09/09/2023 at 10:00 AM PT)
- Welcome! (Sent by user 09/09/2023 at 10:00 AM PT)
- Online Programming Party (Sent by user 09/09/2023 at 10:00 AM PT)
- Remote Robotics Competition (Sent by user 09/09/2023 at 10:00 AM PT)

# Usability Testing

Here is what a script looks like and the notes that are taken during the tests. These tests are much smaller than what I typically do at large firms. I'm facilitating the entire thing, so I have to do very abbreviated versions of what I do on large scale enterprise projects.

I wrote a script to keep track of the usability testing and made a testing matrix so we can quantify qualitative feedback from UX Testing. So far we have tested 2 teachers, so we will test 3 more, and then 5 each of the Super Admin, Admin, and student roles. 5 usability tests provides 80% of the information you need and anything more is a loss of return on investment.

## Interview Questions

1. Have you done something like this before?
2. Let me explain a little bit about what we're up to.
  - a. When we've been developing some new designs and new ideas, it's really valuable to get some fresh eyes and a fresh perspective on it, so that's how I need your help. I'd like to spend some time chatting with you about some stuff, it's pretty casual, and then I'll show you some different designs and ideas. I'll ask you a lot of questions, but I don't want it to feel like I'm testing you. I'm trying to figure out if these designs work, if they make sense, so I'm testing the designs. I'll show it to you and I'll ask you to think aloud as you're looking at these, so I'm trying to see it through fresh eyes, through your eyes.
3. So maybe for starters, can you tell me a little bit about the work you do?
  - a. What does that involve?
  - b. Do you work remotely, kind of a hybrid, always in the office?
4. What I want to show you is a prototype of an app. What that means is, some things will work, some things may not work, but we'll just kind of try it and there is no way to break it or anything. I just wanted to make sure to bring up again that I'm just testing the prototype and I'm not testing you. I'm going to be asking you questions, but there's not a right or wrong answer. As we do that if you think aloud, it really helps me see how the design is working.
5. Just start asking questions of how they would do certain tasks as they go, but don't tell them how to do things.
6. Thank them at the end.

## Karen Interview 2/16/2022 @ 7:15 AM

- Teach 1-6 grade Computer Science
- She doesn't give grades so the grades graph on the teacher landing page isn't useful
- Likes the grid view of Google Slides
- She doesn't like the pictures on the courses page
- "This is so good!"
- Teacher could input their grades
- Wants the ability to put comments on their projects inside the LMS (but she doesn't currently do this)
- This would work well with older students
- With younger students it's paper and pencil
- They can give a young child access to a video to watch, but they wouldn't use the platform
- Teachers will need to go to each lesson in the "student mode" as a teacher

## Will Interview 2/15/2022 @ 7 AM

- Teaches Computer Science
  - Programming and Design thinking 9-12
- For the most part fully in person
- Use Canvas - does the grading and puts documents all in Canvas
  - This is accessory
  - Copies stuff in Excel
  - Has bulk importing
- He designs all of the course work himself for most of the classes
- For AP, he just uses their lessons
- Dashboard
  - Daily participation - curious how it's tracked
  - Overall Right Wrong
    - Doesn't like the naming of this
    - "Overall Distribution" is better
- Roles
  - Progress bar may not be useful
- Courses
  - He's going to create courses
- Gradebook
  - Doesn't make sense to have his name there
  - Names his projects and lessons long names, so they may not show up very well
- Mentioned Due Dates
- Toggle Publish on and off
  - Publish individual sections
  - Publish large sections
- Student Page
  - Student results separated out to show that they aren't failing
  - Place these in a separate course (Todd - can't remember what that means)
- Student Course page
  - Looks good
- Didn't think he's the target end user

# Design Closing Comments

This is a very exciting side project to be working on because I'm getting a chance to work the entire project. I have worked several projects in the past from concept to living product and enjoy it! I also enjoy working with a team and more focused on specific sections, but it is nice to have the entire overview.

The image displays four screenshots of the HER Academy software interface:

- Top Left:** A lesson creation screen titled "Lesson". It shows fields for "Title" (Intro to Parabolic Motion in relation to celestial bodies, gases, vacuums, and spectral matter), "Learning outcome" (Mathematics), "Level" (Beginner), and "Prerequisites" (CS101). It also includes sections for "Materials List" and "Project Requirements".
- Top Right:** A course management screen titled "Courses". It lists various courses such as "Course 4: Math for Programmers", "Module 1: Polynomials", and "Module 2: Functions". Each module has a status indicator (e.g., COMPLETE, IN PROGRESS, NOT STARTED) and a grid of student progress for individual lessons.
- Bottom Left:** A user management screen titled "Users". It shows a list of users grouped by organization, with search and filter options for "Search Organizations", "Search Admins", "Search Groups", and "Search Students".
- Bottom Right:** A dashboard screen titled "Dashboard". It features a bar chart titled "Top 5 Lessons" showing access counts for CS101, MATH346, ENGINEERING102, LINEAR MATH346, and CS301. Below the chart is a legend for organization colors: OSU (blue), Stem Academy (orange), Columbus City Schools (green), and New Albany (red).