

Our Process, Timeline, and Story

### Meet the team!



**Jimmy Rojas** Industrial Design



**Erika Williams**Graphic Design, UX Design
Minor



**Laura Lopez Andreu**User Experience Design

### Our Roles and Responsibilities



**Jimmy Rojas**UX Engineer



**Erika Williams** Visual & UI Designer



Laura Lopez Andreu
Visual & UI Designer

Topic of interest

# LACK OF ENGAGEMENT IN THE ONLINE CLASSROOM

## TABLE OF CONTENTS

### **DISCOVERY**

- Project Scope
- Design Process
- Schedule

2

### **DEFINE**

- Defining Problem
- Research
- Personas
- Journey Map
- HMW?

### 3 IDEATE

- Concept
- Storyboard
- Wireframing

### 4 REFLECT

- First Prototype
- Second Prototype
- Testing
- Refinement

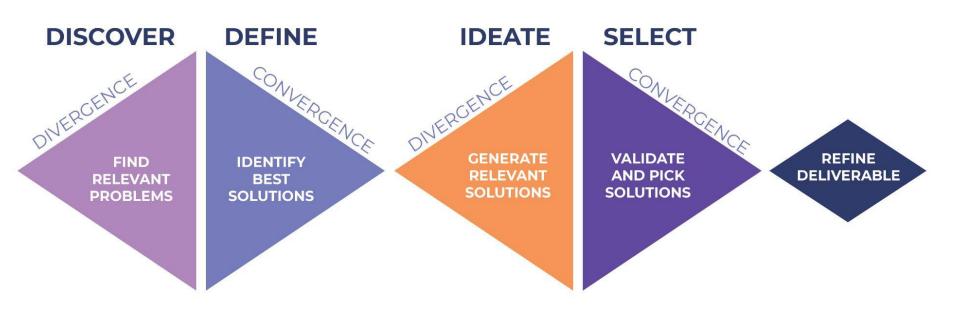
### 5 BUILD

- Final Prototype
- Final Deliverables

## PROJECT SCOPE

Over the course of ten weeks we were asked to design a UI that addresses an issue that we identified in current remote learning.. This course focuses on the core principles of human/computer interaction. This project was aimed at giving us a better understanding of the design process in computer based, user centered systems. We had full freedom to define, design, and develop any concept we could imagine.

## DESIGN PROCESS



### **TIMELINE**

1 Defining our problem

We started off by defining our problem, we needed to identify what we were going to adress, research, and design a solution for.

### Affinitization

After collecting all of our research we began affinitizing the data in order to extract important insights about our user and their struggles with online learning and engagment.

### **Secondary Research**

After we defined our problem we did secondary research about ADHD/ADD, attention span, online learning engagement, and many more topics.

2

Target Audience

Based on our secondary research we identified our target audience as being college students with ADHD/ADD.

Concept/Ideation

After gaing a strong understanding of our user we began creating different concepts that could help our user with their online learning experience

6

7 Developing

We began developing our concept Mira. We went through low fidelity and high difelity wireframing, prototyping, and mock-ups in order to prepare our product for testing.

### **Primary Research**

We then we into an extensive primary research proccess including interviews, diary kits, surveys, and more.

4

### Evaluation

We went through evaluation throughout our development stage. We focused on evaluation for functionality and usability in our first evaluation.

8

9 User Testing

We went directly into user testing in order to see if our product was meeting the needs of our users. We asked them questions and got great feedback on Mira.

17 Final Presentation

We presented our work to our peers and professor and recieved final feedback.

### Refinement 10

Based on our evaluation and user testing we went and refined mira so that we ensured that it was meeting the needs our users identified. Ψ

User Testing

We went back to our users and tested our product again, this second time we had all positive feedback in terms of functionality and usability.

**Final Deliverables** 

Since our product was successful we prepared our final devliverables to share with the class.

12

# DEFINING OUR PROBLEM

### **Problem Space**

Currently there are limited technological tools to support students who struggle with ADHD/ADD in remote studying.

#### **Problem Statement**

Due to current circumstances students have been forced into remote studying and this has led to students to not retain enough information and lowered the amount of engagement and participation in classes which has led to a lower quality of education for students. Since the start of online learning students have felt very unmotivated towards their learning and this has especially affected students with ADHD and ADD and their overall engagement and motivation.

# DEFINING OUR PROBLEM

### What does our solution needs to do?

It needs to understand what students with ADHD struggle with most and provide them with a product that helps them in the online learning environment. Design a solution that addresses the improvement of engagement through coaching and motivation.

### **Our Approach:**

During our whole process User centered design was the main driver, that is why user research played a big role on our design process. Students have had a hard time during online learning, experiencing short attention span and difficulty to concentrate, it is even worst for students with ADHD and ADD and that is why we chose them as our target audience. We approached this problem with empathy and a drive to help these students with their learning.

# RESEARCH PROCESS

## OUR RESEARCH GOALS

- Gain a better understanding of our problem and how it impacts different stakeholders
- Better understanding about what students with ADHD/ADD feel and experience with online learning
- Build an understanding of what works well for people with ADHD/ADD
- 4. Build an understanding of how to properly engage students with ADHD/ADD
- 5. Determine the the ideal experience of online learning for students with ADHD/ADD

## PRIMARY RESEARCH PROCESS

**Research articles** 

**Case studies** 

**Journals** 

**News articles** 

**Textbooks** 

With all our research we gathered data from



Key Findings.

"People are motivated by progress, mastery, and control"

"People are social creatures" and can be motivated by each other Key Findings.

## "Most productive people practice time management strategies everyday"

## PRIMARY RESEARCH PROCESS

With all our research methods we gathered data from a total of

109 people

**General survey** 

**User survey** 

**User interviews** 

**Diary kits** 

**Observations** 

Affinitizing our data

Purpose: to gain insight on student behaviors relating to engagement and focus in the online learning environment



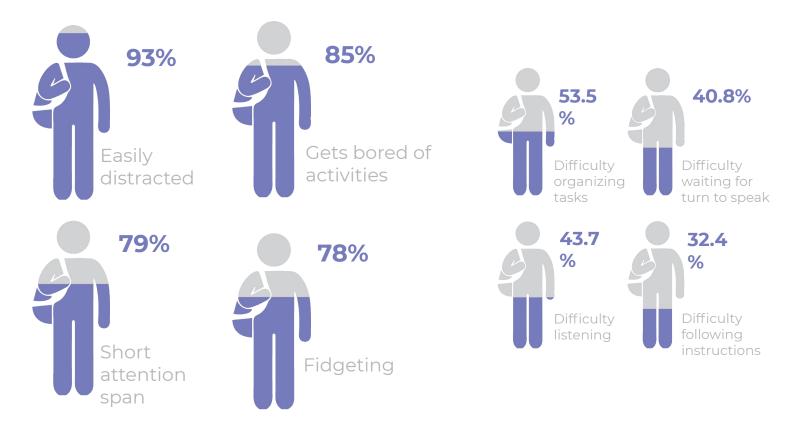
# GENERAL SURVFY

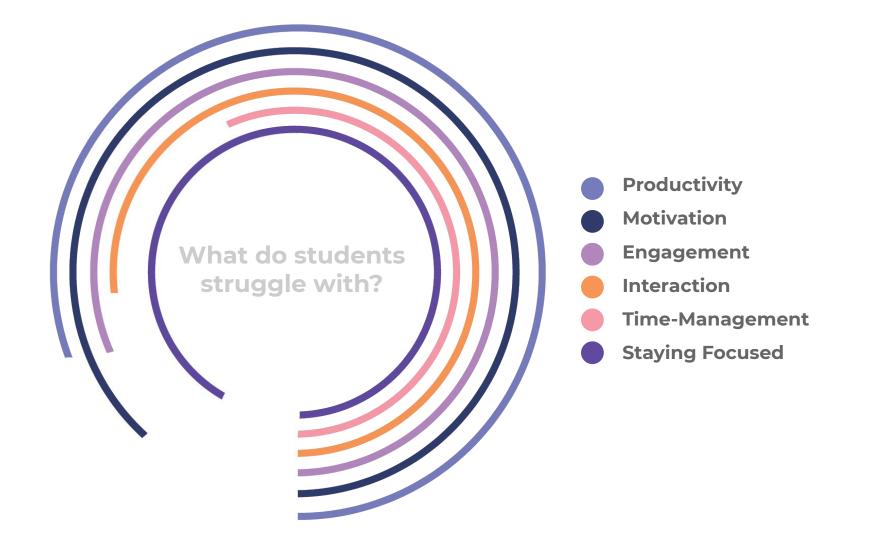


28% are diagnosed with ADHD or ADD

# are not diagnosed with ADHD or ADD

### As a result to online learning....





How do you feel as though your time-management skills have been impacted during online classes vs. during on ground classes?

## MAJORITY OF STUDENTS SAID THEIR TIME MANAGEMENT SKILLS HAVE WORSENED SINCE STARTING ONLINE CLASSES

Do you get distracted by your phone during class?

### ALMOST ALL STUDENTS SAID THEY DO GET DISTRACTED BY THEIR PHONE DURING CLASS.

Answers to "why?" varied from because it is fun to because they can and no one can tell them otherwise.

Purpose: to gain insight on student, with ADHD or ADD behaviors relating to engagement and focus in the online learning environment



## ADHD SURVEY



# 23 out 26

participants take medication for their ADHD to help them focus in school

## Majority of people get accommodations from their universities.

### Students with ADHD ....

When asked how they felt in class most students said they were distracted, bored, anxious and struggle to engage.

Many students told us that they like to fidget, play with things or doodle in class because they struggle to focus on one thing at a time.

Most students with ADHD said that gamified class activities would help them engage more.

## Every single one of our participants struggles with time management.



# INTERVIEWS



9 Students with ADHD1 Special Ed Teacher and Parent

insight.

We created a screener and a discussion guide

to better understand the average student with

ADHD. We also asked a professional about what

she has observed over the years in her students

and children with ADHD to get a better overall

### **INTERVIEW PREP**

#### Screener

We developed a screener in order to carefully select the right participants for our study

#### **Discussion Guides**

We developed two discussion guides for our interviews, one for students with ADHD/ADD one for teachers. We ensured we had questions that were related to all of the areas we wanted to gain more insight into such as gamification, time-management, engagement, motivation, and more.

### **Interviews**

Students feel engaged in a positive environment where others participate.

Having all of the information I need to manage time in one place would be very helpful.

A more authoritative teacher supervising students would improve engagement.

# **STUDENT INSIGHTS**

### **Interviews**

Students turn off their camera because they feel vulnerable but this contributes to disengagement because it gives them freedom to do what they want.

Online classes tempt students to go on their phones despite them knowing it is disrespectful and distracting.

Professors need to be approachable and understanding because students with ADHD need extra help, accommodations, and understood.

## STUDENT INSIGHTS

### **Interviews**

Communicating and socializing with peers at school is very important to for a student.

Helpful prompts from the teacher, such as tap on the shoulder or a reminder, is very useful for students with ADHD.

Helping a student and understanding their accommodations is very important because students with ADHD are capable of the same things they just need extra time.

Visuals are very useful to help students with ADHD stay engaged.

# **TEACHER INSIGHTS**

# 6 Participants

§18-21

We conducted a set of diary kits to six different students with ADHD, we used this to document their daily experience in an online class, get in depth empathy from our user from their thoughts and feelings.

We also conducted one in person observation, where we sat in a 2 hour lecture with a student with ADHD and observed their behavior and tendencies.

## DIARY KITS

### **Diary Kit**

We sent virtual kits to our participants and asked students to fill it out before and after class, to reduce in class distractions.

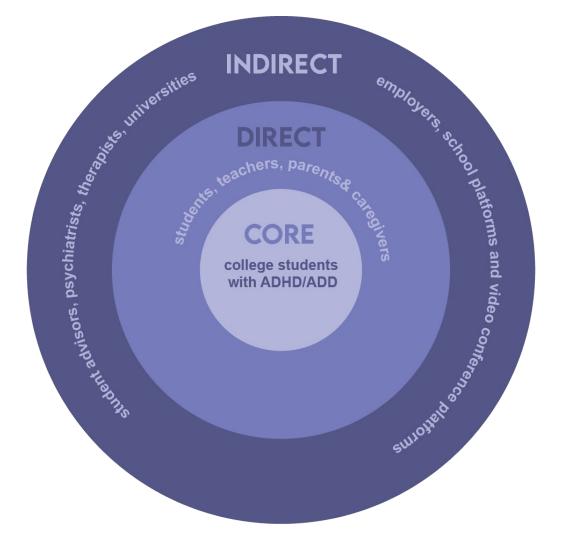
## Hello Justin!

Our team is doing a project in which we are trying to improve the online learning experience for students with ADHD/ADD! It would mean a lot for us if you could help us better understand what you experience in class!

Thank you so much for participating!

# STAKEHOLDER MAP

From our gathered data from the interviews, diaries, surveys and observations we created a map to identify the people affected by engagement in the online atmosphere.



# AFFINITIZATION

We used Miro to make all of our data points from our research and placed them into many sticky notes and affinitized as much as possible.





# MARKET RESEARCH















Children Pre-k to 12th grade

College students 17-23

Adults 24 onwards

Through our market research we found that multiple platforms were using gamification approaches to improve engagement and performance. Multiple platforms target students from pre k to 12th grade, focusing on young ages. Learning management systems bring gamification to the corporate world, focusing on adults. There is a gap between these two were college students with ADD/ADHD find themselves, this is our target audience.







SIMPLE.SMART.AFFORDABLE.

#### IXL LEARNING

#### **Main features**

Personalized learning plan, progress diagnostics, engaging gamified tests

#### **Limitations**

Pre-k to 12th grade audience

#### LEARNING MANAGEMENT SYSTEMS

#### **Main features**

Custom learning experience, Automated administrative processes,

Elements like badges, certifications, fun competitions, gifts are incorporated into the training to motivate employees to reach their goals

#### **Limitations**

Made for corporations Does not take into account learning difficulties



#### **Amazon ALEXA**

#### **Main features**

Voice control, home control, alarms timers, calendars, entertainment, news and information

#### **Limitations**

No tools for studying, no follow up on tasks



#### **Google assistant**

#### **Main features**

Voice control, home control. Task manager, alarms, timers, calendars, day planification, entertainment, information

#### **Limitations**

No tools for study or task follow up

# USER PERSONAS

After going through all of our data points, we followed by narrowing it down to nine different empathy maps and from our participant maps we found our user personas!

### target audience

# STUDENTS WITH ADHD/ADD AGES 17-23



#### **ABOUT**

Olivia is shy girl who would prefer to stay home than socialize. She is very passionate about graphic design, but her head is often occupied with thoughts about school and what her teachers think of her and her work. She struggles to engage in class due to her ADHD and this frustrates her because it leads to her not finishing her tasks on time.

"I need help with time management outside of class."

COLLEGE STUDENT ADHD
Age 21
Gender FEMALE

Class Ranking

#### **GOALS**

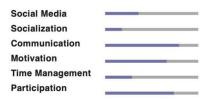
- Good grades
- Wants to understand and be understood by the teacher
- Needs to be supported
- Success
- Show their creativity
- Effectively time manage
- Finish tasks
- Engagement and staying focused

#### **FRUSTRATIONS**

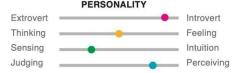
- Doesn't feel motivated
- Worries about grades
- Struggles with time management
- Doesn't always get tasks done time
- Scared teachers may think less of them
- Not paying attention

#### **USER BEHAVIORS**

- Negative perspective towards class
- Sits at a desk with her phone off during class
- · Participates more than other students

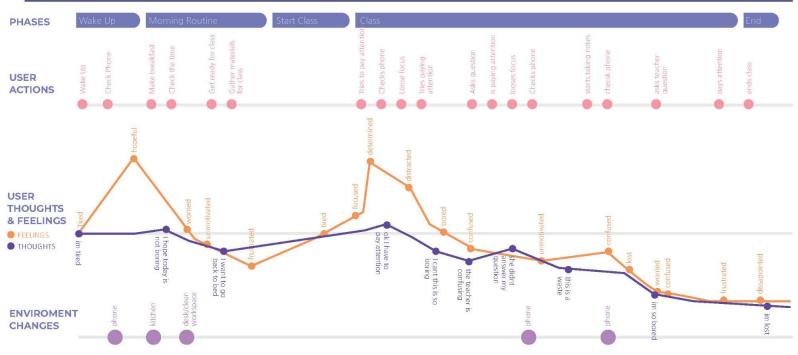


THIRD YEAR



#### **INTERESTS**





**BREAKDOWN** 

**OPPORTUNITIES** 

The emotions She looses her She feels stay pretty neutral

hoepfulness and becomes unmotivated

frustrated despite getting ready how could we Can we keep

It isn't all negative she gets bursts of determination emotions go unclear

Why does she How can we

little bit in

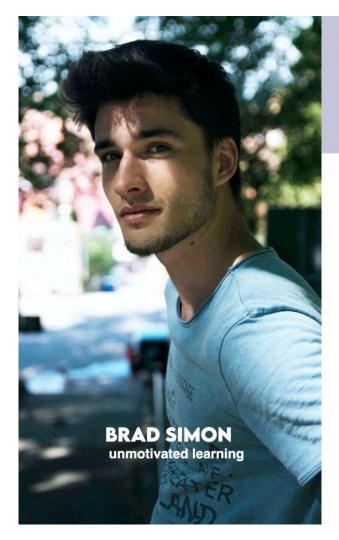
class her

downhill

Once she is a She wants to Her only engage but is change of confused and atmosphere is

her phone

There becomes a point where it seems like her feelings keep getting worse as time goes on?



#### **ABOUT**

Brad struggles with online school because he sees no motivation due to the learning transition and the pandemic. Due to his ADHD his grades are a little low and need to receive pressure from his teachers, he lacks in participation and time management skills. He needs to feel inspired from others and misses being able to communicate with others and build relationships.

"In an online class, I'm not paying attention and I feel unmotivated so why not get comfy in bed during class."

COLLEGE STUDENT ADHD
Age 18
Gender MALE

Class Ranking

#### **GOALS**

- Getting good grades
- Connecting with classmates
- Making new friends
- · Feeling comfortable in class
- Receiving pressure from teacher
- Peer participation

#### **FRUSTRATIONS**

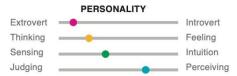
- Feeling unmotivated in class
- Feeling incapable of participating
- Getting distracted
- Struggles with time management

#### **USER BEHAVIORS**

- Leaves things for last minute
- Little to no participation during class
- Participates in breakout rooms
- Uses phone in class
- Sometimes sits in bed for class

Social Media
Socialization
Communication
Motivation
Time Management
Participation

FIRST YEAR







BREAKDOWN

before class he seems pretty neutral and his emotions are stable

**OPPORTUNITIES** 

the user positive emotions when motivated

there is no

support from

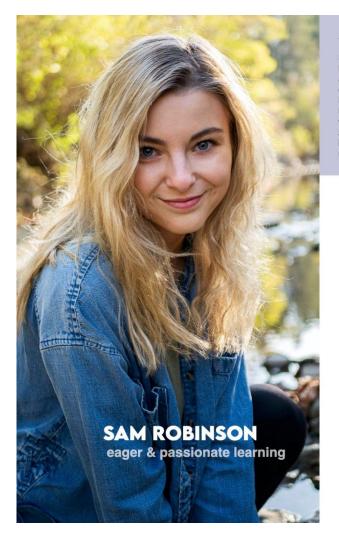
the class

user is being She wants to positive unclear

experiences let down when engage but is emotions start talking to peers

when their when they started atmosphere confused and occuring when changed this is they became more when they engaegd started getting

interacting with others



#### **ABOUT**

Sam is a student who struggle ADHD and take her medication before class to be able to focus as much as possible. Wants to enjoy her class environment but the most important thing to her is achieving good grades. What truly motivates her to try her best is her future and success as well as her parents. She gets frustrated when she zones out and does not retain enough information but will always ask questions to make sure she is understanding.

"I zone out a little bit and when I come back to reality I get a little bit nervous because I feel like I did not retain the information."

COLLEGE STUDENT ADHD

Age 20 Gender FEMALE

Class Ranking SECOND YEAR

#### GOALS

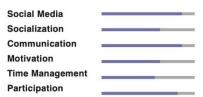
- Wants to have fun
- Wants to build a good future
- Getting good grades
- Wants to understand their classes
- Needs hands-on interaction with classmates and teachers

#### **FRUSTRATIONS**

- Struggles to stay focused in classes
- Does not feel classes are fun
- Not retaining as much information
- Distracted for long periods of time

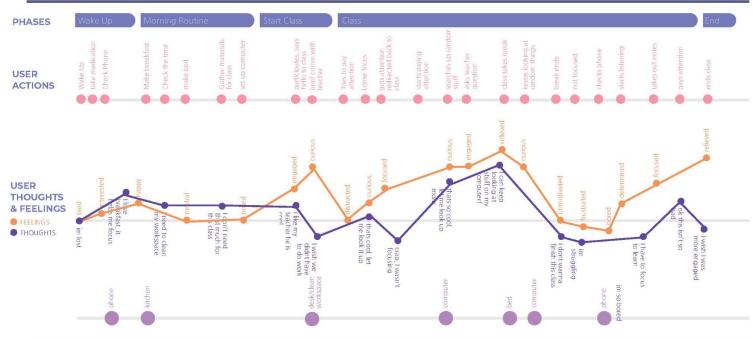
#### **USER BEHAVIORS**

- Works at a desk during classes, avoids bed
- Clean and organized environment that supports learning
- Participates a lot in classes
- Checks phone in class but it doesn't distract her









**BREAKDOWN** 

with a motivated mindset

her organize

in the

point of morning, helps organizing her seems to be curious space

personal connection

she starts off — she gets ready — she makes a — when she has this one— when she notices she is on one interaction she distracted she gets frustrated but some distractions give her positive emotions

When she can engage online and search related topics up it helps

in this case her break cause a break of flow and her emotions

her emotions are positive and happy but her narrative in her head is negative

# HOW MIGHT WE?

#### HMW?

How might we create helpful distractions within the learning environment?

How might we foster deeper connections between students?

How might we guide students through their tasks?

How might we adapt the online environment to be more of a physical environment?

How might we replace lectures with other learning?

How might we foster a positive learning environment through participation?

How might we make students comfortable with participating in class?

How might we use phones to engage students in class?

How might we use incentives to improve in class engagement?

How might we make students comfortable to be seen in class?

How might we make class feel like hanging out with friends?

# STORYBOARD & CONCEPT

We developed two concepts based on research and our ideation based on what solutions our problems needed.

# How might we create helpful distractions within the learning environment?

## Mira!



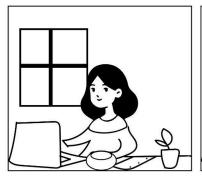
#### What It is:

Small help buddy for desk that user customizes to assist with tasks regarding time management, focus, attention span, reminders, prioritizing, motivation.

Lights up and has a voice assistant to remind you of tasks. Connected to a mobile app so you can make it your own!

#### How it helps our user:

Helps with scheduling and time management Helps with reminders Helps with useful distractions that redirect attention Helps with motivation



Olivia starts class feeling somewhat When class begins, she starts zoning As her class goes on she worries that Suddenly she sees a bright light, it is motivated



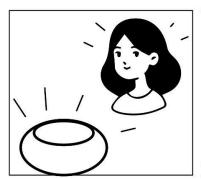
out without realizing



she has been too distracted and cannot focus



her MIRA!



Her MIRA continues to redirect her attention every 20 minutes



Every time she is reminded to pay attention she begins to feel less worried she is not paying attention



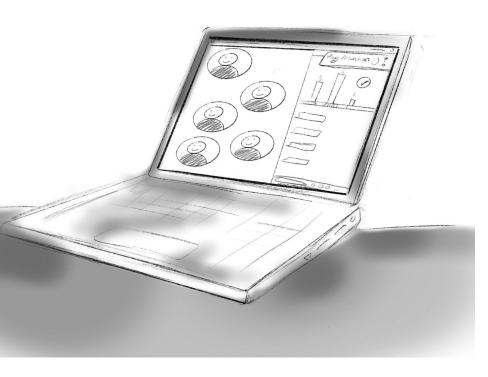
After class her MIRA begins to share her to-do and reminders with her



Olivia feels less stressed more motivated and is able to identify when she zones out better!

How might we make students more comfortable being seen and participating in class?

## Unspotted



#### What it is:

Multi-purpose platform in which each user has a virtual avatar that is their online persona, the platform has a visual reminder system within the platform and gamified activities for both teacher and student use.

#### How it helps our user:

Comfortable in online environment by not showing their faces directly

Helps teachers to engage and check on students Helps students be more focused and engaged in online classes

Assists with time management

### CRITERIA AND CONCEPT

We then went through a ranking process to determine which concept of ours meets the users needs the most. We ranked on a scale of 1-10 for 6 different categories.

# RELEVANCE

Mira!

10/10

**Unspotted** 

## **SOLVES PAIN POINTS**

Mira!

9/10

**Unspotted** 

# IMPROVEMENT BEYOND USE

Mira!

9/10

**Unspotted** 

## MOTIVATION

Mira!

8/10

**Unspotted** 

# **ENVIRONMENT**

Mira!

9/10

**Unspotted** 

# INNOVATIVE

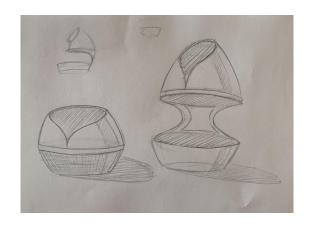
Mira!

8/10

**Unspotted** 

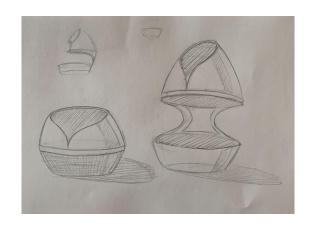
## **DEFINING**

Then, finally, we go to the designing phase. We outlines MIRA's functions and began wireframing, prototyping and evaluating.



#### PHYSICAL PROPERTY

We have the focus triggers with visual and auditory notifications, it also has voice assistant. It has a phone charging dock to reduce phone usage and keep track of phone usage and engagement.

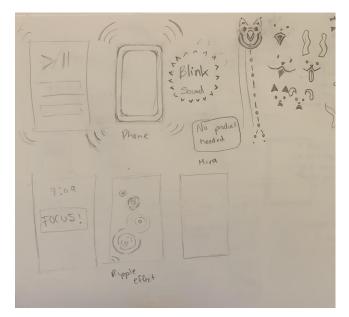


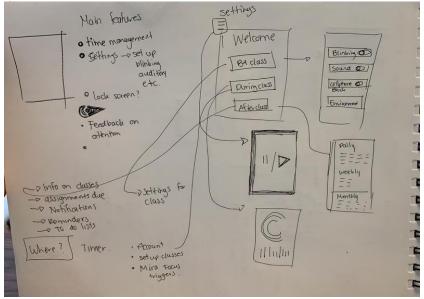
#### PHYSICAL PROPERTY

The technology connects through Wifi to your computer to use it's camera for eye tracking in combination with machine learning that helps the app build accurate statistics about your learning habits. This information is used to help customize your app and give you the best course suggestions based on your learning.

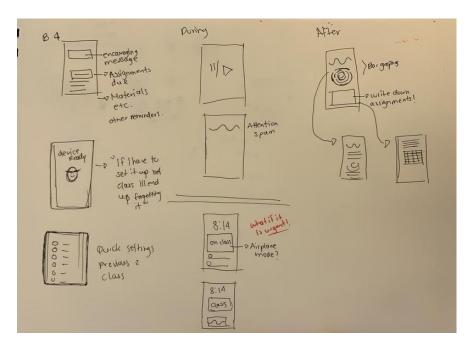
# WIRE-FRAMING

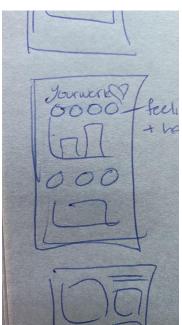
### **LOW-FIDELITY**

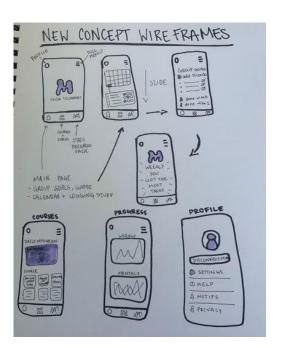




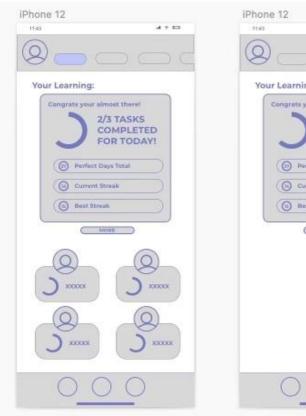
# **LOW-FIDELITY**





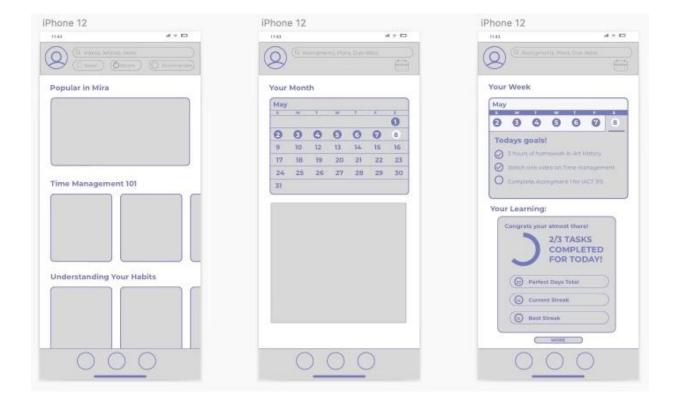


# **MID-FIDELITY**

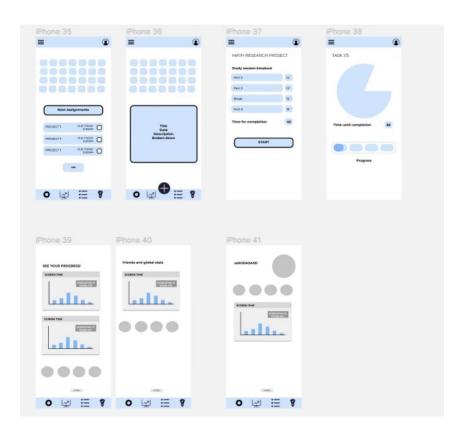




# **MID-FIDELITY**

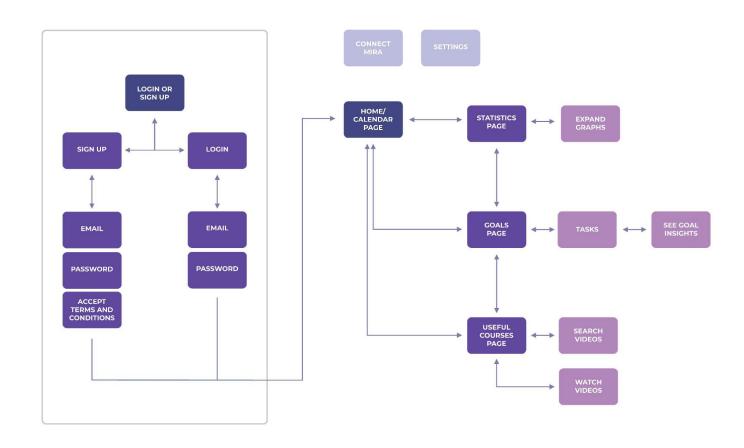


# **MID-FIDELITY**

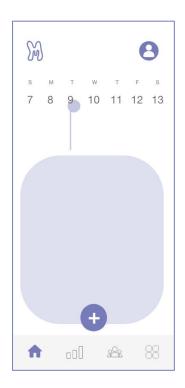


# FIRST PROTOTYPES

# **WIRE FLOWS**



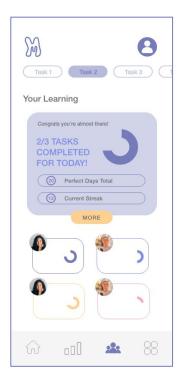
# PROTOTYPES FOR EVALUATION

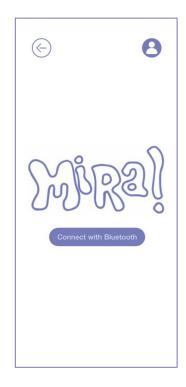






# PROTOTYPES FOR EVALUATION



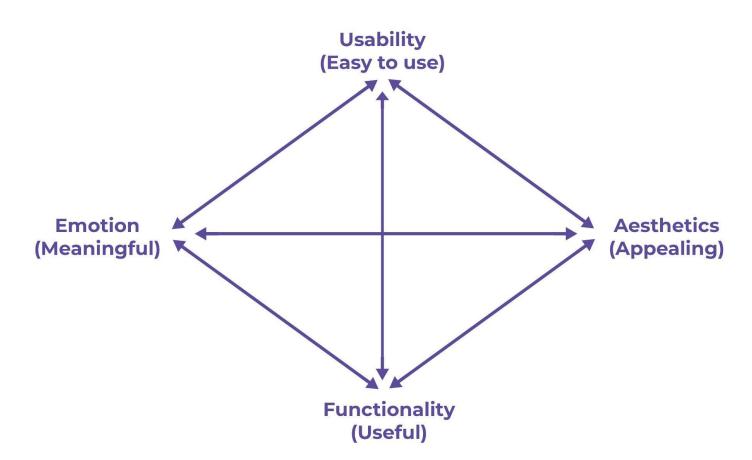






# EVALUATING

# **EVALUATION GOALS**



# EVALUATION METHODS

Hybrid of Rigorous and Rapid Evaluations

users

- User Testing
- 2. Walkthroughs
- 3. Focus Group Interview
- 4. Questionnaire

## **SYSTEM USABILITY SCALE (SUS)**

1.	I think that I would like to use this system frequently	4
2.	I found the system unnecessarily complex	.1
3.	I thought the system was easy to use	.5
4.	I think that I would need the support of a technical person to be able to use this system	1
5.	I found the various functions in this system were well integrated	5
6.	I thought there was too much inconsistency in this system	5
7.	I would imagine that most people would learn to use this system very quickly	4.25
8.	I found the system very cumbersome to use	1
9.	I felt very confident using the system	.4.75
10.	I need to learn a lot of things before I could get going with this system	1

# FINDINGS

All of our users like the competitive aspect the most because it increases

motivation.

would use the most is the calendar and to do lists.

Most of our users said that what they

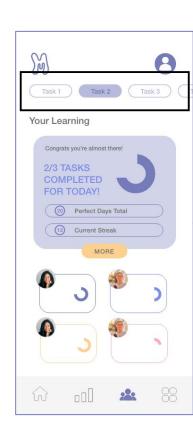
## **Finding**

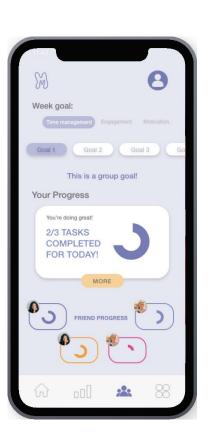
The difference between "goal" and "task" is unclear

#### Solution

Use language that clearly communicates the difference

Change the local menu at the top to be more clearly organized



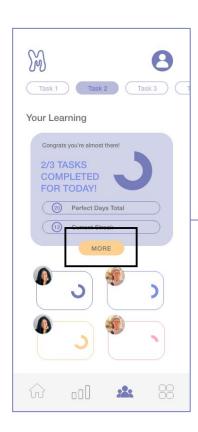


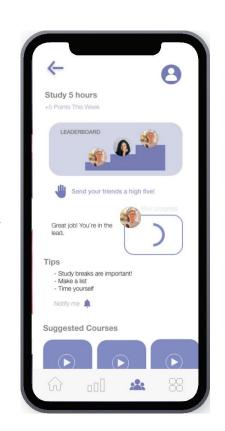
## **Finding**

The "more" button on the current goals page is confusing, users didn't understand where this would take them

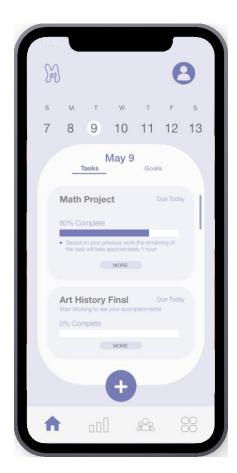
#### **Solutions**

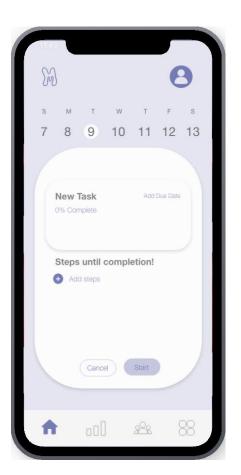
Add "more" button and page to allow the user to see "goal" in depth.





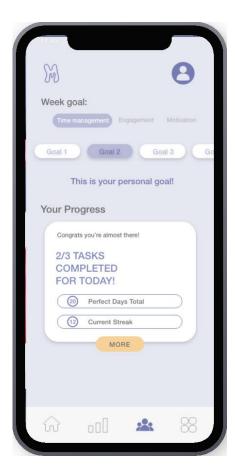
# SECOND PROTOTYPES

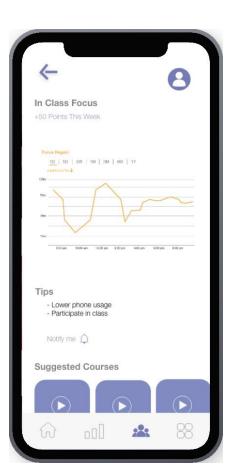








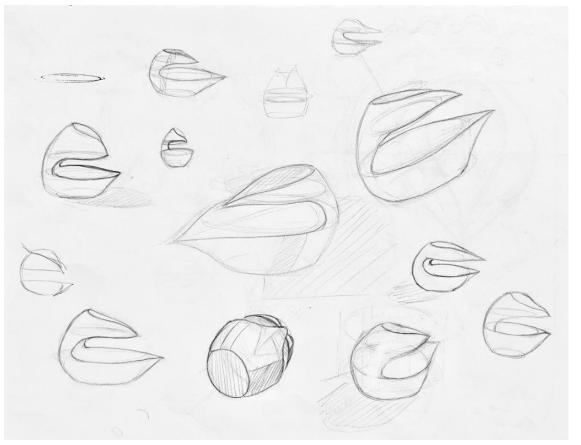








## Physical product design...



## Physical product design...



# SECOND ROUND OF TESTING



### Prototype tested...



# EVALUATION METHODS

- User Testing
- 2. Walkthroughs
- 3. Questionnaire

Rapid Evaluations



## We repeated the same testing process

#### **Positive feedback**

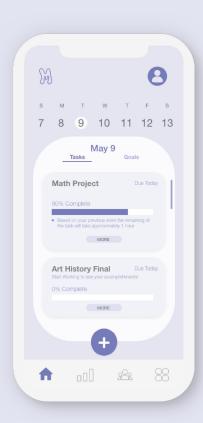
Nice visuals
Visually appealing
Easy to use
Functional
User found it valuable
Group goals stood out to the users

#### **Improvements**

Small visual improvements Hierarchy can be more notable Graphs look too formal

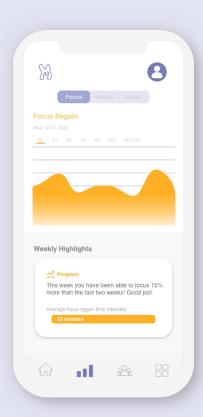
# FINAL





#### **CALENDAR FEATURE**

Our calendar feature acts as a time management tool but allows the user to view progress on their tasks and provides an overview of each day.



#### **PROGRESS FEATURE**

Uses statistics to provide motivation through showing the progress on three main topics that Mira is able to track: focus (engagement), in class phone usage, and hours they have spent studying.



#### **PROGRESS FEATURE**

We provide weekly feedback and the user can view their progress within different time frames.



#### **GOALS FEATURE**

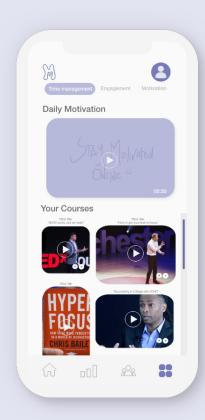
This is our main feature for motivation to improve students success.



#### **GOALS FEATURE**

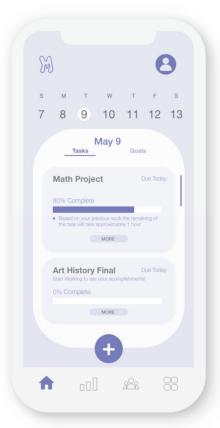
We have created a "group goal" system that allows the user to create goals such as "participate in class" and incorporated the friendly competitive aspect so users can be encouraged by not just themselves but by their peers as well.

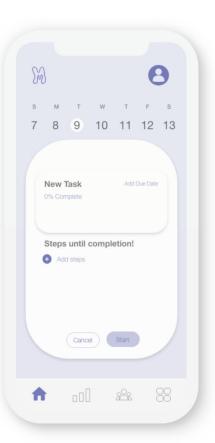
#### Features



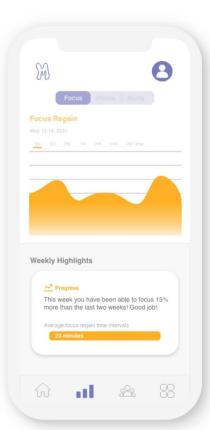
## **COURSES FEATURE**

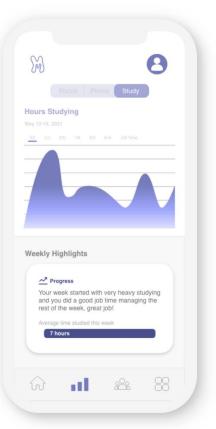
Lastly, we added a page for helpful courses. From our research we found that many users would find courses personalized to their habits to be very useful. So here the user would be able to access personalized videos to aid them.

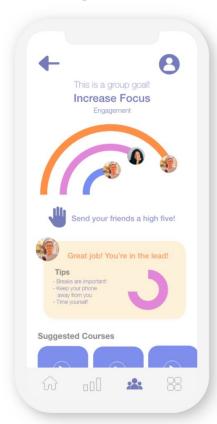




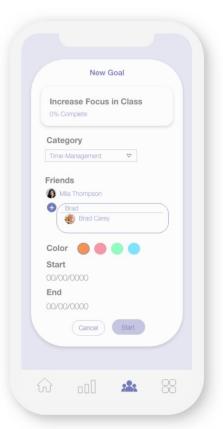


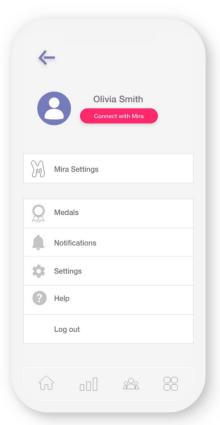


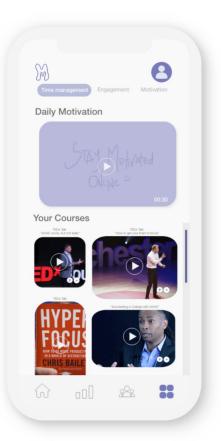




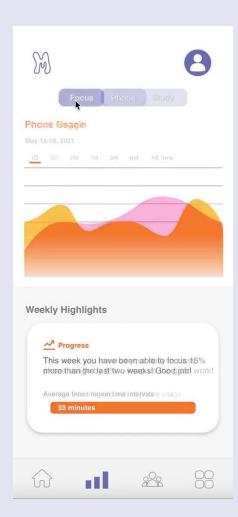






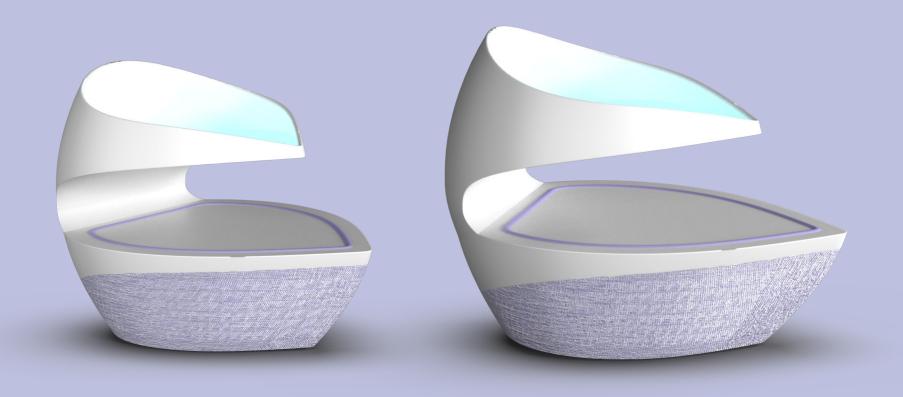


# Features



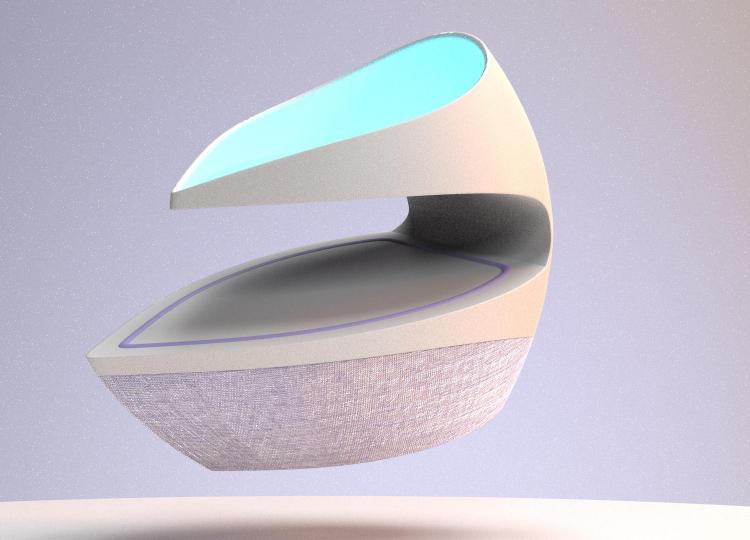
# **APP WALKTHROUGH**

# Physical product design...



# Physical product design... eccec Coccec

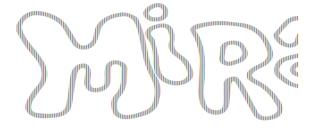




# **Design Choices**

For our visuals we wanted to create something playful and easy to look at.

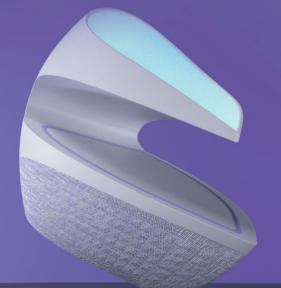
Our color scheme focuses on the main purple color but incorporates other pops of color to create an engaging interface. We used very organic shapes in order to make something that didn't look too analytical.



# MiRal

IMPROVE . MOTIVATE . TEACH













#### Final Deliverables





#### Calendar

Our main time management tool used to add and track all your tasks.

#### Statistics

Motivation tool to keep you motivated by seeing your progress!

#### Goals

Motivation tool that allows you to compete with your friends to reach new goals!

#### **Userful Courses**

Teaching tool that gives you the best courses and resources to improve your learning habits!

Laura · Jimmy · Erika

### Final Deliverables



#### The problem

Current circumstances have forced students into remote studying, resulting in a lower quality of education as students are retaining less information, engaging less and feel unmotivated. Students with ADD/ADHD are the most affected

#### **Target audience**

Students with ADD/ADHD. These are the most affected during online learning as they struggle more with remaining focused in class and in their tasks. Solving their pain points would also improve normal students' experience.

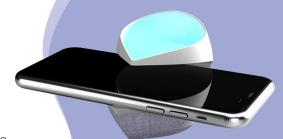
#### **How Might We?**

How might we create helpful distractions within the learning environment?

How might we provide ADHD students with the right habit building tools to overcome the challenges brought by online learning?

#### The Solution

Provide the right habit building tools so that students can continuously improve their time management and focus skills, motivating them for their online classes



MIra is a training tool that improves user's motivation time management and focus skills inside and outside of the classroom

# **Study Buddy**

Mira´s study buddy is a training tool to help users stay focused during class through visual and auditory stimulus.

# App's Key functions

#### Calendar

Improves time management by keeping track and breaking up tasks

#### **Statistics**

Keep track of your progress through data collected by Mira. Stay motivated as you go

#### Goals

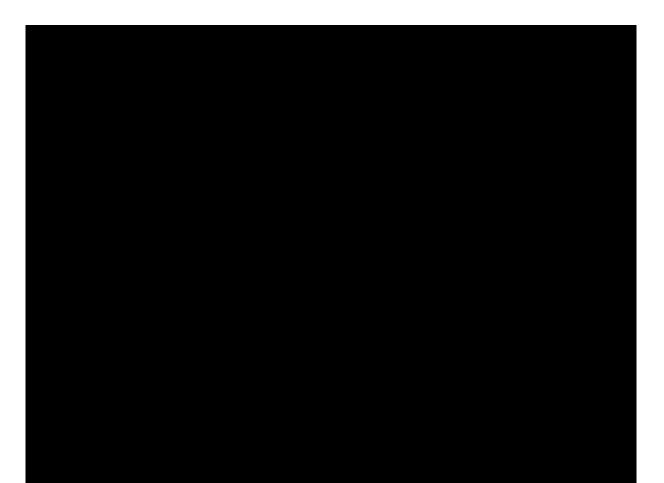
Motivation tool that allows you to compete with friends through individual and collective goals

#### **Useful courses**

Learn from the best content available through a curated library to improve your learning habits



# Final Deliverables



# THANKYOU