POV, HMW, Experience Prototypes

CS147: Assignment #2

Matthew Mattei, Alison Rogers, Justin Blumencranz, Monica Hicks

The Glue Crew

Matthew Mattei
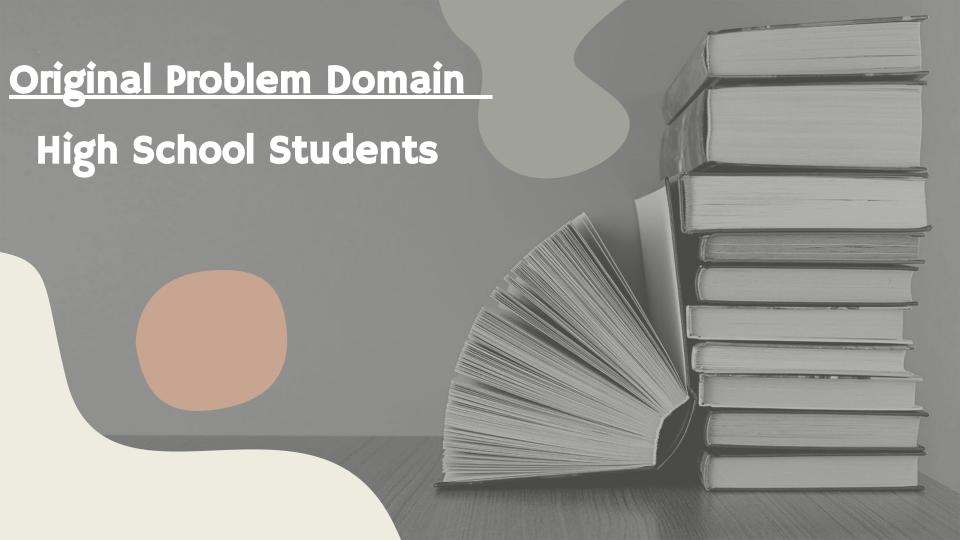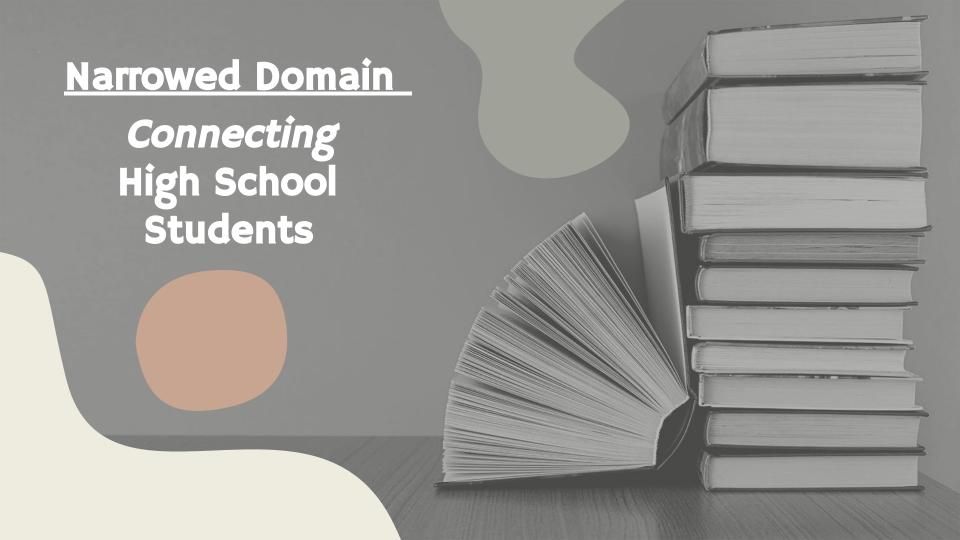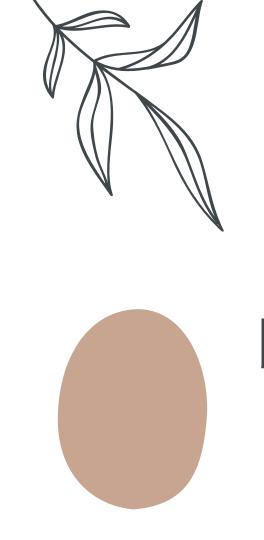
Alison Rogers

Justin Blumencranz

Monica Hicks

Original Problem Domain

High School Students

Narrowed Domain
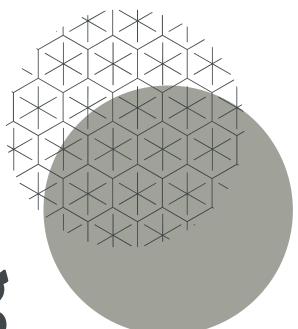
Connecting High School Students

01

Additional Needfinding

Ryder

Type: High School Sophomore

Location: His house in Menlo Park

Interviewer: Monica

Reason for Selection: Local high school athlete who is just beginning to seriously think about college.

 Key Findings:

❏ A – Takes group notes simultaneously in a shared Google Doc with three friends. Ensures note quality and gives them room to have a "bad day" in class.
❏ B – His middle school had a college counselor, and he was able to meet with them and ensure he was on track with college aspirations as early as 6th grade.
❏ C – Was peer–pressured into taking harder classes this year and rearranged his schedule after the first week of term.

Sue

Type: Education Admissions Consultant

Location: Zoom

Interviewers: Alison

Reason for Selection: Has worked in admissions and college counseling; deep empathy & understanding of college prep and crafting college applications; FLI.

Key Findings:

❏ "There's a lot higher stakes earlier on."

❏ Admissions offices don't see FLI applications as impressive compared to non–FLI applications because FLI applications aren't as "packaged and shiny."

❏ "I think it takes a lot of level of maturity to want to be intellectually engaged"
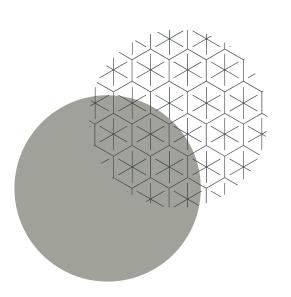
Key Learnings

Ryder:
- Despite having access to college counselors as early as 11, students can be left scrambling at 15 to enroll in appropriate classes and make progress towards their academic goals.
- Despite having access to slideshows and teacher notes, students prefer to work jointly on note taking to ensure quality and pool their collective knowledge.
- Peers can serve as the best source of academic benchmarking and goal setting for students uncertain of their academic aspirations.

Sue:
- Schools and teachers are not deeply engaged with children's different needs, especially around disabilities
- College admissions offices do not understand the stories behind FLI students and the work that their applications are evidence of
- Kids are less engaged with their education because of AI, and it can disproportionately benefit already privileged students

02
POVs, HMWs

Initial POV

We met	Jerry, a diving Paly high schooler committed to College.
We were surprised to learn	that, despite falling out love with diving, he does it for 2.5 hours each day, except weekends.
We wonder if this means	that he's afraid of losing opportunities.
It would be game-changing to	offer more pressure-free opportunities to explore his future

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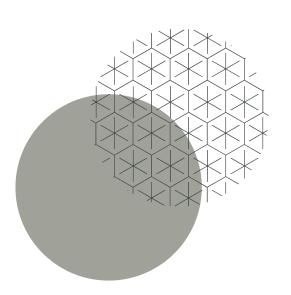|	
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phrasing not quite relevant

way too broad

There has to be a better focal point

02.1
POVs, HMWs

Revised Jerry POV

We met	Jerry, a Paly high school diver uncertain about his future at college.
We were surprised to note	that he dives 2.5 hours every weekday despite having lost his passion for the sport.
We wonder if this means	that he is afraid to explore new hobbies and activities if they came at the potential expense of existing skills.
It would be game-changing	for him to have low-commitment opportunities to shop new activities in a flexible manner.

Now we have a foundation for making incisive POVs

and we're finding some strong signal that *connecting to yourself and others* are threads worth pulling.

Sasha POV

We met	Sasha, a high schooler coaching volleyball obsessed with academic success.
We were surprised to notice	that she no longer plays volleyball, despite enjoying it, in favor of a coaching job that looks better on her college application.
We wonder if this means	she believes sacrificing her high school enjoyment is necessary for a secure future.
It would be game-changing to	convince Sasha that she can pursue her genuine passions <u>and</u> set herself up for success.

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Ryder POV

We met	Ryder, a high school student who combines digital group notes with friends to guarantee note quality.
We were surprised to notice	that he doesn't combine notes with other students in his hardest subject, math, where he prefers to write his notes on paper.
We wonder if	he distrusts the quality and accessibility of other students' notes when they aren't made collaboratively.
It would be game-changing to	enable Ryder to feel confident in his peers' notes, even when made independently, lessening his personal note-taking burden.

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Anwar POV

We met	Anwar, a Bay Area student trying to transfer out of a virtual high school that only cares about attendance.
We were surprised to notice	that his classes are so poorly timed that he has to hand write his schedule and set numerous alarms to make his classes.
We wonder if this means	he feels unsupported by his school's admin and solely responsible for his transfer's success.
It would be game-changing to	reduce his organizational burden to give him the confidence to focus his energy on schoolwork.

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03

Solutions

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Top Solution #1

Make a list of broad interests/areas of interest that generates actionable ideas/hobbies that could be relevant to college apps and acts like a bucket list of things to do.

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Top Solution #2

A platform for fostering deeper connections with your teachers so they can understand who you are and support you with more personalized recommendations, advocacy, and interactions.

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Top Solution #3

AI that goes through different students' handwritten notes and highlights the major factual differences between them.

04
Experience Prototypes

Prototype #1: Background

Solution:

Make a list of broad interests/areas of interest that generates actionable ideas/hobbies that could be relevant to college apps and acts like a bucket list of things to do.

Assumption:

Bucket lists are approachable and not overwhelming

Prototype #1: Procedure

Task:
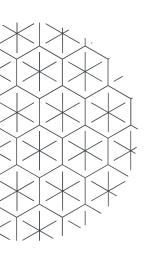
Present participants with a short **bucket list** of activities to do in the nearby area. Have participants complete as much of the bucket list as they want. Afterwards, ask:

–What did you feel when you **first saw the list**?
–What was **doing the tasks** like?
–[For any tasks they didn't do] What **prevented you** from doing that task?

Participants:

Anjali, a new college freshman, and Sam, a high school sophomore.

Recruitment: T&C (high school), asking for contacts (Stanford)

Prototype #1: Results

What Worked
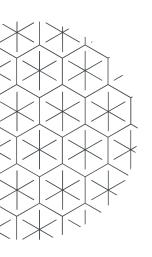
- Both participants **completed the whole list!**
- Checking off items gave people a **sense of accomplishment**

What Didn't Work

- **Too many items** can be daunting
- **Inadequate resources** can put people off

Learnings

- People tend to tackle **easier tasks first**
- The assumption was **validated,** so long as the list is **manageable**
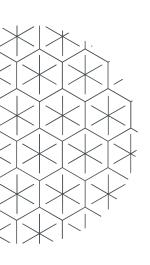
Prototype #2: Background

Solution:

A platform for fostering deeper connections with your teachers so they can understand who you are and support you with more personalized recommendations, advocacy, and interactions

Assumption:

Students are comfortable reaching out to teachers for more than transactional conversations.

Prototype #2: Procedure

Task:

Ask each participant to think of a teacher they'd like to have a more in-depth conversation with. Ask them to draft an email to that teacher. Then, ask:

–What did writing that email feel like?
–On a scale of 1–10, how comfortable did you feel writing that email?
–Would you feel more comfortable if someone else was making the ask for you?
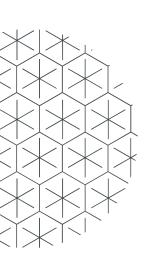
Participants:

Britney – a student looking for a coterm rec letter.
Joan – a high school student who had an underwhelming experience with a teacher.
Jack – a college freshman vaguely interested in research
Recruitment: T&C (high school), asking for contacts (Stanford)

Dear Professor ███████████

I thoroughly enjoyed your lecture on Tuesday, and I hope you are well.

I am reaching out to you to inquire about any available research positions for your study on ████████████████████████████ I am aware that you are the lead researcher for the groundbreaking study and I would love to work under you. I have always had a deep passion for █████████████████████████ Therefore, I truly believe this study is perfect for my skill sets. ███████████ t██ ████████████████████████████████
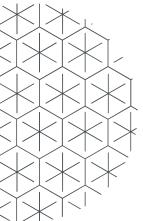
1. ████████████████████████████████████
2. ████████████████████████████████████

Again, I completely understand the nature of this email, so no worries if you are unable to offer me a position. However, I am happy to answer any questions you may have or go into more depth on my experience. Please feel free to reach out to me at ██████████ Thank you so much for your time and I look forward to seeing you in lecture soon.

Thanks,
████████████████

Prototype #2: Results

What Worked

- Students were willing to **write the email**
- Average **comfort** was rated as a **6.7/10**
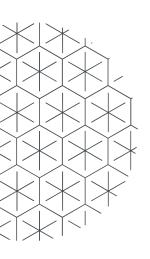
What Didn't Work

- Reaching out to **previous teachers** felt **"pointless"**
- Students were worried about **big asks**

Learnings

- Students want to **know someone** *wants* **to be contacted**
- Students like having **outside support**
- The assumption was **somewhat validated**

Prototype #3: Background

Solution:

AI that goes through different students' handwritten notes and highlights the major factual differences between them.

Assumption:

Students think it's worthwhile to cross-reference their notes with others to check for inconsistencies

Prototype #3: Procedure

Task:
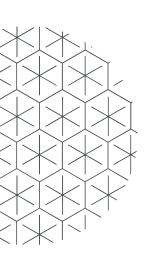
Dictate information for the participant to take notes with, knowing they will be quizzed. While they are reviewing their notes, ask them if they'd like to compare with other students' notes. After the quiz, ask:

–Why did you (not) take the notes?
–[If taken] Did the additional notes affect your answers?
–What were you thinking while taking your own notes?

Participants:

Mack, a college freshman who exclusively handwrites notes.
Recruited via reaching out to frosh for contacts.

- Sharks: cartilage → bones
  - lighter, more flexible

Octopus: neutralizing brains, own neurons, reactives

Bananas: radioactive isotopes, Potassium, radiation

Honey: Hydrogen Peroxide, Anti-bacteria

Wombat: cube shaped intestines
Humans: 98.8% chimpanzees' DNA 1.2% some profound differences language
Lightning: least resistance, easiest route, not always the tallest
Butterfly: solar powered, regulate body temperature, need warm up before can fly
Eiffel: Shrinks in cold weather
Unicorn: real in Europe medieval, believed to detect poison

Shark skeleton = cartilage (flexible, lightwt. → fast swimmers)
Bananas = radioactive (K-40, harmless)
Octopus arms = own neurons (semi-independent from brain)
Honey = anti-bacterial (glucose oxidase → H_2O_2)
  Wombat poop = cubes (intestinal elasticity → holds territory better)
Human DNA = 98.8% as chimps (1.2% → brain/ lang diff.) same

Lightning = least resistance (not tallest, easiest route)

Butterflies = solar-powered (need heat, ecto thermic)

Eiffel tower = shrinks in cold (iron contracts, ~6 inches)

Unicorn myth = narwhal tusks (medieval Europe, believed to detect poison)

Prototype #3: Results

What Worked
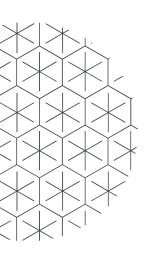
- The participant **took the notes**
- The notes **helped Mack** with information he didn't write down himself

What Didn't Work

- Mack **still missed some answers**
- Not everyone feels comfortable sharing notes

Learnings

- Students are **willing** to accept additional notes and find it **useful**
- The assumption was **validated overall**
- **Handwriting** is another concern for students

05

What's Next?

What's Next
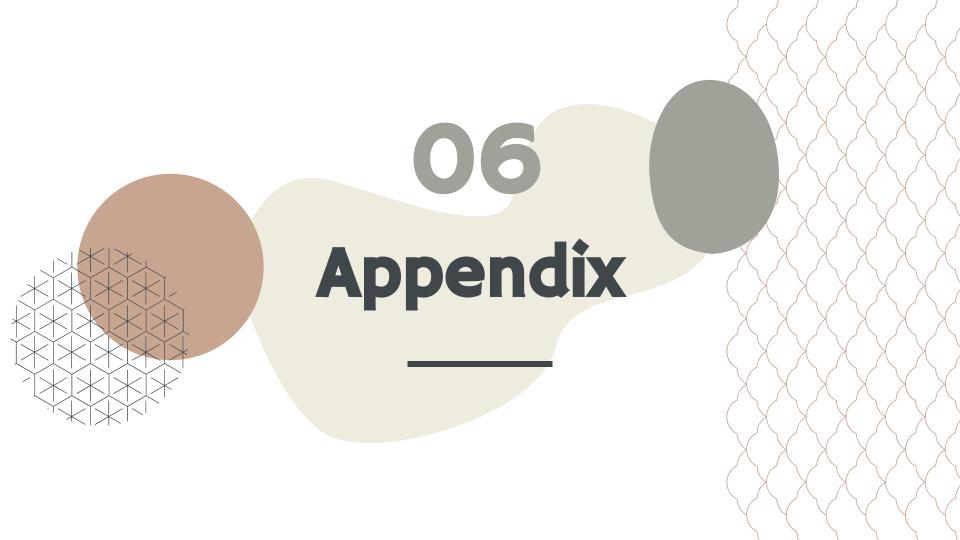
Moving forward with solution 2: A platform for fostering deeper connections with your teachers so they can understand who you are and support you with more personalized recommendations, advocacy, and interactions.

Ethical Considerations
1. Increased interactions could lead to more interpersonal conflict.
2. This could place an additional burden on teachers who already have full schedules.
3. Better recommendations for all students could reduce the efficacy of letters for students who need letters to round out an academically weak holistic profile.

Our Solution Serves: High school students looking for community and support in a school that may comprise thousands of students.
Our Solution might leave out: Students with social anxiety or teachers with limited bandwidth.

06

Appendix

Ryder Empathy Map

Say

Likes chatGPT but has noticed it can't handle many prompts at once

Has considered culinary school instead of college

Wants to take CS classes over the summer to get ahead

Turns to mom for help with applications

Would want to work for michelin star restaurant if pursuing culinary

His chemistry notes are graded and have a specific expected structure

Has older friends to discuss college with

Taking notes are more for cognition that for recording since teachers share notes after class

Feel very confident in answers from ChatGPT (compares it to Google accuracy)

B+ is a kinda bad grade and C is a "bad grade"

Think

People who get into fights at school are "dumb"

Can't afford to live in his hometown immediately post-grad from college

Cooking is an insecure career path

Not challenging classes are "bad" and challenging classes are "good"

His parents want/expect him to do well in school

Taking harder classes is important for college apps

Playing water polo will help him get into college (aspiring college athlete)

Most important factor in choosing a college is the job you want post-grad

School-provided tutoring is a waste of time

Studying computer science will lead to financial security

Do

Has a shared doc with friends for taking notes in class

Prefers to handwrite math notes because of equations

Switched into more academically rigorous classes 5 days into the term

Learns water polo tricks by watching the olympics and YouTube

Volunteers through the Young Men's Service League

Starts smaller tasks first to get them off his plate

Takes note to aid memorization

Checks Canvas at least once a day (usually at night)

Has chatGPT make him practice problems

Signed up for a private tutor after getting a bad math grade

Visited the school's college counselor in middle school

Feel

Let down and discouraged by recent quiz scores

Safety in pursuing more academically rigorous paths

Peer pressured into taking AP and advanced classes

Inspired by recipes he finds or water polo he sees online

Joy in cooking

Confident in study skills he has learned from previous private tutors

Slightly overwhelmed by the population jump from middle to high school (500 -> 1000)

Uncomfortable talking about fights in school

Motivated to do well by his parents' expectations and personal pride

Relatively safe at school (as long as he acts "smart")

Erica Empathy Map

Say

If the story is good the scores matter less

Daughter is already community member

Writing / Storytelling ability are important

College Counseling isn't about judging a student's readiness

English Teacher + Training & Money = College Counselor

It's not about admission; it's about continued mentorship

"It's all about social capital"

Colleges would say readiness = GPA/SAT

SACAC NACAC Teach for America do good work

Easy to ignore her comments on Google Docs

High Achievers are stubborn; hardest to work with

Dr. Parker + Dr. Bremmer Female PhDs her mentors / champions

Think

Relationships & Mentorship are very important

It takes time to craft your story

A solid story can help students with worse academics get into college

College counseling needs a personal touch

Finding female PhD mentors was a critical piece for her

There are new resources but never enough

Non-holistic applications leave people out and are incomplete picture

Students might look down on her background

It's hard to succeed without support from mentors/adults

There are untapped resources in school

Do

Worked in admissions at alma mater; fell in love with it

Worked for uni as "holdover" while studying for LSAT, but fell in love w/ admissions

Gains the respect of students through useful feedback and not giving in

Wrote a powerful letter that was the reason a student got into their university

Reads, or encourages students to read, aloud to notice more

Sat with student 1 hr/wk for Stanford app

Wrote dissertation on why SATs capture a moment and not resilience of learning

Coasted through high school as an avg student

Wasn't good at science/math => concluded she was mediocre

Switched from Comm minor to majors thanks to professor guidance

Sends her daughter to school she works at

Feel

Empathy / Deep care for students

COMM is relevant to her role

Empowered by mentors' support and encouragement

Responsible for advocating for her students

Pride for her impact as an advisor

Her purpose is getting to know and supporting her students

Inspired by the math teacher who switched to college counseling

Frustrated by high achievers resistance to her help

Empathy for students who don't have the support they need

Mount Vernon is a good place to go to school

Sue Empathy Map

Say

It is hard to collaborate with the school

"There's a lot higher stakes earlier on"

"I don't think [teachers] understand AI's influence."

"I'm a first gen kid, a person, and, you know…my parents were immigrants."

Has 2 kids

Some kids will pay services to make non-profits and list the kid as the founder

"We talk about intelligences differently."

"I want [my kid] to do it, you know…I really don't want her to be so college focused."

"Some [kids] want to [take notes] the old fashioned way."

"It doesn't read…as fantastically when a first gen, low income kid is running their parents business."

"I'm not there, and they're supposed to check in on her."

"College is so expensive."

Think

Wants success for her kids

There are barriers for first-gen students that other students don't face

AI unfairly benefits some kids

It's very important that the support that isn't coming from the parent is also effective

Getting into college has turned into a game; the rich/connected win

Awards are good standardized indicators of success

College admissions officers don't know how to interpret FLI applications

Not all application look/should look the same

Schools could improve the way they keep parents in the loop.

It might be difficult for a student to realize what they really want vs. what colleges want them to be.

Do

Let's her kids come to her when they're ready to talk about something

Left college admissions to work in education consulting

Tries to get into contact with her kids' teacher about her 504 plan

Worked while she was a student to pay for school

Engages with her kids' classes/ activities as much as they want

Doesn't focus on grades with her kids

Worked at a nonprofit foundation to help kids with scholarships

Try to prove herself in her job

Worked as an admissions officer without a fancy education

Advocates for FLI kids in college admissions

Work with her kids' schools on LGBTQIA+ issues

Feel

Worried about her kids overworking

Proud of her oldest kid

Baffled by how selective colleges are these days

Impostor syndrome about her own background

Frustrated with the school admin

Cautious about how AI affects kids

Cautious about letting school take over "checking-in" on kids

Willing to share/draw upon her personal story when helping others

Called to support kids who need extra help

Empathy for students who have to work extra hard

Solution Brainstorming Screenshots

Random pop quizzes for what times classes are on different days until the student is consistent with them

In the time immediately before a class, do not allow someone to do certain things on their phone

Certain songs that play for each class (starts playing 3 min before the associated class)

A web app that has a "time to leave" pop up with sound and the link/ text of exactly where they need to go (zoom or in person)

Assign students to ping each other if someone isn't in class

Have the classes auto-start at the correct times → alternative for zoom/web-call

Create an avatar that you also needs to get places (to help plan in advance?)

AI voice assistant that you just say what you're doing as things come up that reminds you whenever you actually need to do the thing

HMW Make getting to class an effortless routine?

Use AI to create a regular schedule → take a picture of handwritten notes/ info to make a schedule from

Hook AI into a calendar you maintain, having it learn when to notify you of things so you actually go to them on time

Competitive schedule - have multiple students put their schedules into a shared calendar that allows them to remind each other of things and compete to be ontime/early to shared events

Crowdsource student's alarms to make one master alarm schedule that populates to each student's phone

Drone that shoots nerf darts at you when you're late

Automatically send notifications five minutes before every class

Solution Brainstorming Screenshots Cont.

App to save common phrases/ writing to (AI-determined, based on usage) that can be taken from shared bank across users

AI that takes into multiple live-writing sources at once and generates an "average" of the information in one coherent doc

AI takes the overlap of uploaded notes to create a master copy

AI that allows users to create shorthand and write their notes in shorthand/ symbols

AI that recognizes handwritten notes and combines them

Assigning students one subset of the notes (ex student 1 writes section 4.1, student 2 write sectio 4.2 — no overlap so easy to combine)

Make combining handwritten notes cleaner and faster?

Collaborative google doc like page that has notability writing capability (ideally no lag)

AI that takes pictures of handwritten notes, converts them into text, and summarizes them in one place

AI that can find duplicated handwritten information, culls duplicated info

AI-assist when handwriting, auto completing words/ phrases in handwritten form

A standardized way to take handwritten notes that all students have to follow

AI that goes through handwritten notes and highlights the major factual differences between them

Handwriting on the same document at the same time

AI that listens to the teacher in a classroom and auto-populates notes that a user can edit in real time

System that rewards students for writing something down that no one else caught.

Rotating assigning different people to combine the handwritten notes after class

Solution Brainstorming Screenshots Cont.

Pair up students with similar interests to "pre-grade" parts of other student's application that they are familiar with (scavenger hunt to see one example of every part of the application)

Let college counselors assign weekly challenges to students

AI generates student profile based off of current activities/ classes/interests that the student can then ask about and figure out how to modify by changing/ expanding activities/classes/ interests

Competitive app between small circle of friends for things that are going on to encourage participation

Create checklists for different parts of the application process

Have a conversation with an idea where you describe yourself and your interests and it helps you pick out things that you said that are interesting and you could explore them further.

The School-based social media also helps you link up with other students to collaborate on shared interests

Competitive app between small circle of friends for things that are going on to encourage participation

Have a choose your own adventure path for athletes, working students, etc. that will show them ways to build up their "type" of application

Coordinate community volunteer events or similar with tiers/badges (ex platinum level community service student)

Have the student create a bucket list first before relating it to college applications → NO college questions allowed

School-based social media around things to do/things people are doing to broaden students' ideas of what they can/want to do

Make curating a college app like therapy/a bucket list?

Students can put activities/resume-boosters into a shared app that other students can +1 if they've done them or want to do them to share ideas

Make a list of broad interests/ areas of interest that generates actionable ideas/ hobbies that could be relevant to college apps and acts like a bucket list of things to do

Weekly/monthly session of going through current activities/hobbies, understanding what they say about you/ comparing them to what you see yourself as to better understand interests and possible pursuits after high school

Have students talk out loud to an AI that will remember things about their app and help them group and present info in their own voice.

AI that takes in general interests and gives back suggestions for hobbies/activities to try out

A visual indicator of achieving what the student is interested in → climbing over a mountain/getting to a destination/ etc

Pairing students with similar bucket list items so they can compare ideas/collaborate

A coin system if you make progress toward a bucket list item/college application that lets you buy in-app icons (ie decoration for a virtual college dorm, etc)

A centralized way to flag that you want help/support from a college counselor

A platform for fostering deeper connections with your teachers so they can understand who you are and support you with more personalized recommendations, advocacy, and interactions