



Cana™ : A Case Study of User Experience Research, Strategy, and Design



By: Tariq Cilione



Abstract

- With cannabis becoming a rapidly growing and young industry in the past 10 years, it was essential to use Qualitative Ethnographic User Research Methods in developing this service with an accompanying iOS app.
- Following Apple's Human Interface Guidelines and SF Symbols, a made for iPhone app was developed starting from a more informative app to the eventual need of reassessing the entire information architecture to become a Software as a Service (SaaS).
 - Moving towards a SaaS meant that the user experience goes beyond the UI. Having a thoughtful CX and SD will highlight problems to solve earlier on before release and ensure a successful and profitable design.
- To understand my users using Cana™, I needed to take into account their behaviors when they are at a dispensary while observing how the app can be integrated into the dispensary experience.
- This opened the need to create Customer Experience and Service Design models to not only give context, but ensures that the features being developed are usable and necessary for my users.
 - To incentivize retaining and gaining new users, users see benefits firsthand by seeing a faster, seamless, and stress free buying experience.
 - Cana™Points promote increased interactions through activities to supply authentic user driven content about products as well as purchasing products accrues points and those points can be used towards discounted products.
- After the first iteration, and going off user feedback about the experience, the systems and service design needed to be designed before the app interface is fully developed.
- Lean and Agile UX moved away from the small UI focused details to designing deliverable solutions of usability through combining technology, customer experience, and service design.
- Testing in location made viewing the app as a touchpoint between the business and user. Usability of product was centered around how it can improve the dispensary experience.
- Taking into account current legislation either as state law or current federal bills in congress created an extra hurdle in designing a user experience that is law abiding along with understanding of how the government would view Cana™.
- For this topic to be even usable, research is preeminent and was my main concern before ideating any concept.
- Following the research, I saw more users expressed wanting an experience of ease while shopping in a dispensary and easy-to-understand information .
 - Aside from Swift, usability of app relies on machine learning, database infrastructure, and artificial intelligence (AI). To utilize features that power the app, it was important to apply pre release UI to visually test in conjunction with the programming, machine learning, database, and AI.
 - The dispensary experience plays a key role in product usability.
 - This is intended to test the viability that this concept is feasible and whether or not the design should be pursued further.

Legal interpretation

- The 10th Amendment of the US Constitution states that:

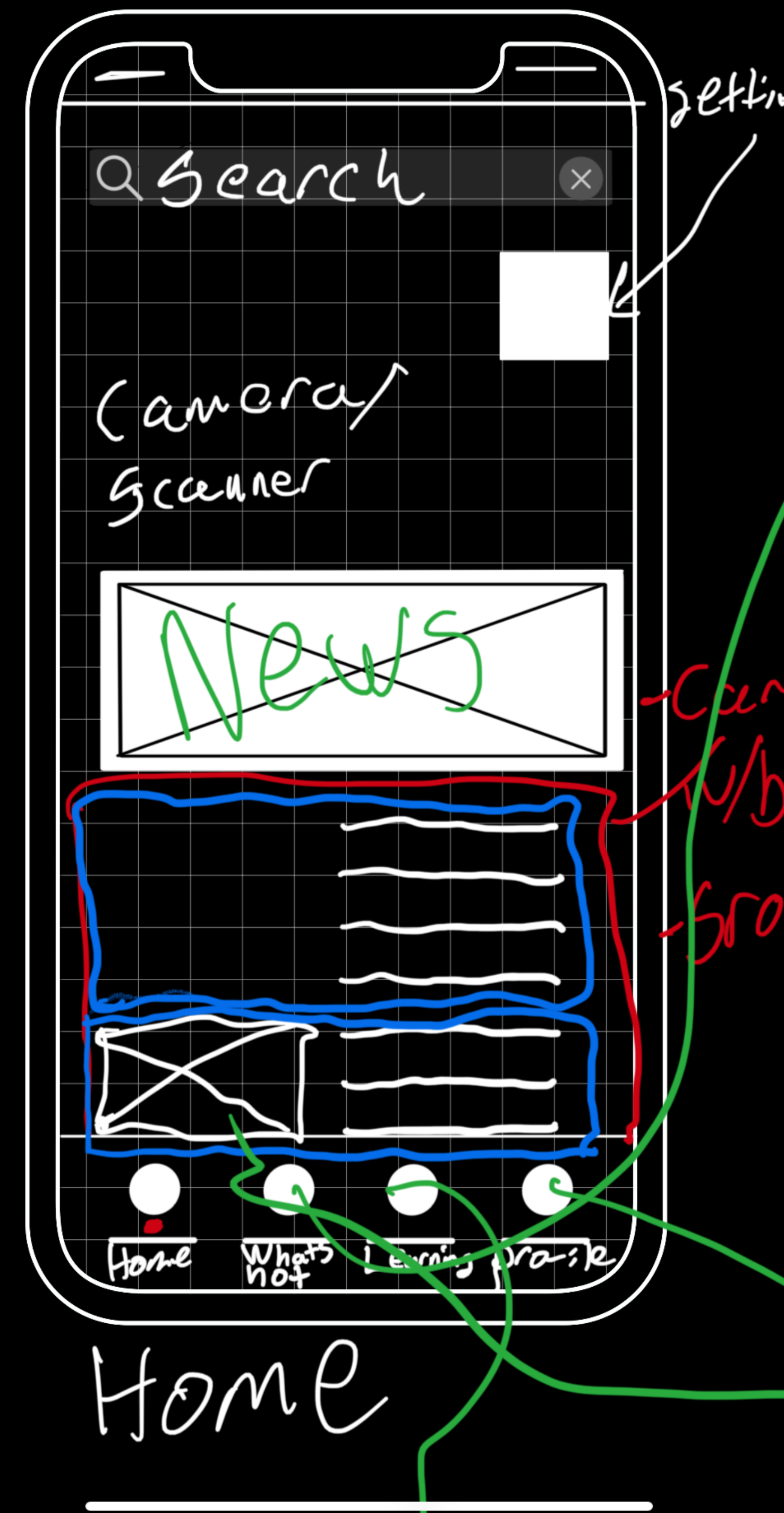
“The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.”
- The 10th Amendment gives the right for states and the people to determine legalization.
- The MORE Act provides a framework for federal decriminalization and de-scheduling of cannabis.
- With the optimism of seeing federal legalization before 2030, the opportunity to explore an untouched industry driven by user experience creates a design challenge in how to navigate designing with regulations.

Hypothesis (initial)

- I believe that creating an informative cannabis product information and validation app for legal recreational cannabis users over the age of 21 will achieve easy access to usable information to inform users with better buying decisions.

Problem Statement: 1st Ideation

- With legal cannabis becoming more pronounced in North America, how can users know they are accessing credible information when buying cannabis products?
- What current user needs are not being addressed in the industry and how can current laws and rights be used to create a stronger user experience.
- What sketching highlighted was that it was better to conceptualize how the features and experience worked in their intended environment first over what the UI will look like.



Low-Fidelity Assumption

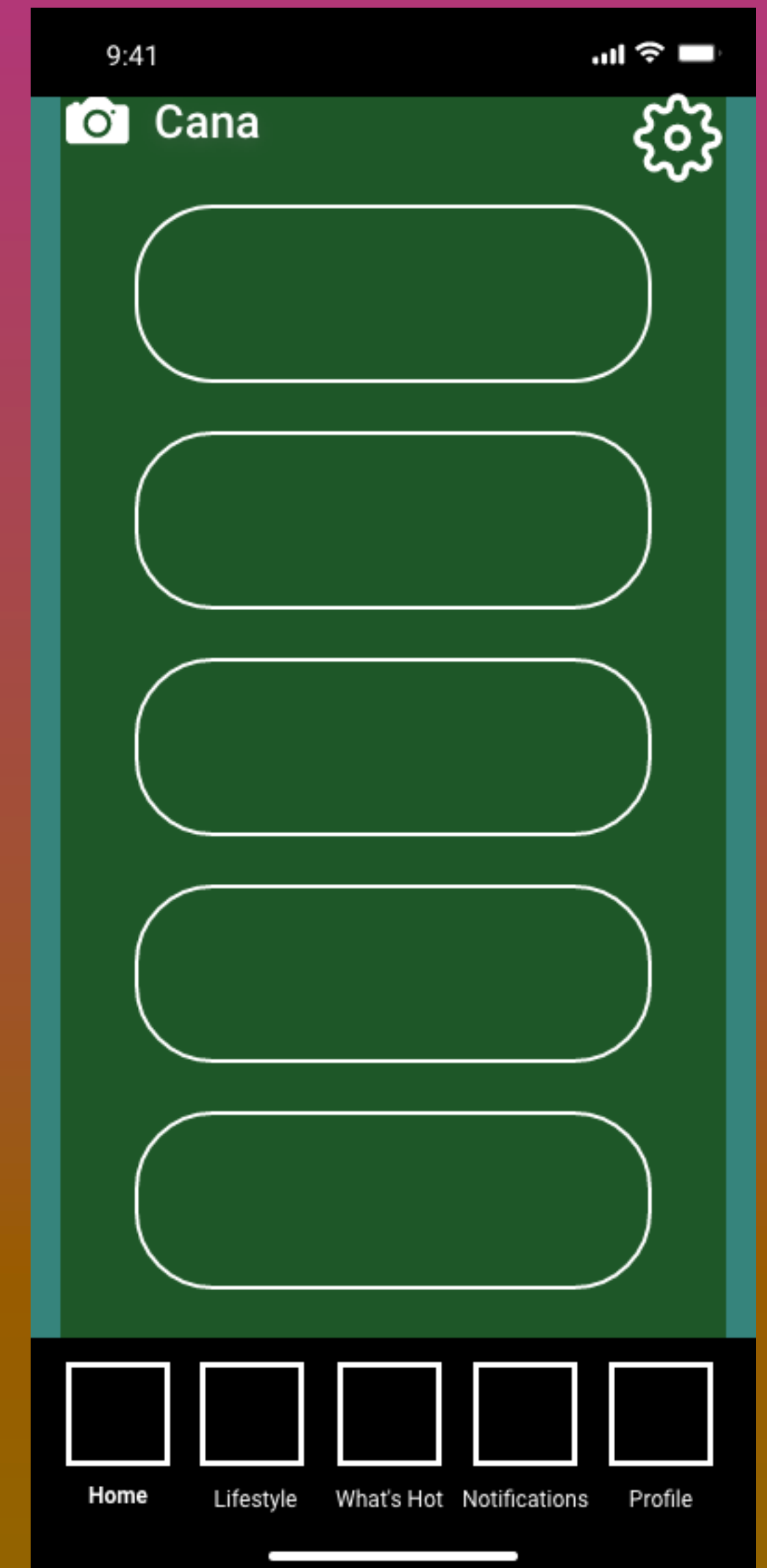
- For the majority of the early design stages, I was concerned about the features I was targeting for my users and ideating usable features with a real world purpose.
- With this stage, I began realizing that the majority of the features I targeted were not necessarily needed and caused one of the first design resets and reevaluation needing to understand the industry as I am designing.
- During each stage of design, I used Apple's safe zones to assist my build in building a workable app for iPhone.

The original layout I had to scrap because I saw my user's needs were not being properly addressed. I saw the use and function of an infinite scroll was not effective and transitioning to a card system would be better utilized in concentrating information in chunks that are easier for users to decode.

I was also concerned that there would be pages that repeated information making the design less agile. (I.e: Home and What's Hot ended up conveying the same message). This evidence was gathered through Card Sorting with a group of potential users.

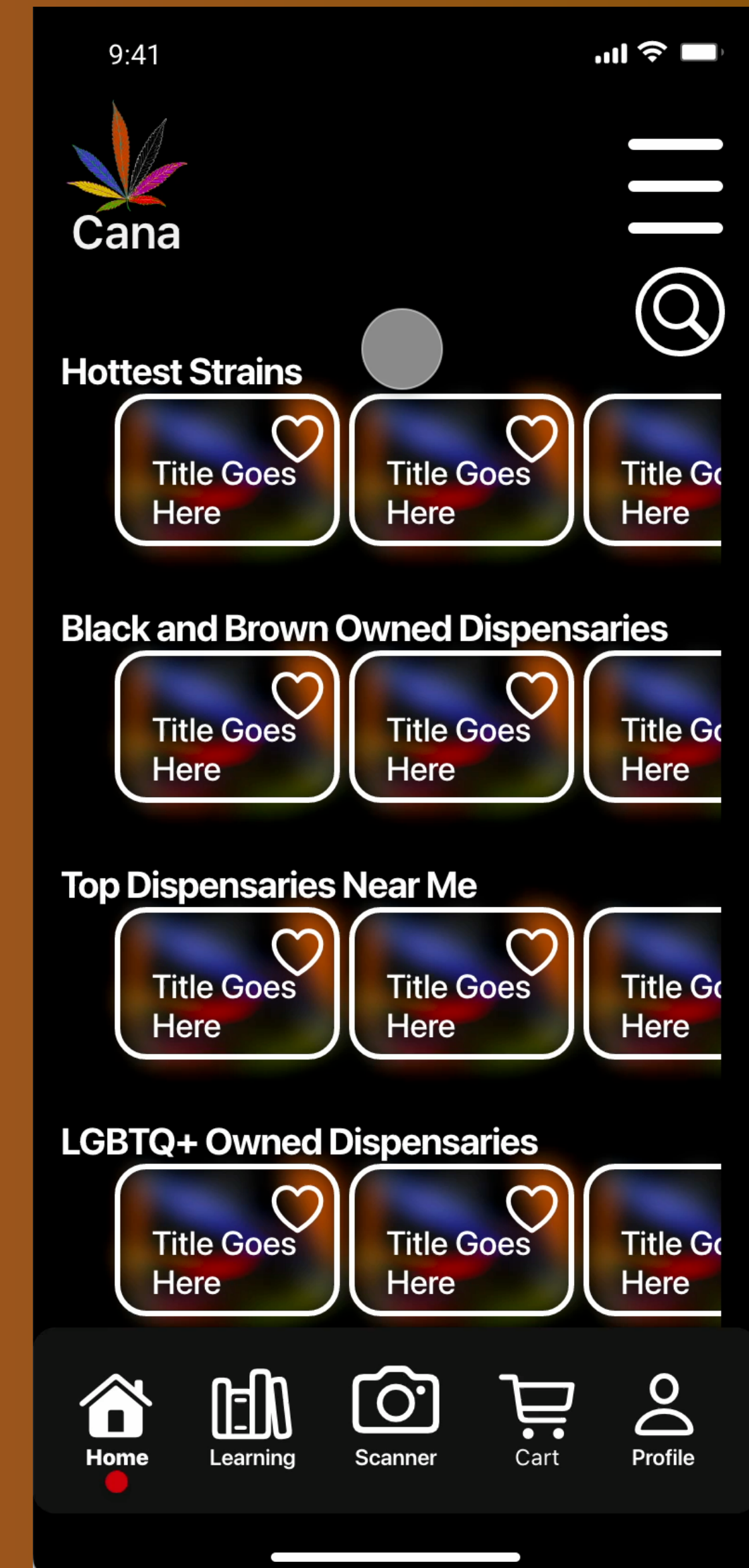
The Scanner was my unique feature and having that central to the navigation meant that the information architecture needed to change before any future UI will be considered.

Visualizing a heat map also created a plethora of usability issues during initial testing.



Revising the Problem Statement

- After observing potential user behaviors in both social and dispensary settings, the original problem statement needed to be revised along with re-conceptualizing the design.
- With this realization made from user feedback; the hard hitting realization that my design was not meeting my user needs meant evaluating what went wrong and how can I fix the wrongs of the original design.
 - I felt that combining app and dispensary experience solve problems users face at the dispensary and treating the app as a touchpoint of a larger experience could not only solve and address user problems, but also pave the way for a unique product in a rapidly growing industry.
- Another conclusion was that the structure of the app needed to change from an app meant to be more informative to focusing on improving the business experience meant restructuring the app to a Software as a Service.



Hypothesis (revised)

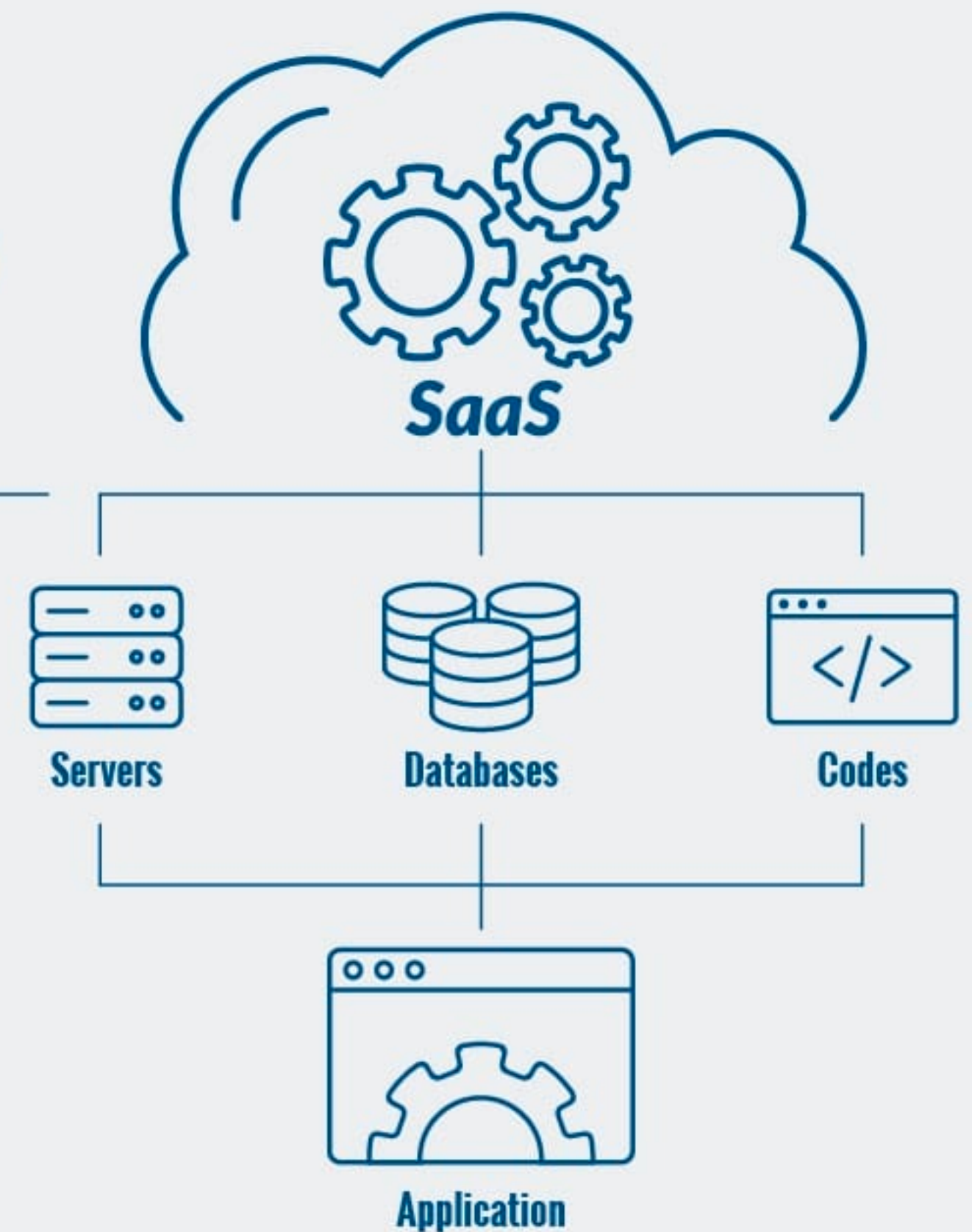
- I believe that creating a Software as a Service (SaaS)* cannabis application for legal recreational cannabis users over the age of 21 will achieve an improvement in comfort, individualized recommendations based on reviews and learning user preferences, and an increased enjoyable experience for users as they engage with a dispensary.
- With improving the buying experience with incentives to provide user reviews of products allows for more confident and satisfied buying decisions for users.

*A SaaS is a software model where according to IBM: “SaaS is a method of software delivery that allows data to be accessed from any device with an internet connection and a web browser. In this web-based model, software vendors host and maintain the servers, databases, and the code that makes up an application.”

Since data, machine learning, and artificial intelligence really determine the full usability of this service. Along with communication with the dispensary means that the systems in place will what creates a positive, memorable, and enjoyable user experience.

What is SaaS? (Infrastructure as a Service)

Software as a Service is based entirely on the Internet, and it is an approach to software distribution by which software providers host a combination of servers, databases, and code to create applications that can be accessed by users from connected devices. Software as a Service (SaaS) brings the power of a firm's workflow to any user anywhere in the world at anytime.



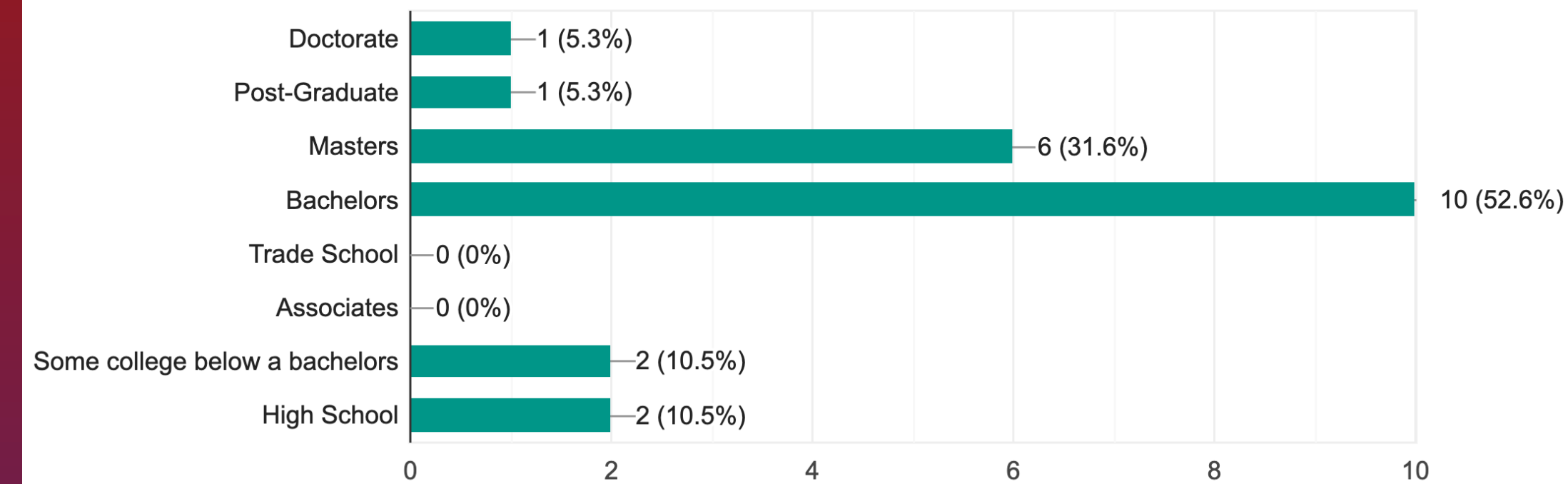
SaaS Diagram (Image source: atlantic.net)

Who are my users?

- From what I observed about cannabis users by visiting dispensaries, talking to people, along with gathering qualitative data, they are extremely diverse and targeting a small percentage in particular creates doors of inaccessibility to others.
 - Initial information was conducted through user surveys to gain a macro view of my users and apply the qualitative data to contextualize quantitative data.
- Users range in age from 21 year old Zoomers to Baby Boomers.
 - Zoomers were born in the late 1990's to early 2000's.
- Education ranged from high school and some college all the way up to PhD's and doctors.
- From retirees, students, nurses, doctors, software developers, industry/health aids and designers were all users and this diversity expresses the difficulty in designing an appealing product and service for my users.
 - Minimalistic design was the safest design style to focus on to allow for a viable return before release in order to be usable by a wide-ranging group of potential users.

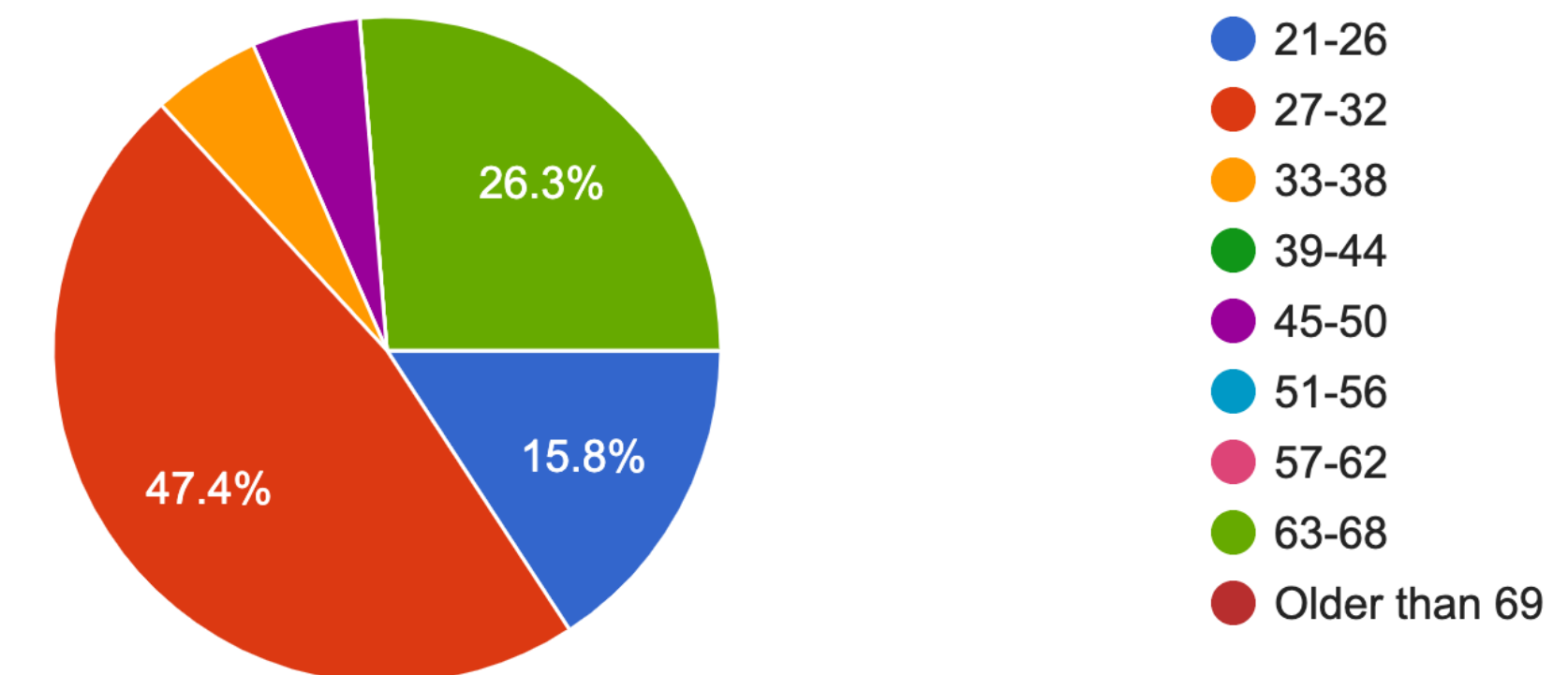
What is the highest level of education that you have completed/ working towards?

19 responses



What age group do you fall under?

19 responses



Persona: Retired Male



Reasons to use our product

Informed buying decisions

Easier Navigation

Virtual budtender with individualized recommendations

Reasons to download our product

Build connections with local dispensaries

Learn what works for me

Digitalized Dispensary Experience

Persona: Working Professional Male



Reasons to use our product

Wants to be a connoisseur

Virtual budtender with individualized recommendations

Reasons to download our product

Personalized recommendations

Easy ordering and delivery

Personality

Sarcastic

Caring

Outgoing

Impatient

Interests

Music

Nature

Gardening

Cooking

Skills

Photography

Analytical

personable

Tech savviness

Comfortable with tech

Not advanced skills or knowledge

Prefers simplicity

Personality

Likes to socialize with friends

Sarcastic

Sensitive

Friendly

Shy

Interests

Music

Hiking

Cars

Traveling

Skills

software development

personable

Math and business

Tech savviness

Strong technical knowledge

Professional level knowledge and expertise

Gaming Hobby

User Personas

Persona: Retired Female



Reasons to use our product

Limits cognitive overload

Scaffolds cannabis terms

Track usage over time

Reasons to download our product

Learn more about cannabis

Understand what they are buying

Communicate with local dispensaries

Persona: Working Professional Female



Reasons to use our product

Keeping track of what I like

Convenient & discrete ordering

Reasons to download our product

Simplifies buying experience

Learn what works for me

Personality

Friendly

Logical

Prefers personal connections

Interests

Nature

Medicine

History

Skills

Analytical

Strong writing

Research

Tech savviness

Feels frustration with modern technology

Willing to learn how to use modern technology

Adapted research skills to technology

Android phone, but open to switching to Apple

Personality

extroverted

Career oriented

Caring

Interests

Reading

Baking

Outdoors

Concerts

Skills

medicine

Empathetic

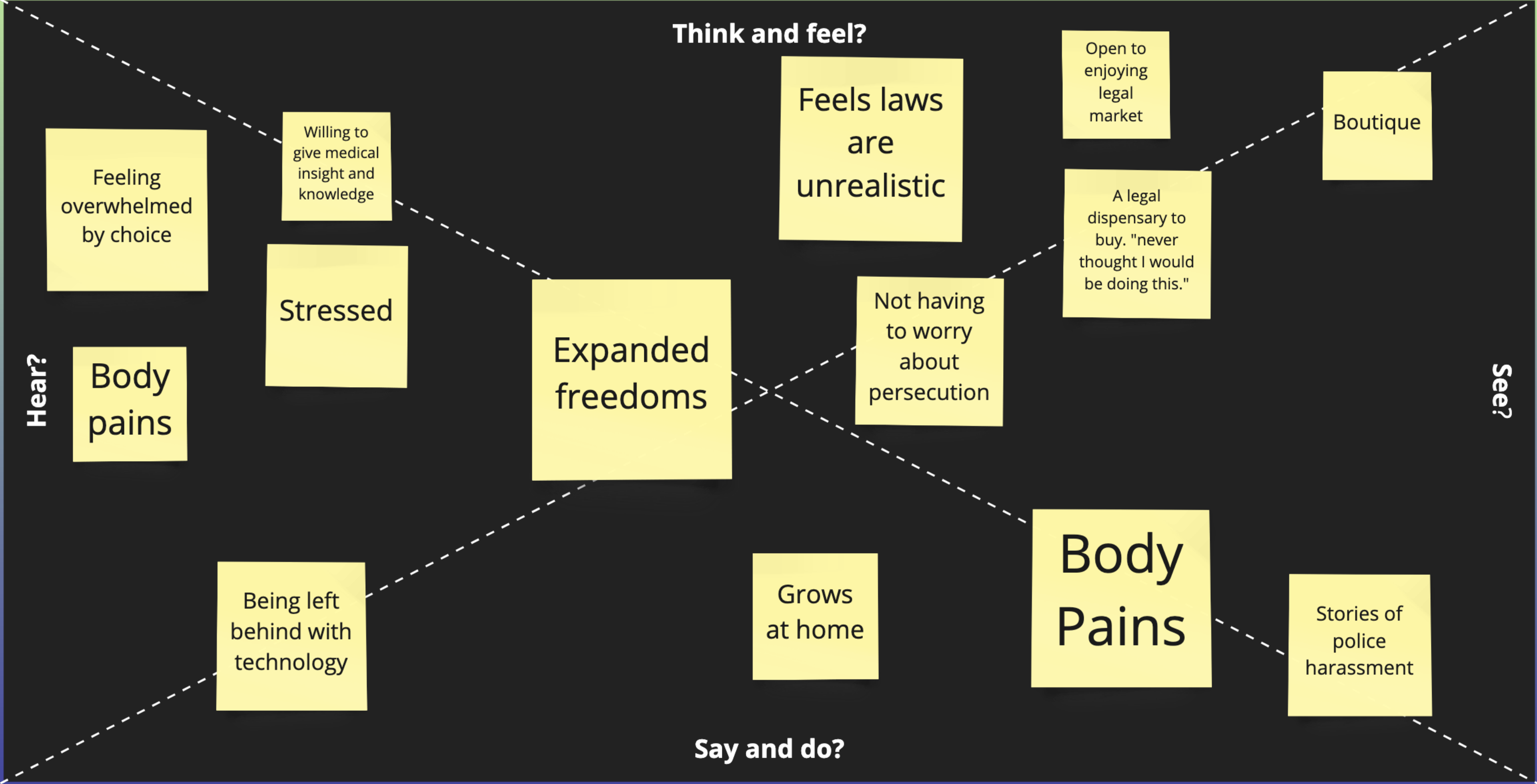
Tech savviness

Digital Native

Feels natural, but struggles a bit with technology

Likes Apple products

Retired Empathy Map



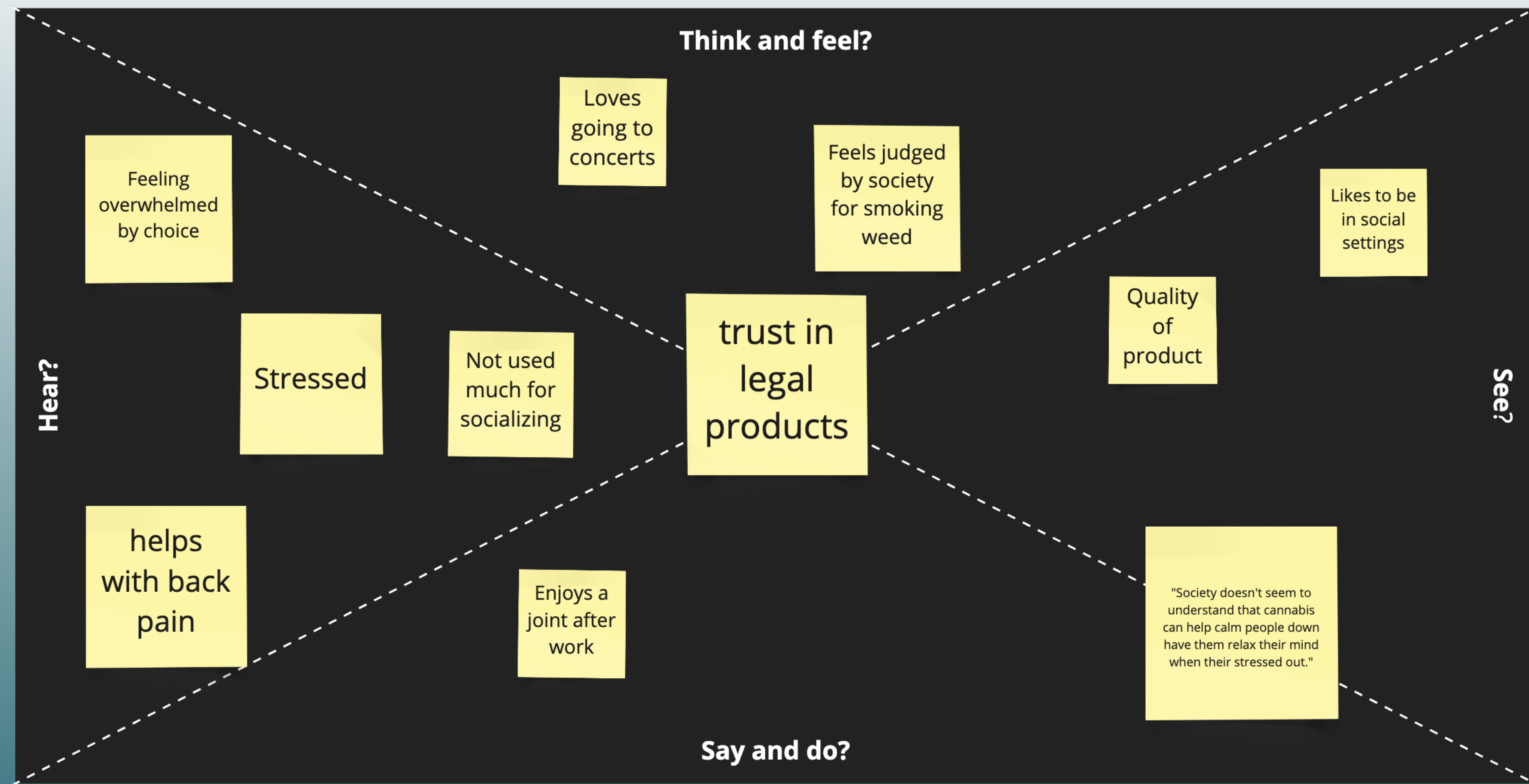
Pains

- Not understanding terms for cannabis.
- Overwhelmed with choices
- Using Technology
- Feeling overwhelmed in what to get

Gains

- Understanding terms
- Better buying decisions
- Becoming more comfortable with tech
- Tailored recommendations

Working Professional Empathy Map



Pains

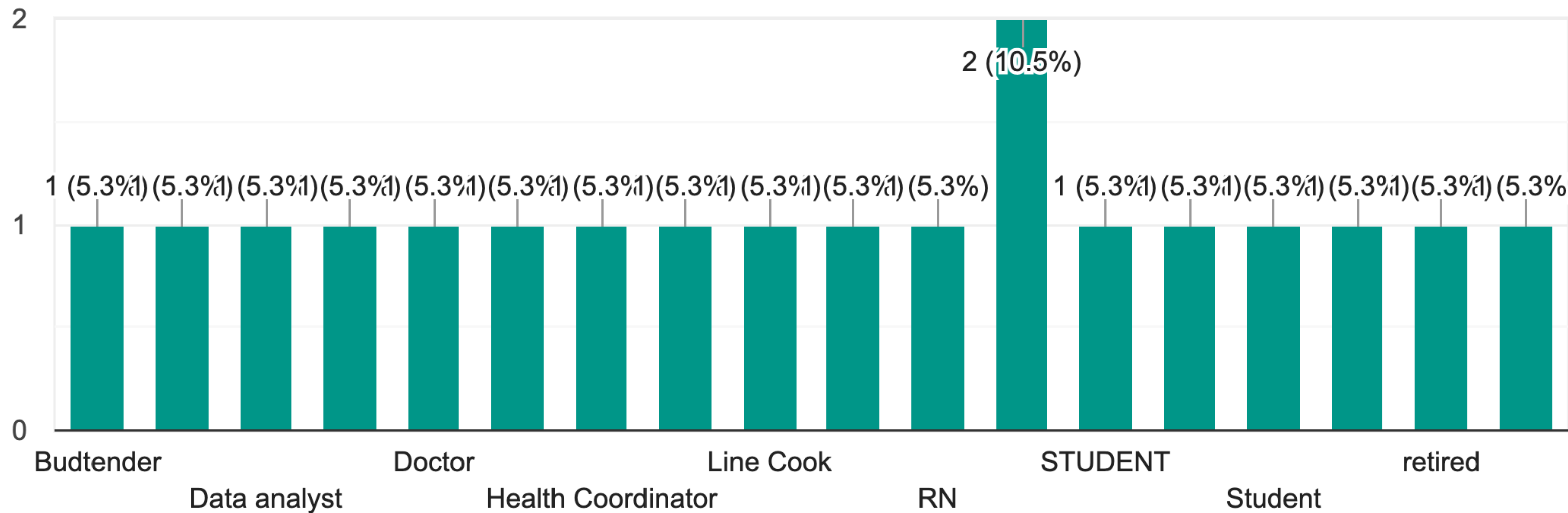
- Not understanding terminology
- Negative experiences with law enforcement
- Worried about retaliation
- Being looked down upon by society

Gains

- Becoming more informed
- Mobile ordering
- individualized recommendations
- Hopes for destigmatization

What is your primary occupation?

19 responses

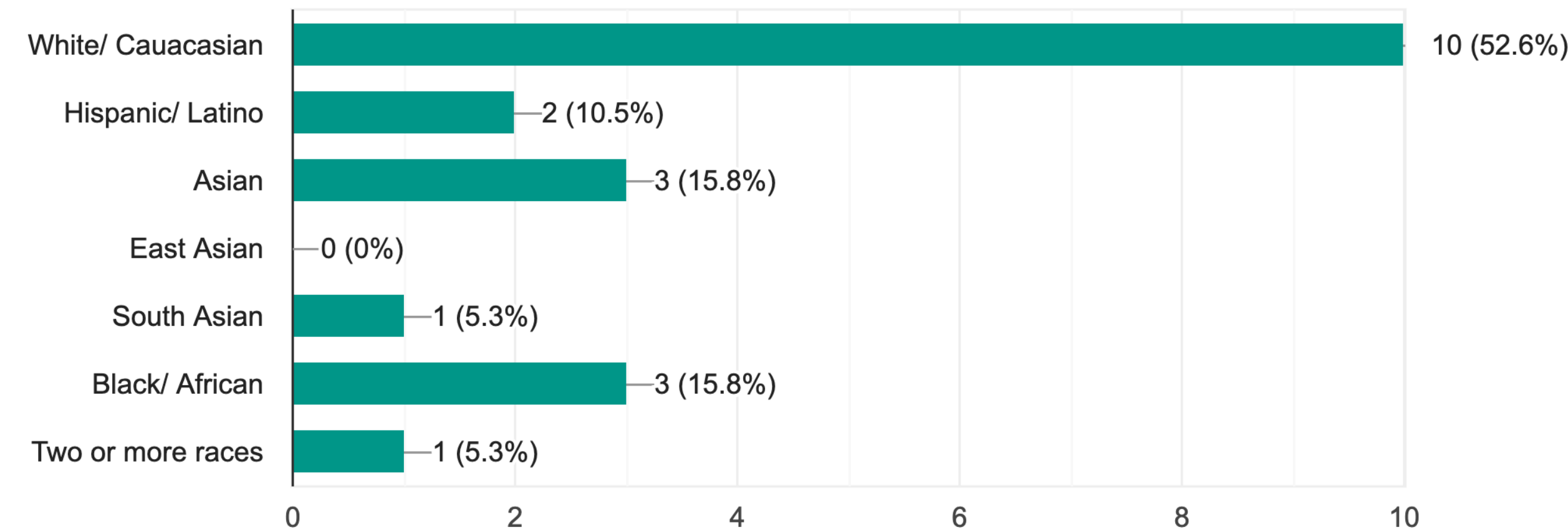


Quantitative user data from user surveys

With a diverse user base, it was important to build a product and service that is appealing to a wide range of users.

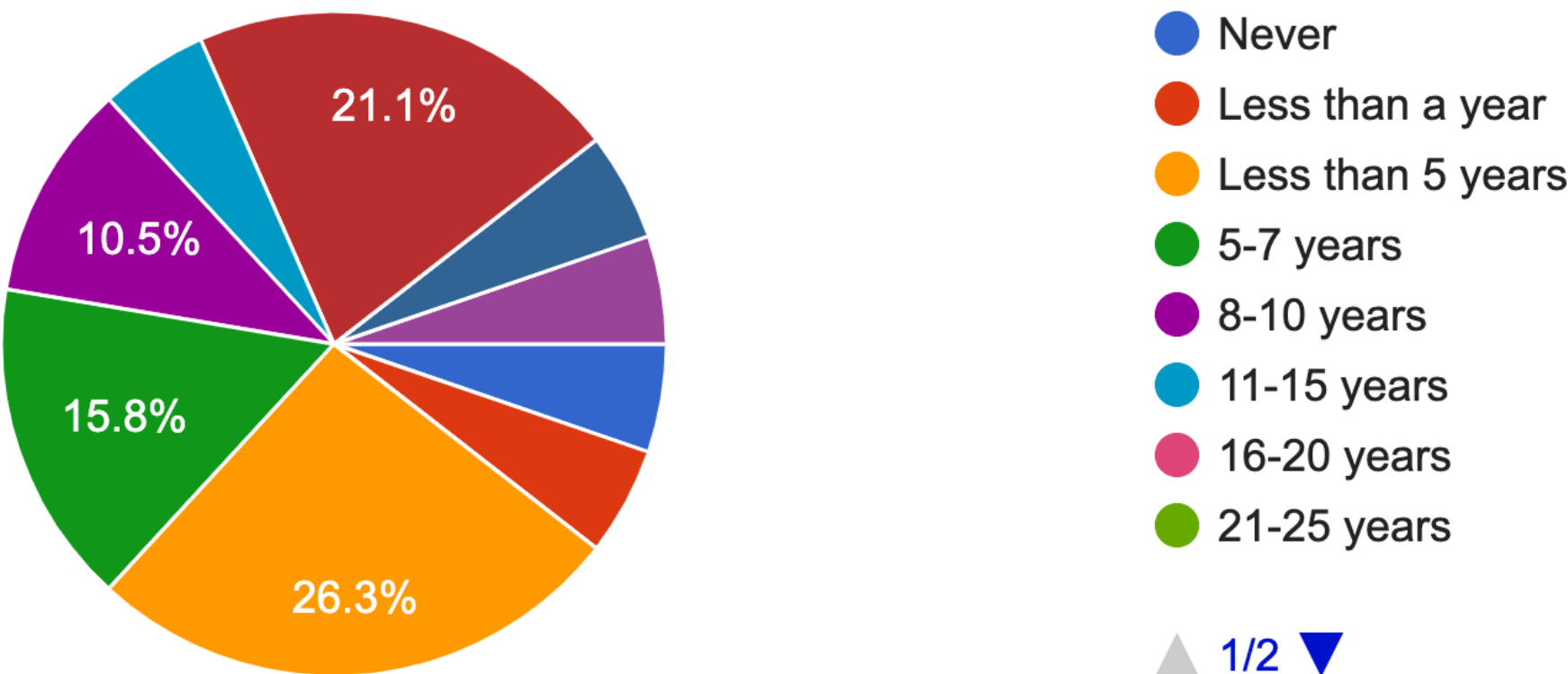
What is your ethnicity?

19 responses



How long have you been using cannabis?

19 responses



Mixed Research Methods (Qualitative and Quantitative Data)

- To gain a deep understanding of the topic beforehand, it was important to contextualize and attach a person to the data and statistics surrounding legalized cannabis.
- Data from Congress along with privately funded data from New Frontier Data quantified the need for this app. The same data also meant to be conscious of the discrimination people faced and keeping that in mind when creating the UX Copy along with carefully structured design strategy to generate revenue and increase profits for investors and shareholders.
- The primary qualitative research method focused around ethnography. Doing ethnographic testing allowed me to observe behaviors of potential users in the environment they would be using Cana™.
- Ethnography made the quantitative and statistical data feel real and created an evermore sense of care with each design decision.
- Designing with the dispensary environment in mind meant testing Cana™ in dispensaries as well as social settings. User testing in the environment emphasized the need to incorporate customer experience design to the overall user experience.

Quantitative Research

1 of 2

April 22, 2022: 1st day of recreational sales in New Jersey generated nearly 1.9 million dollars in sales at 12 dispensaries and between 12,438 people.

H. R. 3617, or “Marijuana Opportunity Reinvestment and Expungement Act” or the “MORE Act states that:

- Legal cannabis sales totaled \$20,000,000,000 in 2020 and are projected to reach \$40,500,000,000 by 2025. Over 50% industry growth from 2020-2025.
- 37 States, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands have adopted laws allowing legal access to cannabis, and 15 States, the District of Columbia, the Commonwealth of the Northern Mariana Islands, and Guam have adopted laws legalizing cannabis for adult recreational use.
- A total of 47 States have reformed their laws pertaining to cannabis despite the Schedule I status of marijuana and its Federal criminalization.
- The continued enforcement of cannabis prohibition laws results in over 600,000 arrests annually, disproportionately impacting people of color who are almost 4 times more likely to be arrested for cannabis possession than their White counterparts, despite equal rates of use across populations.
- People of color have been historically targeted by discriminatory sentencing practices resulting in Black men receiving drug sentences that are 13.1 percent longer than sentences imposed for White men and Latinos being nearly 6.5 times more likely to receive a Federal sentence for cannabis possession than non-Hispanic Whites.
- Fewer than one-fifth of cannabis business owners identify as minorities and only approximately 4 percent are black.

Quantitative Research 2 of 2

New Frontier Data is “the premier data, analytics and technology firm specializing in the cannabis industry worldwide, in partnership with TSRGrow, FTI Consulting and SōRSE.”

- Global sales of high-THC cannabis through legal regulated sources totaled \$23.7B in 2020, with the U.S. alone accounting for \$20.3B. This number translates to approximately 86% of total sales.
- Building on expanding legal access and strong consumer demand, sales in currently legal markets are forecast to exceed \$50B by 2025.
- Globally, total consumer spending on legal and illicit high-THC cannabis is projected to grow from \$415B in 2020 to \$496B by 2025 (a CAGR* of 3.6%), driven by expansion of legal country markets and increasing social acceptance of the plant’s therapeutic value.

* A Compound Annual Growth Rate (CAGR) is a business and investing specific term for the geometric progression ratio that provides a constant rate of return over the time period.

- A growing body of clinical research is validating the therapeutic applications of cannabis, helping drive wider adoption among healthcare practitioners.
- Product innovation is improving the convenience, discretion, quality and consistency of legal market products, creating a myriad of new ways for consumers to integrate cannabis into their lifestyles.
- “Canna-curious” consumers who have not yet tried cannabis will have a substantial impact on marketplace growth as social acceptance widens.
- 29% of leisure travelers express interest in consuming cannabis while on vacation, and as availability expands, new opportunities to capitalize on “canna-tourism” will emerge as a growing sub-vertical.
- With consumers’ tastes and preferences evolving alongside product innovation, the pace to reach a mature product landscape in newly legalized markets will accelerate.

Qualitative User Research

- Why ethnography as a primary qualitative research method?
 - Ethnography at its core is the study of people through direct observation in their natural environment.
 - This applies to the world of UX Research by analyzing how people interact with products and services in their intended environment.
- By observing more users directly and naturally, I was able to look at the dispensary experience as a researcher with the goal of understanding various pain-points users will encounter and design solutions to alleviate those pain-points for my users.
- Ethnography also included doing diary studies, field user interviews, direct user observation in the intended environment
- Through ethnography and empathetic observations, the need for designing both customer experience and service design became paramount before pursuing current UI features for my users.
- As researched progressed, I knew my users on a deeper personal level. I realized users in both rural “MAGA” Country faces the same problems of a liberal urbanite in the West Village. The fact that I was able to have the same conversation along with targeting the needs of both users allows for a unifying mindset of design inclusion and accessibility.

Photo Source: Attribution-NoDerivs CC BY ND
(<https://www.intres.com/the-unique-mix-of-cannabis-dispensary-design/>)

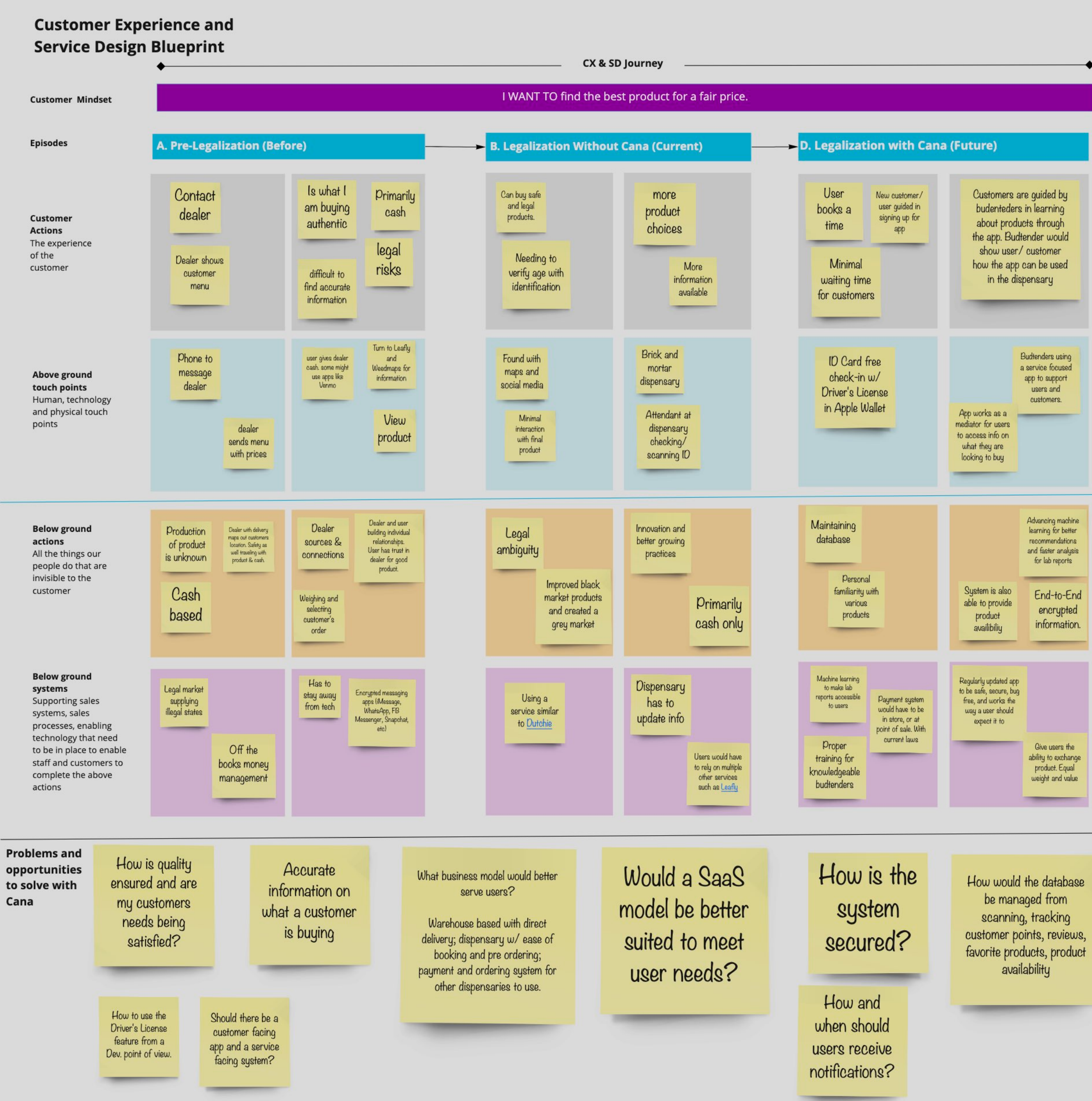


Service Design (SD) & Customer Experience (CX)

According to NNG, “Service design improves the experiences of both the user and employee by designing, aligning, and optimizing an organization’s operations to better support customer journeys.”

UX Magazine defines Customer Experience Design as “the practice of designing products/services with the focus on the quality and thoughtfulness of the user experience. Every touchpoint within the customer’s interaction with a product/ service is designed to deliver experiences based on the brand’s promise. It requires companies to weave in storylines through online and offline experiences that bring the brand to life.”

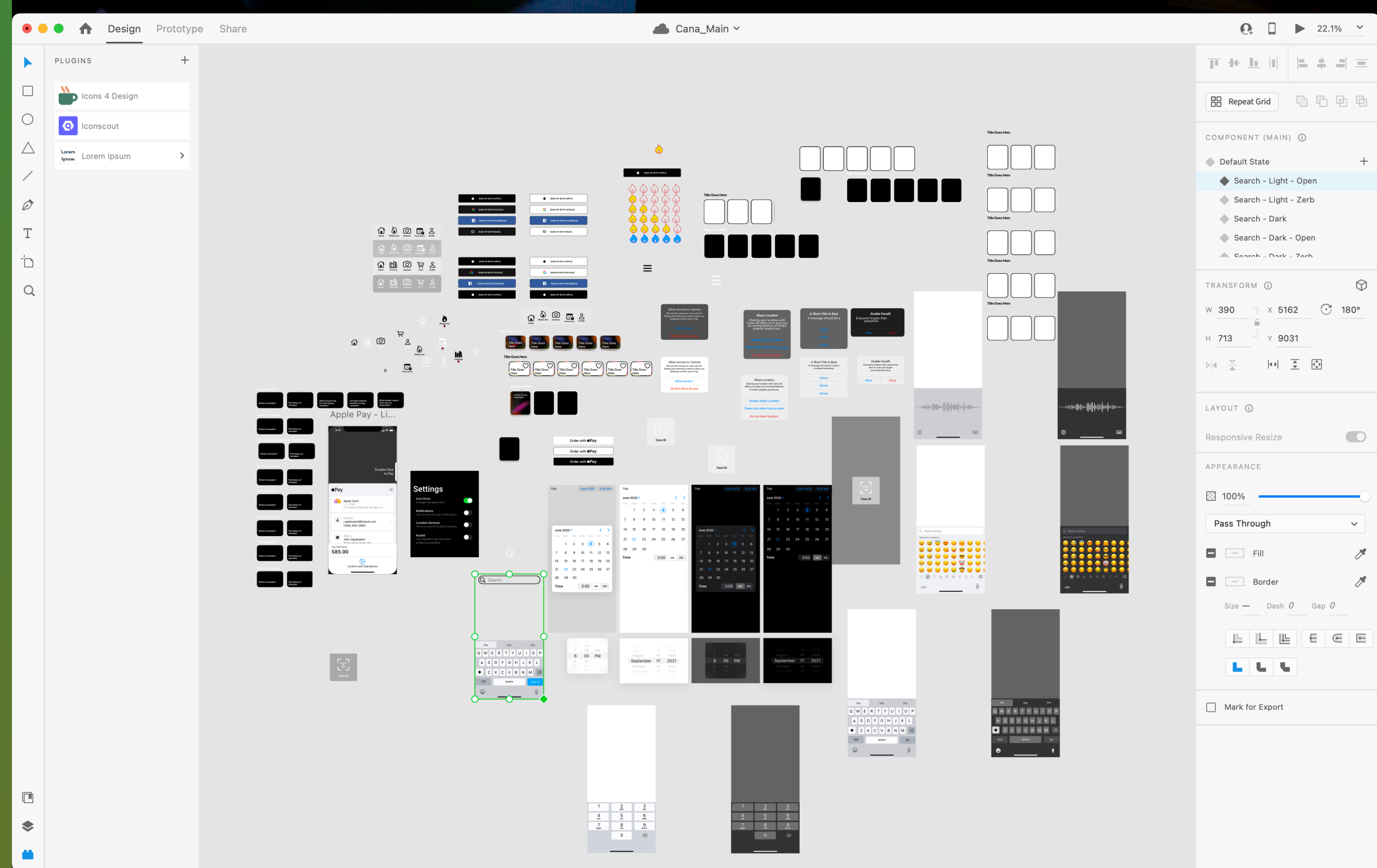
- Since the app’s role is more of a touchpoint, SD was needed to focus on *how* users can be supported when they interact with the businesses using Cana™.
- A symbiotic byproduct of strong and thoughtful service design creates happy employees who enjoy working and helping Cana™ customers.
- Going in the SaaS direction opened up more questions as to how can current features be adapted into a SaaS model.
- Before the app can be further developed, the need for a coherent SD and CX needs to be fully developed in order for a practical and sustained use for my users along with meeting demands from shareholders and investors.



Having strong SD and CX creates pleasing experience design for users when they engage with the dispensary.

Design System

- A key element of my design thinking is a lean and agile mindset.
- Lean design translates into productive and useful outputs that speeds up the design process.
- The design system focused on creating interactive elements used throughout the interface.
 - This came in handy when having to update elements was as simple as updating the parent element where the children would update through the application.
- The design system was built from components developed by Apple. SF Symbols and Apple's iOS Design Templates helped keep a clean and minimalistic design.
- Creating accessible components with the goal to expand usability for a diverse user base
- A early Design System helped when updating UI components. With editing the parent components, all the children were able to be updated. Having components as well also decreased prototyping time, maintaining a agile and lean build in mind.
- With handoff to product designer, it is my intention that my designers have a design system to build from and focusing on designing a visually appealing product for our users.



 **#5EAB00**

Font: SF Pro Display

 **#D11301**

AaBbCcDdEe12345

 **#95009E**

 **#2EB9C1**

 **#DBC314**

 **#3D32C1**

 **#498D5D**

 **#C14609**

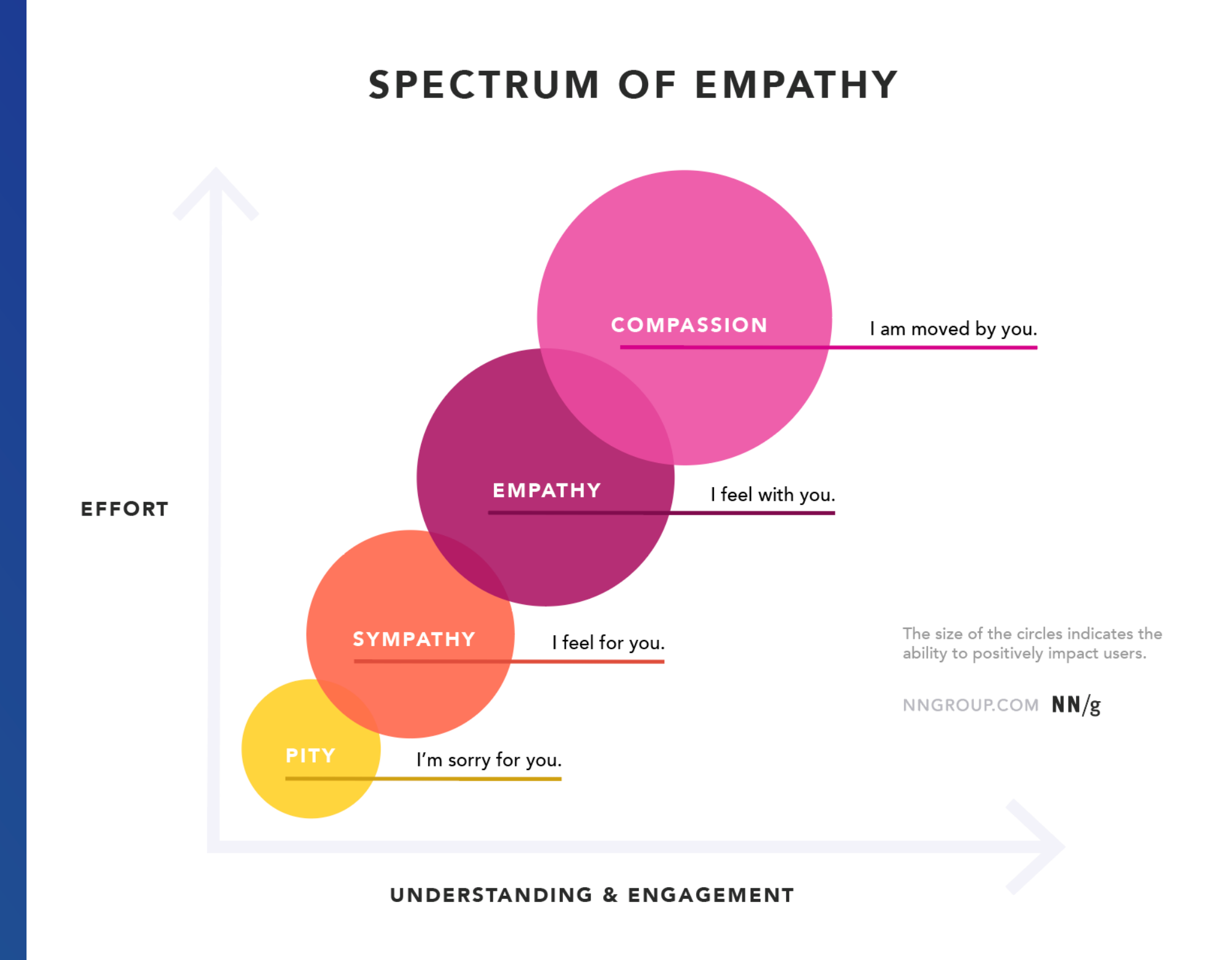
Problem 1: How can Cana provide a secure and accessible experience for a diverse group of users?

- The days of imagining cannabis users as “passing a bong like Cheech and Chong” are long gone.
- Observing dispensary customers, you will notice it resembles a liquor store.
- What this means is that targeting functionality is important in satisfying users needs.
- My role is designing a pleasant and accessible experience.
- The stigma is being erased and seeing an industry finally coming out of the shadows feels fresh and adept to the needs of the 21st Century consumer.



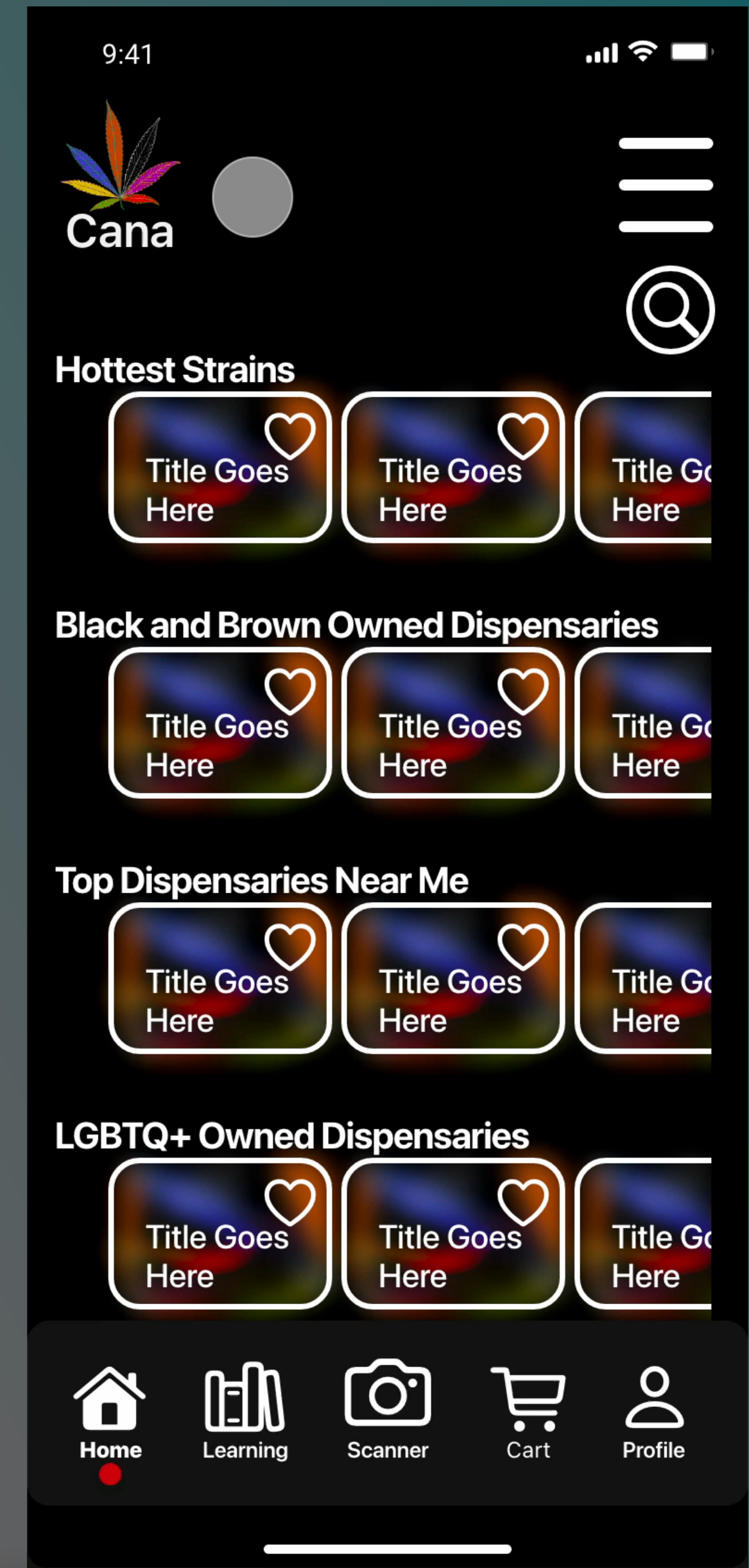
Solution to Problem 1: Empathetic design

- Placing myself in the middle of the environment while testing added newer insights to account for.
- Watching users interact, along with interacting with the various touchpoints helped me compassionately experiences through meaningful and useful interactions.
- Taking into account the user pool and diversity of my users showed me to approach with accessibility in mind.
 - Like a high school desk. Some desks are designed in a way beneficial to right handed students whereas for left handed students do not have the same experience and the usability diminishes for another person.
 - I approached this solution by flipping a heat map. Heat maps are taken into account mainly for right handed users and I found a solution in developing a feature to left align key UI controls throughout the app to meet the needs of left handed users.
- With a sensitive topic and industry, designing with security had be at the root of my design before any experience design was conceived.
- Using iOS security features that will help put users at ease knowing that their information will be secured. Attaching FaceID will provide an extra layer of authentication for accessing information and engaging with the dispensary.
- Focusing on clarifying to users why Cana is accessing for various tools to help provide user centric data to help the user experience. Focusing on location, accessing the camera, to notify you about updates.
- I believe in being straight forward and honest and setting that tone during the onboarding process tells users I have your security in mind.



Problem 2: How can ID checking at a dispensary better serve users and the dispensary?

- This was a problem I have seen at dispensaries, however the one experience we all feel this is getting into a bar.
- User testing here was done through experience and it provided a meaningful context for users understanding the reasoning for focusing on this solution.
- With a group of friends, we all experienced the same problem together. This places the user testing into context for my potential users.
- Getting ID's out could add minutes on lost revenue for a business.
- Testing on the app contextualized how this app can improve the dispensary experience for users conceptualized by users just experiencing the problem firsthand.
- What touch-points do users engage with prior to getting to and entering the dispensary?

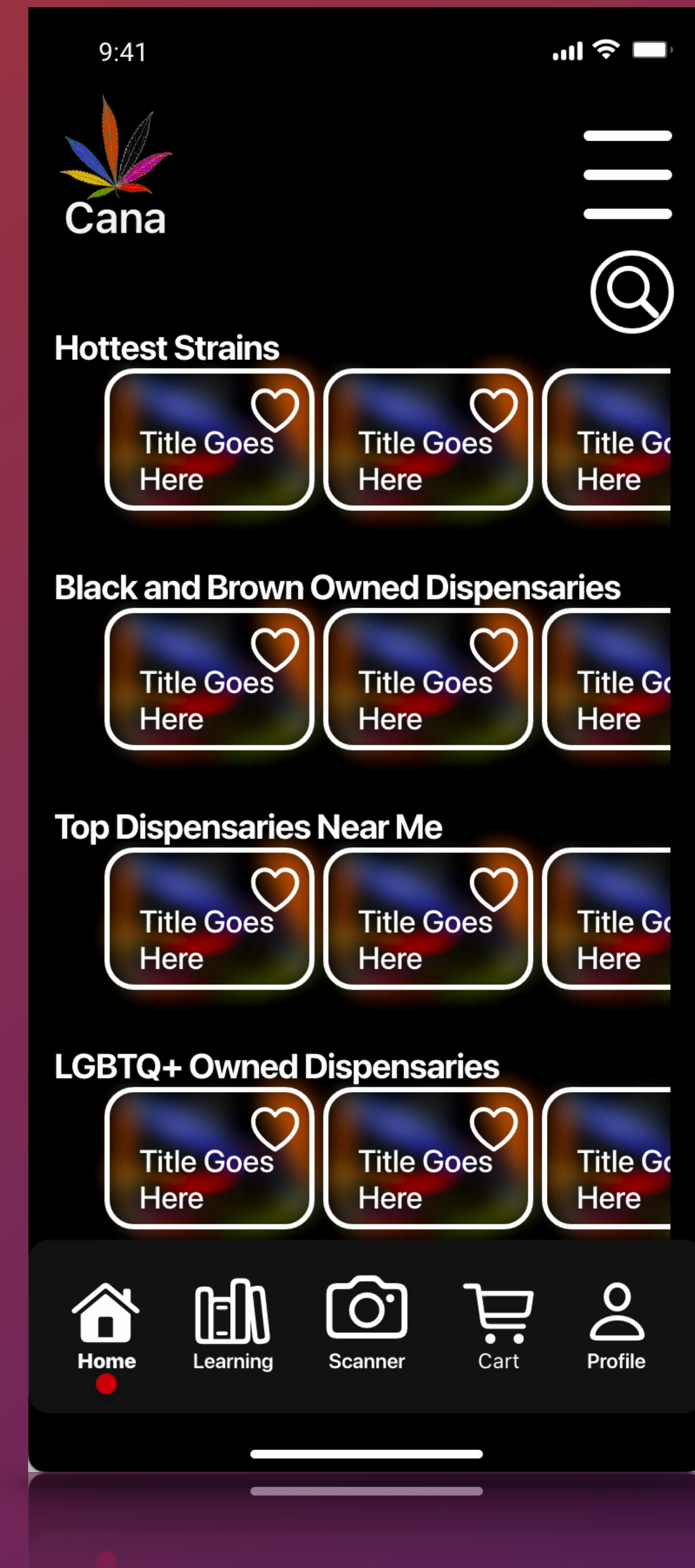


Solution to Problem 2: Driver's license or state ID to Apple Wallet

- As a UX Researcher, I also design solutions that maximize the capabilities of the devices my users have.
- For iOS 15, Apple added a feature where users can “add your driver's license or state ID to Apple Wallet”
- Apple advertises this feature to be utilized in airports. I see this as one for nightlife and age verification needed services.
- In a Post-COVID world, we have moved more into a cashless economy.
- The missing piece of the puzzle is your ID.
- Each dispensary will have near-field communication (NFC) receivers.
- These receivers serve as the communication mechanism for the business to the user.
 - With the dispensary network infrastructure highly secured and encrypted, no user's information leaves the dispensary or is sold.
 - These same devices are also used for payment through contactless payments as well as cashing in points for products.
 - ID will still be verified by a person. Since they still have to scan your ID, it is easier for a user to take out their phone and “tap” it to show ID.

Problem 3: How can users validate the quality of the product they are buying?

- The benefit of having legalized dispensaries allows for products to be authenticated by labs that test potency, terpenes, genetics, Cannabinoids, etc.
- Although users can view the lab report, the question remains about the authenticity of what products users are buying.
- This problem was explained to users by talking to them about an experience a user faced.
- I asked users if a friend/someone ever recommended a strain that was really good, fire, gassy, etc. and to try that strain if you see it.
 - You see the strain your friend recommended to you to try at your local dispensary. You buy it based on your friend's recommendation and that strain did not live to expectations.
 - Your friend described having Top Shelf and Exotic strain quality and the product you had felt like a sub-par basic flower.
 - Keeping users informed with confident buying decisions will help improve the buying experience for users in knowing that they are leaving satisfied.
 - Along with validation, how can users track products they enjoy the most along with generating recommendations for current products users can leave with buying confidently.



Solution to Problem 3: The Scanner. Cana™'s unique product identifier (UPI)

- In a data driven world, I see the data out there, but not presented in accessible manner.
- Decoding and evaluating products will help users with better buying decisions and discoveries.
- Being able to track and learn more about what users are liking will allow them to find what they like and know what they like.
- I see users able to see what other people feel about the batch and grower. Users can have more informed buying decisions by hearing from others first.
- Machine Learning will work in accessing lab reports and finding information as stated in the app.
- Since that information is already placed in lab reports, machine learning needs to work with AI to generate smart individualized product recommendations.
- In order to keep a record of strains in from finding strains, indexing new strains, track popularity; a database must be built and user testing with the design along with the SaaS tech needs to be tested to validate usability and efficiency.

Problem 4 & Future Feature: How can reservations better serve users?

- My design process is treating each feature as a design sprint.
 - I focus on strategizing, conceptualizing, then designing single features and getting them to work without flaw first.
- In the order of development, reservations was last for me to develop.
- As each feature is built, each feature is built with how they are integrated together.
- I am grateful for waiting because seeing the role of the app integrating with the service design reservations could have two very different meanings for users.

Next Steps for Problem 4

Option A: Dispensary

- Booking a time at your favorite dispensary on your own time.
- Booking a time with your favorite budtender
 - Building individual relationship with “your guy”
- Allows for working professionals to set aside time in their busy week to get the immediate and individual care and attention

Option B: Warehouse delivery to home dispensary

- With more goods available for home delivery, coming to users at a scheduled time at a user’s convenience
- In iOS 15, Apple has a Tap to Pay feature where merchants can use iPhones to accept payments. I see this feature for contactless payment and ID verification.
- Again, the environment is key to this usability test and will also determine most profitable and enjoyable business model.

Conclusions and inferences from insights

- With the potential for 81 Million dollars in sales by 2030, the need for a safe, usable, friendly, viable and informative system will be needed to meet user demands in a future fully legalized market.
- With an industry with great potential also means an industry with growing competition.
 - It becomes imperative that this design and service is profitable for dispensaries why choose to use it and incentives others to invest in using it for their dispensaries.
- Testing in dispensaries showed the growth and potential for features along with targeting features and experiences with the goal to complement and improve the dispensary experience.
- Designing with the dispensary in mind changed the purpose and role of original app.
- User testing also highlighted the need to create a service based application for budtenders to use with the purpose to better serve customers and users.

Future Plans

- With an increased need for Service Design, a service/ dispensary facing application must be designed.
- All future usability is determined whether or not the features can be supported by machine learning, AI, database maintenance and construction.
- Further integrate user facing and dispensary facing applications by sharing the same database.
- Continued user testing on the efficacy of this product and system.
- Increased user study in more dispensaries and build relationships to build and use this project with the goal of an initial beta release.
- Explore and evaluate business models as to which one is the most viable for both the customer and business.