AI Industry Internship

Case Study

# ADU AI CHATBOT

- UI / UX Product Design
- Conversational AI Product
- PropTech Sales Automation



Re-imagining Backyard Living with LiveLarge's **Innovative ADU Solutions**

Conversation with LiveLarge Ai

Hello! Welcome to LiveLarge Home!

What locations are you considering? Our service scope mainly includes urban agglomerations in the Northern California Bay Area:

Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, Sunnyvale, San Bruno, San Carlos, San Mateo, South San Francisco, Woodside, Alameda, Albany, Berkeley...

Start Chatting

Hello! Thank you for reaching out to LiveLarge. We specialize in ADU and real estate solutions, helping clients achieve their ideal home and investment goals. What are you most interested in

Type a message...

## OVERVIEW

**The ADU Chatbot** is a pre-sales **conversational AI tool** designed to enhance customer engagement and streamline the sales process for Accessory Dwelling Units (ADUs) on LiveLargeTech.com. The chatbot **provides potential customers with detailed**, accurate, and timely information about ADUs, **including rental estimates and assistance with scheduling onsite tours**. Powered by an extensive knowledge base, it leverages a Q&A document, integrates city-specific ADU resources from 10 cities (e.g., San Jose, Cupertino), and **connects to rental market trend databases for precise rent estimations**. With the ability to **handle up to 10,000 messages per month**, it facilitates seamless interactions by enabling users to schedule tours and connect directly with sales representatives, **making the pre-sales experience efficient and user-friendly**.
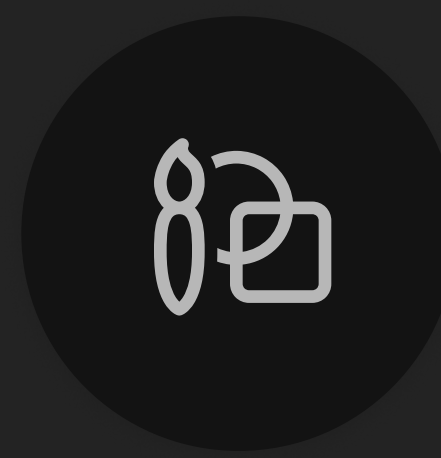
## Design Process

### Benchmark

Competitive Analysis
Persona
User Journey Map

### Ideation

Mood Board
User Flow

### Designing

Lo-fi Wireframe
UI Components
Hi-fi Wireframe

### Prototyping

Debugging
Prototype Animation

For the benchmarking of this product and design, I will first conduct a **competitive analysis** to evaluate the **strengths and weaknesses** of several **similar products** on the market with features comparable to those I aim to design. Then, I will focus on the **target user group** of this ADU Chatbot and analyze their common pain points as well as their unique characteristics. Finally, I will utilize a **User Journey Map** to deeply simulate and recreate the psychological and behavioral changes users may experience in this usage scenario.

## Competitive Analysis

One of the main reasons why I chose Tesla Assist AI Chatbot on the Tesla official website for competitive analysis is that it, along with the ADU AI Chatbot that will be designed, belong to the consulting and sales AI category and have relatively high reference value.
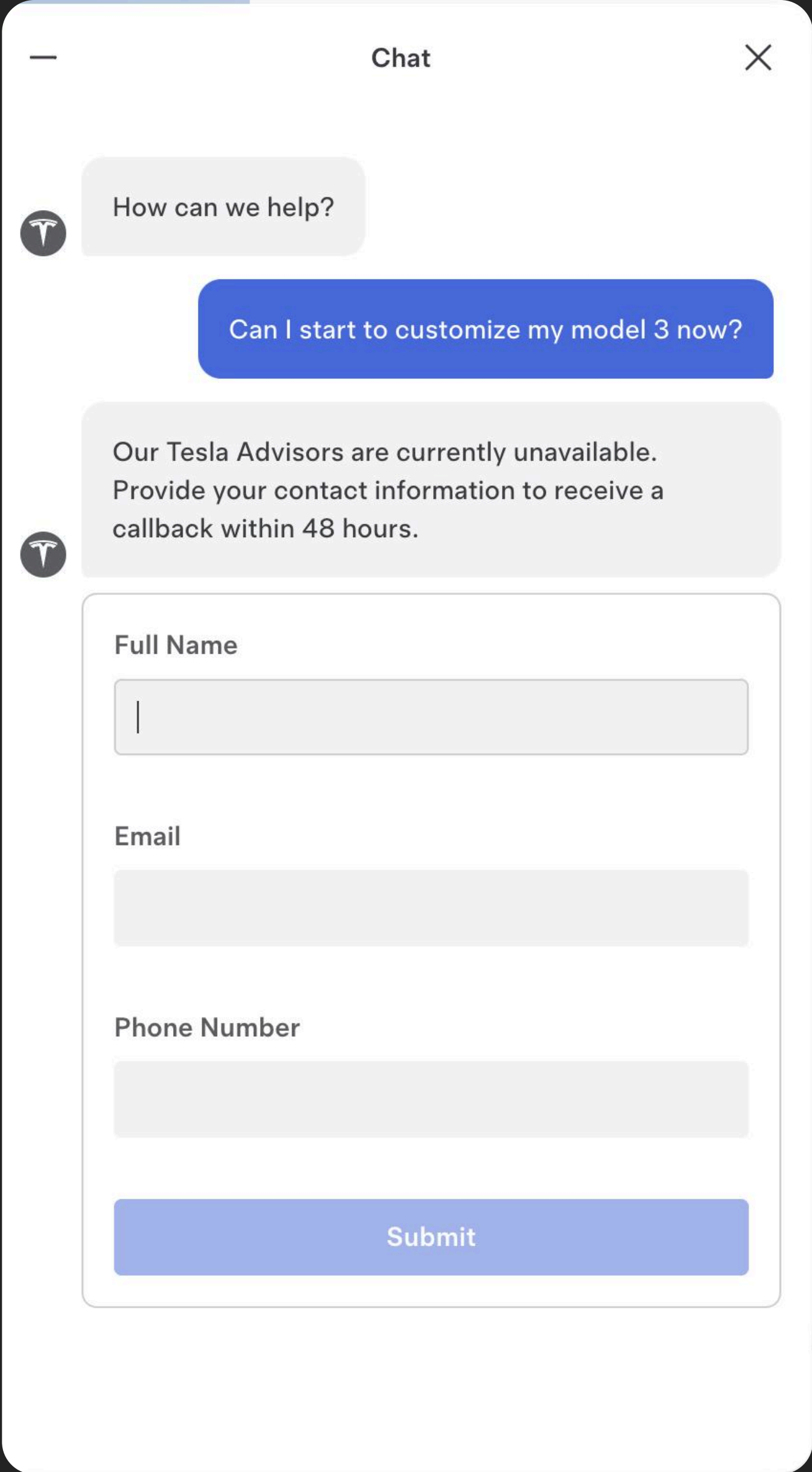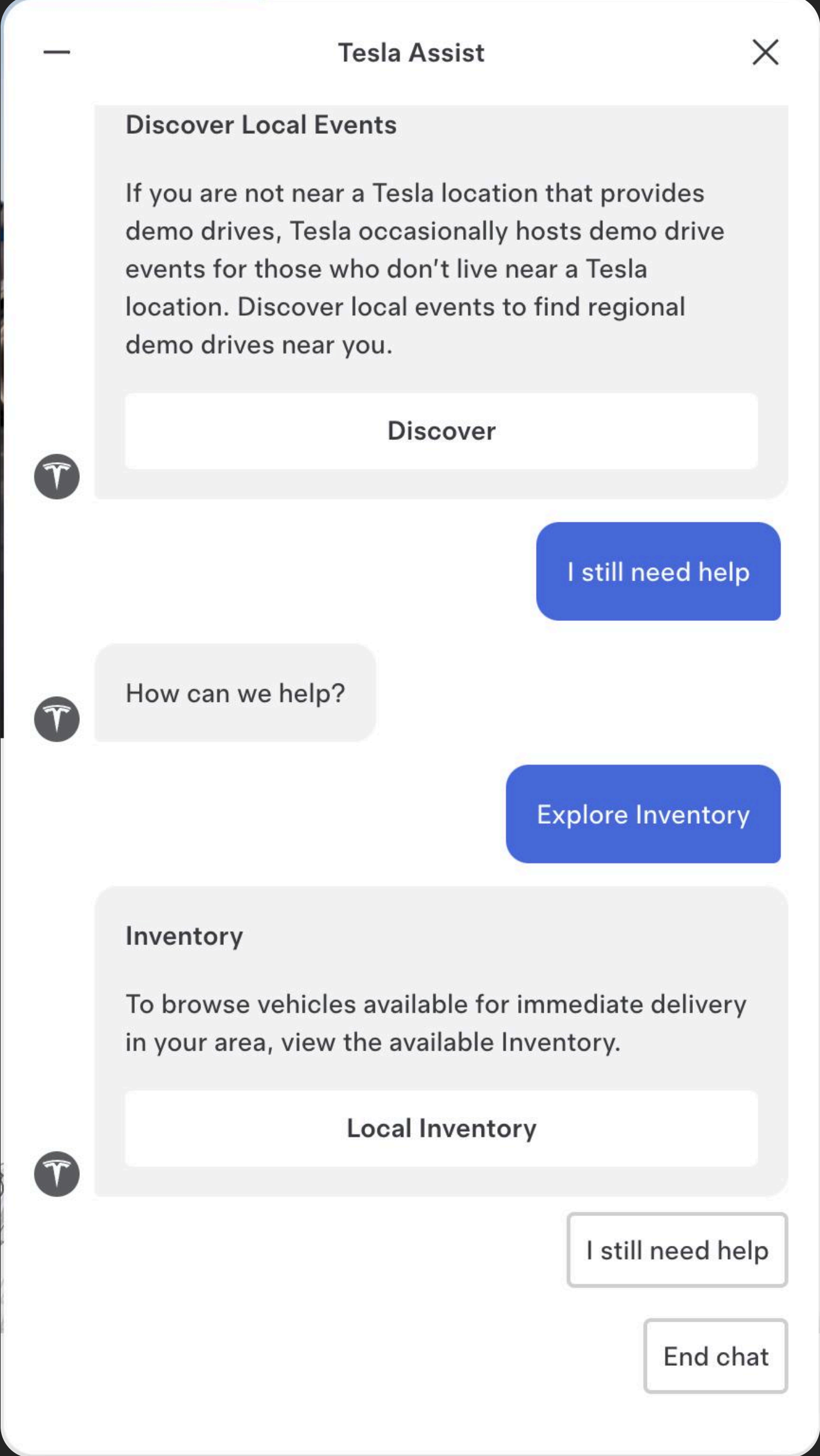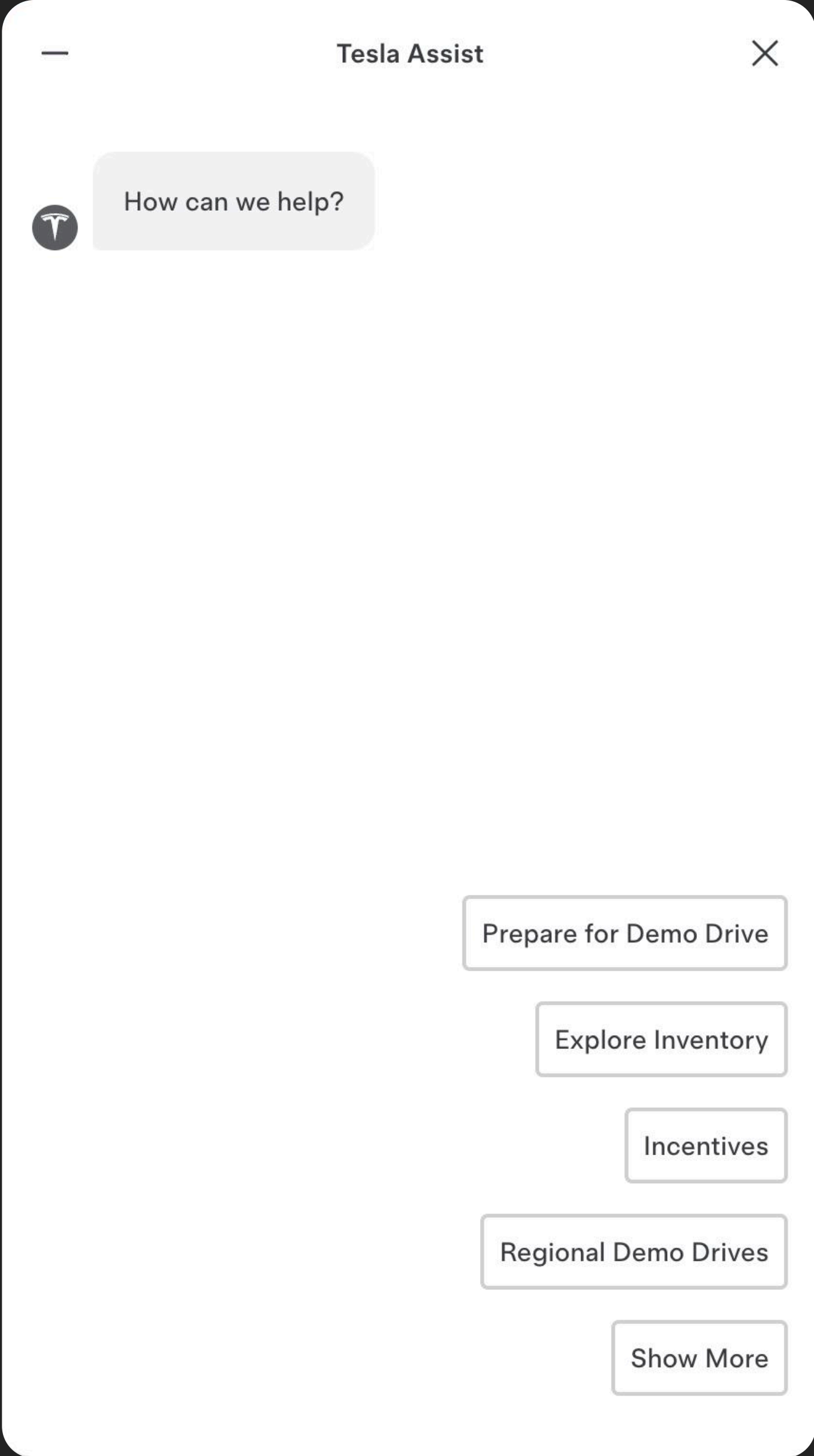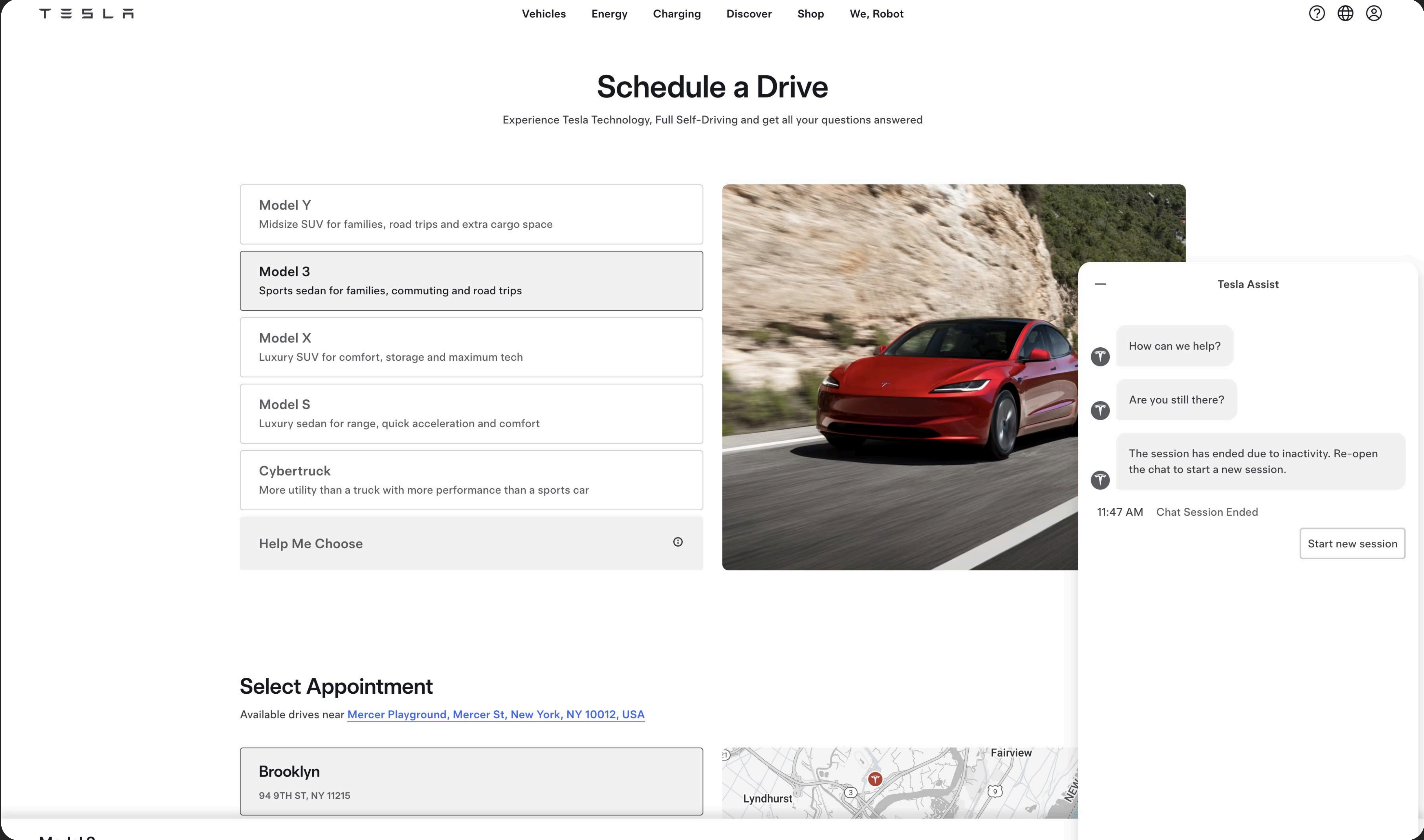




## Observations & Key Features

| Feature Analysis | User Experience | User Feedback | Market Impact | SWOT Analysis | Metrics Analysis | Business Model | Key Features |
|---|---|---|---|---|---|---|---|
| • Answers frequently asked questions (e.g. vehicle configurations, pricing, charging). <br>• Assists users in scheduling test drives. <br>• Provides information on the latest products and promotions. | • UI Design: Simple and intuitive, consistent with Tesla's branding. <br>• UX Design: Quick responses, offering both multiple-choice options and free text input to cater to various user needs. <br>• Usage Scenarios: Suitable for both desktop and mobile users, making information readily accessible. | • User Reviews: Users generally find it convenient for quick access to information but note limitations in handling complex queries. <br>• Common Pain Points: Struggles to provide satisfactory answers to non-standard questions. <br>• Unmet Needs: Lacks personalized recommendations and deeper technical support. | • Pricing Strategy: Offered as a free feature on the website to enhance overall user experience. <br>• Market Share: Similar chatbot applications are becoming increasingly common among automaker websites. <br>• Promotion Methods: Displayed prominently on the website, encouraging user interaction. | • Strengths: Deep integration with Tesla's ecosystem, providing instant and accurate information. <br>• Weaknesses: Limited ability to handle complex or non-standard issues. <br>• Opportunities: Potential to improve intelligence and personalization through machine learning. <br>• Threats: Competition from other automakers offering more advanced chatbot solutions. | • Feature Coverage: Meets core user needs but has room for improvement in personalization and handling complex queries. <br>• Usage Costs: Free for users but requires Tesla to allocate resources for maintenance and updates. <br>• Efficiency Metrics: Fast response time, but the success rate for resolving complex issues might be lower. | • Monetization: Does not generate direct revenue but enhances user experience to drive conversions. <br>• User Retention Strategy: Provides instant information and services to increase user engagement and loyalty. | Deep Integration ✓ <br>Simple and Intuitive UI ✓ <br>Multi-functional Coverage ✓ <br>Real-time Responses ✓ <br>Cross-platform Adaptation ✓ <br>Lack of Personalization ✗ <br>Complex Query Limitations ✗ <br>Lack of Feedback Mechanisms ✗ <br>Limited Interaction Depth ✗ |

## Sarah Mitchell                                                    01

- **Age:** 42
- **Gender:** Female
- **Occupation:** Senior Marketing Manager
- **Family Situation:** Married, 2 children

> *"I need to invest in a larger and wider smart living space for my children and parents."*

### Bio
Sarah is a busy professional and a mother, seeking ways to maximize her family's home space while investing in long-term financial growth. She is exploring the possibility of building an ADU in her backyard to generate rental income or provide space for her parents as they age. Sarah is tech-savvy and prefers efficient, streamlined processes.

### Painpoints
- Unable to easily understand **complex local zoning laws and regulations.**
- Concerned about **the cost and timeframe** of ADU construction.
- Needs rental income estimates to evaluate the **return on investment.**

### User Needs
- **Clear guidance** on zoning and permit requirements.
- **Design options tailored to her family's needs,** with cost and timeline estimates.
- **Data-driven rental market trends** to make informed financial decisions.

### Devices
What kind of devices our users mainly use?

📱 **Smartphone**     💻 **Laptop**

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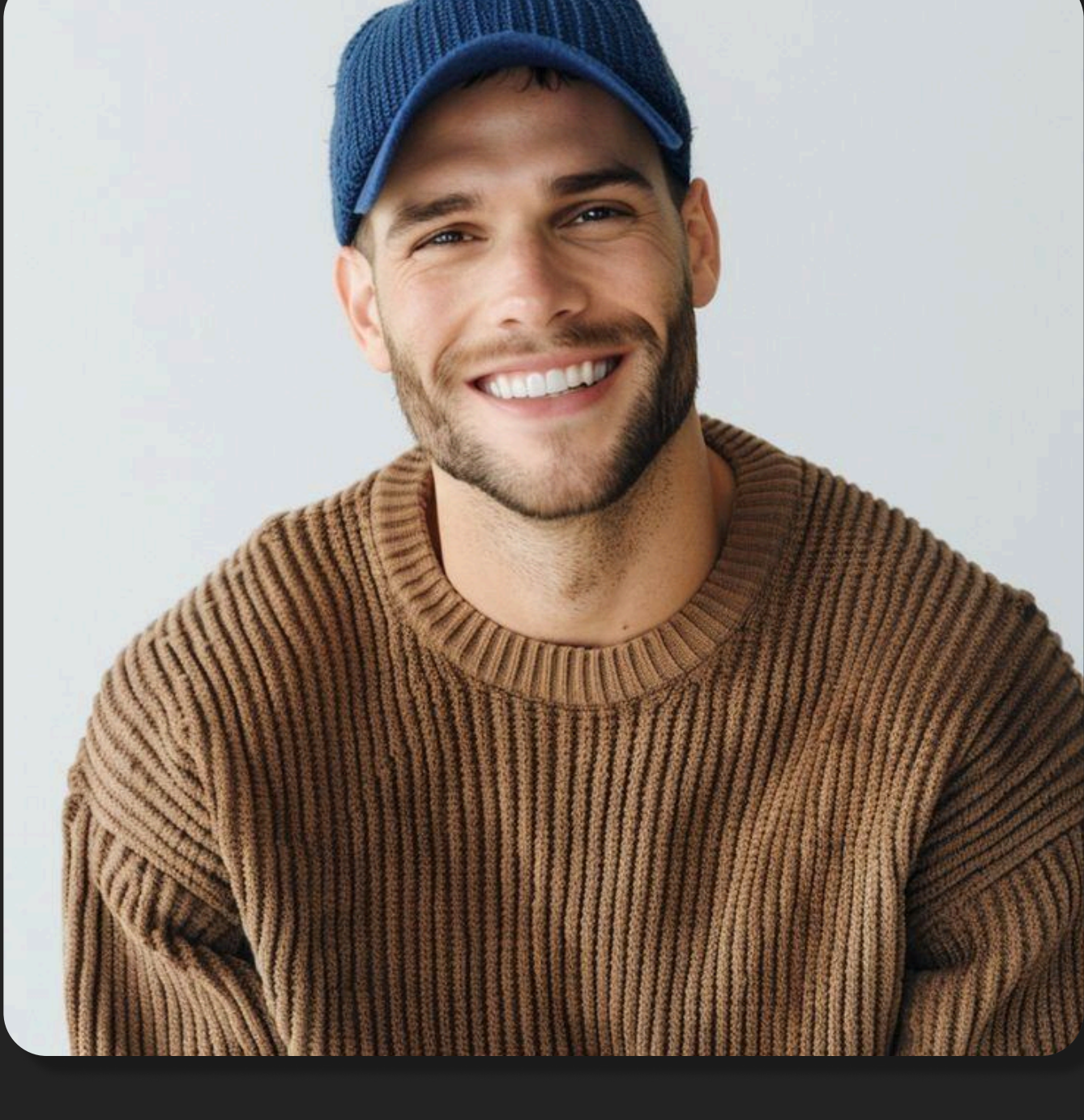
## Mark Jenkins                                                     02

- **Age:** 35
- **Gender:** Male
- **Occupation:** Freelance Architect
- **Family Situation:** Single, living with a dog

> *"Hope to use creativity to create a customized space that belongs to me and my dog."*

### Bio
Mark is a freelance architect who is always looking for innovative ways to incorporate sustainable living into his projects. He wants to build an ADU on his property to use as a design studio and guest space. Mark is detail-oriented and highly focused on the customization and design aspects of the project.

### Painpoints
- Want **highly customizable ADU designs** that meet both his aesthetic and functional needs.
- Seeks **clear, detailed cost breakdowns and options** to align with his budget.
- Needs to ensure **the design meets local building codes.**

### User Needs
- **Personalized design suggestions** that can be easily customized.
- **Up-to-date regulatory information** based on his property's location.
- **A flexible budget estimator** with various design options.

### Devices
What kind of devices our users mainly use?

📱 **Smartphone**     💻 **Laptop**     ✏️ **Tablet**

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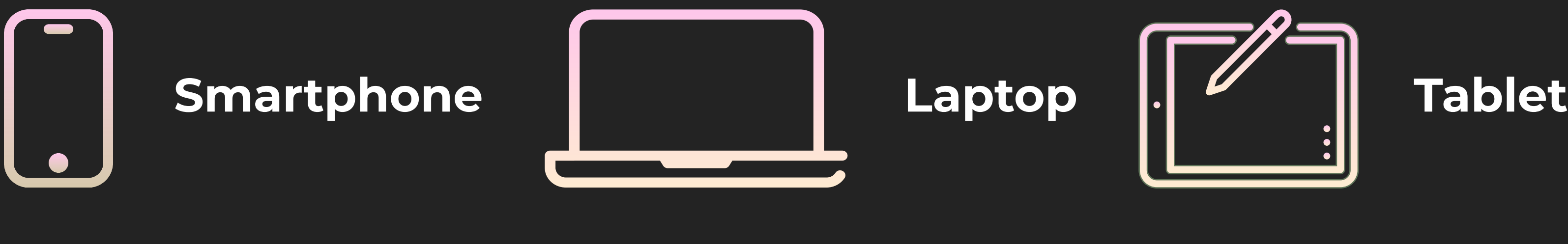
## Linda Harrison                                                   03

- **Age:** 58
- **Gender:** Female
- **Occupation:** Retired Teacher
- **Family Situation:** Married, 3 adult children

> *"Live comfortably today, plan wisely for tomorrow."*

### Bio
Linda is a retired teacher planning to build an ADU on her property to downsize and move into, while renting out her main house for additional retirement income. She and her husband want a simple, low-maintenance ADU design that can be built quickly. Linda has limited experience with tech, so she prefers straightforward, easy-to-understand information.

### Painpoints
- Struggles to understand **the legal and regulatory aspects of building an ADU.**
- Wants **a simple, low-cost design** with a clear construction timeline.
- Needs to know if building the ADU will provide **enough rental income to supplement her retirement.**

### User Needs
- **Step-by-step guidance** on regulations, permits, and the building process.
- **Access to rental market estimates** to make an informed decision.
- **Clear and simple communication** about costs and timelines.

### Devices
What kind of devices our users mainly use?

📱 **Smartphone**     💻 **Laptop**     ✏️ **Tablet**

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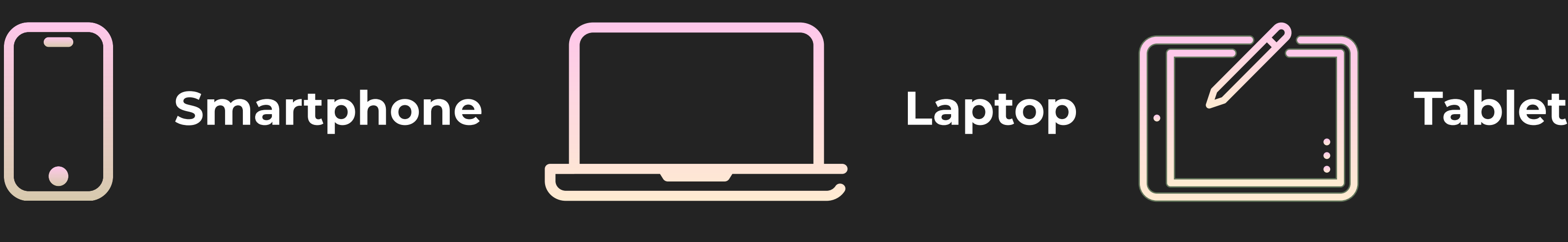
### Persona Conclusion

**Provide efficient decision-making support for busy families：**
- Offer zoning regulation guidance, design options, and rental market trends to help users make informed decisions quickly.

**Provide creative support for professionals seeking personalized designs：**
- Meet personalized needs by offering customized design suggestions, budget estimations, and the latest regulation information.

**Simplify complex processes for retirement planning users：**
- Deliver clear legal and regulatory guidance, transparent cost and timeline information, and rental income estimates to help users plan for the future with ease.

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### User Journey Map Intro

**Enhancing User Experience and Addressing Pain Points:**
- The User Journey Map highlights the potential of the ADU Chatbot to enhance user experience across stages from exploration to personalization.

**Overcoming Limitations of Current Market Products:**
- Unlike most products that rely on simple answers and defer complex queries to human agents, the ADU Chatbot effectively addresses this gap.

**Intuitive Interface and Personalized Guidance:**
- Offers an empathetic interface and tailored guidance to bridge the gap between virtual interactions and real-world needs.

**Simplifying Complex Processes:**
- Provides clear categorization of information, actionable insights, and decision-making support to simplify ADU-related complexities.

**Building Trust and Driving Connections:**
- The ADU Chatbot fosters trust and facilitates meaningful interactions and collaborations between individual and business users.

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### Detailed Information on This Image

# IDEATION - MOOBOARD

## Character Creation (Visual Examples)



## V1 Feature

### Character Image
- Platform standard or standard processing
- AI generated image option

### Personalization
- AI Character
- AI simulation of sound
- AI Appearance
- AI Memory Base

### Q & A Format
- Use Q & A format helping user to create a character. Provide with limited options to narrow down the scope

### Separate Phases
Separate the creation process into two:
- limited steps to easily get it started;
- advanced options to adjust afterwards

## Chat Experience (Intercom Examples)



**Handoff bot to person**

- The robot's answers are **not accurate** enough and **rely on human** services.
- There is **no voice** service, **video** explanation, or related **links** available.
- The robot's response **does not have emotions like human** customer service.

## V2 Feature

### Emotional Effect
- Visual effects reflecting conversational emotions
- A facial expression render the chat more vivid, but requires a systematic standard for character creation

### Walkie-talkie
- A solution for live chat, when it is technically hard for AI to determine if user has finished talking. Hold to talk and release to send

### 2-second Rule
- The bot starts to generate response strictly 2 seconds after user stops talking so user won't interrupt

### Other Interaction
- News and articles can be sent to AI as a topic for communication

## Emotional Effect Design

# IDEATION - USER FLOW

After researching and reviewing the other **AI assistant** , I wrote the best ideas and drew the **user flow** to get a better view of the user's path to reach the goal. The **main functions** inside are logically organized based on **the main needs of my client LiveLarge** company and **the purpose** of the AI assistant, and **used for feasibility testing in the future**.



Start → Website Homepage → Click on the AI assistant button in the bottom right corner → Conversion Page → Greetings → Chatting

Regulations and Permits
ADU Sizes and Types
Customization Options
Construction Timeline and Costs
ADU Rental Market
Post-sale Support
Account & Questions

Customer Service → Rating → End
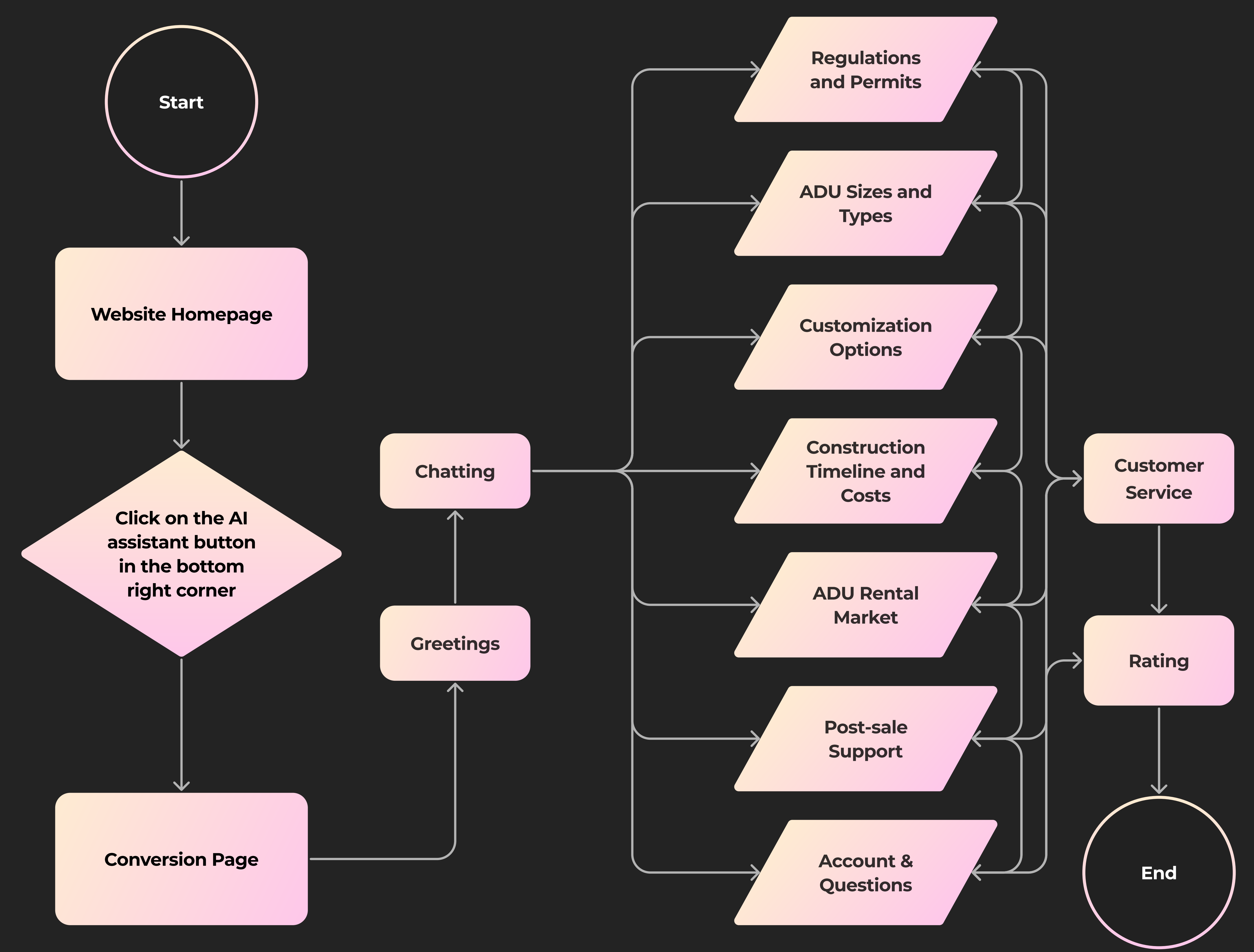
# DESIGNING - LO-FI PAGES

Here are some of **the most important page** low fidelity designs that preliminarily **determine the layout of AI chatbot and the content of key pages.** The next step is to continue training AI in dialogue content and UI beautification design.
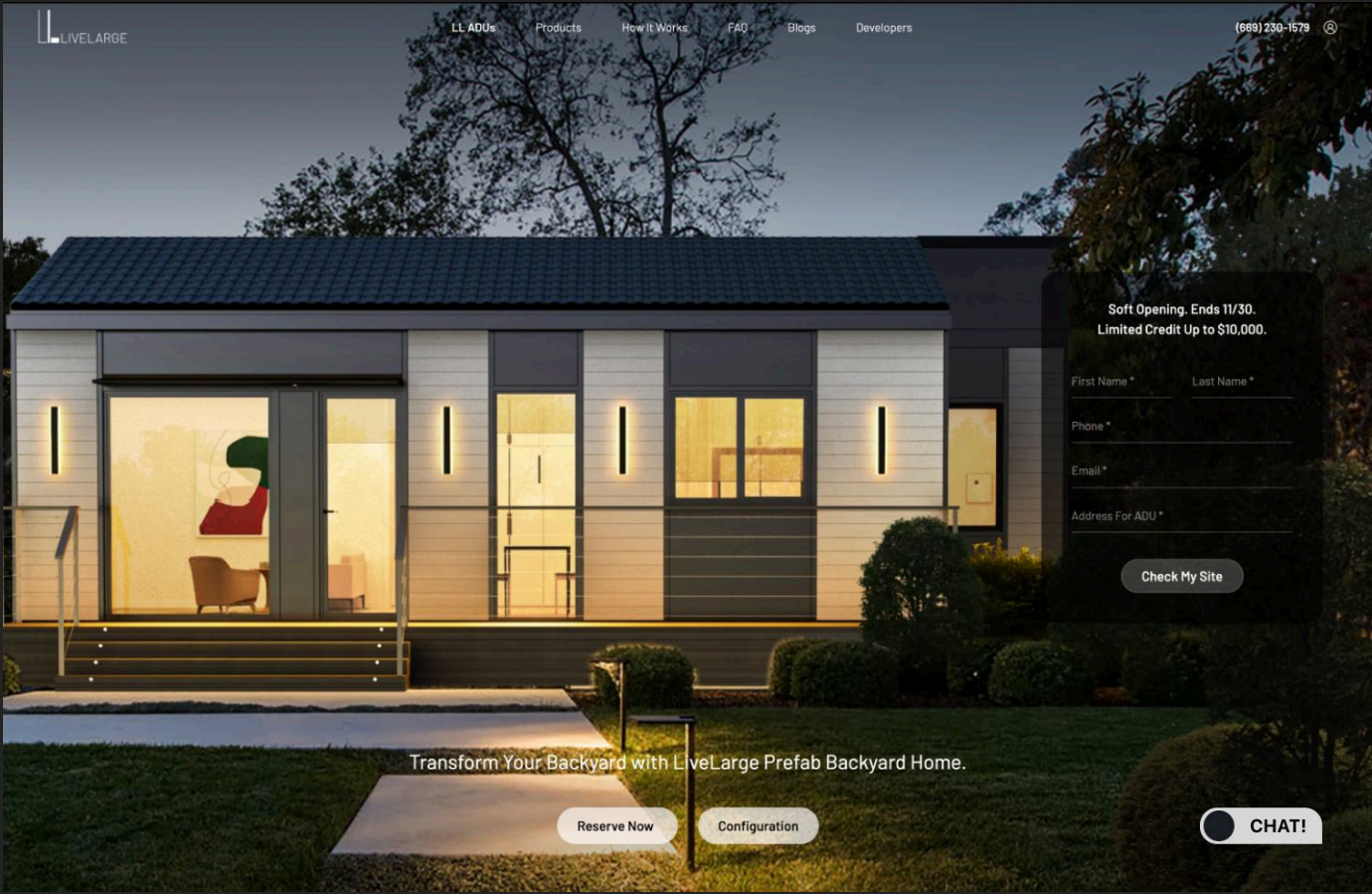


*Home Page*
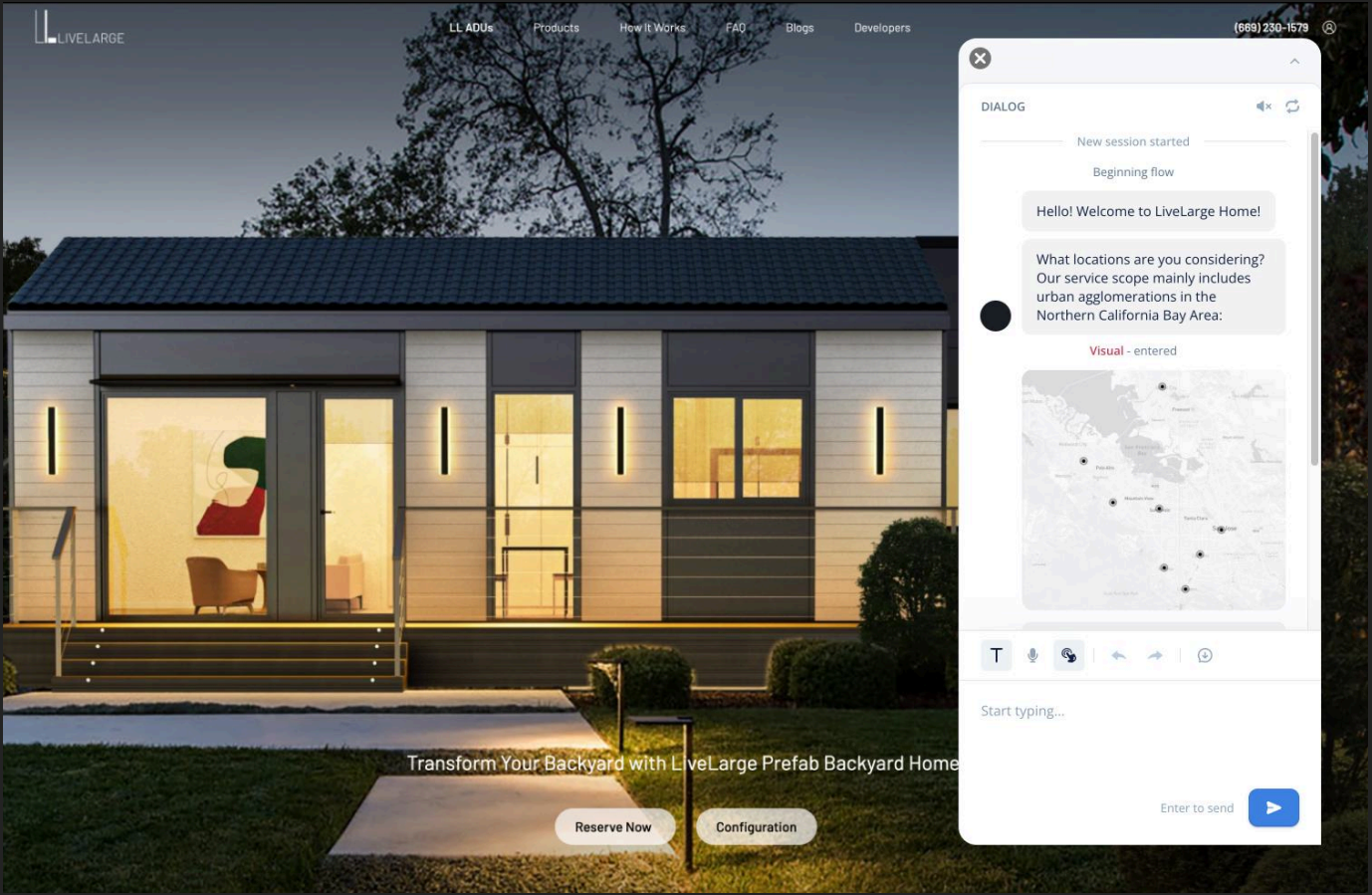


*Greeting Page*
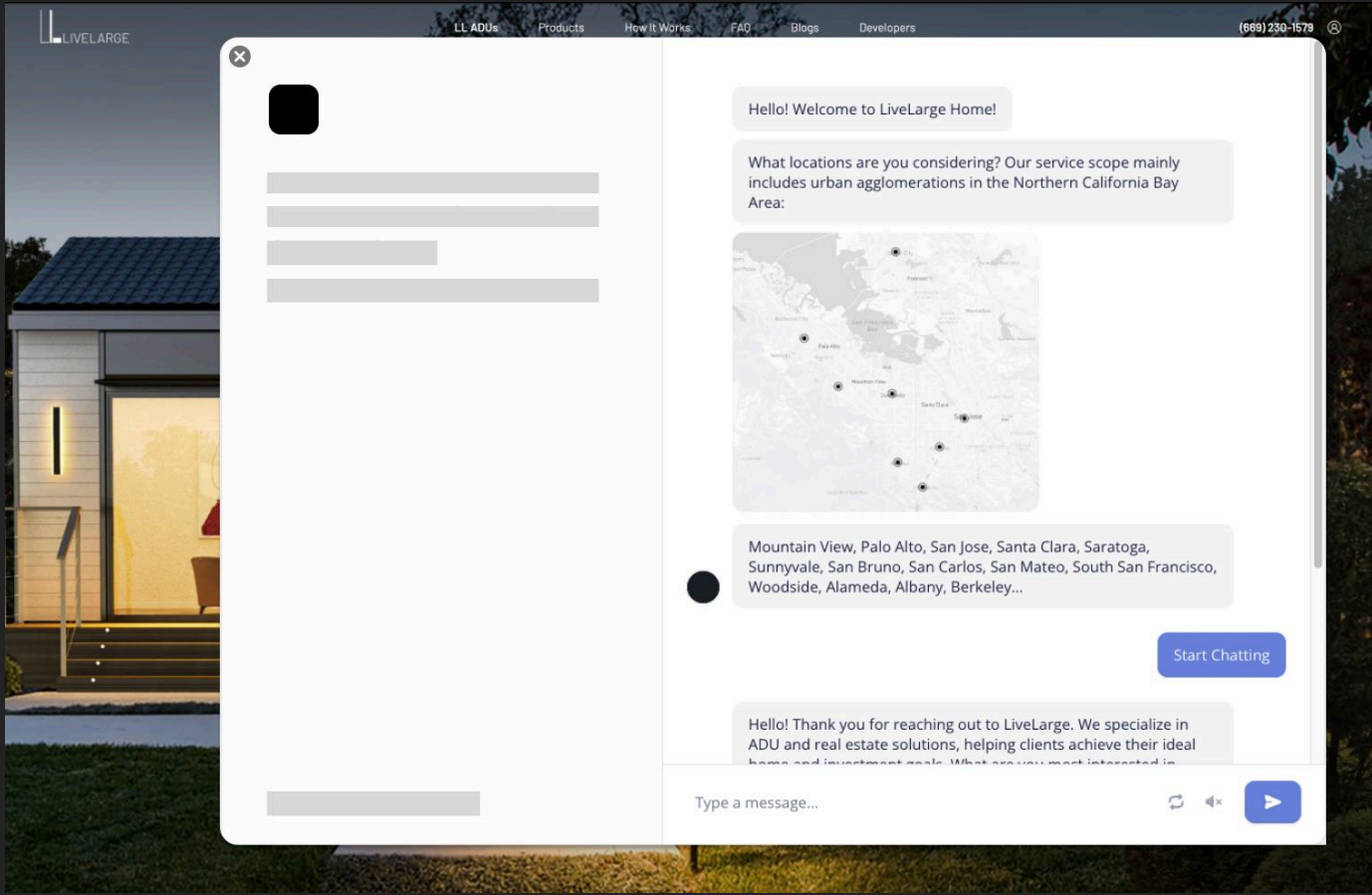


*Greeting Page Full Screen*
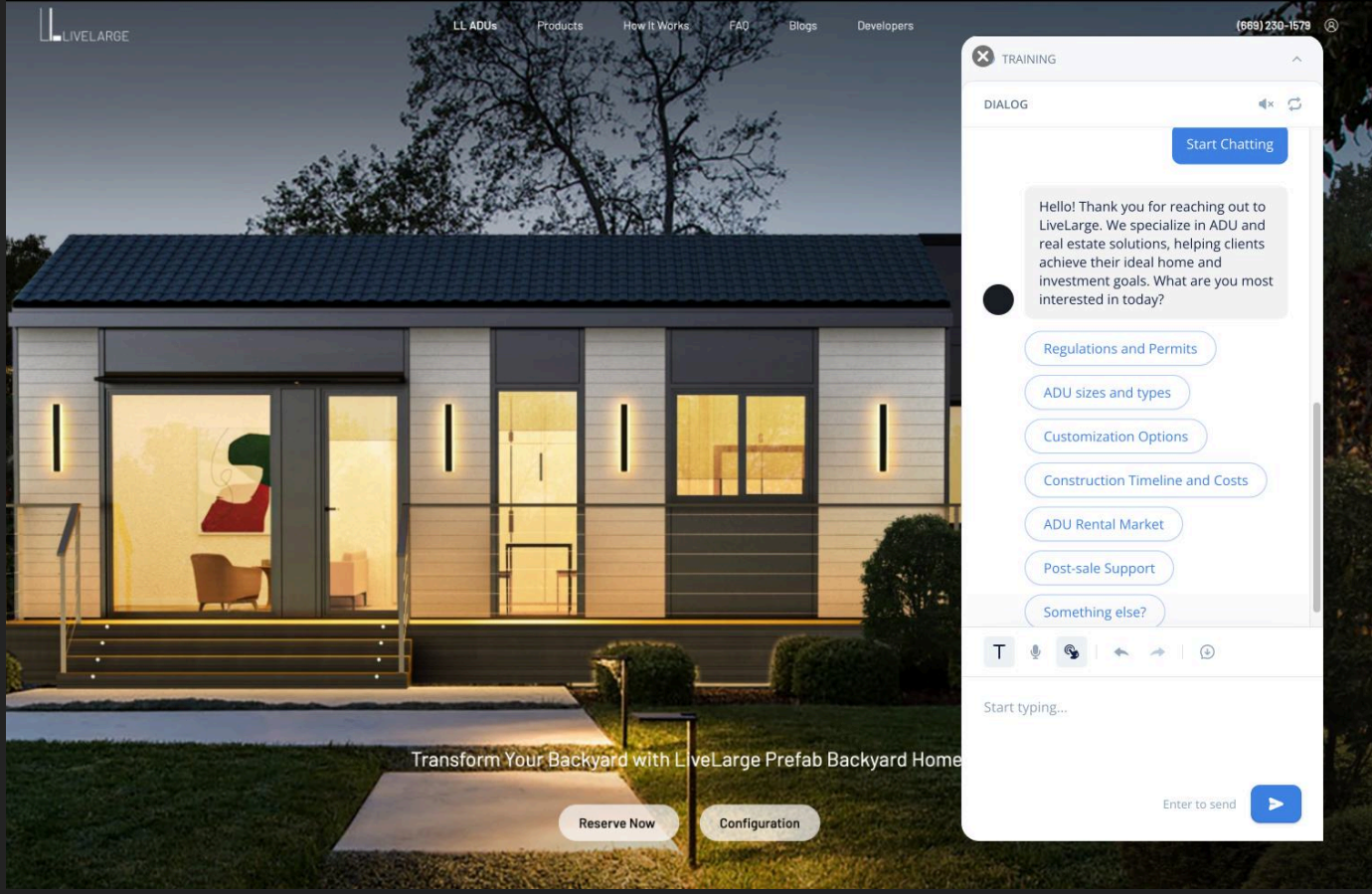


*Select Chat Direction*
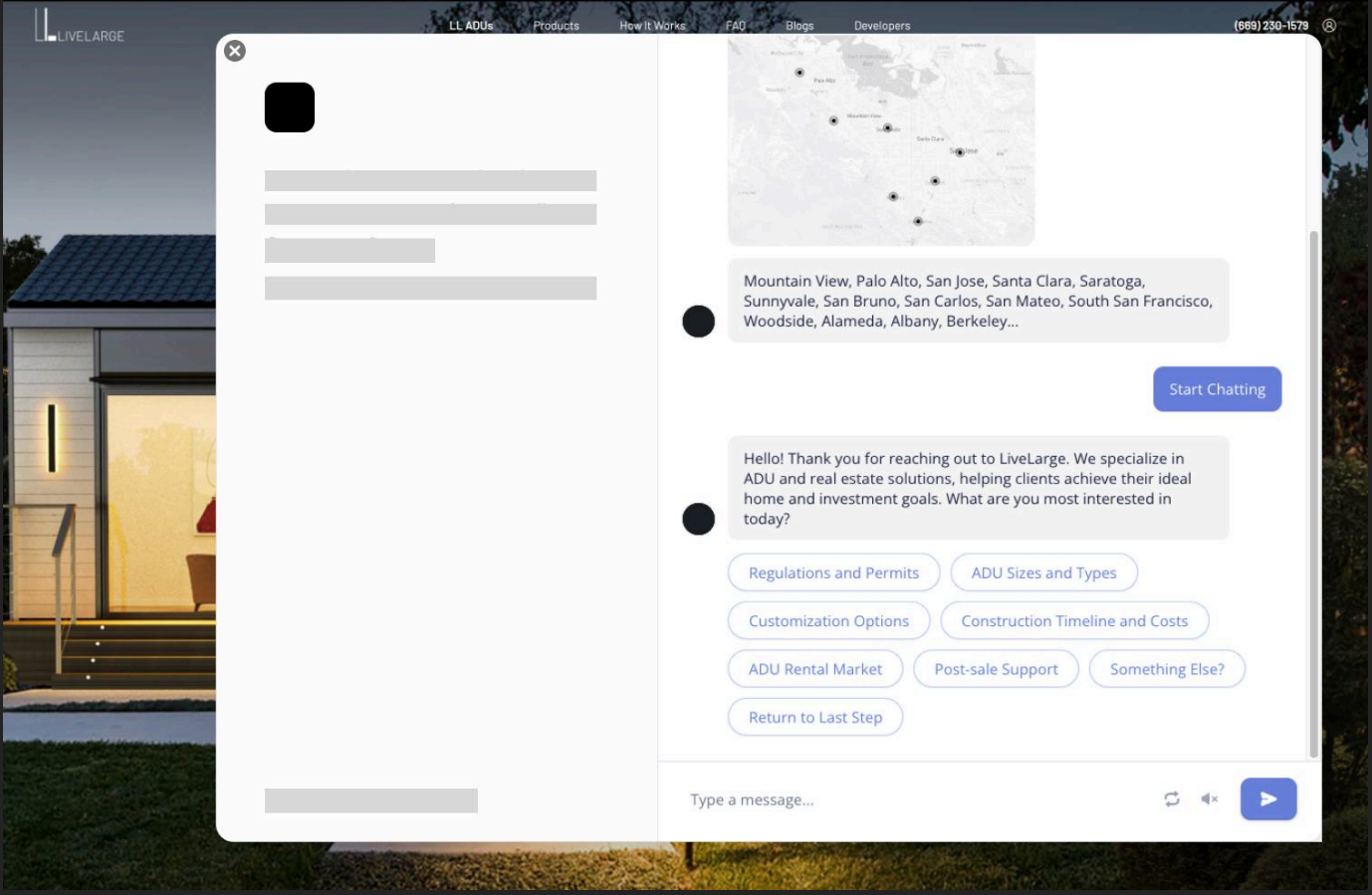


*Select Chat Direction Full Screen*
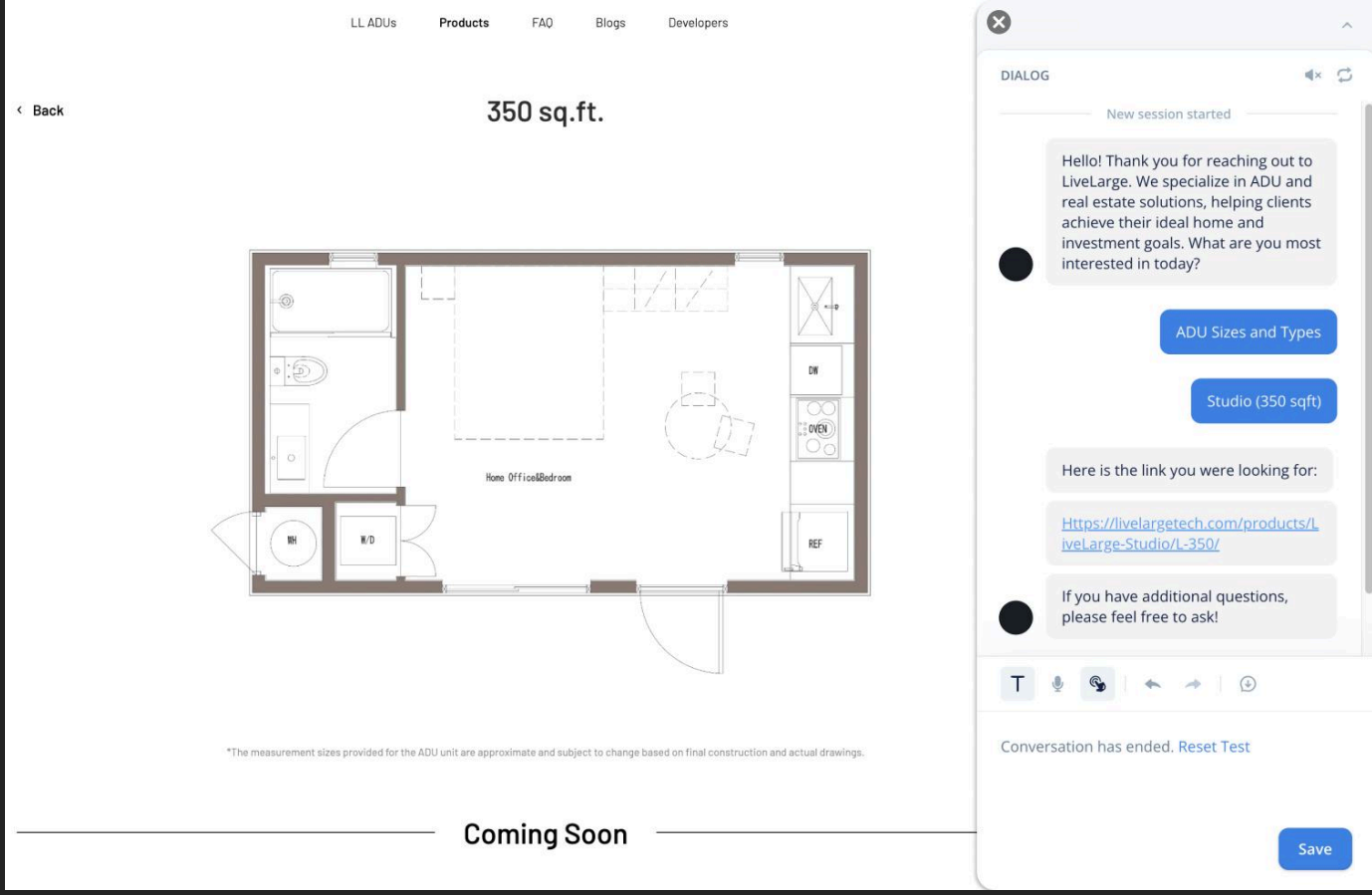


*Choose ADU Room Type Customization*
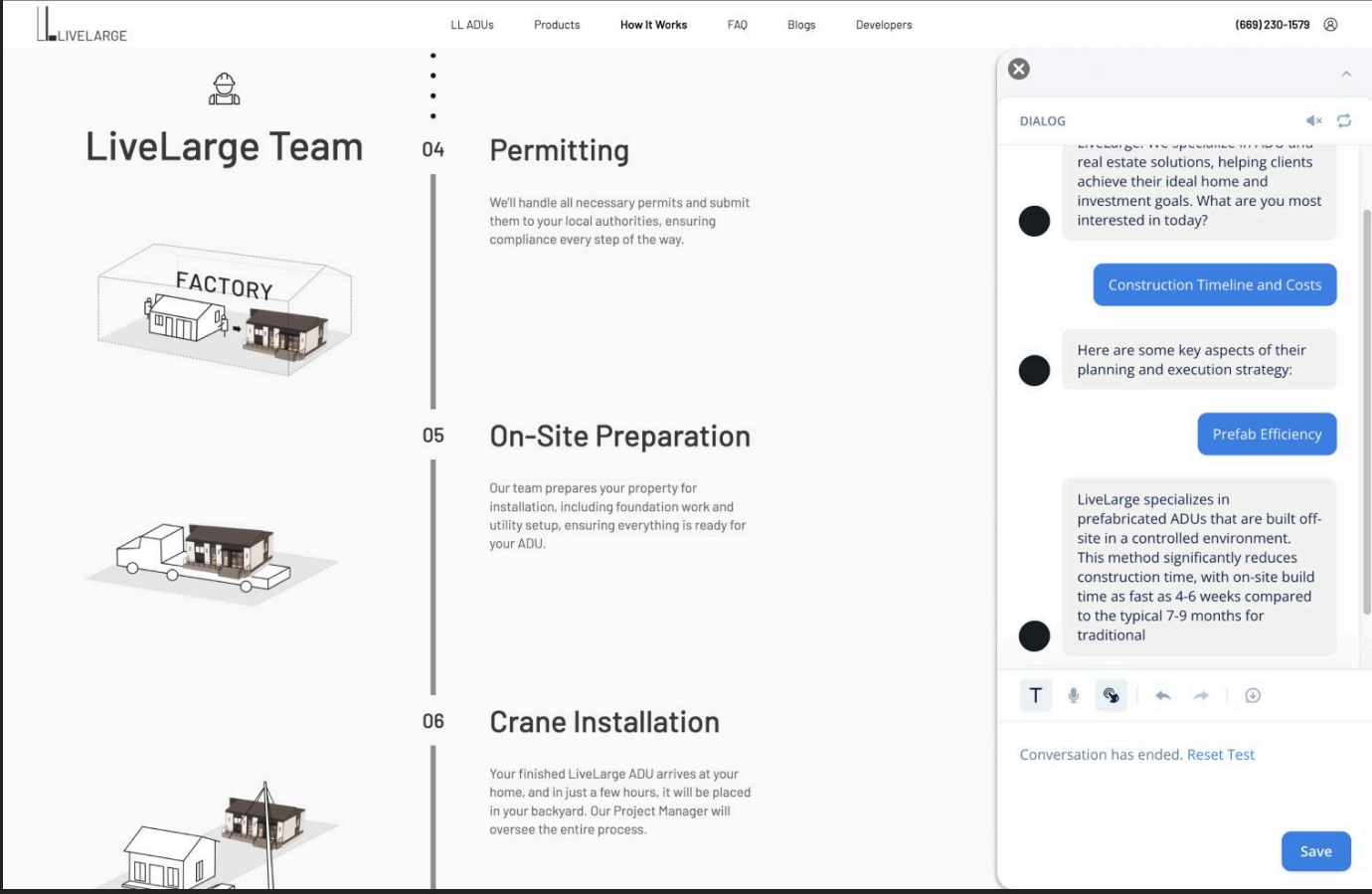


*View Customization Process*
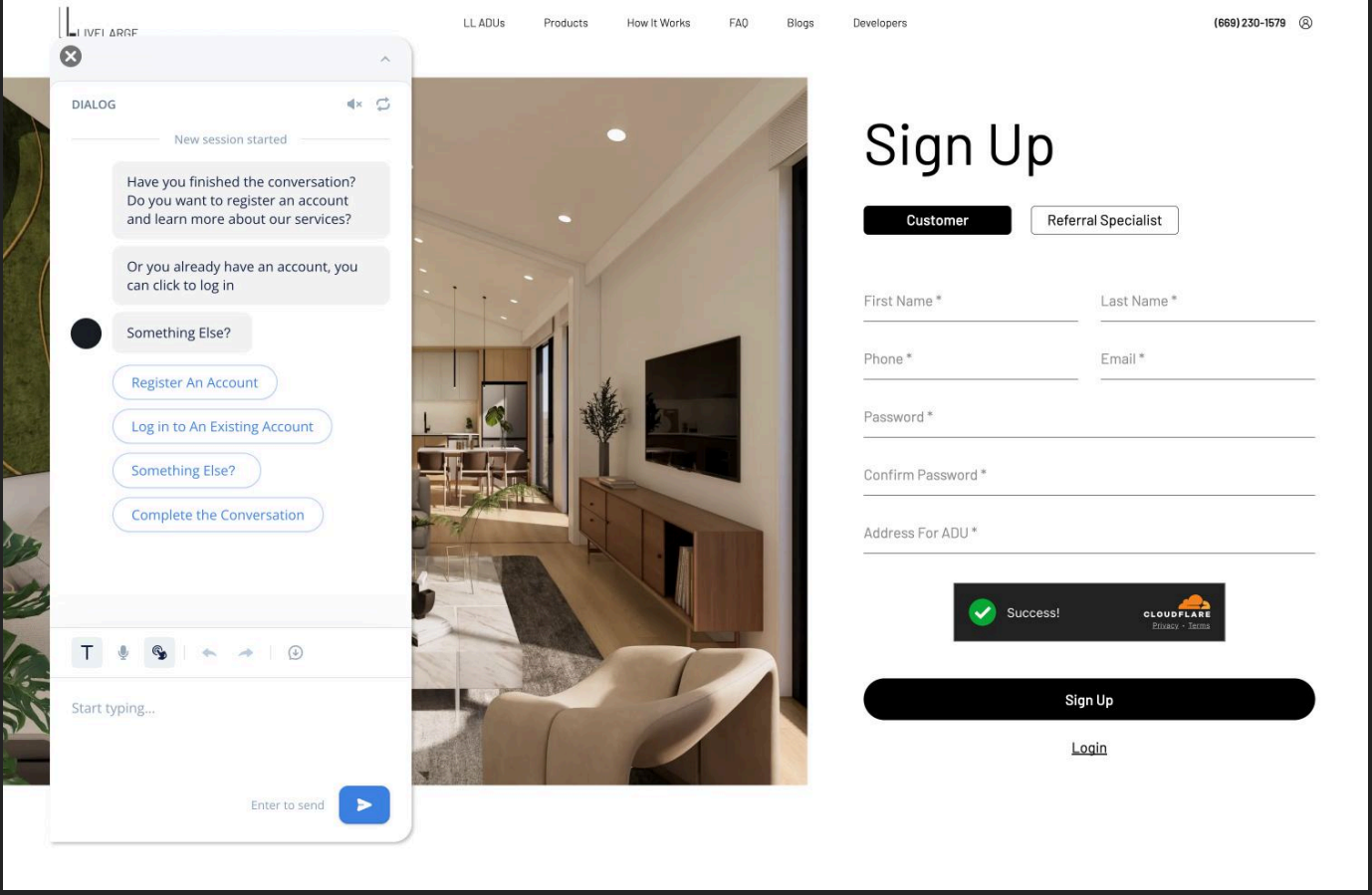


*Sign Up Page*
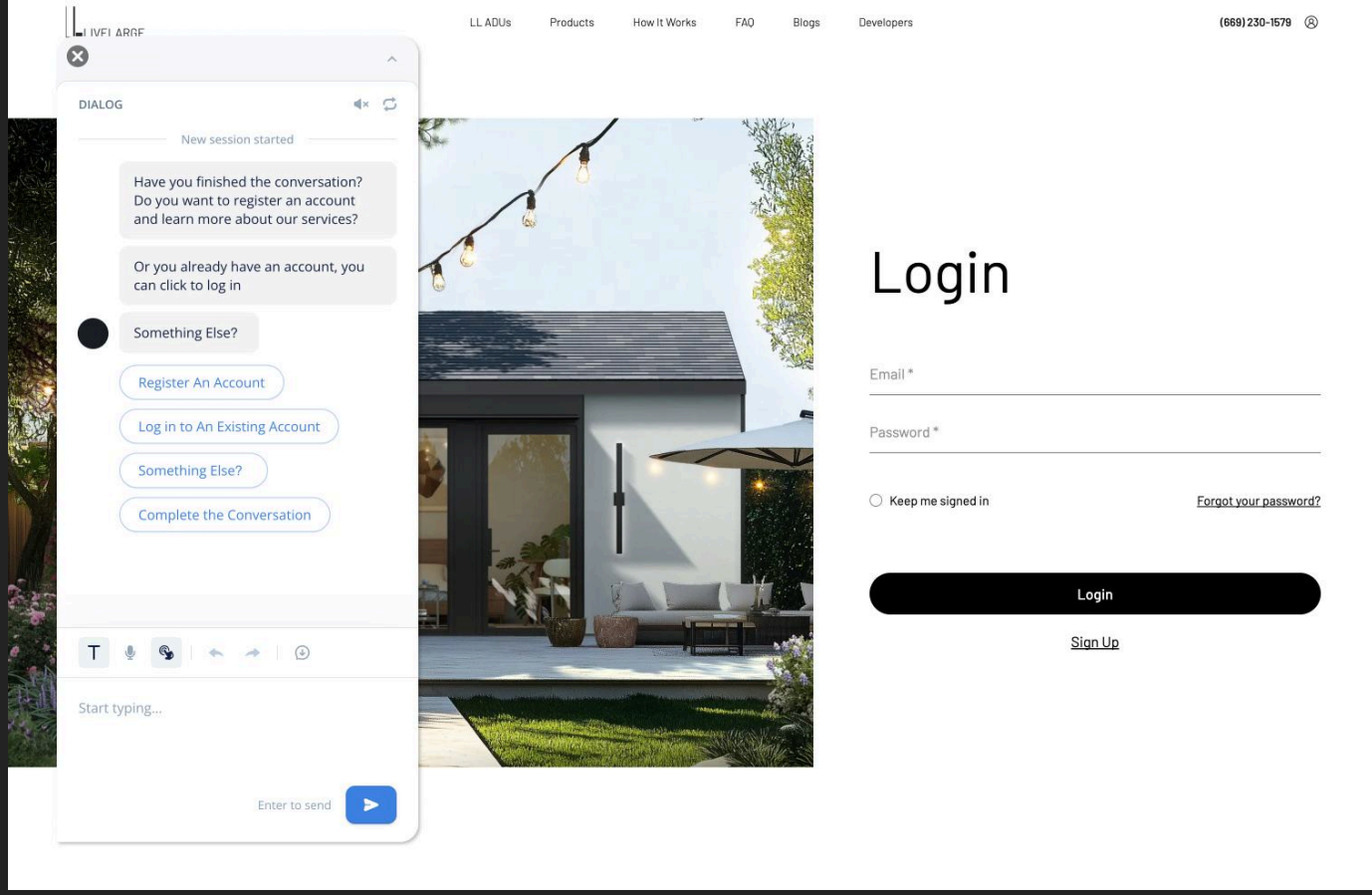


*Login Page*

# DESIGNING - UI COMPONENTS

## Typography

I used the **SF Pro font**. The reason I use this font is that it has a **modern** and **attractive look** and is **easy to read** and also **displays well** in all sizes.

# SF Pro  A a

| Style Name | Font Size | Font Weight | Preview |
|---|---|---|---|
| Headline | 32 | Bold | **Sample Text** |
| Start Button | 20 | Bold | **Sample Text** |
| Top navigation bar | 18 | Regular | Sample Text |
| Save Button | 16 | Bold | **Sample Text** |
| Body Text | 16 | Regular | Sample Text |

## Icons

Designing **key feature icons** for an AI Chatbot is essential, as they provide **intuitive visual cues** to help users **quickly understand functionalities**, enhancing interaction efficiency and overall user experience.

## Colors

I designed a theme consisting of **pink and Light yellow** for my client LiveLarge's AI ChatBot, using **color code # 242424** as the **dark color** because this combination **creates a 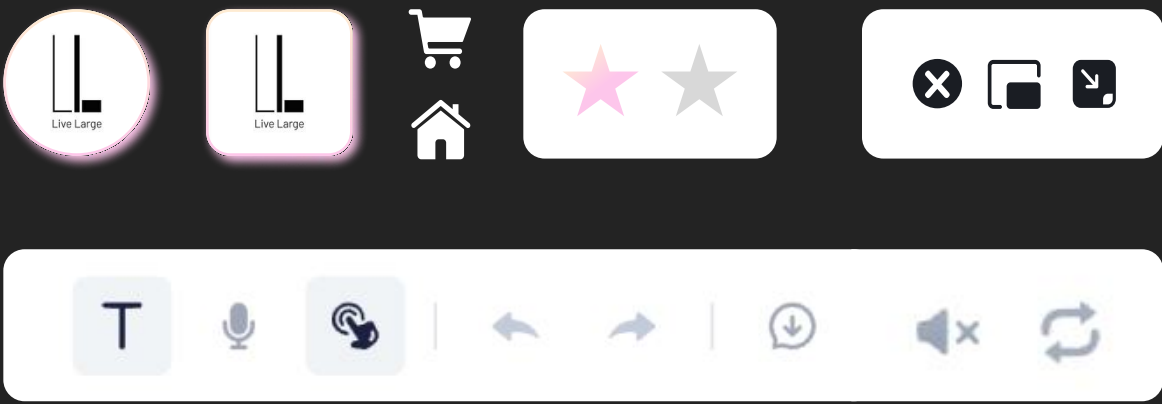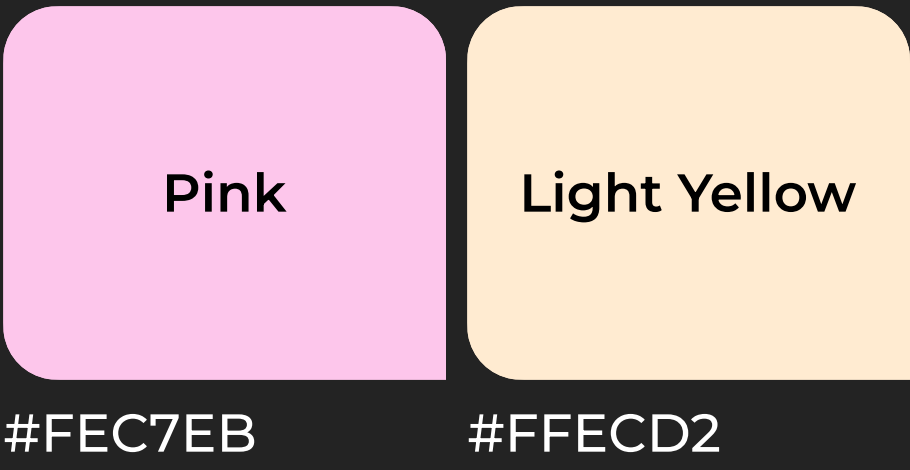contrasting and visually focused effect** on the entire theme. In addition, this gradient element composed of pink and light yellow helps **give users a warm feeling of looking into the room on a dark night**, and a feeling of returning to their beloved home after a tiring day.
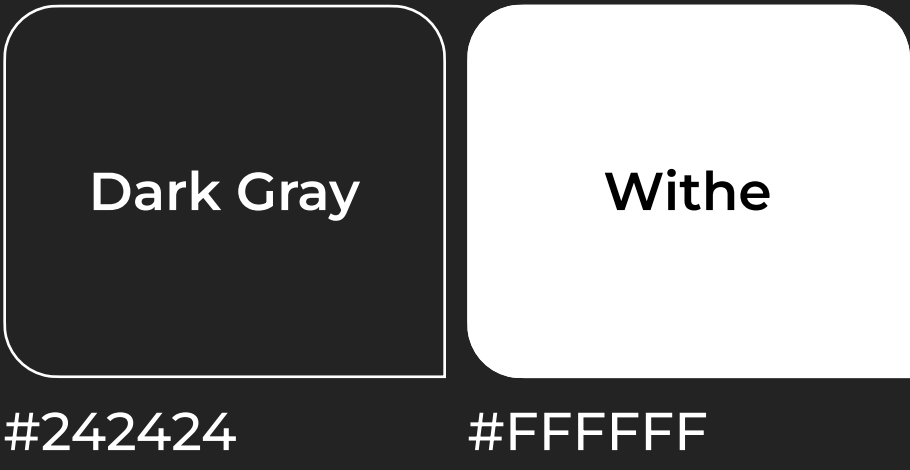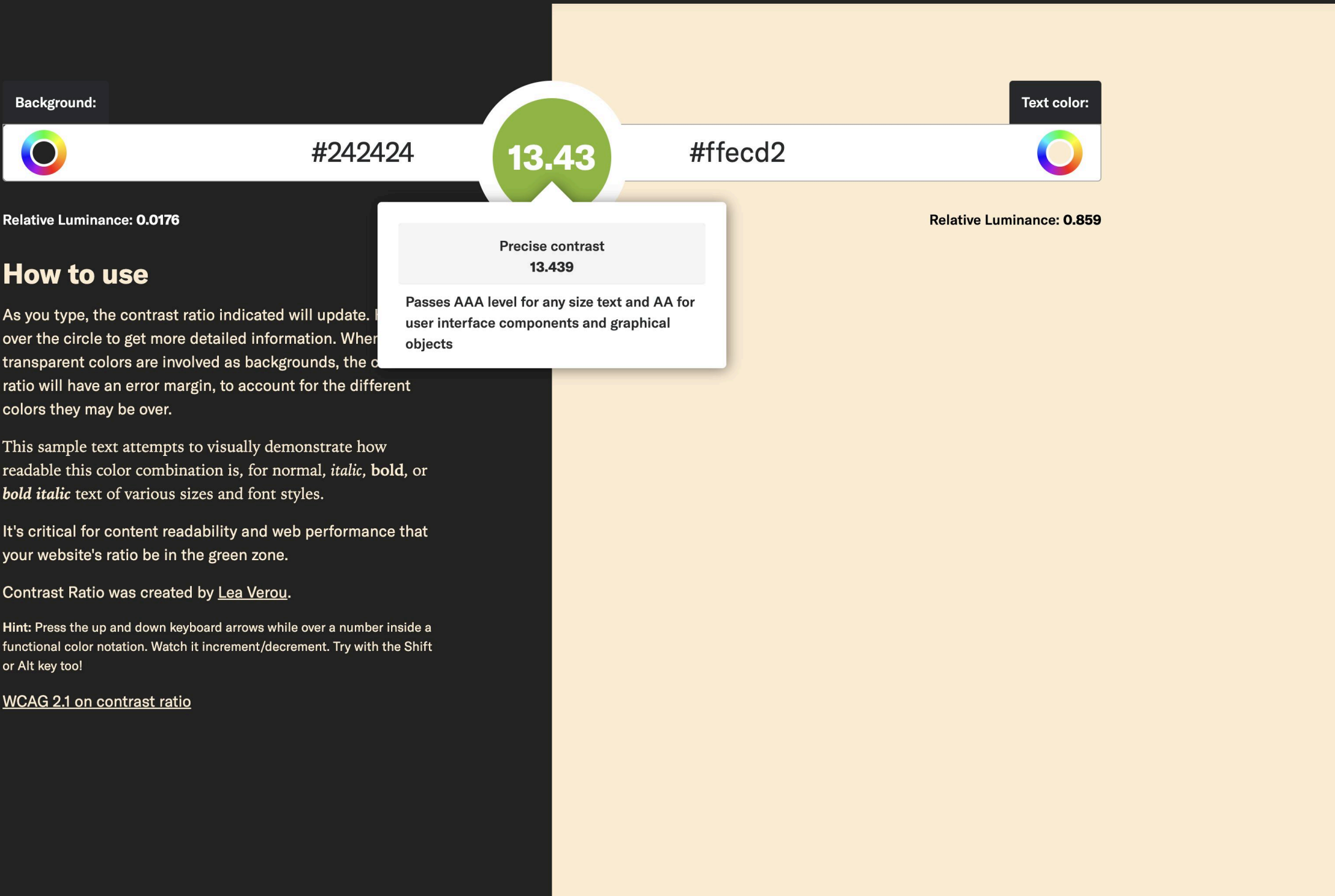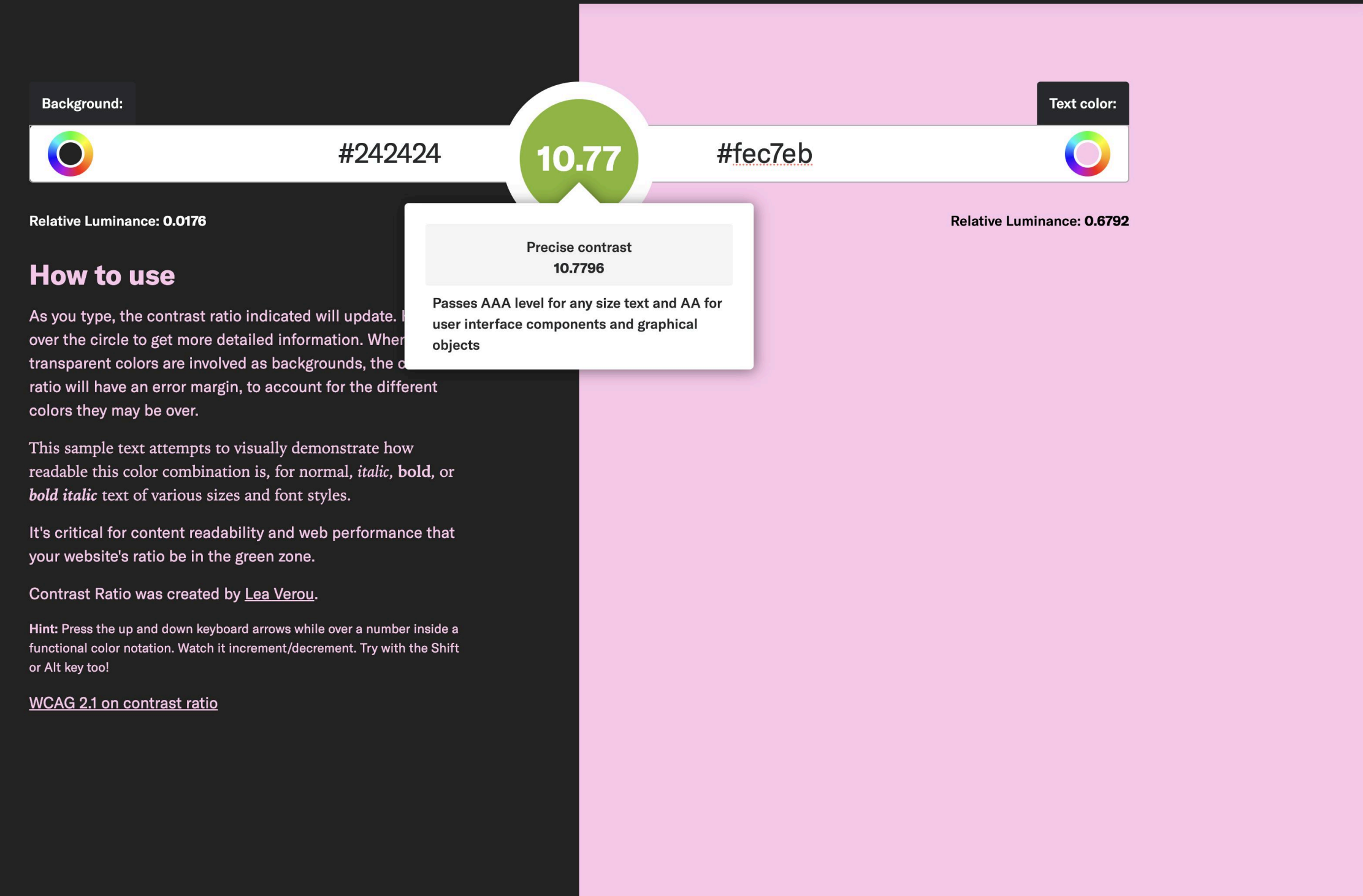
### Primary

| Pink | Light Yellow |
|---|---|
| #FEC7EB | #FFECD2 |

### Font

| Black |
|---|
| #1A1E24 |

### Background

| Dark Gray | Withe |
|---|---|
| #242424 | #FFFFFF |

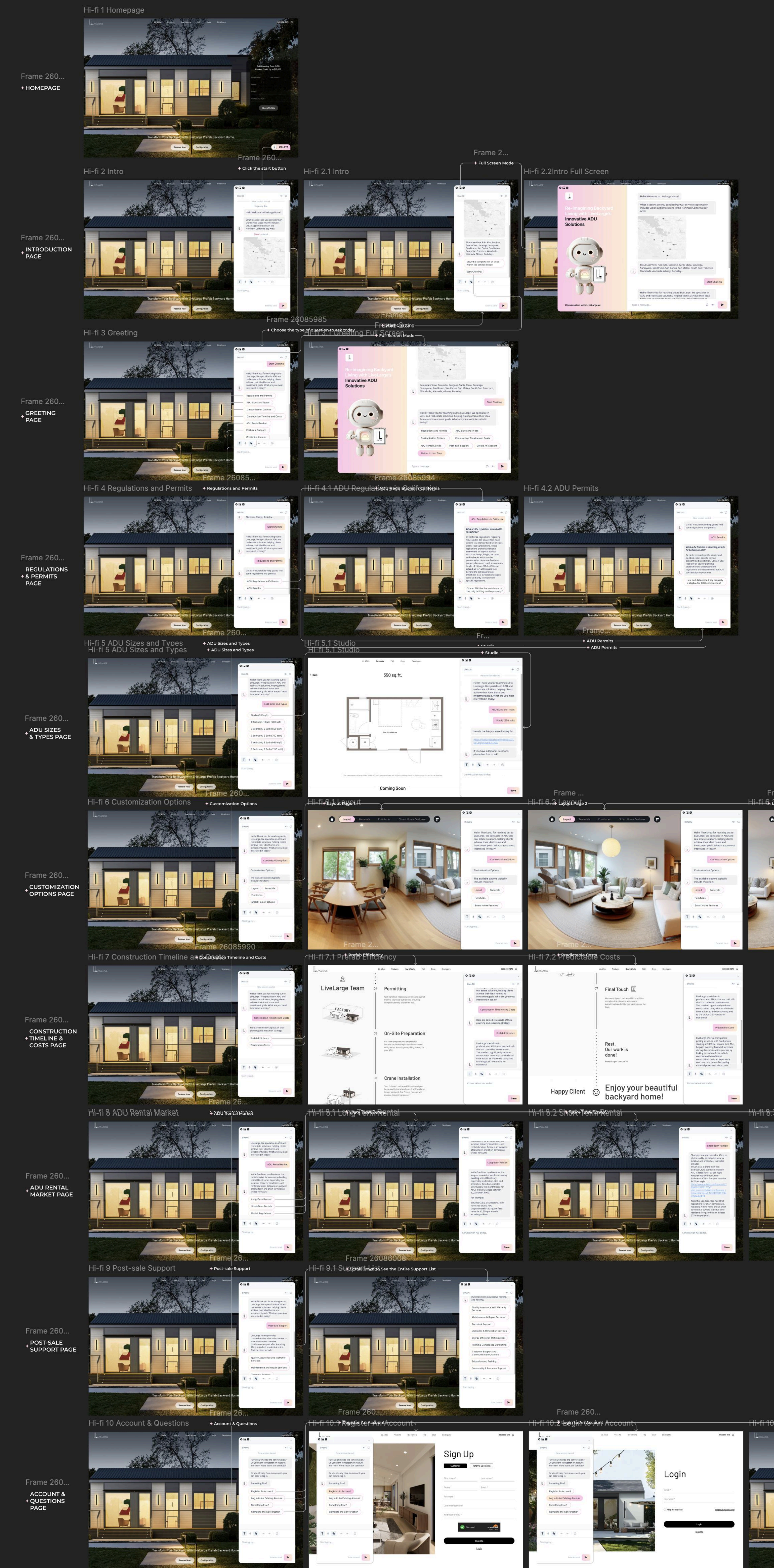## Feasibility Test for Color Blindness

Conducting **color blindness feasibility testing** is crucial for **UI design** as it ensures **accessibility and inclusivity**, allowing all users, regardless of visual impairments, to effectively interact with the interface.

Background: #242424
Text color: #fec7eb
Relative Luminance: 0.0176    Relative Luminance: 0.6792

10.77

Precise contrast
10.7796
Passes AAA level for any size text and AA for user interface components and graphical objects

**How to use**

As you type, the contrast ratio indicated will update. over the circle to get more detailed information. When transparent colors are involved as backgrounds, the ratio will have an error margin, to account for the different colors they may be over.

This sample text attempts to visually demonstrate how readable this color combination is, for normal, *italic*, **bold**, or ***bold italic*** text of various sizes and font styles.

It's critical for content readability and web performance that your website's ratio be in the green zone.

Contrast Ratio was created by Lea Verou.

**Hint:** Press the up and down keyboard arrows while over a number inside a functional color notation. Watch it increment/decrement. Try with the Shift or Alt key too!

WCAG 2.1 on contrast ratio

Background: #242424
Text color: #ffcd2
Relative Luminance: 0.0176    Relative Luminance: 0.859

13.43

Precise contrast
13.439
Passes AAA level for any size text and AA for user interface components and graphical objects

**How to use**

As you type, the contrast ratio indicated will update. over the circle to get more detailed information. When transparent colors are involved as backgrounds, the ratio will have an error margin, to account for the different colors they may be over.

This sample text attempts to visually demonstrate how readable this color combination is, for normal, *italic*, **bold**, or ***bold italic*** text of various sizes and font styles.

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**Hint:** Press the up and down keyboard arrows while over a number inside a functional color notation. Watch it increment/decrement. Try with the Shift or Alt key too!

WCAG 2.1 on contrast ratio

# DESIGNING - HI-FI WIREFRAME

After drawing the **Lo-fi wireframe** and specifying the information of the application and how to arrange it, I *specified the typography and color of the application*, and then **started the Hi-fi wireframe design.**
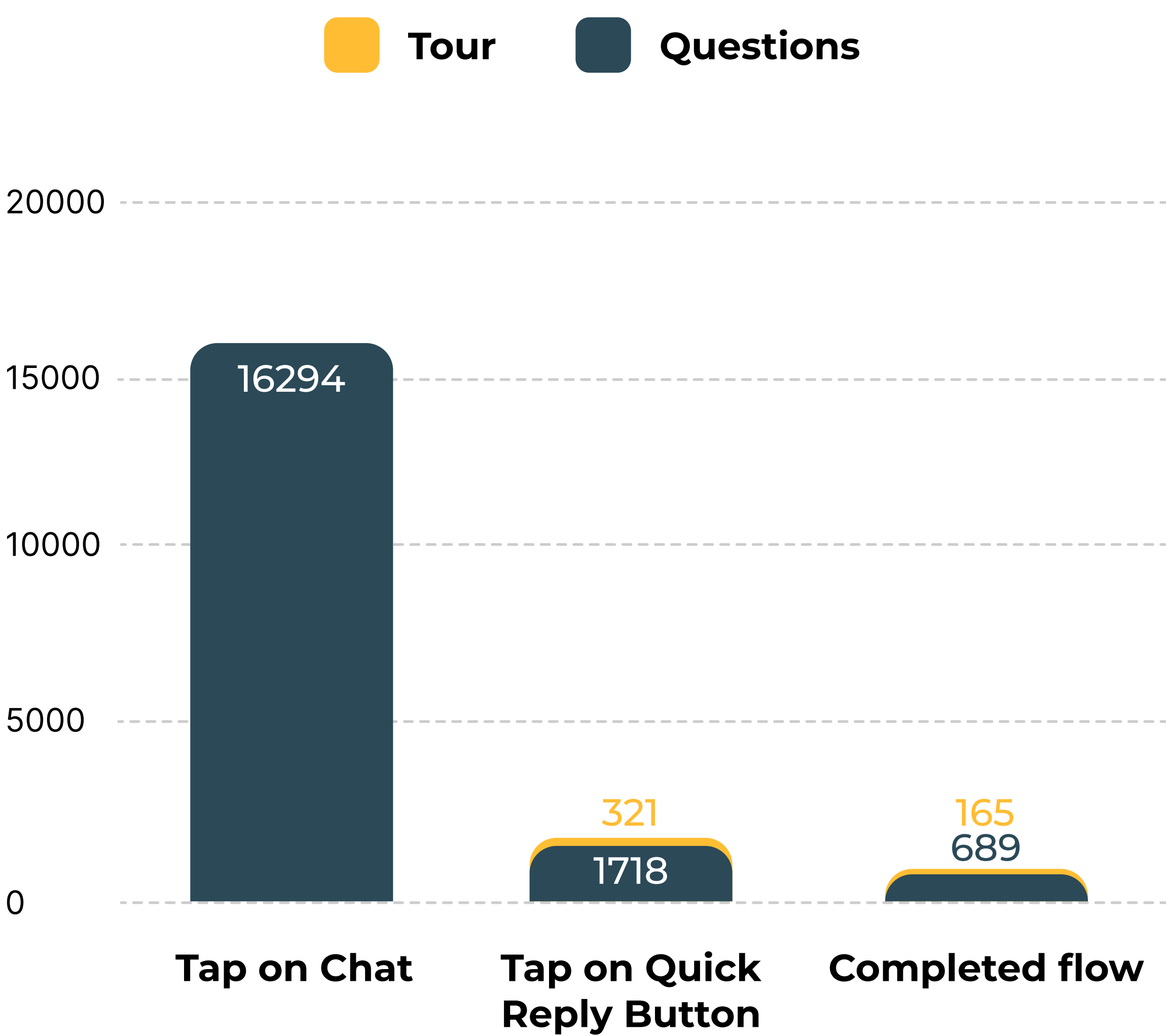
From these **three main data tables** representing people use AI Chatbot **mainly for specific question and schedule tou**r, and are **more enthusiastic about using AI Chatbot on Saturdays**. All users will type and use AI Chatbot for circulation, only **a few will use quick reply button,** and only a **very small number** of 689 people in the sample base will **complete the flow.**

## Inquiry Type
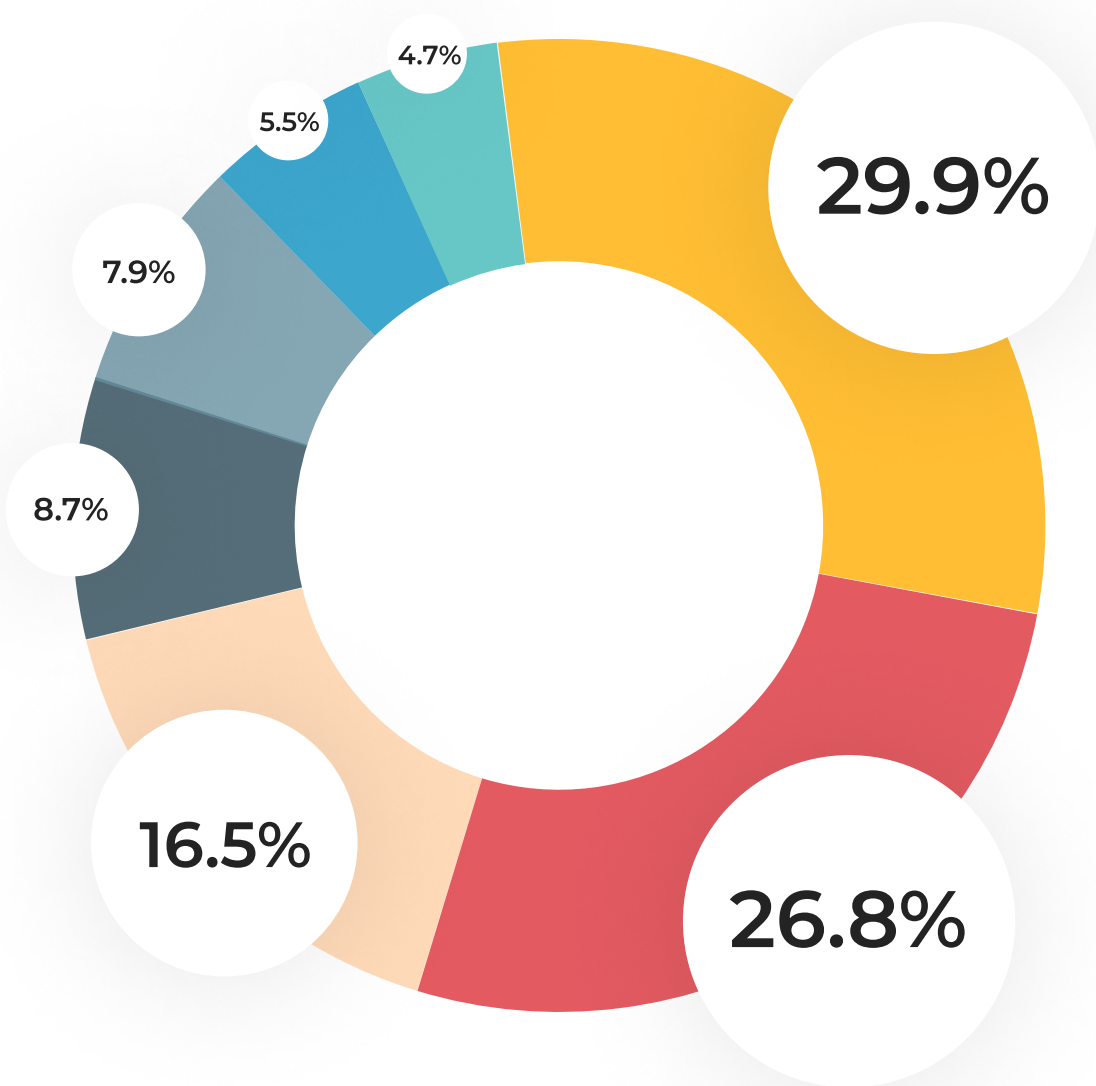


|  | Schedule Tour | 38 |
|---|---|---|
|  | Specific Question | 34 |
|  | General Inquiry | 21 |
|  | Check Availability | 11 |
|  | About Pricing | 10 |
|  | About Financing | 7 |
|  | Other | 6 |
| **Grand Total** |  | **127** |

## Chat Flow

■ **Tour**   ■ **Questions**



- Tap on Chat: 16294
- Tap on Quick Reply Button: 321 / 1718
- Completed flow: 165 / 689

## Chat Leads by Day of Week

**COUNTA of day of week**

| Sun | 462 |
|---|---|
| Mon | 439 |
| Tue | 396 |
| Wed | 426 |
| Thu | 418 |
| Fri | 393 |
| Sat | 478 |
| **Grand Total** | **3012** |



Sat: 478 is the highest number of people
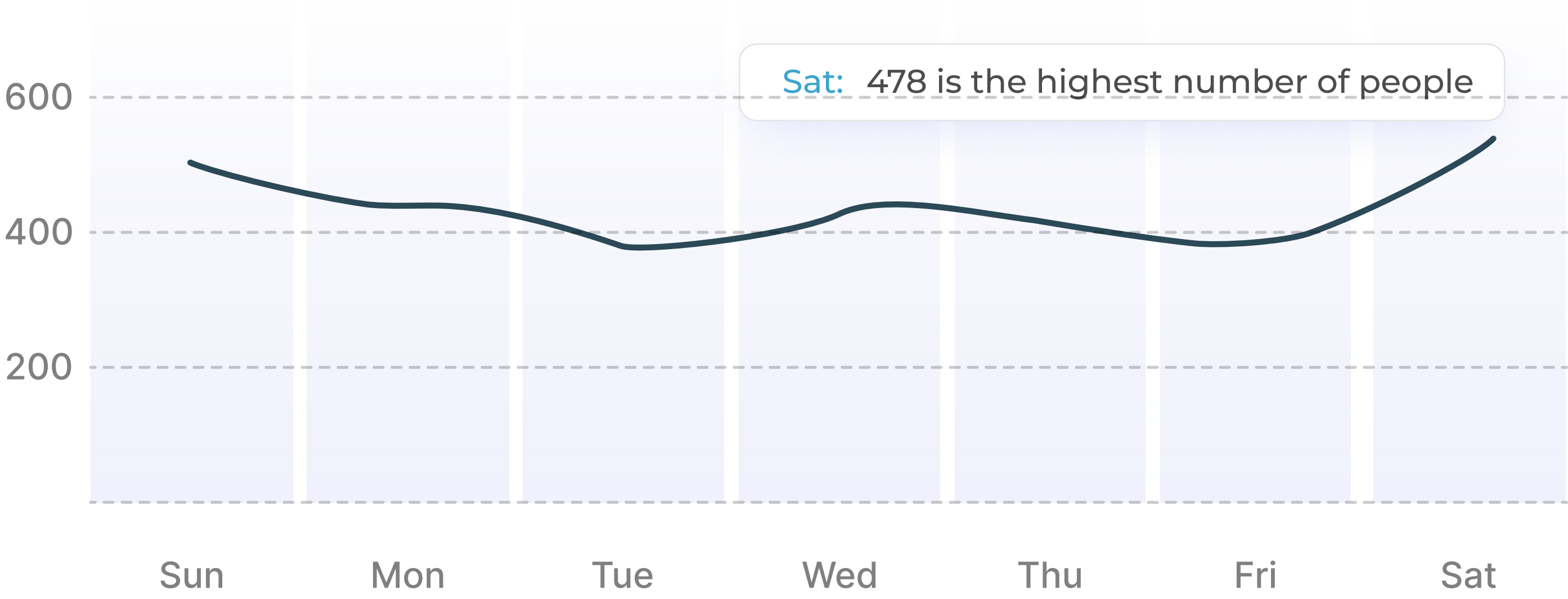
## VISION FOR FUTURE UPDATES

This trial phase successfully validated the initial potential of the AI Chatbot, providing valuable insights for improvement. In the next version, the focus will be on optimizing user flows, enhancing feature accessibility, and ensuring the chatbot aligns with user expectations. This aligns with the leadership's vision of creating a **highly efficient, user-centric chatbot** that not only meets current demands but also anticipates future customer needs. By addressing these areas, the AI Chatbot aims to become a cornerstone of the company's customer engagement strategy.