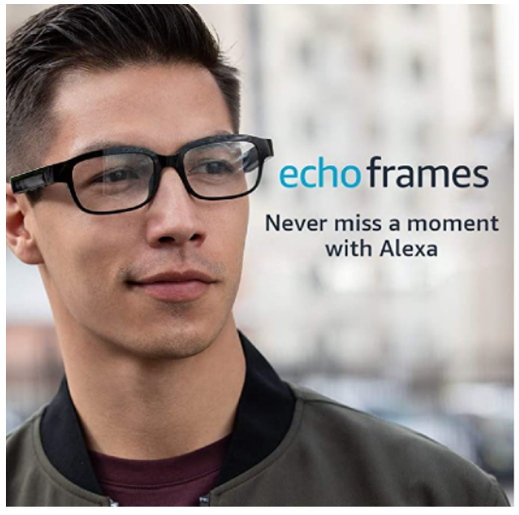
Voice Design

Mihir Shah

Alexa Enabled Amazon Devices

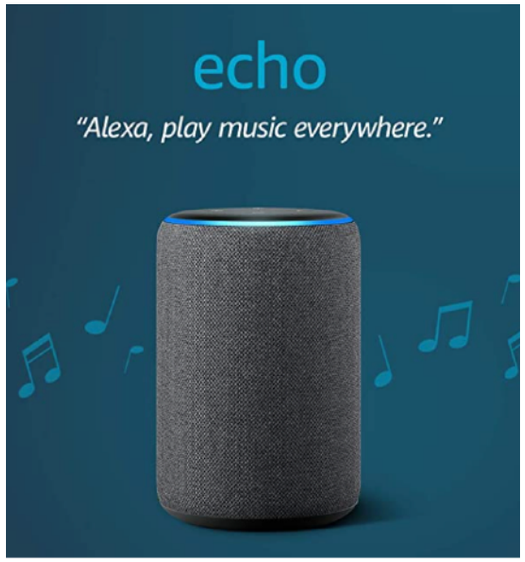
Echo Loop Smart Ring - “Alexa on Hand”



Echo Frame - “Glasses with hands-free Alexa”

Echo Glow - “Smart Lamp for Kids”

Echo Show- “Alexa That Can Show You More”



Echo (3rd Gen) - “Smart Speaker”

Echo Dot With Clock - “Smart Speaker with Clock”

Apps Using Voice Assistants

Siri on Mac/iPhone/Apple Watch

- **What is the general purpose of the app? Who do you think is the intended audience?**

The general purpose of Siri is to answer voice questions based on web search or perform functional tasks such as starting a timer, opening a file, scheduling a reminder or dictating voice-to-text. The intended audience for Siri is Apple customers which constitute 64% of Americans.

- **How does the app use sound to appeal to users? Does it use only voice, or does it combine voice with another interface?**

Siri has a calm and natural artificial voice that evolved since its inception in 2011. It is adaptive to the end-user making it one of the most personalized voice assistants in the market. Siri adapts to a user by learning their searches, language usages and preferences with continued use.

- **What happens if you're not understood by the voice system, or if you don't say anything? Does this change during different parts of the interaction?**

When one asks Siri a question that requires more input from the user she will respond with a follow up question and wait for the user to respond. If the user does not respond Siri will stop the audio recording and remain on standby. As interactive as Siri is the user is required to provide a follow up response when prompted without which the app will remain on standby and the user will need to restart their conversation with Siri. For example, when prompted with "Hey Siri, set a timer for…(user pauses)" Siri will respond with "For how long?" and the the record sound will turn on. If the user does not respond within 3 seconds the sound will beep again to turn the recording off.

- **In what way does this impact user experience?**

The conversation is halted if the user stops responding. After that, the user will have to restart a conversation with Siri. The user experience makes me feel like Siri does not have memory to keep conversations going that much and its conversational capabilities are limited. Siri is ideal for performing a task or a series of tasks but not an ideal voice assistant for conversations. Personally, I love Siri on the Apple Watch because she starts listening to me the moment I raise my wrist and talk to my watch.

- **Was the voice interface successful at accomplishing what the app was intended to do? Why or why not? Was it more successful than a visual interface would have been?**

There are so many ways Siri reduces friction for the user. For example, voice-to-text using Siri is faster and more accurate than typing. So is a quick text to a loved one or a friend while driving. In my opinion, Siri is one of the best apps in the market for performing complicated functions with minimal user-input. For example, I can tell Siri to remind me to lock the door when I get home. This is something that is impossible to do without Siri because she used GPS to emit reminders that are location based.

Google Assistant

- **What is the general purpose of the app? Who do you think is the intended audience?**

Thew general purpose of Google Assistant is to allow users to give voice commands, search using voice, translate using voice or even replacing a human when making a dinner reservation at a restaurant and conversing with a real person on behalf of the user. It's intended audiences is anybody who uses Google.

- **How does the app use sound to appeal to users? Does it use only voice, or does it combine voice with another interface?**

Google Assistant can be prompted by the words "Okay, Google…" and then giving a command. It combines voice with language, accent and text to perform complex functions such as translating speech or even communicating with Indians in an Indian accent when it's location is changed to India.

- **What happens if you're not understood by the voice system, or if you don't say anything? Does this change during different parts of the interaction?**

Similar to Siri, if the user does not respond to Google Assistant when it needs clarification it will remain on standby. For example, when I said "Okay Google, remind me to…" and she responded with what's the reminder for? She also opened a reminded popup which displayed place, time and date. But when I didn't respond she didn't respond back. However, when I said "Okay Google, what time is it?"she picked up from the previous conversation and added that question to my reminders. Unlike Siri, Google remembers recent conversations and continues from there. If I were to ask Siri a follow up question like this one she would tell me the time instead.

- **In what way does this impact user experience?**

Having memory of a recent conversation when temporarily paused provides for an excellent user-experience. It makes me feel as if Google Assistant is smarter and more reliable than all of its competitors. As of 2020, Google Assistant is the most advanced voice app in the market.

- **Was the voice interface successful at accomplishing what the app was intended to do? Why or why not? Was it more successful than a visual interface would have been?**

Yes, the voice interface by Google Assistant is far more successful than Siri and successfully able to perform my command even after a long standby. Because Google Assistant can integrate with Siri on the iPhone it makes it a powerful competitor to Siri. However, the complexity of functions can be better performed by Siri. Siri Shortcuts is a feature that allows users to program Siri to perform a series of commands that gives it a unique advantage over Google Assistant.

Alexa (Echo Dot)

- **What is the general purpose of the app? Who do you think is the intended audience?**

Alexa is a smart-home app designed to converse with users for long durations as well as perform a series of functions that can make for a smarter home. It's intended audience anybody in the household that is an Amazon customer.

- **How does the app use sound to appeal to users? Does it use only voice, or does it combine voice with another interface?**

Alexa triggers with the use of "Alexa followed by a command". It can also be replaced with a different trigger word of a user's choice. Unlike Apple or Google, Amazon's Alexa uses only voice commands to perform functions and in most cases does not have any other user-interface. Alexa uses emotions in her voice when conversing with users which gives it a cutting edge over other voice assistants. Alexa also talks to other devices. For example I have a Robovac which vacuums the house when I tell my Echo Dot "Alexa, ask Deebot to clean the house."

- **What happens if you're not understood by the voice system, or if you don't say anything? Does this change during different parts of the interaction?**

If Alexa is not able to understand a user (and this happens usually in many instances) she will respond to the user asking the same question again two times before giving up. This gives her a cutting edge because it tries hard to keep a conversation going. A lot of people in old age homes like the conversational style of Alexa because it keeps the conversation going and is like an invisible friend that learns from a user's habits.

- **In what way does this impact user experience?**

Alexa is the most conversational voice assistant in the market. Sometimes it is conversational to such an extent that it can annoy and frustrate users. Sometimes it is also hard of hearing and one feels like she is doing it on purpose but it's just a software glitch. My wife and I have 5 Echo Dots in our apartment and for some reason when speaking to the nearest Echo Dot the Echo Dot from far away listens to us first. In my opinion Alexa is useful to an extent but because it is not designed perfectly, it can be the most frustrating of all the voice assistants especially when the user has to scream several times to turn a timer off or turn the bedroom lights on. It make me realize that Alexa is not good at understanding human tones and accents as well as the other voice assistants.

- **Was the voice interface successful at accomplishing what the app was intended to do? Why or why not? Was it more successful than a visual interface would have been?**

Alexa can be useful in many ways because the number of functions it can perform is nearly limitless. For example, when I wake up in the morning and tell Alexa to start my day, she will turn the blinds on to let the sunlight in, read me the highlights of the day, tell me my reminders for the day and then play NPR news. A three word command is impossible for a visual interface to perform a series of functions that voice has the capability of doing.

Otter.ai

- **What is the general purpose of the app? Who do you think is the intended audience?**

Otter.ai is an app that uses voice to text transcription. It is used in meetings and business sessions and its algorithm can completely eliminate the need for note taking which is something people like to keep a track of during important discussions.

- **How does the app use sound to appeal to users? Does it use only voice, or does it combine voice with another interface?**

The app enables users to search within and across conversations through its unique AI algorithm. It combines voice with a visual interface and enables uses to co-edit, highlight and tag speakers, synchronize audio, text and photos, present with live captions as well as summarize keywords during meetings.

- **What happens if you're not understood by the voice system, or if you don't say anything? Does this change during different parts of the interaction?**

Since this software is a platform that records conversations, it it not designed for conversing with users. Rather it has a complex mechanism where it can use voice to text and further breakdown text and allocate it in a smart way that enables people to brainstorm conversations.

- **In what way does this impact user experience?**

There is no impact on the user experience. Otter.ai gives depth to human voice by visually representing conversations in a unique way that no other platform can. It is a better replacement to traditional note-taking and takes conversations to the next level. Overall, this software is a one-way form of interaction. Everything being done during and after the conversation is purely visual and generated by the computing software and AI.

- **Was the voice interface successful at accomplishing what the app was intended to do? Why or why not? Was it more successful than a visual interface would have been?**

Yes Otter.ai is successful at what it is intended to do. Otter.ai is the best platform for voice-to-text and breaking down conversations. It is a replacement tool for note taking and this not only reduces friction but also enhances the recollection of meetings and conversations between users.

Dragon Anywhere

- **What is the general purpose of the app? Who do you think is the intended audience?**

Dragon Anywhere is a professional grade dictating service that allows users to create templates, add custom words, instantly dictate documents and adapt to speech. This app is ideal for note taking and staying productive so the end users are generally students or business professional.

- **How does the app use sound to appeal to users? Does it use only voice, or does it combine voice with another interface?**

Dragon App allows users to dictate voice to text with a 99% accuracy rate as well as adapts to a user's accent and tone with prolonged use. Additionally, it also detects error and offers suggestions by highlighting words. By adding custom words to the vocabulary so Dragon spells them right every time. It can also synchronize with the cloud for seamless connectivity and integrate with Evernote.

- **What happens if you're not understood by the voice system, or if you don't say anything? Does this change during different parts of the interaction?**

Since this app is a one-way communication setup there is no understanding mechanism as such. However, new words like people's name that are not recognized by the system will show up as something else and in order to avoid that from happening a user can program Dragon Anywhere to learn that custom word to enhanced voice to text interaction.

- **In what way does this impact user experience?**

There is no impact on the user-experience. This app is designed for professional note-taking and gives the users the ability to edit and dictate documents with voice and trackpad movements. Dragons' cloud connectivity makes it seamless to access notes across multiple devices.

- **Was the voice interface successful at accomplishing what the app was intended to do? Why or why not? Was it more successful than a visual interface would have been?**

Yes, Dragon is successful at what it is intended to do and with a 99% accuracy rate. It is also adaptive and evolves overtime as it learns its user. Its document management system makes it ideal for productivity and is greatly enhanced by visually when integrated with Evernote.

Final Verdict

Overall all five of the above apps serve its own purpose. The first three apps by Apple, Google and Amazon are the strongest for performing complicated functions and the last two apps by Otter.ai and Dragon anywhere are ideal for note-taking and voice-to-text.

While Siri has its limitations with conversing unlike Alexa, I love how user-friendly it is to use and easy to program Siri to perform complex functions on the Siri Shortcuts app. I also think it's the most integrated app because it’s a core feature across all Apple devices. More importantly, I love to use Siri on my Apple Watch to set timers or start a work out by simply raising my hand and giving a command without pressing a button or using trigger words such as “Hey Siri.” If I could improve Siri I would definitely make it more conversational and make it remember previous conversations.

As for Google Assistant, I think it is the best overall voice app and by far the most intelligent at understanding different dialogs, translating speech or having a voice assistant talk to a real person to book an appointment in behalf of the user. It is conversational, remembers previous conversations and builds off of it. Google clearly set a standard for the future of voice as depicted on Sundar Pichai’s 2019 keynote.

Amazon’s Alexa is another contender that is highly conversational and good at performing high-level human interaction as well as series of functions. As an Alexa user, I can’t image life without Alexa as she has made my day a lot easy by reducing friction such as physically turning on the lights, opening the blinds or vacuuming my house. The only drawback I see is that it often glitches too often and its proximity based tracking is not good enough for detecting sound. I often tell my wife that on many instances that Alexa is hard of hearing and sometimes very annoying. It’s a love-hate relationship.

Otter.ai is ideal for meetings and taking down notes not just for the end user but for the entire group and even offers subtitles in realtime. It brainstorms conversations and makes is easy to navigate visually through its unique AI algorithm. I love how it makes business meetings more efficient for the group but I wish it could also do more and perform commands like the voice assistants can.

Dragon Anywhere is a great note-taking app for individuals rather than group settings that Otter.ai can better handle. I like that it has a 99% accuracy rate but I don’t see the need to download an app for note taking especially when I have Siri integrated on all my devices.

Use Cases for Voice

LinkedIn

LinkedIn is one of the best platforms for professional networking, recruiting and job search. It is also an appropriate platform for integrating voice design because it has a powerful algorithm that can go hand-in-hand with voice commands.

For example, as a job seeker the process of applying for a job that I am a good match for involves friction. I have to first apply for the job and upload my resume/cover letter and then message the recruiter for the role or a mutual friend working for that company for a recommendation. If LinkedIn has a voice integration and their algorithm finds a job I am a good fit for, they would notify me and I would respond with:"Linkedin, apply for the Operations Manager role at Google using my most recent resume and message the recruiter expressing my interest or a mutual friend for a recommendation."

Alternately, when a recruiter posts a job and LinkedIn's algorithm finds potential candidates that are a good fit, the recruiter can say "LinkedIn, please reach out to the candidates that fit will with this role and send them a personalized job invitation using my recent template".

Having voice integration on LinkedIn will be a game changer in today's world, especially now when people are sending in hundreds of applications a week to find a job.

Tinder

As one of the leading dating apps in the market alongside Bumble and others, having a personalized voice assistant feature will enhance the dating game for single people. Tinder has an incredible algorithm based on the information users enter to create their profile and therefore it will integrate well with voice and reduce a lot of friction, especially for people with writer's block and need pickup lines or if they are tired of swiping their thumb left and right on a piece of glass.

For example, a user can say: "Hey Tinder, find me an attractive profile based on my preferences". Upon saying that command Tinder will display a profile closest to the user's taste and then the user can either say "Like" or "Next" to move on to the next profile.

In the situation where Tinder finds a match where two users mutually like each other, the user can ask Tinder to send the match a personalized pickup line by saying, "Tinder, please set up a date and impress my new match with a beautiful pickup line". Tinder will then display the user a personalized message and the user can either say "Send" or "Try again" to use a different template.

Having voice with an app like Tinder will be a game changer in the dating world and increase user engagement with the app.

Outlook

People in professional settings spend hours of their day working on emails. Exchanging communication back and forth requires a lot of friction because people have to type the words they are writing instead of speaking them. Having a built in voice feature for dictation and commands will revolutionize the email sending process. For example, if I am taking a day off work for the 4th of July weekend, I can command outlook to set an auto response by simply saying something along the lines of “Outlook, I am taking tomorrow off. Please create an auto response.” When the command is said, Outlook will generate a template for the user’s approval and in two steps one can create an auto response feature without having to click on the settings menu and typing a long template for an auto-response.

Or in another example, I can say “Outlook, send an email to my team that I will be scheduling a happy hour next week at 4 pm on Zoom.” Upon saying these words Outlook will create a new event and generate an email to the entire team. The user can then either say “Send” or make slight changes to the template.

Having a built in voice feature that is well integrated with Outlook will increase productivity and people will spend less time working on redundant emails that can easily be automated.

YouTube

YouTube is one of the best video streaming platforms powered by Google and has changed the way people learn, cook, exercise, listen to music or get entertainment. As a regular YouTube user, I will find a built in voice assistant to be a game changer in reducing friction. For example, when I am working out in the morning I can ask YouTube to play an intermediate workout video for a particular body group without having to search for it in or even ask YouTube to find me a pizza recipe that has over 10 million views. If I want to pause the video I can simply say “YouTube, pause.” or if I want to find another pizza recipe I can say “YouTube, find me a better recipe for pizza with more likes.”

YouTube with added voice can make the selection process for watching videos more seamless and less of a hassle because people often find it overwhelming to pick a right video when there is a large selection of videos online, especially when scrolling through a large selection of workout videos.

Instacart

The United States gained a lot of respect for Instacart during the 2020 pandemic. Instacart allows users to order local groceries from a wide variety of stores in the user's location. Having voice integrated with Instacart will significantly reduce friction from users as well as play a big impact on the company revenue.

There are many ways voice can help with placing an order on Instacart. For example, a user can say: "Instacart, get me my favorite Pinot Noir from Total Wine and More and buy some free-range eggs and organic chicken from Costco." The user can use voice commands order anything they like across multiple stores in their area without manually adding stuff to their cart or even leaving their house.

If Instacart adds voice integration to it's app they have a good chance at competing head-to-head with Amazon's Alexa for shopping on Amazon. This is because Instacart has more store integrations on its app and people have more choices from places to order groceries from.

Personas for Voice

User Persona

Chloe | 44 YEARS OLD

Occupation: Nurse
Location: Seattle
Relationship Status: Married with three kids
Education: University of Washington

- **Goals and Needs** | Chloe is a hard-working frontline nurse who has little time to spare prepping meals due to her hectic schedule. She is looking to meal prep during the weekend for her family and wants to learn some quick recipes that she can cook in bulk. The recipes she seeks to cook should be enough for a family of five. Being a nurse, Chloe cares about the health and well-being of her family so she is wanting to prepare nutritious meals loaded with a plenty of vegetables, healthy fats, slow-releasing carbohydrates and lean proteins.

- **Motivations** | Chloe is motivated to provide for her family and looks forward to coming home everyday to see her husband and kids. She wants them to live a healthy and prosperous life so she will do all it takes to make sure they are eating healthy and fresh meals.

- **Frustrations** | Chloe is often running short on time and works odd shifts or during weekends so she finds it difficult to spend a considerable amount of time browsing for recipes. She is overwhelmed by the large number of food recipes she sees online and it makes her feel indecisive. Additionally, she doesn't like to use screens when in the kitchen because she can transfer germs to the device. A lot of websites she visits have a lot of unnecessary content in them like ads and it disrupts her flow of thoughts.

- **Speaking Style** | Chloe's speaking style is often soft, confident and formal. She doesn't use irrelevant words in her language and usually communicates straight to the point.

- **Device and Internet Usage** | Chloe uses a tablet more often than any other device. It is large enough to get an immersive experience and is portable so she finds it comfortable to use when she is on duty or when she is at home reading the news.

- **Quotes** | "I want to learn how to cook healthy and nutritious foods for my family so they can live a long life." "I often am too busy because I am a frontline nurse so I want to meal prep quick bulk meals." "I find it quite overwhelming to scroll through thousands of recipes on my tablet and it makes me indecisive. I need a simple and easier way to meal prep that is handsfree so I don't take my iPad to the kitchen."

System Persona

Josh | 30 YEARS OLD

Occupation: Cooking Professional
Location: SF Bay Area
Relationship Status: In a relationship
Education: Culinary Graduate

- **About** | Josh is a culinary expert who knows how to impress in the kitchen with this professional cooking skills. He a girlfriend and together they travelled the world to explore new countries and cuisines. In a matter of minutes Josh can whip up a delicious and innovative meal even when the pantry has limited ingredients.

- **Personality** | Josh saves a lot of money by eating at home and impressing his new girlfriend with his culinary skills. He knows the ins and outs of cooking and likes to keep his kitchen neat and clean. He is knowledgable about recipes and knows which ingredients go hand-in-hand and compliment one another. Josh has a good sense of humor and his pun jokes are often cooking related.

- **Traits** | Josh is patient in the kitchen even when he is in a hurry and needs to prep a quick meal. He has a calm composure and is efficient at chopping meat and vegetables. He has a strong sense of self-discipline and does not waste any food in the kitchen. He is extremely informative and often likes to narrate the fine details in his recipes while he is cooking a meal.

- **Speaking Style** | Josh speaks in a friendly, causal and informal tone. He is often humorous and joyful and it is portrayed well by the way he speaks to his family and friends. He does not stutter and likes to take pauses so that he can be clearly understood.

- **Device and Internet Usage** | Josh love to use his MacBook Pro or his iPhone. Between both devices he spends 80% of his time using his laptop and 20% time using his iPhone. He also owns an Apple Watch and often use it to text his girlfriend.

- **Quotes** | “I love being in the kitchen. It inspires me and I can teach anyone with no prior experience how to cook a delicious meal.” “I like to focus my energy on cooking healthy and quality foods because food is a medicine and fuels the body with energy. Giving the body the right ingredients will allow it to live a healthy and long life.” “If anyone is struggling in the kitchen and needs my help I like to be of service to them and it makes me happy to see that someone is learning from my cooking and how it positively changes their lives.”

Alexa Voice Interactions

Utterance	Response	Intent	Slot
Alexa, What's the weather inside the house?	It's 70.	ThermostatIntent	{read: Temperature}
Alexa, set temprature to 72 degrees.	The AC is set to 72.	ThermostatIntent	{adjust: Temperature to 72 degrees}
Alexa, increase temprature	The AC is set to 74.	ThermostatIntent	{adjust: Temperature 2 degrees higher}
Alexa decrease temprature	The AC is set to 72.	ThermostatIntent	{adjust: Temperature 2 degrees lower}
Alexa, What's the weather outside?	In Seattle it's 65 degrees farhenheit with mostly cloudy skies. Tonight you can expact clouds with a low of 55 degrees.	ForecastIntent	
Alexa, do I need an umbrella?	No rain is expected tonight	RainForecastIntent	
Alexa, what's the temperatute in Cape Town?	Right now in Cape town is 60 farhenheit. Tonight expect a high of 61 degrees.	ForecastIntent	{City:Cape Town}
Alexa, do I need to wear a scarf?	In Seattle it's 65 degrees farhenheit with mostly cloudy skies. Tonight you can expact clouds with a low of 55 degrees.	ForecastIntent	
Alexa, do I need sunscreen?	Right now there is a low risk from UV exposure with a UV index of 0	ForecastIntent	
Alexa, how cold is it outside today?	Today expect a low of 55 degrees farhenheit.	ColdIntent	
Alexa, how hot is it outside today?	Today, expect a high of 71 degrees farhenheit.	HotIntent	
Alexa, do I need to wear a sweater tomorrow?	Tomorrow in Seattle there you will see lots of clouds with a high of 64 degrees farhenheit and a low of 55 degrees.	ColdForecastIntent	{date: 2020-7-7}
Alexa, do I need to carry an umbrella tomorrow?	Tomorrow in Seattle there will be lots of clouds with a high of 64 degrees farhenheit and a low of 55 degrees.	RainForecastIntent	{date: 2020-7-7}
Alexa, what is the weather on July 15th?	On Wednesday July 15th there will be cloudy skies, with a high of 75 degrees and a low of 58 degrees.	ForecastIntent	{date: 2020-7-15}
Alexa, what is the weather on July 25th?	I only have weather information for the next 10 days.	OutOfDateRangeIntent	{date: 2020-7-25}

Wake

Alexa, What's the weather inside the house?

Utterance

Intent: Thermostat

Slot Value

Building My First Skill

Sample Utterances

1.Tell Haiku Reader read
2.Make Haiku Reader read
3.Ask Haiku Reader to read
4.Tell Haiku Reader to read
5.Ask Haiku Reader to read me a poem
6.Ask Haiku Reader to tell me something
7.Ask Haiku Reader to read me a haiku
8.Tell Haiku Reader to read me something
9.Tell Haiku Reader to give me a poem
10.Tell Haiku Reader to read me a poem
11.Tell Haiku Reader to give me a haiku
12.Tell Haiku Reader to read me a haiku
13.Play Haiku Reader for me
14.Tell Haiku Reader to find me a haiku
15.Tell Haiku Reader to find me a poem
16.Have Haiku Reader tell me a haiku
17.Open Haiku Reader to recite a haiku
18.Open Haiku Reader to recite a haiku
19.Have Haiku Reader read me a haiku
20.Have Haiku Reader read me a poem

Sample Haikus

1.Ducks like the water, they swim across the pond, and together they quack quack quack.
2.People live in fear, they consume the news all day, and then get depressed.
3.I like to read, I like to write, I like to learn something new everyday.
4.Violets are black, roses are too, cause they all are dead, and so are you.
5.Time and space are one, untie your hair bun, because you're the master of none.
6.Wash your hands everyday, wash them right and fight coronavirus away.
7.I am a person, you are a person, let's treat each like good people.
8.Where do I start, I have no clue, I don't even know who on Earth are you.
9.Launch a rocket to the moon, Elon Musks says, let's get to Mars he says next.
10.Time ticks like is finite, but since space-time is one, time is infinite.

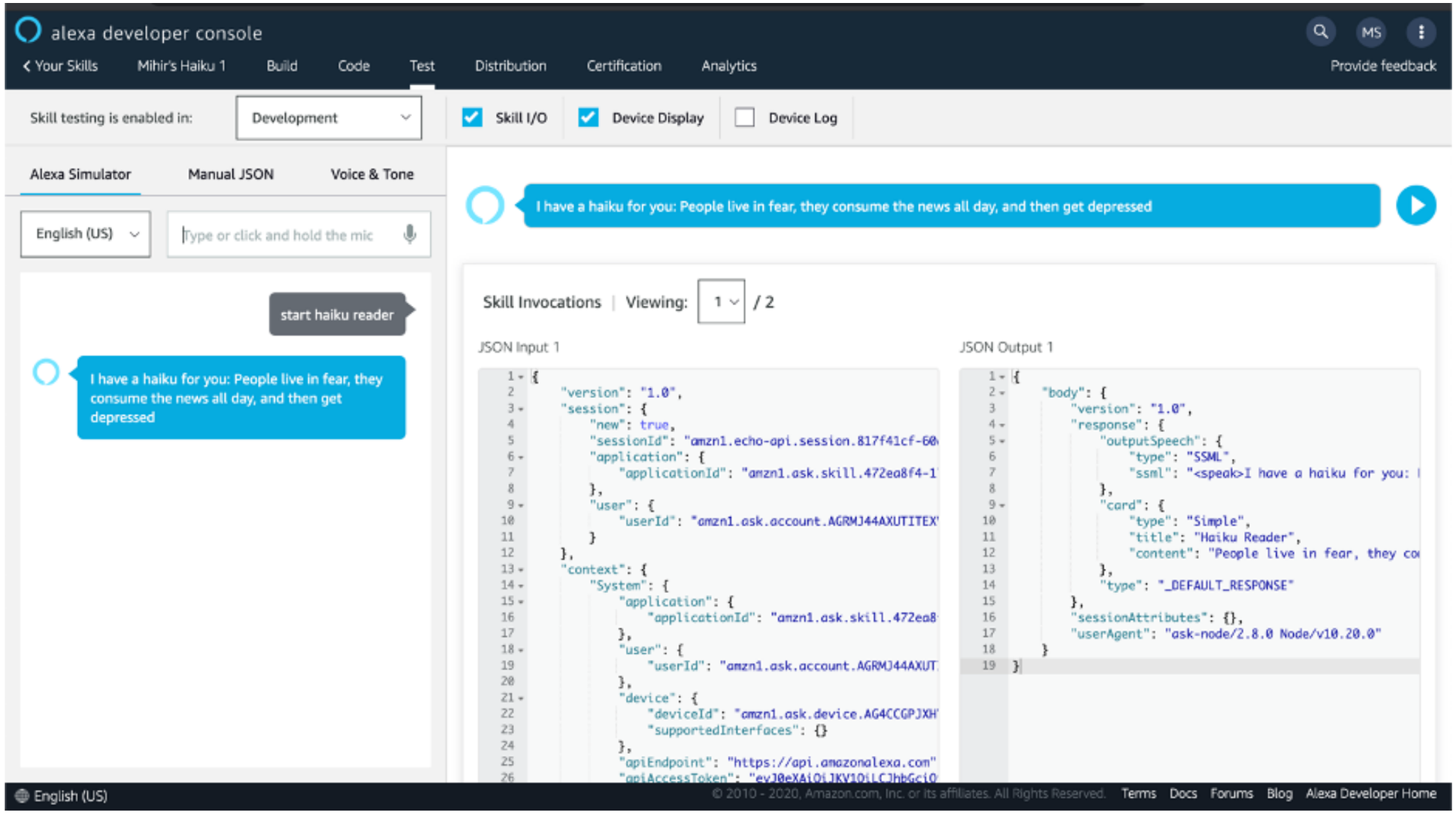
Modified Skill Code

```
/* eslint-disable  func-names */
/* eslint-disable  no-console */

const Alexa = require('ask-sdk-core');

const GetNewFactHandler = {
  canHandle(handlerInput) {
    const request = handlerInput.requestEnvelope.request;
    return request.type === 'LaunchRequest'
      || (request.type === 'IntentRequest');
  },
  handle(handlerInput) {
    const factArr = data;
    const factIndex = Math.floor(Math.random() * factArr.length);
    const randomFact = factArr[factIndex];
    const speechOutput = GET_FACT_MESSAGE + randomFact;
    return handlerInput.responseBuilder
      .speak(speechOutput)
      .withSimpleCard(SKILL_NAME, randomFact)
      .getResponse();
  },
};

const HelpHandler = {
  canHandle(handlerInput) {
    const request = handlerInput.requestEnvelope.request;
    return request.type === 'IntentRequest'
      && request.intent.name === 'AMAZON.HelpIntent';
  },
  handle(handlerInput) {
    return handlerInput.responseBuilder
      .speak(HELP_MESSAGE)
      .reprompt(HELP_REPROMPT)
      .getResponse();
  },
```

```
};

const ExitHandler = {
  canHandle(handlerInput) {
    const request = handlerInput.requestEnvelope.request;
    return request.type === 'IntentRequest'
      && (request.intent.name === 'AMAZON.CancelIntent'
        || request.intent.name === 'AMAZON.StopIntent');
  },
  handle(handlerInput) {
    return handlerInput.responseBuilder
      .speak(STOP_MESSAGE)
      .getResponse();
  },
};

const SessionEndedRequestHandler = {
  canHandle(handlerInput) {
    const request = handlerInput.requestEnvelope.request;
    return request.type === 'SessionEndedRequest';
  },
  handle(handlerInput) {
    console.log(`Session ended with reason: ${handlerInput.requestEnvelope.request.reason}`);

    return handlerInput.responseBuilder.getResponse();
  },
};

const ErrorHandler = {
  canHandle() {
    return true;
  },
  handle(handlerInput, error) {
    console.log(`Error handled: ${error.message}`);

    return handlerInput.responseBuilder
      .speak('Sorry, an error occurred.')
      .reprompt('Sorry, an error occurred.')
```

```
      .getResponse();
  },
};

const SKILL_NAME = 'Haiku Reader';
const GET_FACT_MESSAGE = 'I have a haiku for you: ';
const HELP_MESSAGE = 'You can say tell me a haiku...  or, you can say stop... What can I help you with?';
const HELP_REPROMPT = 'You can ask me to tell a haiku or exit to stop. What can I help you with?';
const STOP_MESSAGE = 'Goodbye!';

const data = [

`Ducks like the water, they swim across the pond, and together they quack quack quack.`,

`People live in fear, they consume the news all day, and then get depressed`,

`I like to read, I like to write, I like to learn something new everyday.`,

`Violets are black, roses are too, cause they all are dead, and so are you.`,

`Time and space are one, untie your hair bun, because you’re the master of none.`,

`Wash your hands everyday, wash them right and fight coronavirus away.`,

`I am a person, you are a person, let’s treat each like good people.`,

`Where do I start, I have no clue, I don’t even know who on Earth are you.`,

`Launch a rocket to the moon, Elon Musks says, let’s get to Mars he says next.`,

`Time ticks like is finite, but since space-time is one, time is infinite.`

];

const skillBuilder = Alexa.SkillBuilders.custom();
exports.handler = skillBuilder
  .addRequestHandlers(
    GetNewFactHandler,
    HelpHandler,
    ExitHandler,
    SessionEndedRequestHandler
  )
  .addErrorHandlers(ErrorHandler)
  .lambda();
```

Testing Skill Code



Certifying My Skill

User Testing

Testing for this app was performed with one additional participant. During the testing, we tested the pre-defined utterances and also created new utterances after discussion. All testing was performed using a MacBook Pro.

After doing the testing we came up 8 some new utterances based on our conversation. Most of the existing and new utterances worked. For three instances something completely different showed up and for two of them a message stated “Sorry, I don't know that, but I do have a skill you might like. It's called Haiku Reader. Wanna try it?”

Sample Utterances

1.Tell Haiku Reader read
2.Make Haiku Reader read - **returned error message**
3.Ask Haiku Reader to read - **returned error message**
4.Tell Haiku Reader to read
5.Ask Haiku Reader to read me a poem
6.Ask Haiku Reader to tell me something
7.Ask Haiku Reader to read me a haiku
8.Tell Haiku Reader to read me something
9.Tell Haiku Reader to give me a poem
10.Tell Haiku Reader to read me a poem
11.Tell Haiku Reader to give me a haiku
12.Tell Haiku Reader to read me a haiku

New Utterances

1. Play Haiku Reader for me
2. Tell Haiku Reader to find me a haiku
3. Tell Haiku Reader to find me a poem
4. Have Haiku Reader tell me a haiku - **Something completely different showed up**
5. Open Haiku Reader to recite a haiku
6. Open Haiku Reader to recite a haiku
7. Have Haiku Reader read me a haiku - **Something completely different showed up**
8. Have Haiku Reader read me a poem - **Something completely different showed up**

Sample Haikus

1.Ducks like the water, they swim across the pond, and together they quack quack quack.
2.People live in fear, they consume the news all day, and then get depressed.
3.I like to read, I like to write, I like to learn something new everyday.
4.Violets are black, roses are too, cause they all are dead, and so are you.
5.Time and space are one, untie your hair bun, because you're the master of none.
6.Wash your hands everyday, wash them right and fight coronavirus away.
7.I am a person, you are a person, let's treat each like good people.
8.Where do I start, I have no clue, I don't even know who on Earth are you.
9.Launch a rocket to the moon, Elon Musks says, let's get to Mars he says next.
10.Time ticks like is finite, but since space-time is one, time is infinite.

Descriptions

Public Name: Haiku Reader

One Sentence Description: Listen to witty, humorous, gothic and entertaining haikus.

Detailed Description: Listen to haikus that can lighten up your day and bring a smile to your face. The selection of haikus used by the creator are witty, funny, gothic and overall enlightening for the user. Have fun listening to these and stay tuned for more.

Category: Novelty and Humor

Example Phrases:

“Alexa, Open Haiku Reader,”

“Ask Haiku Reader to read me a poem,”

“Ask Haiku Reader to tell me something.”

Icon

HAIKU

Certification - In Review

Submission

Submit for review

Publishing preference

✔ Certify and publish
Automatically publish your skill to the Alexa Skills Store after it has passed certification.

Skill status

● In review

LAST SUBMITTED 7/10/2020, 4:11 PM

Results should be available by 7/15/2020, 4:11 PM.

Withdraw from review

Certification updates

HISTORY	TIME	NOTES
In review	7/10/2020, 4:11 PM	Results should be available by 7/15/2020, 4:11 PM.

User Needs & User Stories for Voice

Provide recipes for breakfast, lunch, dinner, and snacks

- As a busy entrepreneur who is constantly in meetings all day, I want a way for me to find the time to cook a quick meals during my breaks.

- As a husband who likes to experiment in the kitchen, I want to be able to find new recipes to cook for my wife and I.

- As a student who is saving money, I want to eat out less and learn how to cook a quick and healthy meal at home.

- As an individual who does not have time to cook during the week, I want to learn how to meal prep during the weekends.

- As someone who wants to make most of the groceries I purchased, I want to plan my meals around the expiration dates of the food so they don’t go bad.

- I like to cook for my friends and family and I am running out of recipes; I want to never run out of new recipes to cook so there is excitement in my life.

Allow the user to choose their preferred meal

- Breakfast is my favorite meal of the day and I want to be able to cook a decent breakfast every single day of the week to kickstart my day.

- I have an hour to spare for a good lunch break around my busy schedule and I would like to make full use of that hour by making a delicious meal that will hit the spot.

- Friday nights mark the beginning of my weekend cheat meals, I want to cook a solid dinner that is hearty, delicious and satisfying.

- COVID19 forced me to stock up on groceries for cooking and baking. I don’t want to feel anxious when I am out of a few ingredients and I want a convenient way to digitally keep track of all my food so I get notified when something is short.

- Every Saturday my wife and I cook together and I would like to be able to present an incredibly complex but delicious recipe each weekend.

- I want my shopping cart to automatically load up my ingredients as they are depleted and the delivery to happen the very same day I am completely out of something so I don’t have to keep track.

Provide an adequate number of meal choices for the user to get value from the app

- As an indecisive human being who knows not what to cook at odd hours of the day, I want a list of options provided to me while meal prepping.

- I like to experiment with new recipes and quite often substitute certain ingredients for another so I would like the option to have adequate alternatives when doing so.

- I would like the ability to cook a different cuisine each day of the week to satisfy my travel cravings during this treacherous pandemic.

- Every now and then I do a keto diet so I want the option to cook a diverse selection of meals that are keto-specific.

- My household has people who are on different diets and I want the ability to have options to cook a decent meal customized to everyones' needs.

- I want to cook recipes by different renowned chefs like Gordon Ramsay and Anthony Bourdain. I want a set of meals for each renowned chef in the world.

Use the recipe while cooking

- I need a virtual assistant in the kitchen while I am cooking to help me substitute ingredients when prepping meals.

- I need a presence in the kitchen where I can ask for recipes based the current ingredients in my pantry.

- I would like the ability to have checklists, timers and reminders for complex recipes in the kitchen for when I am making croissants or baking something that is time intensive and complex.

- I like having a guide in the kitchen for pro tips on how to keep my workspace tidy and organized as well as bring up interesting nutrition facts for ingredients that go into my meal while cooking.

- I like to have a virtual assistant in the kitchen that visually displays each step of the a recipe while I am cooking and automatically pauses the video when I look away so that I can cook at my own pace and do not have to rewind the video.

- When I am following a specific recipe and if I don’t like the ingredient being used or would like to substitute something, I want the ability for my assistant to present me with alternatives if I tell them that I don’t want to use a certain ingredient while cooking.

Sample Dialogs

“As a busy entrepreneur who is constantly in meetings all day, I want a way for me to find the time to cook a quick meals during my breaks.”

User: Alexa, open Recipe Expert for a quick lunch recipe.

Alexa: Opening Recipe Expert. I found a great recipe for some grilled cheese. Would you like to learn how to make it?

User: I want something else. How about chicken?

Alexa: I found the perfect chicken recipe. It’s called the Four-ingredient red chicken curry. Prep time is 10 minutes. Would you like to learn more?

User: Yes! Sounds delicious.

Alexa: Alright, let’s begin.

"As a student who is saving money, I want to eat out less and learn how to cook a quick and healthy meal at home."

User: Alexa, tell Recipe Expert I am starving.

Alexa: Sure, a good home cooked recipe will save you an expensive takeout. Let's get started. How about some salmon and Brussels sprouts?

User: You read my mind. What will it take?

Alexa: You will need 14 cloves of garlic, quarter cup extra virgin olive oil, half cup white wine, one pound of salmon, half a pound of Brussels sprouts and seasonings of your choice. How does that sound?

User: Okay. What's the first step.

Alexa: First, preheat oven to 450 degrees F.

“Every Saturday my wife and I cook together and I would like to be able to present an incredibly complex but delicious recipe each weekend.”

User: Alexa, tell Recipe Expert to find me a gourmet recipe for a pork dish.

Alexa: I found the perfect recipe. It’s called Toulouse-Style Cassoulet. The prep time is 2 hours 30 minutes. Would you like to learn more?

User: Heck yes. It sounds interesting. How many ingredients does it need?

Alexa: The recipe requires 19 ingredients. Seven of them are in your fridge. Would you like me to add the remaining to your Prime Fresh cart.

User: Yes, please.

Alexa: Okay, the next delivery window is a 10 am. Would that work?

"I would like the ability to cook a different cuisine each day of the week to satisfy my travel cravings during this treacherous pandemic."

User: Alexa, tell Recipe Expert to take me to Portugal.

Alexa: Flying you to Lisbon, Portugal. I found the perfect açorda de camarão recipe a.k.a shellfish bread soup. Would you like to learn more?

User: What will I need?

Alexa: The recipe is hearty and simple. You will need bread, sautéed onions, cooked shrimp, and olive oil into a creamy mash that is thickened with eggs and generously seasoned with cilantro.

User: Count me in.

Alexa: Okay, to get started heat a wok on medium high and add some crushed garlic.

"I need a presence in the kitchen where I can ask for recipes based the current ingredients in my pantry."

User: Alexa, find me a dish with what's left in my kitchen.

Alexa: Most certainly. After looking at your pantry it seems like you have abundance of tomato sauce, onions, spaghetti and ground beef. Would you like to make some pasta?

User: Anything else?

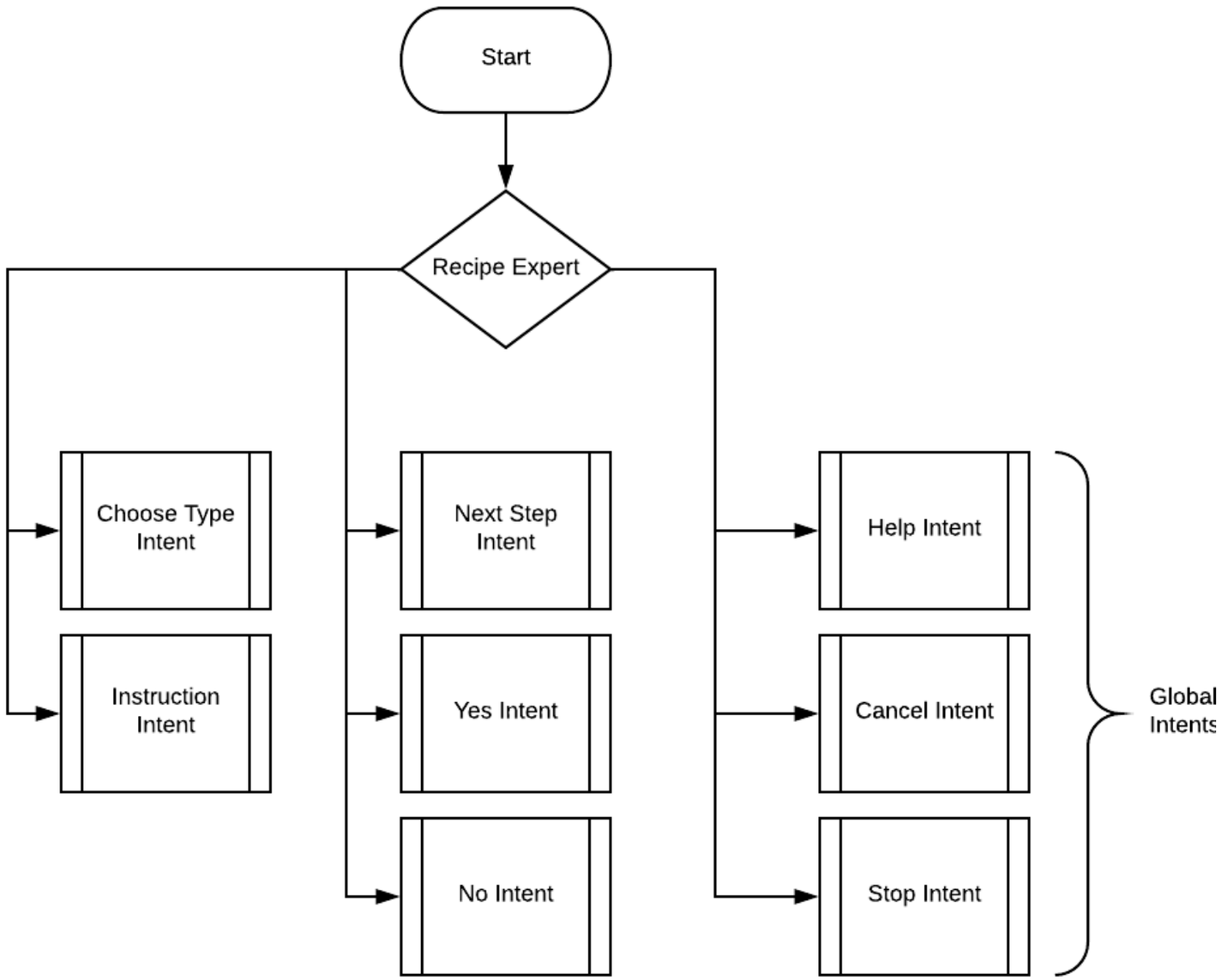
Alexa: You also have Jasmin rice, butter, olive oil, garlic, soy sauce, eggs and scallions. How about fried rice?

User: Sounds a lot better.

Alexa: Okay, to start preheat your skillet on medium high heat and pour a generous amount of olive oil and butter.

User Flows for Voice

Recipe Expert - User Flow



Choose Type Intent - Stories

- Breakfast is my favorite meal of the day and I want to be able to cook a decent breakfast every single day of the week to kickstart my day.

- I have an hour to spare for a good lunch break around my busy schedule and I would like to make full use of that hour by making a delicious meal that will hit the spot.

- Friday nights mark the beginning of my weekend cheat meals, I want to cook a solid dinner that is hearty, delicious and satisfying.

- As a busy entrepreneur who is constantly in meetings all day, I want a way for me to find the time to cook a quick meals during my breaks.

- Every Saturday my wife and I cook together and I would like to be able to present an incredibly complex but delicious recipe each weekend.

- I want my shopping cart to automatically load up my ingredients as they are depleted and the delivery to happen the very same day I am completely out of something so I don’t have to keep track.

Choose Type Intent - Scenario

"As a busy entrepreneur who is constantly in meetings all day, I want a way for me to find the time to cook a quick meals during my breaks."

User: Alexa, open Recipe Expert for a quick lunch recipe.
Alexa: Opening Recipe Expert. I found a great recipe for some grilled cheese. Would you like to learn how to make it?

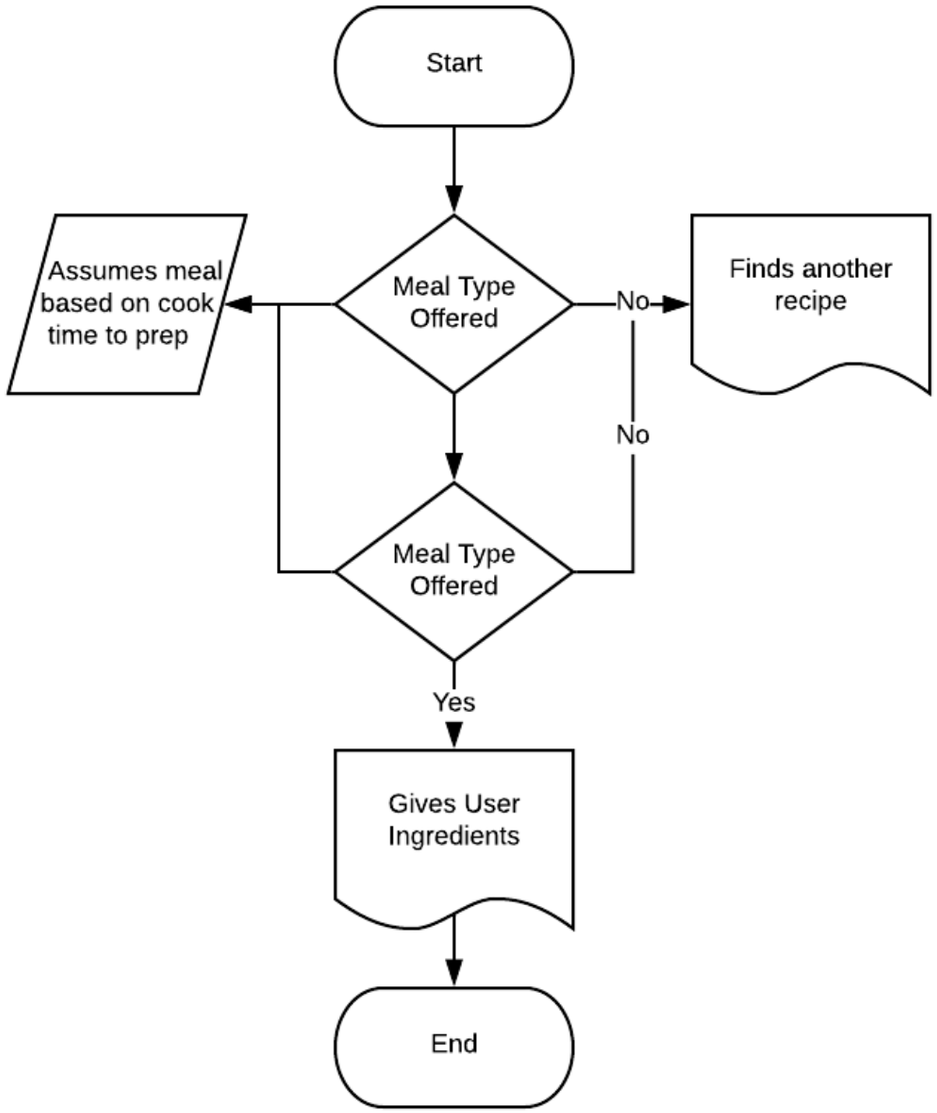
User: I want something else. How about chicken?

Alexa: I found the perfect chicken recipe. It's called the Four-ingredient red chicken curry. Prep time is 10 minutes. Would you like to learn more?

User: Yes! Sounds delicious.

Alexa: Alright, let's begin.

Choose Type Intent - User Flow



Instruction Type Intent - Stories

- I need a virtual assistant in the kitchen while I am cooking to help me substitute ingredients when prepping meals.

- I need a presence in the kitchen where I can ask for recipes based the current ingredients in my pantry.

- I would like the ability to have checklists, timers and reminders for complex recipes in the kitchen for when I am making croissants or baking something that is time intensive and complex.

- I like having a guide in the kitchen for pro tips on how to keep my workspace tidy and organized as well as bring up interesting nutrition facts for ingredients that go into my meal while cooking.

- I like to have a virtual assistant in the kitchen that visually displays each step of the a recipe while I am cooking and automatically pauses the video when I look away so that I can cook at my own pace and do not have to rewind the video.

- When I am following a specific recipe and if I don’t like the ingredient being used or would like to substitute something, I want the ability for my assistant to present me with alternatives if I tell them that I don’t want to use a certain ingredient while cooking.

Instruction Type Intent - Scenario

“I need a presence in the kitchen where I can ask for recipes based the current ingredients in my pantry.”

User: Alexa, find me a dish with what’s left in my kitchen.

Alexa: Most certainly. After looking at your pantry it seems like you have abundance of tomato sauce, onions, spaghetti and ground beef. Would you like to make some pasta?

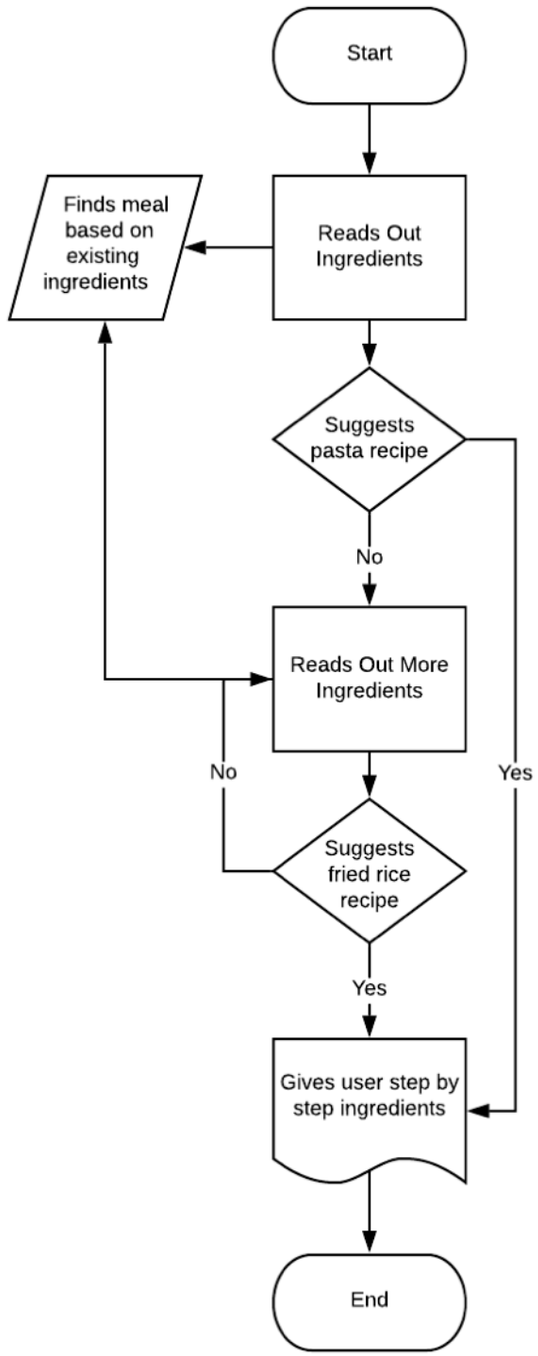
User: Anything else?

Alexa: You also have Jasmin rice, butter, olive oil, garlic, soy sauce, eggs and scallions. How about fried rice?

User: Sounds a lot better.

Alexa: Okay, to start preheat your skillet on medium high heat and pour a generous amount of olive oil and butter.

Instruction Type Intent - User Flow



Task 2.4: UX Design Principals for Voice

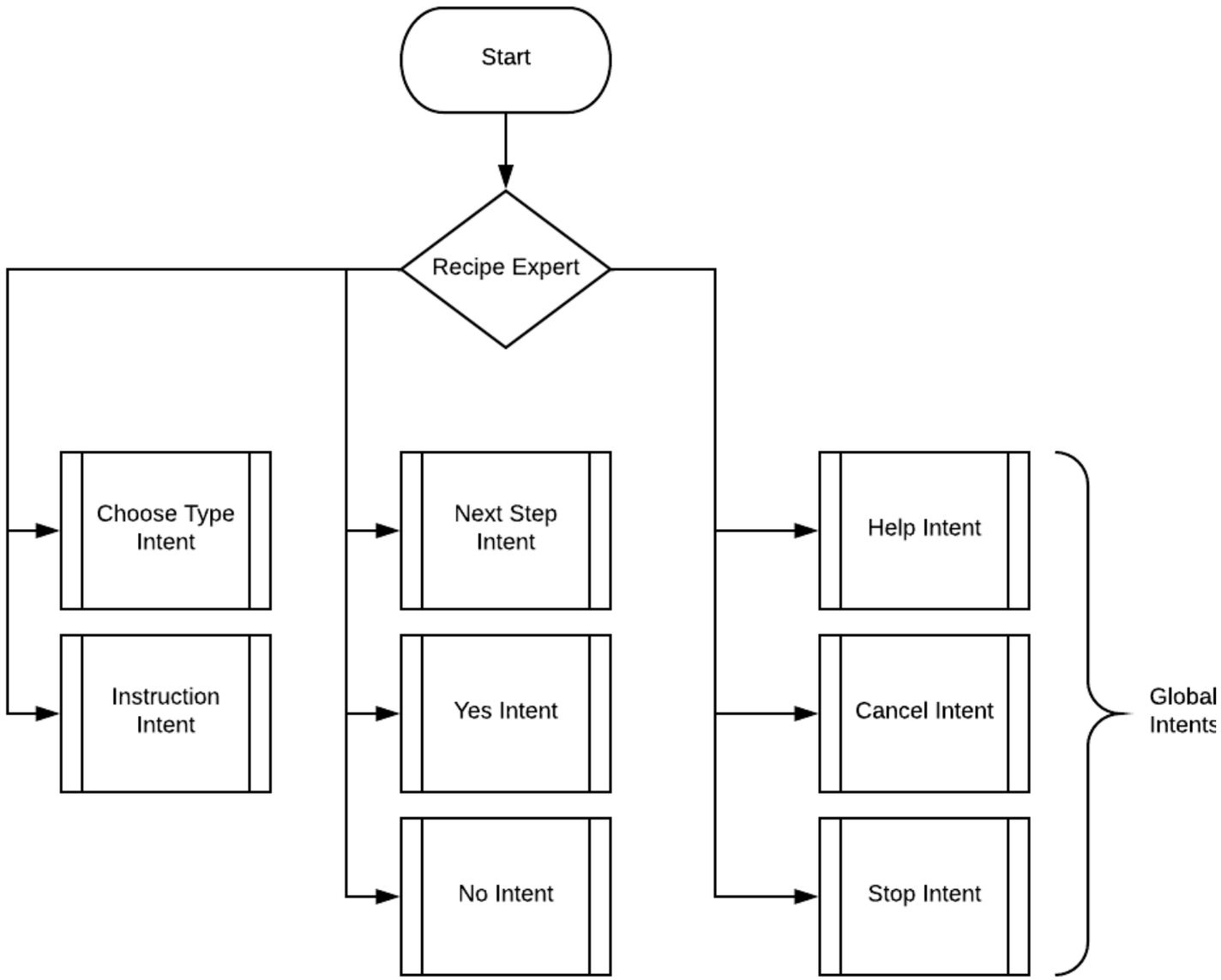
Mihir Shah

Script

View script here.

https://docs.google.com/spreadsheets/d/1qzRd0wi_KmZFBaJZGF__tqFtLHrmUcrXzw7paq0w2yU/edit#gid=0

Recipe Expert - User Flow



Demo 1

"As a busy entrepreneur who is constantly in meetings all day, I want a way for me to find the time to cook a quick breakfast everyday."

User: Alexa, open Recipe Expert for a breakfast recipe.
Alexa: Opening Recipe Expert. I found a great recipe for a keto omelette. Would you like to learn how to make it?

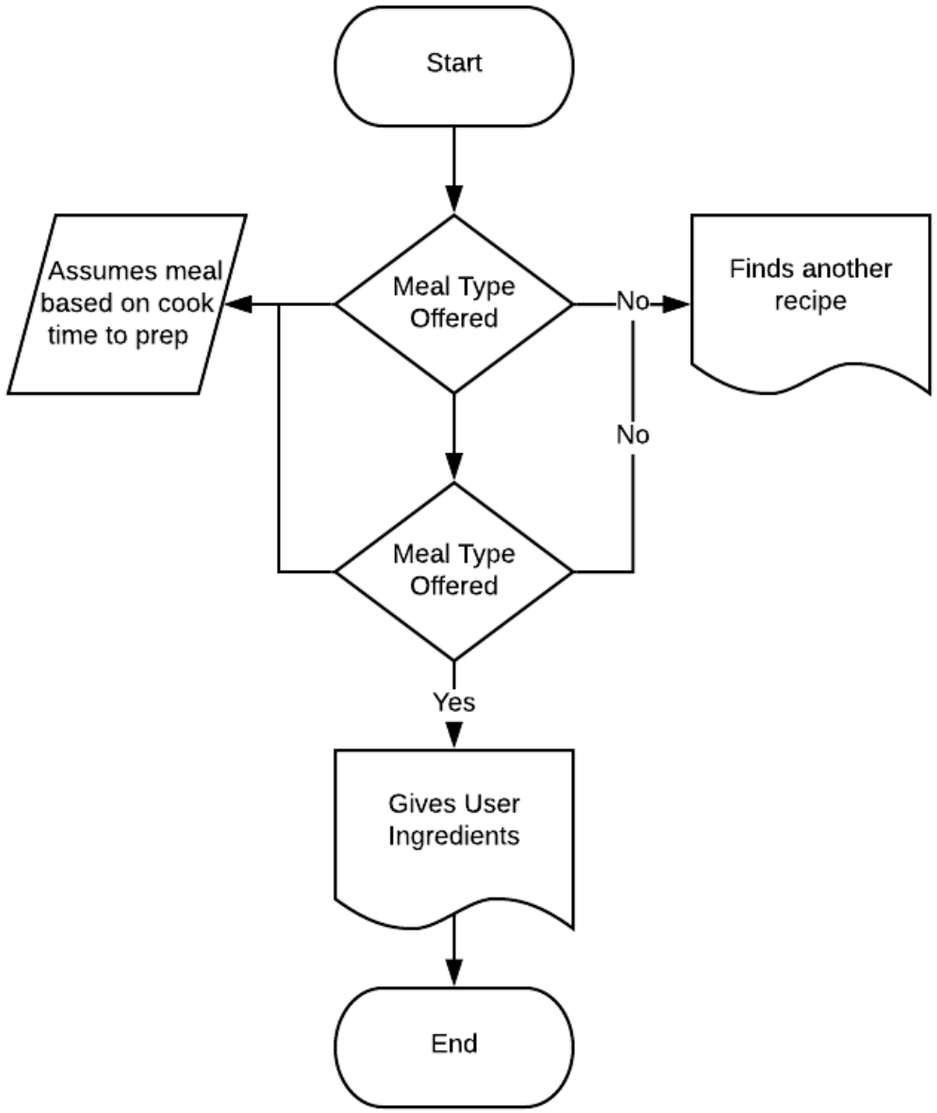
User: I want something else.

Alexa: I found the perfect frittata recipe which involves eggs, potatoes, mushrooms, ham, onion, cheese and tomato. Prep time is 25 minutes and you will need to pre-heat the oven at 420. Would you like to learn more?

User: Yes! Sounds delicious.

Alexa: Alright, let's begin.

Choose Type Intent - User Flow



Demo 2

“I need a presence in the kitchen where I can make breakfast based the current ingredients in my smart kitchen.”

User: Alexa, ask Recipe Expert to find me a breakfast dish with what’s left in my smart pantry.

Alexa: Most certainly. After looking at your kitchen it seems like you have abundance of croissants, eggs, ham and cheese. Would you like to make ham and cheese croissants?

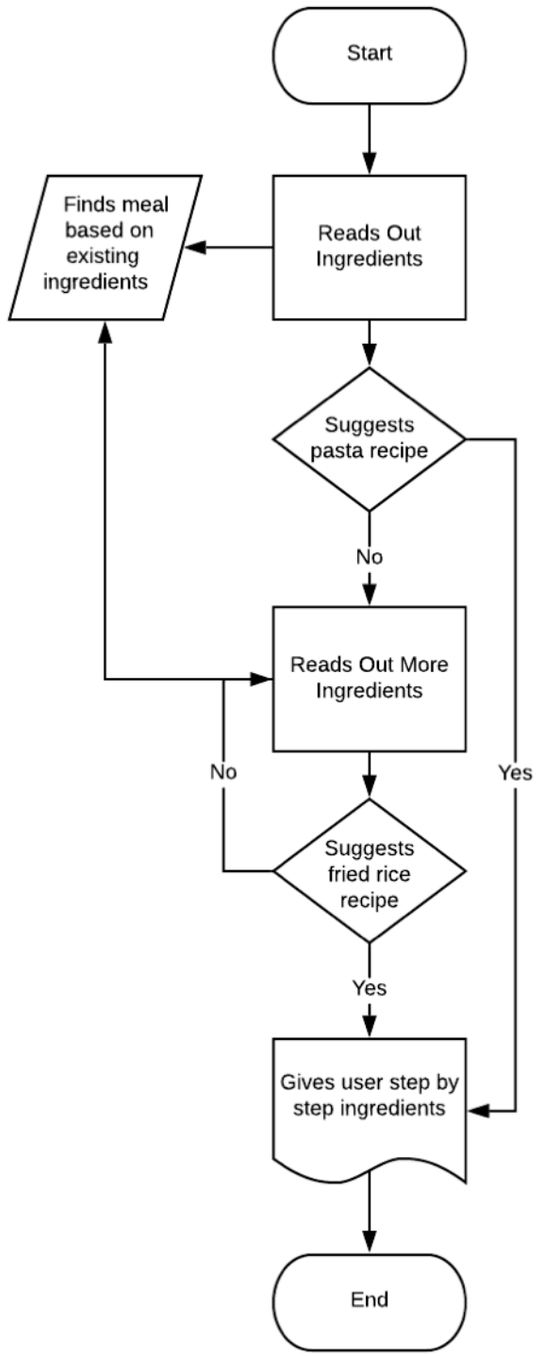
User: Anything else?

Alexa: You also have Jasmin rice, butter, olive oil, garlic, soy sauce, eggs and scallions. How about egg fried rice?

User: Sounds a lot better.

Alexa: Okay, to start preheat your skillet on medium high heat and pour a generous amount of olive oil and butter.

Instruction Type Intent - User Flow



Context And Memory

1. Novice and a tapered prompt for at least one state of Skill 2

Context & Memory in Voice Design		
1. Novice and a tapered prompt for at least one state of Skill 2		
//When the user visits the app for the first time	Welcome_Intent_Novice_Prompt	
//When the user visits the app after the first time	Welcome_Intent_Standard_Prompt	
//When the user get's to the point and wants a quick meal	Welcome_Intent_Tapered_Prompt	
Utterances to enter State	**Prompt ID**	**Prompt**
Alexa, ask Recipe Expert for a quick breakfast recipe.	Welcome_Intent_Novice_Prompt1	Hi Mihir, welcome to Recipe Expert. A great way to cook a meal in the kitchen with my help. How about the following foods for your breakfast today: {Option A}, {Option B}, {Option C}?
Alexa, what will I eat for breakfast today?	Welcome_Intent_Standard_Prompt1	Welcome back Mihir, how about the following foods for your breakfast today: {Option A}, {Option B}, {Option C}?
Alexa, I want my favorite breakfast	Welcome_Intent_Tapered_Prompt1	Hi Mihir, sure. Let's make eggs benedict!
Alexa, I want a smoothie for breakfast.	Welcome_Intent_Novice_Prompt2	Hi Mihir, welcome to Recipe Expert. I have some great smoothie recipes to start your day. How does a green smoothie sound for breakfast today?
Alexa, I want the usual for breakfast today	Welcome_Intent_Tapered_Prompt2	Sure. Opening recipe for breakfast tacos.
Alexa, whats for brunch today?	Welcome_Intent_Standard_Prompt2	Mihir, good to have you back. I got some excellent brunch ideas. How does a frittata sound?

2. Proactive information strategy to improve on an interaction in Skill 2.

2. Proactive information strategy to improve on an interaction in Skill 2	
//For these instances the user didn't have to ask the assistant beforehand	
Prompt ID	**Prompt**
proactive_prompt_1	Would you like me to add this recipe to your favorite breakfast foods?
proactive_prompt_2	Would you like me to add this meal on your favorites list?
proactive_prompt_3	It looks like you are missing eggs in your pantry. Want me to add this on your cart?
proactive_prompt_4	It's dinner time in 2 hours. How does mexican food sound for tonight?
// using memory	
Prompt ID	
memory_Proactive_prompt_1	
memory_Proactive_prompt_2	You seem to enjoy mexican for breakfast. How about egg tacos tomorrow?

3. Use context to improve at least one interaction in Skill 2.

3. Use context to improve at least one interaction in Skill 2	
//Meal suggestions based on the time of the day	
//Meal suggestions based on the day of the week	
//Meal suggestions based on cuisine	
Utterances to enter State	
Alexa, what are we going to cook this morning?	
Alexa, what's on the menu today?	
Alexa, I am hungry for Asian food.	

Prompts

Prompt ID	**Prompts**
context_prompt_1	Hi Mihir, good morning. The weather is 72 in Seattle. How about some banana pancakes for breakfast?
context_prompt_2	Hi Mihir, its Taco tuesday. I found a great recipe for carne asada. Would you like to hear more?
context_prompt_3	
	Mihir, I found a great recipe for cashew chicken and the prep time is 30 minutes. Would you like to hear it?

Usability Testing for Voice Interactions

Usability Test Overview

Introduction: In-person session was conducted for the Recipe Expert app by Mihir Shah on August 12th of 2020 in Seattle, Washington.

Background: Recipe Expert is a built-in voice assistant on Alexa that allows users to find quick recipes, detect what ingredients are on their smart pantry and suggest recipes as well as add ingredients on the user's Prime Fresh cart.

Goals: The goal of this test is to give new users a set of scenario based tasks to perform to understand their approach on interacting with voice assistants was well as study ways to improve the user-experience so that I can make further improvement to the skill and utilize it to reach it's full potential.

Objectives:

a) Study if the users can naturally activate the voice assistant

b) Study how users interact with the voice assistant and what type of questions they ask

c) Study phrases users use to get the help they need

d) Study how users explore different cuisines as well as the type of meal (such as breakfast, lunch or dinner)

Usability Test Overview (continued)

Methodology: Wizard of Oz testing was moderated both in person and remotely. User was asked background questions first, then given a few scenario based questions. The user's interaction was observed and recorded with their consent. Notes were taken for participant behavior, interaction and any troubleshooting experienced. Emotions, thoughts and feelings were also observed especially when certain phases of the task were confusing.

Participants: Sofia (In-person)

Schedule: August 9th to August 13th.

Session: 1 volunteer participants, 15 minute test.

Equipment: MacBook Pro, Voice Memos on iPhone, Skype and Zoom.

Script

Hi, my name is Mihir. Thank you for participating in my study. I am a UX design student at CareerFoundry and I am here to conduct usability tests on my new voice skill called ‘Recipe Expert’. To give you an overview, Recipe Expert is a kitchen voice assistant app on Alexa that allows users to find quick recipes, detect what ingredients are on their smart pantry and suggest recipes as well as add ingredients on the user’s Prime Fresh cart. The skill is still in its infancy stages so any valuable feedback you provide me will help shape the trajectory for this app in significant ways. To conduct this study, I will first ask some background questions to get to know you better and then ask you scenario based questions and ask you to complete a few tasks for me. I will observe how you interact with this app and study your reactions. I will also ask you some follow up questions based on how you are feeling or thinking. Please bare with me if you notice any errors or if certain aspects of this test are not fully functional. I am happy to answer any questions you have during this process to point you in the right direction. Remember, there are no right or wrong answers. You may choose to opt out at any given time in the process. Now, before we begin do you have any questions for me?

Demographics and Background Questions

1. What is your age range?

a) 18-27 years

b) 28-37 years

c) 38-47 years

2. What is your occupation?

3. What is your experience using voice assistants? If so, which ones are you comfortable using?

4. How often do you use voice assistants and for what purpose?

5. During what instances do you find voice assistants useful?

6. During what instances do you find voice assistants frustrating to use?

Thanks for answering these questions as it helps me get to know my users better and understand the demographics. Do you have any questions for me?

Tasks/Scenario Based Questions

Now that I got to know you, I would like to move forward with some scenario based questions pertaining to my new voice expert designed for the kitchen called Recipe Expert. Recipe Expert will be the go to voice assistant to help with meal prepping, finding recipes based on the type of meal, cuisine, detect ingredients in your smart pantry and add grocery items to your Prime Fresh cart.

1. First I want you to use an utterance to call out for this assistant on an Amazon device. What would you say?

2. Thank you. Now imagine you are in the mood for breakfast recipes and would like Recipe Expert to intervene. How would you go about this?

3. Now imagine you are in the mood for a specific cuisine to satisfy your travel cravings. What would you say or ask for suggestions?

4. Now let's say you selected a recipe and would like to walked through the instructions from start to finish. How would you approach this?

5. Now let's say you want to make a meal from what's left over in your smart pantry. Since Recipe Expert can detect what is in your pantry, how would you ask the assistant for help?

6. Finally, you want to cook a specific meal in the future and don't have certain ingredients. You want to make sure you get them beforehand so you can prepare the food. How would you ask the assistant for help with shopping for groceries?

That's all I have for you. Thank you for volunteering for my study! Your feedback is valuable.

Background/Demographic Information: Sofia

1.**Age Range**: 28 to 37 years

2. **Occupation**: Executive Assistant

3. **Experience Using Voice Assistants**: Experienced user who used Alexa and Siri frequently.

4. **Usage Frequency**: Daily user of Alexa to set reminders, control smart-home, set alarms and listen to music/news. Occasional user of Siri for music recognition, reminders, navigation, etc.

5. **Usefulness**: Sofia finds is useful to use voice assistants to control her smart-home because it reduces friction and she does not have to physically press any buttons. She also finds it convenient to use voice assistants for setting alarms and listening to her favorite stations over her multitouch display.

6. **Frustrations**: Sofia finds is rather frustrating when Alexa devices in the home are non-responsive, don't understand what she is saying on frequent occasions, have connectivity issues or don't sync well together which makes it difficult to control her smart-home. She finds herself repeating voice commands on multiple occasions to achieve a task and has to scream louder and louder.

Task/Scenario Questions: Sofia

1. **Utterance:** Alexa, open recipe expert.

Assistant Response: Hi Sofia! Welcome to Recipe Expert. What would you like to cook today?

2. **Breakfast Recipe:** Alexa, what's for breakfast?

Assistant Response: Hi Sofia, I found a great recipe for a keto omelette. Would you like to learn how to make it?

3. **Specific Cuisine**: Alexa, I am craving Asian food.

Assistant Response: I found the perfect egg fried rice recipe for you. Would you like to learn more?

4. **Choosing a Recipe to Cook**: Alexa, teach me how to make a frittata.

Assistant Response: First preheat the oven at 420 degrees and heat a large cast iron skillet with olive oil. Next, beat 6 eggs and put them aside. After that, dice a large onion, 3 potatoes 12 mushrooms and 8 ounces of ham. Peel the potatoes and cook them first for 3 to 4 minutes. Then finely dice the rest of the ingredients and mix them with the potatoes….

5. **Smart Pantry**: Alexa, what's in my pantry?

Assistant Response: Hi Sofia, I found some ingredients for a quick pasta recipe. Would you like cook pasta?

6. **Adding Groceries to Cart:** Alexa, add garlic and eggs to my shopping cart.

Assistant Response: I have added garlic and eggs to your prime fresh cart. Would you like to check out or add anything else?

Test Results

Intent	Issues if any	Success	Recommendation
Launch	Task was seamlessly performed and there were no issues	Yes	None.
ChooseMealType	The user had no difficulties performing this task and was able to get a breakfast recipe. They didn't engage further after the assistant responded.	Yes	Perhaps not add keto omlette as a primary option for a default breakfast recipce recommendation. Reason: A lot of people have bad cholestrol.
ChooseCuisine	User was able to get what they asked for - an Asian dish when asked for one.	Yes	No comments.
StartCookingRecipe	User asked for a frittata recipe and the assistant went off without pausing.	Partial	The user expected more nuances and the assistant to pause so they could respond back. However, the assistant went to the next step in the recipe without pausing like a broken recorder. Perhaps I could have made this testing more interactive because this task required back and forth communication between the user and the assistant
ChoosePantry	The user asked the assistant about the ingredients in their smart pantry but the assistant responded with a recipe suggestion instead.	No	If asked speficially for the ingredients don't suggest recipe but rather read out the ingredients. If asked for a recipe then only would it make sense to suggest a recipe.
AddToCart	User asked the assistant to add grocery items to the cart and the assistant was able to perform their request.	Yes	No issues at all. The response was perfect.

Success Rate

Out of the 6 questions asked, 4 questions had a successful outcome and 1 question had a partially successful outcome and 1 question did not have a successful outcome. Based on the numbers, the success rate was 70%. Here is a link to the results.

High Priority Issue: The answer to the question about the contents in the smart pantry was not accurate. It blurted out a recipe suggestion rather than read out the ingredients.

Medium Priority Issue: There was no pauses or follow up questions when the assistant gave the user a specific meal recipe. It is essential to make the assistant pause and ask questions rather than simply read out a recipe.

Overall, the personality of the assistant was great.

Limitations

Due to COVID19, it was difficult to get interview participants for the usability test. It was also a challenge to get the skill working on the Alexa developer console so the test was rehearsed and improvised. Although only one participant in the household was tested, the feedback was still valuable and allowed me to get a better insight as to what the next steps would be in terms of redesigning the skill. I also realized the importance of accuracy and making the assistant's responses more precise. For example, when the user specifically asked the assistant for the ingredients in their smart pantry the assistant responded with suggested recipes based on the ingredients in the smart pantry and not the ingredients itself. In a nutshell, understanding the user is a crucial step in developing an ideal voice assistant.

Multimodal Interactions

Personality Quiz Questions

1. Do you like animals?

2. Do you enjoy creatures?

3. Do you enjoy learning about animals?

4. Do you like cute ones or scary ones?

5. What type of animal are you?

Personality Quiz Results - Duck

Audio Message: “ducks are amazing and can regrow their own feathers.”

Description: "ducks are known for being the birds of the non flying world. They always know how to squack in any circumstance. You might enjoy hanging around the edge of the pool and keeping an eye on everyone."

Personality Quiz Results - Cow

Audio Message: “moo moo moo.”

Description: "Dear moo. You are smelly a cow."

Personality Quiz Results - Deer

Audio Message: “A male male deer.”

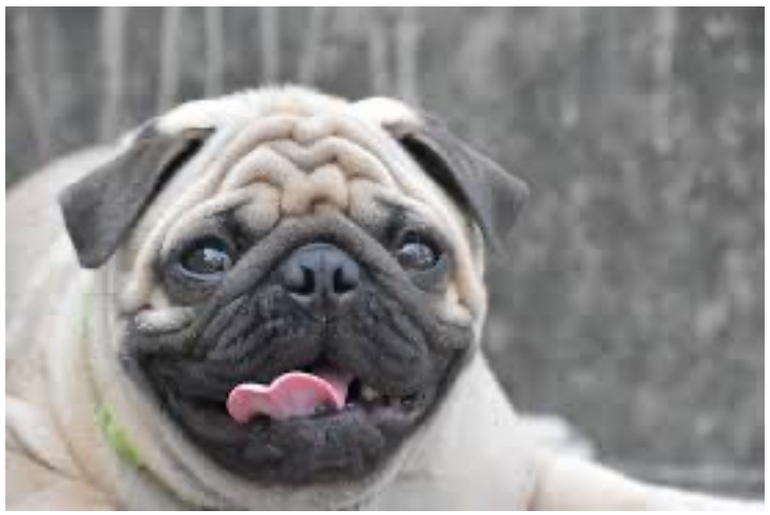
Description: "You are a female deer."

Personality Quiz Results - Koala

Audio Message: “koala bear.”

Description: "koalas sleep all day long and eat eucaplytus for the hours they are awake."

Personality Quiz Results - Dog



Audio Message: “pups are cute but they bite.”

Description: "Do not be deceived by cute pups. They like to nibble, they like to bite."

Personality Quiz Code - A

```
'use strict';
const Alexa = require('ask-sdk');
const Util = require('./util');
/**********
Data: Customize the data below as you please.
**********/
const SKILL_NAME = "Personality Quiz";
const HELP_MESSAGE_BEFORE_START = "Answer five questions, and I will tell you what animal you are. Are you ready to play?";
const HELP_MESSAGE_AFTER_START = "Just respond with yes or no and I'll give you the result in the end.";
const HELP_REPROMPT = "Your animal will be revealed after you answer all my yes or no questions.";
const STOP_MESSAGE = "Your spirit animal will be waiting for you next time.";
const MISUNDERSTOOD_INSTRUCTIONS_ANSWER = "Please answer with either yes or no."; const BACKGROUND_IMAGE_URL = "https://s3.amazonaws.com/coach-courses- us/public/courses/voice/2.7/default.jpg";
// const BACKGROUND_IMAGE_URL = "default.jpg";
const BACKGROUND_GOODBYE_IMAGE_URL = "https://s3.amazonaws.com/coach-courses- us/public/courses/voice/2.7/goodbye.jpg";
// const BACKGROUND_GOODBYE_IMAGE_URL = "goodbye.jpg";
const BACKGROUND_HELP_IMAGE_URL = "https://s3.amazonaws.com/coach-courses- us/public/courses/voice/2.7/help.jpg";
// const BACKGROUND_HELP_IMAGE_URL = "help.jpg";
const WELCOME_MESSAGE = "Hi! I can tell you what animal you're most like. All you have to do is answer five questions with either yes or no. Are you ready to start?";
const INITIAL_QUESTION_INTROS = [

"Great! Let's start!",
"<say-as interpret-as='interjection'>Alrighty</say-as>! Here comes your first question!", "Ok lets go. <say-as interpret-as='interjection'>Ahem</say-as>.",
"<say-as interpret-as='interjection'>well well</say-as>."

];
const QUESTION_INTROS = [

"Oh dear.",
"Okey Dokey",
"You go, human!",
"Sure thing.",
"I would have said that too.", "Of course.",
"I knew it.",
"Totally agree.",
"So true.",
"I agree."

];
```

Personality Quiz Code - B

const UNDECISIVE_RESPONSES = [
"<say-as interpret-as='interjection'>Honk</say-as>. I'll just choose for you.",
"<say-as interpret-as='interjection'>Nanu Nanu</say-as>. I picked an answer for you.", "<say-as interpret-as='interjection'>Uh oh</say-as>... well nothing I can do about that.", "<say-as interpret-as='interjection'>Aha</say-as>. We will just move on then.",
"<say-as interpret-as='interjection'>Aw man</say-as>. How about this question?",

];
const RESULT_MESSAGE = "Here comes the big reveal! You are "; // the name of the result is inserted here.
const RESULT_MESSAGE_SHORT = "You are "; // the name of the result is inserted here. const PLAY_AGAIN_REQUEST = "That was it. Do you want to play again?";
const resultList = {

result1: {
name: "a duck",
display_name: "ducky",
audio_message: "ducks are amazing and can regrow their own feathers.",
description: "ducks are known for being the birds of the non flying world. They always know

how to squack in any circumstance. You might enjoy hanging around the edge of the pool and keeping an eye on everyone.",

img: {
// largeImageUrl: "https://coach-courses-

us.s3.amazonaws.com/public/courses/voice/Example%20images%20skill%203/Red- knobbed.starfish.1200.jpg"

largeImageUrl: "Duck.jpeg", }

}, result2: {

name: "a cow",
display_name: "moo moo",
audio_message: "moo moo moo.",
description: "Dear moo. You are smelly a cow.", img: {

// largeImageUrl: "https://coach-courses- us.s3.amazonaws.com/public/courses/voice/Example%20images%20skill%203/Aceria_anthoco ptes.1200.jpg"

largeImageUrl: "cow.jpeg", }

}, result3: {

name: "a deer",
display_name: "Do a Deer", audio_message: "A male male deer.", description: "You are a female deer.", img: {

Personality Quiz Code - C

// largeImageUrl: "https://coach-courses- us.s3.amazonaws.com/public/courses/voice/Example%20images%20skill%203/Anodorhynchus _hyacinthinus.1200.jpg"

largeImageUrl: "deer.jpeg", }

}, result4: {

name: "koala",
display_name: "sleepy koala",
audio_message: "koala bear.",
description: "koalas sleep all day long and eat eucaplytus for the hours they are awake.", img: {

// largeImageUrl: "https://coach-courses- us.s3.amazonaws.com/public/courses/voice/Example%20images%20skill%203/Male_goat.1200 .jpg"

largeImageUrl: "koala.jpeg", }

}, result5: {

name: "a pup",
display_name: "dog",
audio_message: "pups are cute but they bite.",
description: "Do not be deceived by cute pups. They like to nibble, they like to bite.", img: {

// largeImageUrl: "https://coach-courses- us.s3.amazonaws.com/public/courses/voice/Example%20images%20skill%203/Bufo_boreas.12 00.jpg"

largeImageUrl: "pup.jpg", }

} };

const questions = [{
question: "Do you like animals?",
questionDisplay: "Do you like spending time with animals?", background: "https://s3.amazonaws.com/coach-courses-

us/public/courses/voice/2.7/q1.jpg", //background: "question1.jpg", points: {

result1: 4, result2: 0, result3: 5, result4: 3, result5: 1

Personality Quiz Code - D

} },

{
question: "Do you enjoy creatures?",
questionDisplay: "Do you enjoy creatures?",
background: "https://s3.amazonaws.com/coach-courses-

us/public/courses/voice/2.7/q2.jpg", //background: "question2.jpg", points: {

result1: 4, result2: 1, result3: 2, result4: 3, result5: 5

} },

{
question: "Do you enjoy learning about animals?", questionDisplay: "Do you enjoy animals over humans?", background: "https://s3.amazonaws.com/coach-courses-

us/public/courses/voice/2.7/q3.jpg", //background: "question3.jpg", points: {

result1: 0, result2: 5, result3: 1, result4: 3, result5: 4

} },

{
question: "Do you like cute ones or scary ones?", questionDisplay: "Cute or scary animals?",
background: "https://s3.amazonaws.com/coach-courses-

us/public/courses/voice/2.7/q4.jpg", //background: "question4.jpg", points: {

result1: 2, result2: 3, result3: 4, result4: 4, result5: 5

} },

Personality Quiz Code - E

```
{
question: "What type of animal are you?", questionDisplay: "A wild one or a tame one?", background: "https://s3.amazonaws.com/coach-courses-us/public/courses/voice/2.7/q5.jpg", //background: "question5.jpg", points: {
result1: 0, result2: 5, result3: 3, result4: 4, result5: 5
} }
];
/**********
Execution Code: Avoid editing the code below if you don't know JavaScript. **********/
// Private methods (this is the actual code logic behind the app)
const newSessionHandler = { canHandle(handlerInput) {
const request = handlerInput.requestEnvelope.request;
const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes(); var isCurrentlyPlayingOrGettingResult = false;
if (sessionAttributes.state) {
isCurrentlyPlayingOrGettingResult = true; }
return handlerInput.requestEnvelope.request.type === `LaunchRequest` || (!isCurrentlyPlayingOrGettingResult && request.type === 'IntentRequest' && (request.intent.name === 'AMAZON.YesIntent' || request.intent.name === 'AMAZON.NoIntent'));
}, handle(handlerInput) {
console.log('------------------------------------ New session') const request = handlerInput.requestEnvelope.request;
```

Personality Quiz Code - F

```
const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes();
if (handlerInput.requestEnvelope.request.type === `LaunchRequest`) {

_initializeApp(sessionAttributes);

return buildResponse(handlerInput, WELCOME_MESSAGE, WELCOME_MESSAGE, SKILL_NAME);

}
if (request.type === 'IntentRequest' && request.intent.name === 'AMAZON.YesIntent') {

sessionAttributes.state = states.QUIZMODE;

const systemSpeak = _nextQuestionOrResult(handlerInput);

return buildResponse(handlerInput, systemSpeak.prompt, systemSpeak.reprompt, SKILL_NAME, systemSpeak.background,systemSpeak.displayText);

}
if (request.type === 'IntentRequest' && request.intent.name === 'AMAZON.NoIntent') {

console.log('---------------------------------------- Exit session')
const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes(); sessionAttributes.state = '';
return buildResponse(handlerInput, STOP_MESSAGE, '', SKILL_NAME,

BACKGROUND_GOODBYE_IMAGE_URL,STOP_MESSAGE); }

if (request.type === 'IntentRequest' && request.intent.name === 'UndecisiveIntent') { const outputSpeech = MISUNDERSTOOD_INSTRUCTIONS_ANSWER;
return buildResponse(handlerInput, outputSpeech, outputSpeech, SKILL_NAME,

BACKGROUND_IMAGE_URL,""); }

}, };

const nextQuestionIntent = (handlerInput, prependMessage) => { const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes(); sessionAttributes.questionProgress++;

var currentQuestion = questions[sessionAttributes.questionProgress].question; return {

prompt: `${prependMessage} ${_randomQuestionIntro(sessionAttributes)} ${currentQuestion}`,

reprompt: HELP_MESSAGE_AFTER_START,
displayText: questions[sessionAttributes.questionProgress].questionDisplay, background: questions[sessionAttributes.questionProgress].background

}; }
```

Personality Quiz Code - G

```
const resultIntent = (handlerInput, prependMessage) => {
const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes();
const resultPoints = sessionAttributes.resultPoints;
const result = Object.keys(resultPoints).reduce((o, i) => resultPoints[o] > resultPoints[i] ? o : i); const resultMessage = `${prependMessage} ${RESULT_MESSAGE} $
{resultList[result].name}.

${resultList[result].audio_message}. ${PLAY_AGAIN_REQUEST}`; return {

prompt: resultMessage,
reprompt: PLAY_AGAIN_REQUEST,
displayText: `${RESULT_MESSAGE_SHORT} ${resultList[result].name}`, background: resultList[result].img.largeImageUrl

}

// this.emit(':askWithCard', resultMessage, PLAY_AGAIN_REQUEST, resultList[result].display_name, resultList[result].description, resultList[result].img);

// ^speechOutput ^repromptSpeech ^cardTitle ^cardContent ^imageObj
}

const _randomIndexOfArray = (array) => Math.floor(Math.random() * array.length); const _randomOfArray = (array) => array[_randomIndexOfArray(array)];
const _adder = (a, b) => a + b;
const _subtracter = (a, b) => a - b;

// Handle user input and intents:

const states = {
QUIZMODE: "_QUIZMODE",

RESULTMODE: "_RESULTMODE" }

const quizModeHandler = { canHandle(handlerInput) {

const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes();
var isCurrentlyPlaying = false;
if (sessionAttributes.state && sessionAttributes.state === states.QUIZMODE) {

isCurrentlyPlaying = true;
```

Personality Quiz Code - H

```
}

return isCurrentlyPlaying; },

handle(handlerInput) {
console.log('----------------------------------------Quiz Mode')
const request = handlerInput.requestEnvelope.request;
const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes();
var prependMessage = '';
if (request.type === 'IntentRequest' && request.intent.name === 'AMAZON.NextIntent') {

const systemSpeak = nextQuestionIntent(handlerInput, prependMessage);

return buildResponse(handlerInput, systemSpeak.prompt, systemSpeak.reprompt, SKILL_NAME, systemSpeak.background,systemSpeak.displayText);

}
if (request.type === 'IntentRequest' && request.intent.name === 'AMAZON.YesIntent') { _applyresultPoints(sessionAttributes, _adder);
sessionAttributes.state = states.QUIZMODE;
const systemSpeak = _nextQuestionOrResult(handlerInput);

return buildResponse(handlerInput, systemSpeak.prompt, systemSpeak.reprompt, SKILL_NAME, systemSpeak.background,systemSpeak.displayText);

}

if (request.type === 'IntentRequest' && request.intent.name === 'AMAZON.NoIntent') { _applyresultPoints(sessionAttributes, _subtracter);
sessionAttributes.state = states.QUIZMODE;
const systemSpeak = _nextQuestionOrResult(handlerInput);

return buildResponse(handlerInput, systemSpeak.prompt, systemSpeak.reprompt, SKILL_NAME, systemSpeak.background,systemSpeak.displayText);

}

if (request.type === 'IntentRequest' && request.intent.name === 'UndecisiveIntent') { Math.round(Math.random()) ? _applyresultPoints(sessionAttributes, _adder) :

_applyresultPoints(sessionAttributes, _subtracter);
const systemSpeak = _nextQuestionOrResult(handlerInput,

_randomOfArray(UNDECISIVE_RESPONSES));
return buildResponse(handlerInput, systemSpeak.prompt, systemSpeak.reprompt,

SKILL_NAME, systemSpeak.background,systemSpeak.displayText); }

if (request.type === 'IntentRequest' && request.intent.name === 'AMAZON.RepeatIntent') { var currentQuestion = questions[sessionAttributes.questionProgress].question;
```

Personality Quiz Code - I

```
return buildResponse(handlerInput, currentQuestion, HELP_MESSAGE_AFTER_START, SKILL_NAME, BACKGROUND_HELP_IMAGE_URL);

}

}, };

const resultModeHandler = { canHandle(handlerInput) {

const request = handlerInput.requestEnvelope.request;
const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes(); var isCurrentlyPlaying = false;
if (sessionAttributes.state &&

sessionAttributes.state === states.QUIZMODE) {
isCurrentlyPlaying = true; }

return !isCurrentlyPlaying && request.type === 'IntentRequest' && sessionAttributes.state === states.RESULTMODE;

}, handle(handlerInput) {

console.log('------------------------------------ Result mode')
const request = handlerInput.requestEnvelope.request;
const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes();

if (request.intent.name === 'AMAZON.YesIntent') { _initializeApp(sessionAttributes);
sessionAttributes.state = states.QUIZMODE;
const systemSpeak = _nextQuestionOrResult(handlerInput);
return buildResponse(handlerInput, systemSpeak.prompt, systemSpeak.reprompt,

SKILL_NAME, systemSpeak.background, systemSpeak.displayText); }

if (request.intent.name === 'AMAZON.NoIntent') {
const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes(); sessionAttributes.state = '';
return buildResponse(handlerInput, STOP_MESSAGE, '', SKILL_NAME,

BACKGROUND_GOODBYE_IMAGE_URL,STOP_MESSAGE); }
```

Personality Quiz Code - J

```
}, };

const ExitHandler = { canHandle(handlerInput) {

const request = handlerInput.requestEnvelope.request; return request.type === 'IntentRequest' &&

(request.intent.name === 'AMAZON.CancelIntent' || request.intent.name === 'AMAZON.StopIntent');

}, handle(handlerInput) {

console.log('------------------------------------ Exit session')
const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes(); sessionAttributes.state = '';
return buildResponse(handlerInput, STOP_MESSAGE, '', SKILL_NAME,
BACKGROUND_GOODBYE_IMAGE_URL,STOP_MESSAGE); //----------------------------------------------

}, };

const HelpIntentHandler = { canHandle(handlerInput) {

const request = handlerInput.requestEnvelope.request; return request.type === 'IntentRequest' &&

request.intent.name === 'AMAZON.HelpIntent'; },

handle(handlerInput) {
console.log('------------------------------------ Help')
const attributesManager = handlerInput.attributesManager;
var speechOutput = '';
const sessionAttributes = attributesManager.getSessionAttributes(); if (sessionAttributes.state === states.QUIZMODE) {

speechOutput = HELP_MESSAGE_AFTER_START; } else {

speechOutput = HELP_MESSAGE_BEFORE_START; }

const reprompt = HELP_REPROMPT;

return buildResponse(handlerInput, speechOutput, reprompt, SKILL_NAME, BACKGROUND_HELP_IMAGE_URL);

}, };
```

Personality Quiz Code - K

```
const UnhandledHandler = { canHandle() {

return true; },

handle(handlerInput) {
console.log('-------------------------------------Unhandled')
const outputSpeech = MISUNDERSTOOD_INSTRUCTIONS_ANSWER;
return buildResponse(handlerInput, outputSpeech, outputSpeech, SKILL_NAME);

}, };

const SessionEndedRequestHandler = { canHandle(handlerInput) {

console.log("Inside SessionEndedRequestHandler");
return handlerInput.requestEnvelope.request.type === 'SessionEndedRequest'; },

handle(handlerInput) {
console.log(`Session ended with reason: ${JSON.stringify(handlerInput.requestEnvelope)}`); return handlerInput.responseBuilder.getResponse();

}, };

// Skill brain

const _initializeApp = handler => {
// Set the progress to -1 one in the beginning handler.questionProgress = -1;
// Assign 0 points to each animal
var initialPoints = {};
Object.keys(resultList).forEach(result => initialPoints[result] = 0); handler.resultPoints = initialPoints;

};

const _nextQuestionOrResult = (handlerInput, prependMessage = '') => { const attributesManager = handlerInput.attributesManager;
const sessionAttributes = attributesManager.getSessionAttributes();
if (sessionAttributes.questionProgress >= (questions.length - 1)) {

sessionAttributes.state = states.RESULTMODE; return resultIntent(handlerInput, prependMessage)

} else {
return nextQuestionIntent(handlerInput, prependMessage);
```

Personality Quiz Code - L

```
} };

const _applyresultPoints = (handler, calculate) => {
const currentPoints = handler.resultPoints;
const pointsToAdd = questions[handler.questionProgress].points;

handler.resultPoints = Object.keys(currentPoints).reduce((newPoints, result) => { newPoints[result] = calculate(currentPoints[result], pointsToAdd[result]); return newPoints;

}, currentPoints); };

const _randomQuestionIntro = handler => { if (handler.questionProgress === 0) {

// return random initial question intro if it's the first question:

return _randomOfArray(INITIAL_QUESTION_INTROS); } else {
// Assign all question intros to remainingQuestionIntros on the first execution: var remainingQuestionIntros = remainingQuestionIntros || QUESTION_INTROS; // randomQuestion will return 0
if the remainingQuestionIntros are empty:
let randomQuestion =

remainingQuestionIntros.splice(_randomIndexOfArray(remainingQuestionIntros), 1);
// Remove random Question from rameining question intros and return the removed

question. If the remainingQuestions are empty return the first question:

return randomQuestion ? randomQuestion : QUESTION_INTROS[0]; }

};
// Utilities

let buildResponse = (handlerInput, prompt, reprompt, title = SKILL_NAME, image_url = BACKGROUND_IMAGE_URL, displayText = SKILL_NAME, display_type = "BodyTemplate7" )
=> {

console.log(title); if (reprompt) {

handlerInput.responseBuilder.reprompt(reprompt); } else {

handlerInput.responseBuilder.withShouldEndSession(true); }

var response;
if (supportsDisplay(handlerInput)) {

response = getDisplay(handlerInput.responseBuilder, title, displayText, image_url, display_type)
```

Personality Quiz Code - M

```
} else{

response = handlerInput.responseBuilder }

return response .speak(prompt) .getResponse();

}
function supportsDisplay(handlerInput) {

var hasDisplay =
handlerInput.requestEnvelope.context && handlerInput.requestEnvelope.context.System && handlerInput.requestEnvelope.context.System.device &&
handlerInput.requestEnvelope.context.System.device.supportedInterfaces && handlerInput.requestEnvelope.context.System.device.supportedInterfaces.Display
return hasDisplay; }

function getDisplay(response, title, displayText, image_url, display_type){ if (!image_url.includes('https://')) {

image_url=Util.getS3PreSignedUrl("Media/"+image_url); }

const image = new Alexa.ImageHelper().addImageInstance(image_url).getImage();

console.log("the display type is => " + display_type); console.log(image_url);

const myTextContent = new Alexa.RichTextContentHelper() .withPrimaryText(title+"<br/>") .withSecondaryText(displayText)
.withTertiaryText("<br/> ")

.getTextContent();

if (display_type === "BodyTemplate7"){ //use background image

response.addRenderTemplateDirective({ type: display_type,

}

backButton: 'visible', backgroundImage: image, title:displayText, textContent: myTextContent, });
```

Personality Quiz Code - N

```
else{
response.addRenderTemplateDirective({

}

//use 340x340 image on the right with text on the left. type: display_type,
backButton: 'visible',
image: image,

title:displayText, textContent: myTextContent, });
return response }

// Init

const skillBuilder = Alexa.SkillBuilders.custom(); exports.handler = skillBuilder

.addRequestHandlers(
SessionEndedRequestHandler, HelpIntentHandler, ExitHandler, newSessionHandler,

quizModeHandler, resultModeHandler, UnhandledHandler )

//.addErrorHandlers(ErrorHandler) .lambda();
```

Accessibility and Voice

WhatsApp

Owned by Facebook, WhatsApp is a cross-messaging platform that allows users to send instant messages using text or voice, send attachments, create groups and communicate via call or video. WhatsApp can be used on many devices including laptops as long as it is connected to the phone. With over 2 billion users globally, WhatsApp is one of the leading communication platforms.

As an overseas team-leader who uses WhatsApp 50% of the time to communicate with family and contractors overseas, I see many areas for improvements with voice integration.

Limitations with accessibility - Although WhatsApp is compatible with Siri on iOS devices to send messages and make calls, certain added features can tremendously boost its user experience. For example, the ability to use voice to send messages on a group chat, make handsfree video calls to specific people, mute notifications for certain individuals or groups using voice, forward attachments via voice, or even create new groups via voice would be a great ways to reduce friction that currently takes multiple steps to perform via the app's user-interface. Fully integrating WhatsApp with Siri and Google Assistant will enhance the lives of 2 billion+ people and revolutionize the overall user experience one step further.

Amazon FireTV

Owned by Amazon, FireTV app is a great plugin to enhance the smart TV experience. The Amazon Fire TV mobile app for iOS enhances the Fire TV experience with simple navigation, a keyboard for easy text entry, and quick access to a user's favorite apps and games. It features voice search, simple navigation, playback controls, keyboard for simple text entry and quick access to your apps and games.

Limitations with accessibility - The FireTV app allows users to explore movies and TV shows with voice, navigate results, pause and play video, and a lot more. There are still some limitations if worked on that would enhance the user-experience. For example, browsing TV shows/movies by genres is not app specific. If a user wants to play a 'dark comedy' genre on Netflix the app is unable to do so. Additionally, even though the user can fast forward or rewind time with voice when a TV show or movie is playing, added features to 'Skip' intros for TV shows with voice, or skip scenes and credits would be nice and virtually eliminate the need for a remote. Additionally, it would also be great to add content in queue with voice if one wants to spend a considerable amount of time in their day watching TV.

Trello

A subsidiary of Atlasssian, Trello is a Kanban-style application to create lists and is used for project management across a wide array of industries. Personally, I use Trello on a regular basis for work to manage the different completion stages for ongoing projects with clients and customers. The Trello app on iOS devices is Siri compatible and can certain features can be controlled using Siri shortcuts.

Limitations with accessibility - At this time the integration with Siri allows the user to open Trello boards and cards using a Siri phrase, set custom phrases to access specific cards or boards as well as add cards with voice commands. These are great features to use with voice but to take it a step further and improve the overall accessibility having the ability to move cards from one column to another when a certain phase of a project is completed or even add colored labels, add descriptions, set due dates, enable notifications as well as add comments and tag people — all using voice would make the overall experience so much better.

Safety and Privacy for Voice Design

Designing for Children

In my opinion, designing apps for children should be more geared towards enhancing the learning and educational experience and minimizing obstructions that lead to unproductive use of time. Certain gaming apps in the market use human psychology geared towards children to capitalize on in-app purchases by using a rewards-based system similar to how adults gamble in casinos. The use of bright and attractive colors trigger emotions and the child is likely to press certain buttons that lead to purchases for more points to enhance the gaming experience.

Using gamification elements in apps have been the trend since the past decade. Although certain apps like Waze get it right, many of them do more harm than good. Studies have shown that gamification uses extrinsic motivation to get users to form good habits, but the moment the extrinsic motivation is taken away from the user they are likely to back to their old ways as they are not being rewarded. The greater the extrinsic motivation the less likely a user is able to develop intrinsic motivation in order to form a good habit.

If I were to design an app catered towards the youth, I would pay close attention to using less gamification elements so that I can trigger intrinsic motivation from the younger generation and not try and capitalize on extrinsic factors that favor in-app purchases. Yes, using human psychology can generate me good money in the short-term if I design an app that motivates children to make in-app purchases but I will lose my customers in the long run when studies come out on the negative effects of using my app. For example, if I were to design a health app for children I would make it a point to collect as little information as possible and not use data against them to extrinsically motivate them to workout or learn a new habit. Instead, I would use statistics and educational information to motivate children to develop healthy habits that can both impact their physical and mental health. Safeguarding their information and privacy will be of utmost importance because if their data is collected and sold to third-party platforms, it will trigger more ads geared towards children that increases the likelihood of in-app purchases and will upset their parents in the long run.

Voice Assistants

I would design voice assistants to follow the protocols and regulations of the Digital Millennium Copyright Act (DMCA) and Stop Pornography and Abusive Marketing Act (SPAM). These two laws govern the internet and how marketing information is spread to the public. Designing a voice assistant that is able to distinguish ages of users from their voice profile and preventing age-restricted content to the youth are important elements for designing a good voice assistant. To minimize inappropriate requests and chit-chat especially when designing for children, responses need to be funneled through a diverse team of conversational designers who will be highly influential with the process of vetting responses from voice assistants so that they can effectively communicate with children in an educational and nonchalant manner when questions about serious subject matters arise.

In a nutshell, designing apps and voice assistants for children needs to be vetted more rigorously in contrast to designing interfaces for adults. As a designer, I understand that what I build for the younger generation will make a significant impact on their behaviors and habits when they grow older so it is important for me to enhance their learning experience so that they can grow up and make a bigger impact in this world.

Thank You