Alexa, Should I Eat at Big Billy's Drive-In?

Darryl Booth, General Manager, Environmental Health
September 19, 2019
Welcome
Welcome and Introductions

▶ Darryl Booth, Accela General Manager for Environmental Health
▶ My Crew: Lynn Keough, Account Executive

Current Projects
  – Accela Environmental Health
  – EnvisionConnect Migration Projects
  – NEHA Technical Advisor for Informatics and GIS
A Demonstration Project...
A Demonstration Project

› Just for Fun
› Nothing to Sell
› An Open Data Initiative
› Not Complete... A Starting Point
› Intend to Inspire and Build Ideas – Show that it is Possible
› Yes, I Will Share Code and Slides
The Vision
“Alexa, what is the rating at Big Billy’s Drive-In?”
“The facility was last inspected on June 1st with a rating of Excellent”
The Journey
Available Data

› Local (Single) Restaurant Inspection Web Forms
  – Examples: El Paso County, Colorado and Los Angeles County, California

› Local (Single) Data System API (Application Programmer’s Interface)

› Consolidated (Multiple) Restaurant Inspection Datastores
  – HDScores.com

  – Open Data Sources
    • Civicdata.com
    • Socrata.com

› Others?
El Paso County EH Inspections


Inspections conducted and published by El Paso County Colorado Environmental Health Department.

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Getting Familiar with the Amazon Echo
Say “Alexa” (wake word) Followed by Command or Request
  – Example: “Alexa, add popcorn to my shopping list”
  – Example: “Alexa, set a timer for 12 minutes”
  – Example: “Alexa, play Red Hot Chili Peppers”

Just for fun
  – Example: “Alexa, tell me a dad joke.”
  – Example: “Alexa, surely you can't be serious?”
Developing Alexa Skills

› Open To Developers and Hobbyists
› Amazon is Great About Promoting and Supporting
› Barriers to Entry are Very Low
› Private or Public
› Public Skills Require Certification
› Public Skills Can be Monetized
Popular Alexa Skills in 2019

Alexa, open Johnnie Walker: An interesting skill for whiskey aficionados, or those wanting to learn more about the distilled beverage.

Alexa, Ask My Buddy: If you’re having a medical issue or other emergency and can’t get to your phone, this skill will alert one or more predesignated contacts for you.

Alexa, ask Fortune Cookie: Cracks open a fortune cookie at any time, allowing you to hear its infinite wisdom without having to order Chinese food.

Alexa, ask Web Analytics: A terrific tool for anyone who monitors their web traffic through Google Analytics.

Alexa, Interview Me: Asks a different question that you may hear on a job interview each time you access this skill.

Alexa, ask Area Code: Returns location details for any three-digit area code.

Alexa, ask Steve Jobs Quotes: Plays famous snippets as well as some lesser-known quotes from the late Apple co-founder.

Alexa, open Spin the Wheel: Tired of flipping a coin or seeing who draws the short straw?

Alexa, open Bedtime Story: This is a neat skill for your kids, as it incorporates their name into the telling of the story.

Alexa, open Stopwatch: A basic yet useful skill that turns Alexa into a stopwatch, allowing you to check duration status and stop at any time.

Alexa, ask Tweet Reader: Causes Alexa to read the tweets in your timeline, from newest to oldest.

Alexa, set an alarm for [time]: Prompts Alexa to sound an alarm at a specified time.
Returning to The Journey
Getting to First Prototype

› Sign Up for Amazon Web Services (AWS) Free Tier
  – 1M Requests per month

› Sign Up for Alexa Developer Program (Free)

› Studied
  – Tutorials
  – Pre-Built Skill “Recipes”
  – Documentation

› Created and Maintained Google Doc for Notes
  – Vision, Resources, URLs, Missteps/Reminders
Some Missteps

› Following Tutorials Blindly
  – Dependencies on Local Tools/Techniques
  – Out-of-Date Guidance and Examples

› Assuming Everything Works as Advertised
  – Example: Civic Data API Requires Certain Key Words in All Caps

› Got Distracted
  – Example: Adding language support
  – Example: Adding more complex commands
Some Things I Did Right

› Time Boxed Project
› Failed Fast
› Relied on Google for Troubleshooting and Advice
› Decided to Leave Some Ideas Undone
How Such a Thing Works
Echo Wakes

Echo Invokes My Health Department Programming

Echo Send Commands (e.g., “Check on Burger King”)

My App Accesses CivicData.com (or other sources)

My App Sends Response to Echo

Echo Speaks Response
The Cloud and Networks Make it Possible

Device

Amazon Web Services

Civic Data

Amazon Web Services

Local Database
This is a JSON File Format

- Better than XML
- Faster
- Lighter Weight
Putting it All Together
User Utters Request to Echo

› “Alexa, Open My Health Department”
Alexa Skills Interface

- Finds “My Health Department” in Database of Invocations

**Invocation**

Users say a skill’s invocation name to begin an interaction with a particular custom skill. For example, if the invocation name is “daily horoscopes”, users can say:

- User: Alexa, ask daily horoscopes for the horoscope for Gemini

**Skill Invocation Name**

- my health department

**Skills Interface**

<table>
<thead>
<tr>
<th>Converts Request (Voice) to Text</th>
<th>Queries Skills Interface for Skill</th>
<th>Matches Intent</th>
<th>Identifies/Fills Slots</th>
<th>Forwards Formatted Command to Skills Service</th>
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</table>
Sample Utterances (8)

What might a user say to invoke this intent?

- to check on {FacilityName}
- what is the inspection score for {FacilityName}
- Check on {FacilityName}
- How did {FacilityName} do
- What is the score for {FacilityName}
- What was the score for {FacilityName}
- What was the inspection score for {FacilityName}
- What is the inspection score of {FacilityName}
### Other Utterances

#### Sample Utterances (2)

<table>
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<td>What might a user say to invoke this intent?</td>
<td>+</td>
</tr>
<tr>
<td>Food safety tip</td>
<td></td>
</tr>
<tr>
<td>Give me a food safety tip</td>
<td></td>
</tr>
<tr>
<td>When they are open</td>
<td></td>
</tr>
<tr>
<td>When are they open</td>
<td></td>
</tr>
<tr>
<td>What are the hours of operation</td>
<td></td>
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Skills Service

Skills Service Knows What to Do

- Takes Formatted Command
- Does Work/Processing to Formulate Response
- Forwards Response to Skill Interface

```cpp
const APP_ID = 'amzn1.ask.skill.5ab4f319-ae41-41b1-b653-13c324026076';
const SKILL_NAME = 'My Health Department';
const WELCOME_MESSAGE = 'Welcome. You can ask me to find your health department, check inspection scores, or give food safety tips.\n';
const HELP_MESSAGE = 'You can say where is my health department?\n';
const HELP_REPROMPT = 'What would you like to do?\n';
const FALLBACK_MESSAGE = 'Sorry, your request isn\'t one of the things I\'m programmed to do yet. Come back later.\n';
const STOP_MESSAGE = 'Goodbye!\n';
const UNHANDLED_MESSAGE = 'You\'ve reached an unhandled function. Please try again.\n';
```
Testing

› Skills Service Testing

› Skills Interface Testing
  – Simulator

› Alexa App

› Echo

› Challenges:
  – Error Could Occur at Any Level
  – Logging is Terse / Non-Obvious
Publishing Skill
Amazon Certification
- Policy Guidelines
- Security Requirements
- Functional Tests

Submit for Public Search in Marketplace
Next Steps: In What Ways Can We Access Our Data?

› Tune Data Sets & Response
   – Other Sources / Flexibility

› Other Platforms
   – Google / Siri

› Other Usages
   – Inspection Checklists / Regulation Search
   – Closing Open Violations
   – Recording Events (e.g., “Alexa, tell my health department that I want to file a complaint”)
My Health Department Code
Resources on Google Drive

› URL: https://github.com/darrylbooth/Alexa-MyHealthDepartment
  – Source Code / Sample Project
  – PowerPoint Deck
  – Project Notes
Questions and Comments

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