Teaching Alexa New Tricks with JavaScript

DANA HART

Overview

- Alexa & Conversational Interfaces

- Alexa Skills Kit

- AWS Lambda

- Code Review & Demos

- Testing & Deployment options

- Lex & Polly

- Q&A

Amazon Alexa

- Intelligent personal assistant
  - Play music, answer general questions, order pizza, set your calendar

- Natural user interface – understanding human speech
  - The more use, the more internal learning

- Conversational Interface

- Alexa Voice Service
  - Voice control to any connect product

- Alexa Fund
  - $100 million in venture capital funding for voice technology innovation

Alexa Skills Kit & Lambda

SKILLS KIT

- Self-service APIs, tools, documentation and code

- Let's *you* teach Alexa new skills

- Skill Templates
  - Trivia, fact, how-to, smart home, flash briefing

AWS LAMBDA

- Serverless computing
  - Takes care of everything required to run and scale

- Runs only when triggered

- Data processing, file processing, streaming, IoT backends, … endless

- Node.js, Python, Java 8, C#

Alexa Skills Kit

- Interaction Model
  - *Invocation Name*: identifies the skill
    - "Alexa, tell [invocation name] to say hello"

  - *Intent* Schema: JSON declares what intents your service can accept and process
    - Intent maps to the function to be called

  - *Utterances*: list of possible things you might say when interacting with the skill
    - Phrases that follow the invocation name to trigger the intent
- JSON request-response
  - Service receives a POST request, uses the JSON to perform logic, send back JSON response

Intent Schema
The schema of user intents in JSON format. For more information, see Intent S
Also see built-in slots and built-in intents.

```
1  {
2    "intents": [
3      {
4        "intent": "GetNewFactIntent"
5      },
6      {
7        "intent": "AMAZON.HelpIntent"
8      },
9      {
10       "intent": "AMAZON.StopIntent"
11     },
```

Custom Slot Types (Optional)
Custom slot types to be referenced by the Intent Schema and Sample Uttera
For general information about custom slots, see Custom Slot Types.
Example: TOPPINGS = cheese | onions | ham (note: newlines displayed as | f
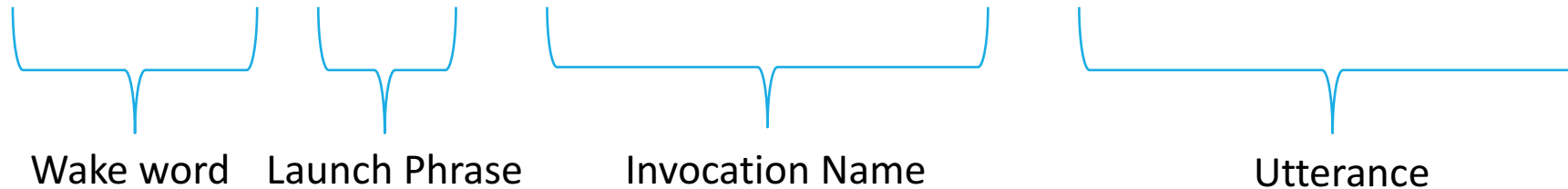
Sample Utterances
These are what people say to interact with your skill. Type or paste in all the wa

Up to 3 of these will be used as Example Phrases, which are hints to users.

```
1  GetNewFactIntent a fact
2  GetNewFactIntent a space fact
3  GetNewFactIntent tell me a fact
4  GetNewFactIntent tell me a space fact
5  GetNewFactIntent give me a fact
6  GetNewFactIntent give me a space fact
7  GetNewFactIntent tell me trivia
8  GetNewFactIntent tell me a space trivia
```

Alexa Skills Kit

Alexa, tell Hello World to say hello

Wake word   Launch Phrase   Invocation Name   Utterance

Alexa Skill Kit

- Intent Schema: Intents & Slots
  - Function & Input
  - Have to define custom slots

- Alexa Requests
  - LaunchRequest, IntentRequest, SessionEndedRequest

- Speech Responses

- Alexa SDK for Node.js
  - https://github.com/alexa/alexa-skills-kit-sdk-for-nodejs

```json
{
  "intents": [
    {
      "intent": "GetHoroscope",
      "slots": [
        {
          "name": "Sign",
          "type": "LIST_OF_SIGNS"
        },
        {
          "name": "Date",
          "type": "AMAZON.DATE"
        }
      ]
    },
    {
      "intent": "GetLuckyNumbers"
    }
  ]
}
```

Setup & Demo

- How to create/setup an Alexa Skill Kit w/ Lambda

- Demo Apps
  - That Conference Welcome (simple skill with SSML examples)
  - Yoda Speak (web service, multiple Intents, AMAZON.LITERAL slot type)
  - New Relic Performance Check (multiple intents to gather request data)

Testing & Deployment

- Echosim.io

- Alexa Skill UI

- Grunt

- Travis CI

- AWS CloudFormation

Skill Certification

- Policy guidelines
- Security requirements
- Functional Tests
  - Review and test the example phrases
  - Cards
  - Audio playback
- Voice Interface & UX testing
  - Session management
  - Invocation name
  - Intent and slot combinations
  - 'Launch' and 'Help' commands

Lex & Polly

- Lex is a service to build conversational interfaces to any app using voice and text

- Converts speech to text

- Build your own chatbot

- Polly is a service that turns text to speech

- New world of speech enabled applications

- https://console.aws.amazon.com/lex/home?region=us-east-1

Q & A

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https://github.com/danahart

References

❖ https://developer.amazon.com/public/solutions/alexa/alexa-skills-kit/docs/understanding-the-different-types-of-skills

❖ https://developer.amazon.com/public/solutions/alexa/alexa-skills-kit/docs/alexa-skills-kit-interaction-model-reference

❖ https://developer.amazon.com/public/solutions/alexa/alexa-skills-kit/docs/built-in-intent-ref/slot-type-reference

❖ https://github.com/alexa/alexa-skills-kit-sdk-for-nodejs

❖ https://echosim.io/

❖ https://github.com/Tim-B/grunt-aws-lambda

❖ https://github.com/danahart