Developing Amazon Alexa skills in Node.js

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FIVE

Overview

- Alexa basics
- Custom skills
- Development platforms (AWS and Alexa developer console)
- Dialogs and slot eclicitation
- Screen capabilities of Echo Show devices

Objectives

- Give you a concise overview
- Share some of my experiences
- Build and shown an example of custom Alexa skill in Node.js

Amazon Alexa

- Alexa is Amazon’s cloud-based voice service
- Brain behind tens of millions of devices
- Supports adding of custom capabilities which are called skills

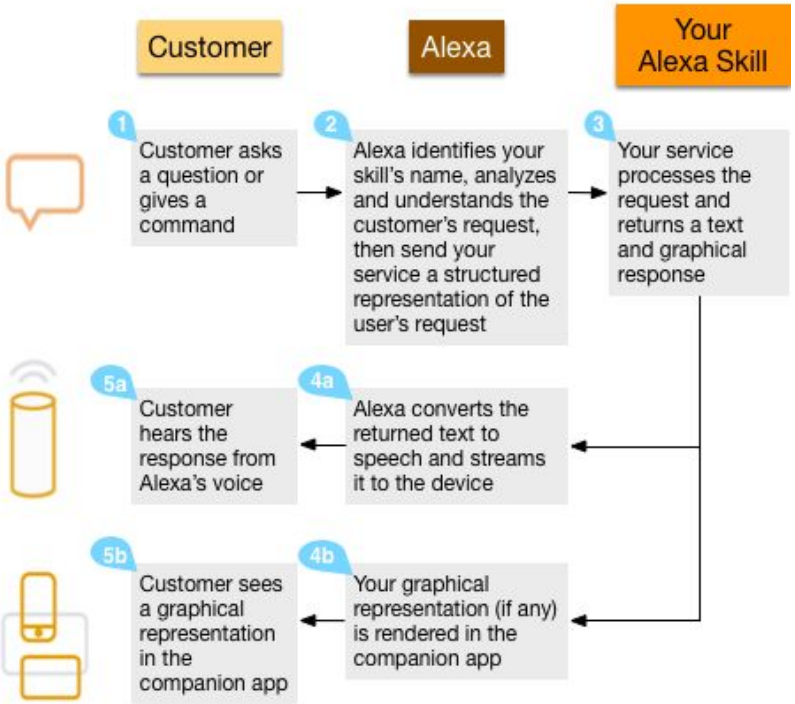
Alexa skill components

- **Intents** - actions which fulfill a user's spoken request.
  - Slots - optional intent arguments
- **Sample utterances** - a set of likely spoken phrases mapped to the intents
- **Invocation name** - name which defines a skill
  - To invoke a skill, user can say *Alexa open skillName* or *Alexa ask skillName for*
- **Cloud-based service** - accepts intents as structured requests and then acts upon them

Skill we are going to build

- Meal ordering skill (mocked behaviour of course :))
- Invocation name: *Lunch*
- Code: https://github.com/matejfilkovic/jszg-alexa
- Intents
  - GetOrdersIntent
    - Retrieve ordered meals
    - Utterances: *Tell me my orders, What have I ordered*
  - GetAvailableMealsIntent
    - Get available meals for ordering on specified date
    - Slots: Date
    - Utterances: *Tell me which meals I can order {Date}, Tell me what can I order on {Date}*

Alexa interaction flow



Custom service AWS

- Lambda
- S3
- IAM - create a user with programmatic access to Lambda and S3

AWS and Alexa developer console overview

Response object

- Fields:
  - `outputSpeech`
  - `reprompt`
  - `directives`
- Directives specify device-level actions using a particular interface (display, dialog, etc.)

Initial skill code

Built-in intents

- We can use these intents to add functionality to our skill without providing any sample utterances
- Categories:
  - Books, Weather, Music, Video, etc.
- They use the AMAZON namespace, e.g. AMAZON.HelpIntent
- Standard Built-in Intents
  - Intents for general actions such as stopping, canceling, and asking for help
  - Can’t use slots

Request Handlers in Node.js

- Responsible for handling one or more types of incoming requests

```
interface BrandRhapsody {
     canHandle(handlerInput: HandlerInput): Promise<boolean> | boolean
     handle(handlerInput: HandlerInput): Promise<Response> | Response
}
```

HandlerInput

- Exposes many entities for request processing
- Entities used for the example skill
  - `RequestEnvelope` - contains the entire request body sent to skill
  - `ResponseBuilder` - contains helper methods to build responses

GetOrdersIntent creation

A note on errors :)

Dialogs

- Dialog is a conversation with multiple turns in which Alexa asks questions and the user responds with the answers
- Conversation is tied to a specific intent representing the user's overall request
- Two approaches/directives to request slot value:
  - Dialog.Delegate
  - Dialog.ElicitSlot
- Confirmation of slot values and intents can be requested

Dialog example

Custom slot types

- Value has to be obtained differently!

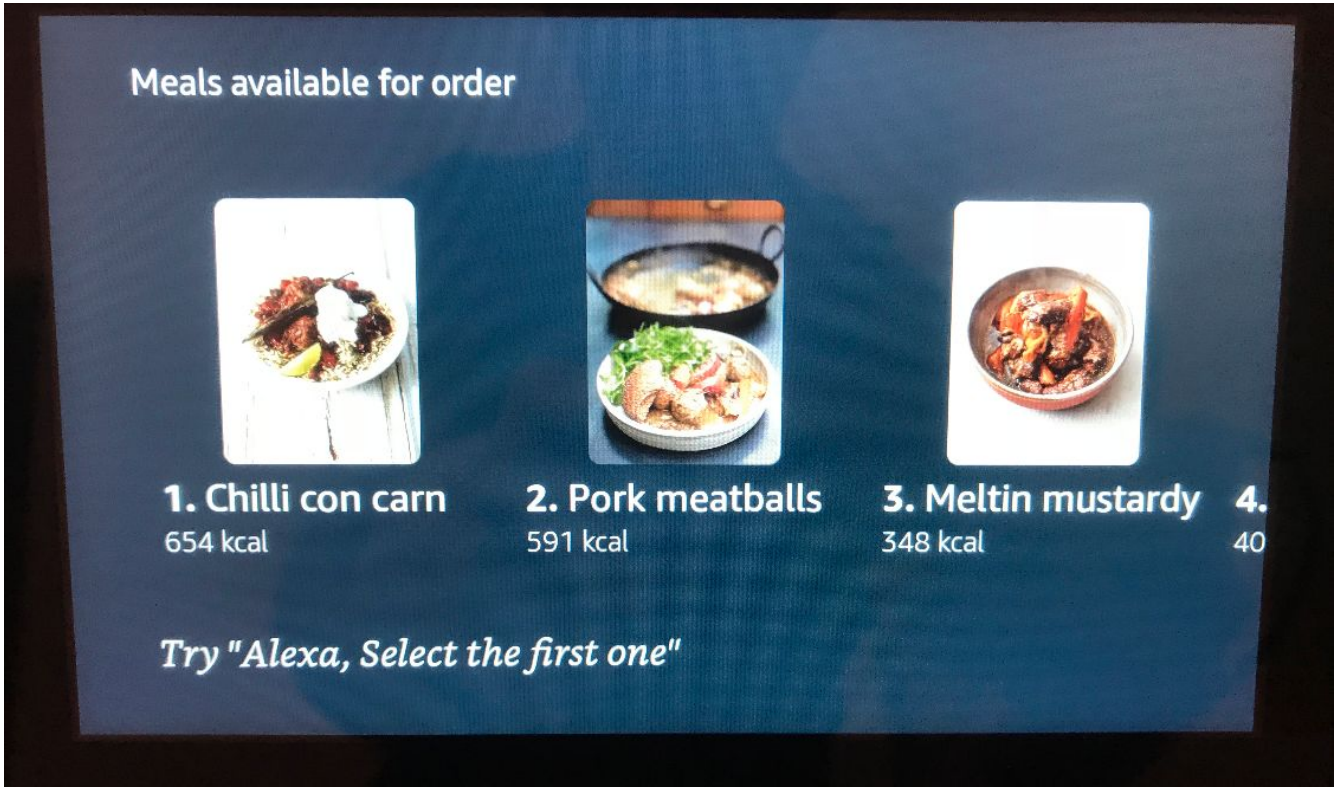
```
function getCustomSlotValue(request, slotName) {
     const slot = alexa.event.request.intent.slots[slotName]

     return slot.resolutions.resolutionsPerAuthority[0].values[0].value.name
}
```

Display capabilities of Echo devices

- Have to use set of predefined templates
  - Body and list templates
  - Can be quite limited
- Display is very bright
  - From our experiences opacity > 0.5 for background images
- One font and one color
- Fetching image bigger than 300kb will result in significant delay

Rendering template example

List template 2

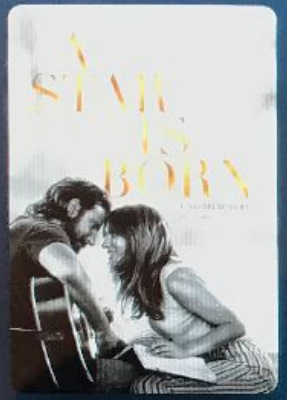


List template 2

- Can’t fit more than 3 items at the same time
- Can’t remove ordering numbers

NEARBY ON WEDNESDAY, OCTOBER 24

IMDb



1. A Star Is...
IMDB 8.3/10
R

2. First Man
IMDB 7.7/10
PG-13

3. Venom
IMDB 7/10
PG-13

4. Halloween
IMDB 7.5/10
R

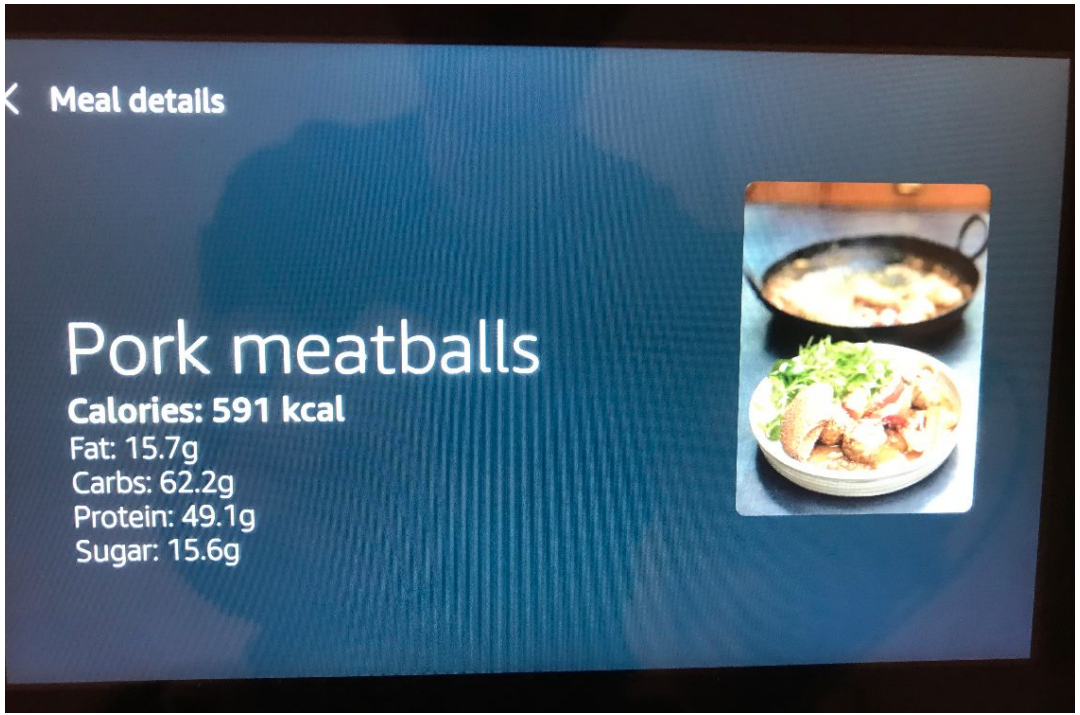
5. Ba
IMDB
R

Try "Alexa, next"

Selecting elements and body template example

Body template 2

- Text can be tuned using rich text markups



Some of the things we haven’t covered

- Session and DB storage
- Audio and video playing

THANK YOU!