

## Conversing with Multi-turn Dialogs

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# Overview

Slots in utterances

Conversations with multi-turn dialogs

Prompts and the dialog model

Build a Stock Tracker Dialog skill

# Having a Conversation with Alexa



Hey Alexa, please open stock tracker

Welcome



Invocation complete and  
the right skill identified

# Having a Conversation with Alexa



I'm interested in Amazon

Opening, closing, high or low price?

Opening price

What day do you want this for?

October 5, 2017

Amazon was at \$950 on  
October 5, 2017



# Having a Conversation with Alexa



I'm interested in Amazon

Opening, closing, high or low price?

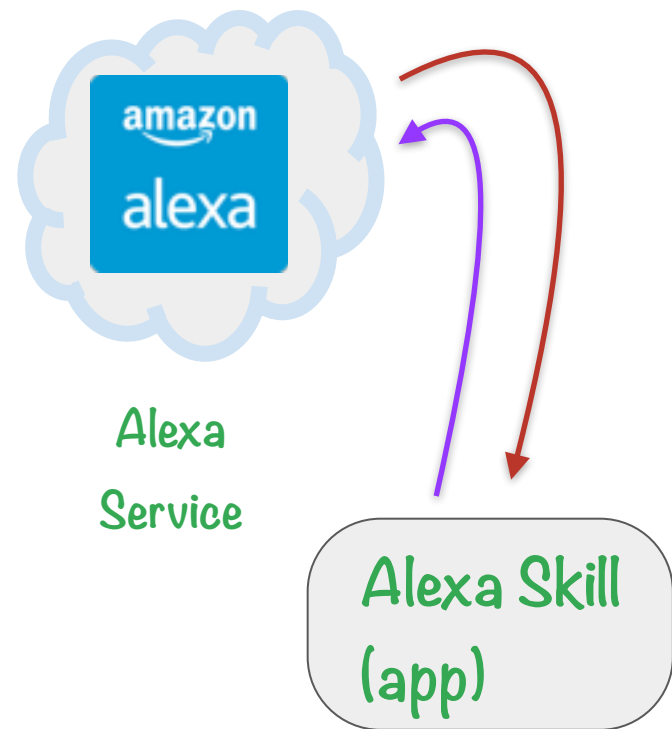
Opening price

What day do you want this for?

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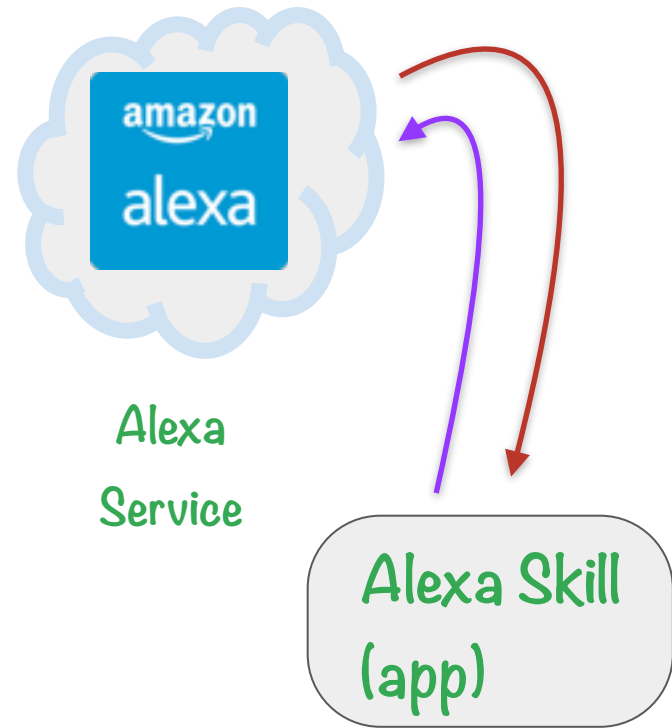


## Important Questions

Which skill did the user mean to invoke?

What was the intent of the speaker?

What information, if any, did the speaker wish to pass to the skill?



## Important Answers

Which skill did the user mean to invoke?

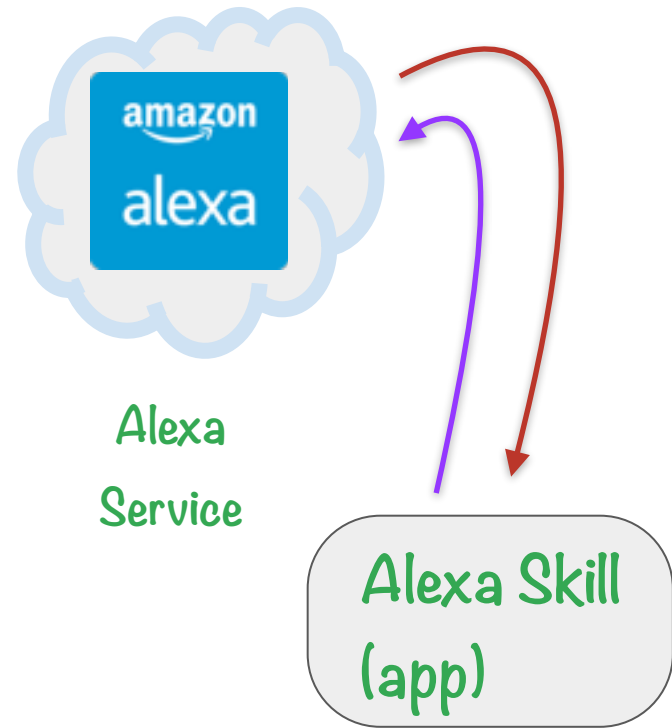
- Determined by skill **invocations**

What was the intent of the speaker?

- Determined by **intents** specified by skill developer

What information, if any, did the speaker wish to pass to the skill?

- **Alexa allows skill developer to specify slots - parameters that will be passed into the intents**



Important Answers

Invocations

Intents

Slots



“Hey Alexa, what is the opening price of Amazon today?”

## Slots are embedded into Utterances

Slots are similar to **arguments** that need to be passed into **functions**

The function here is the intent handling code

“Hey Alexa, what is the opening price of **Amazon** today?”

## Slot #1: Stock name

Question: What is the stock price of \_\_\_\_\_ today?

Answer: Amazon

“Hey Alexa, what is the opening price of Amazon **today**?”

## Slot #2: Time period

Question: What is the stock price of Amazon \_\_\_\_\_?

Answer: Today

“Hey Alexa, what is the **opening price** of Amazon today?”

## Slot #3: Price type

Question: What is the \_\_\_\_\_ of Amazon today?

Answer: Opening price

## Slots and the Dialog Model

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# Fill in the Blanks



Stock interested in? \_\_\_\_\_

Price type? \_\_\_\_\_

Date? \_\_\_\_\_



# Fill in the Blanks



Stock interested in? \_\_\_\_\_

Price type? \_\_\_\_\_

Date? \_\_\_\_\_

Amazon, Google, IBM, VMWare, Microsoft

**LIST\_OF\_STOCKS**



# Fill in the Blanks



Stock interested in? \_\_\_\_\_

Price type? \_\_\_\_\_

Date? \_\_\_\_\_

Opening, Closing, High, Low

**LIST\_OF\_PRICETYPE**





# Fill in the Blanks



Stock interested in? \_\_\_\_\_

Price type? \_\_\_\_\_

Date? \_\_\_\_\_

Any date in the last 20 years

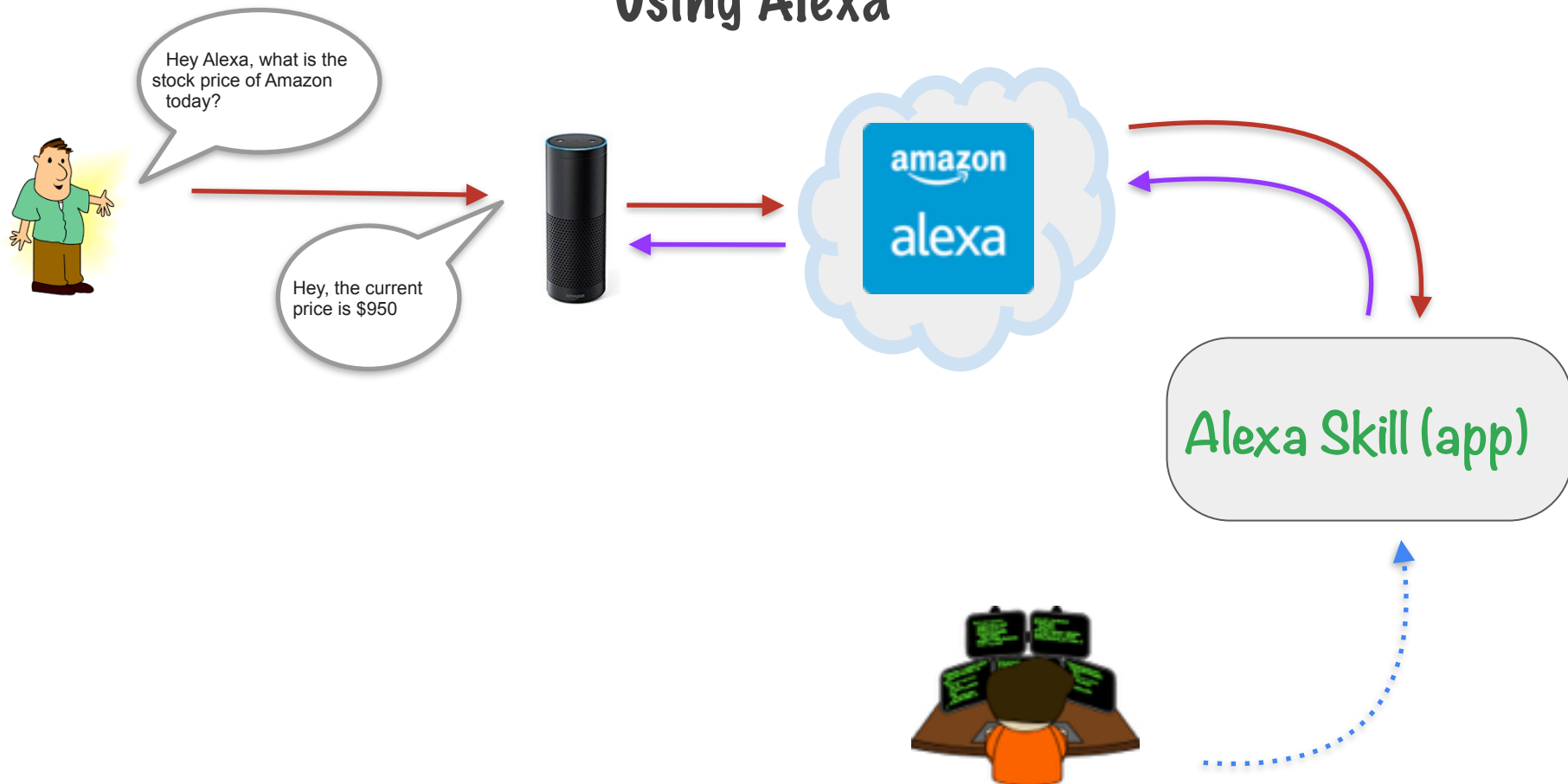
**AMAZON.Date**



# Dialog

A free-flowing conversation in which Alexa keeps asking questions until it has values for slots that are required by the intent

# Using Alexa





Hey Alexa, what is the stock price of Amazon today?

User



Hey, the current price is \$950

Alexa-  
enabled device

## Dialogs

Here the skill needs three slots (parameters) before it can send back a response

- Slot #1: The stock (Amazon)
- Slot #2: The date (today)
- Slot #3: The type of price information (opening/closing)

If the speaker does not provide these right away, a dialog ensues...

# Dialog



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# Prompts



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# Utterances in Response to Prompts



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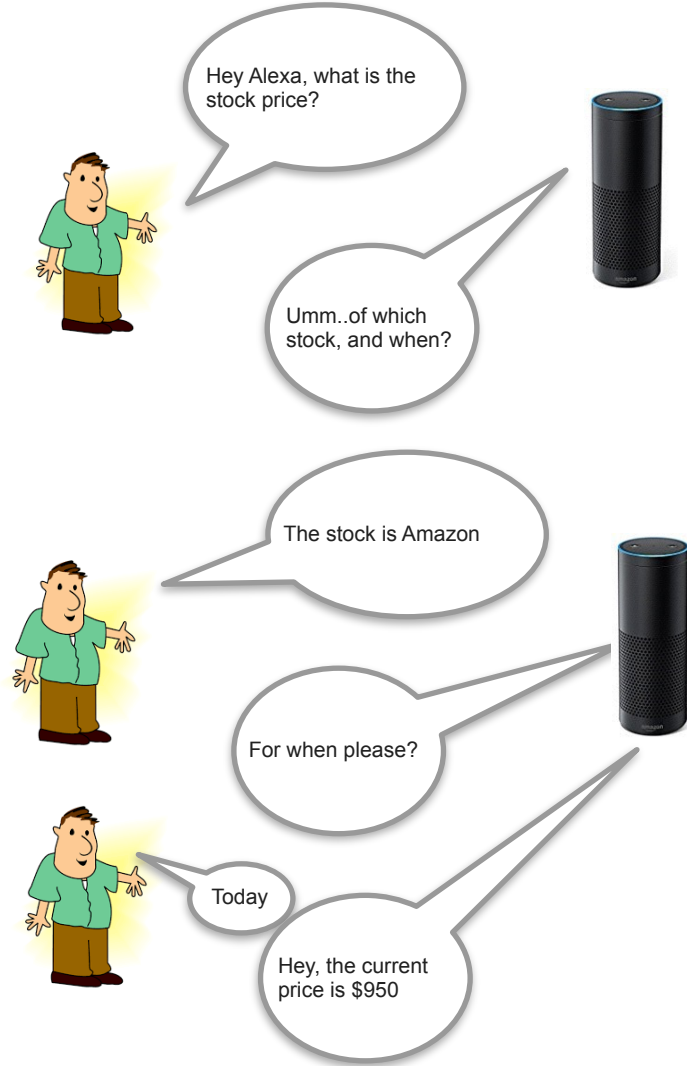
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## Dialogs

The ASK (Alexa Skills Kit) offers ways for the app-developer to specify such dialog templates



Dialogs are defined using a dialog model

# Dialog Model

SLOT	VALUES	PROMPT	UTTERANCE
LIST_OF_STOCKS	GOOGLE AMAZON VMWARE MICROSOFT IBM	What stock would you like information about?	{StockName} Tell me about {StockName} Give me information on {StockName}
LIST_OF_PRICETYPE	opening closing minimum maximum	Would you like opening, closing, minimum or maximum price?	{PriceType} {PriceType} price I would like {PriceType} price
STOCK_DATE	AMAZON.DATE	What date would you like this for?	{StockDay} I would like this for {StockDay}

# Demo

Using the Intrinio backed platform  
<https://intrinio.com/>

# Demo

Build a skill which can hold a conversation with the user

Retrieves the specified price type of a specified stock on a specified day