Building a conversational UI with SAPUI5 and Amazon Lex

SAP Inside Track Walldorf
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Conversational UI aka “ChatBot”

I got approval to work from home.

My chatbot will answer all of my emails and text messages.

Chatbot answers would be useless. I hope so. Otherwise it won’t sound like me.
Conversational UI aka “ChatBot”

• A ChatBot is a computer program which conducts a conversation via auditory or textual methods
• Is the privilege of interacting with the computer on human terms

Phone
SMS
Email
Text Messaging Platforms

Alexa
Siri
Google
Cortana
Virtual Assistants

Your Website
Your Apps
Wally: Hi Jarvis

Jarvis: Hello, How may I help you?

Wally: I need the stock for material 1000-5212 in plant ABC.
“I need the stock for material 1000-5212 in plant ABC.”

Intent: QueryStock  
Slots: Material Number: 1000-5212  
Plant: ABC

“Here are the stocks for material number 1000-5212 in plant ABC:  
Unrestricted use: 3,700 kg  
Reserved: 1,400 kg”

Result: Unrestricted use: 3700  
Reserved: 1400  
Unit of measure: KG
Hi Jarvis

Hello, How may I help you?

I need the stock for material 1000-5212 in plant ABC.

Here are the stocks for material number 1000-5215 in plant ABC:
Unrestricted use: 3,700 kg
Reserved: 1,400 kg

Thanks Jarvis, you're the best!
“SAP CoPilot will be to enterprise users what Siri, Alexa, and Cortana are to consumers.”
Building a ChatBot...

IS THE SOFTWARE ALMOST DONE?

YES, ALMOST.

NOT THE FINAL RELEASE — MORE LIKE A BETA MVP.

MAYBE MORE OF AN ALPHA.

HAVE YOU EVEN STARTED?

THE MENTAL STUFF IS ALMOST DONE.

http://dilbert.com/strip/2016-01-15
What is Amazon Lex?

• Amazon Lex is an AWS service for building conversational interfaces for any applications using voice and text
• It’s what’s inside Alexa
• It was opened for developers earlier last year
• No deep learning expertise is necessary!
**amazon Lex - Bot Structure**

**Intent**  
- represents a goal that the bot's user wants to achieve

**Utterance**  
- is a spoken or typed phrases that invokes an intent

**Slots**  
- are input data required to fulfill the intent

**Prompt**  
- is a question that asks the user to supply data for a slot that is needed to fulfill the intent

**Fulfillment**  
- is the business logic that carries out the user's intent

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**CreateToDo**  
- Create ToDo with priority **high**
- What is the task?  
- Book a hotel in Walldorf

Intent **CreateToDo** is ReadyForFulfillment:  
- Priority: High  
- Task: Book a hotel in Walldorf
Lex - Save, Build, and Publish

SAVE
Saving your bot preserves the current state on the server

BUILD
Building your bot creates versions that you can test

PUBLISH
Publishing your app will create a version of your bot and provide an alias to your clients

TEST
Test your bot in a chat window on the console
Advertising

2018 SAP InsideTrack
April 14th
#sitTimisoara
“Conversational systems shift from a model where people adapt to computers to one where the computer “hears” and adapts to a person’s desired outcome.”

(Gartner)
There's a rumor that you use a chatbot to reply to email with useless nonsense.

You can't prove that because I've always answered my email with useless nonsense.

That was disturbingly well-played.

It's all about creating the base case.
By 2020...

Digital assistants will generate $600 billion dollars in revenue. (Bill Meisel, TMA Associates)

85% of customer interactions will be managed without a human. (Gartner)

30 percent of web browsing sessions will be done without a screen. (Gartner)
WALLY'S EMAILS MAKE NO SENSE.

HE REPLACED HIMSELF WITH A CHATBOT.

HE DESIGNED THE CHATBOT TO BE USELESS SO YOU'D THINK IT WAS HIM.

AND HE THOUGHT THIS WOULD FOOL ME?

HE'S BEEN GONE FOR FOUR MONTHS.
(Some of the) challenges

Authentication
"Who is speaking?"

Context
"What are you talking about?"

Awareness
"Who am I speaking to?"
Thank you!

@TudorRiscutia
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References

- https://uxdesign.cc/what-we-can-learn-from-alexs-mistakes-a4670a9e6c3e
- https://www.youtube.com/watch?v=I5OLTMLinio
- https://chatbotsmagazine.com/conversational-interfaces-beyond-the-hype-457c18290644
Amazon Polly

- Amazon Polly is an AWS service that performs text-to-speech conversion
- It features 47 male and female voices and supports 24 languages
Text-to-Speech (TTS)

1. A voice actor records many speech units

2. The speech units are sorted into linguistic categories

3. Normalization
   “200$” would be pronounced as “two hundred dollars”

4. Unit selection

SPEECH
Phonemes
Morphemes
Syllables
Phrases
Sound