

Let's build some bots - An IBM / Twilio joint workshop

IBM Code

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<https://ibm.biz/ibm-twilio>

Call for Code 2019



CALL FOR CODE



CHARITABLE PARTNER:
UN HUMAN RIGHTS



American
Red Cross



About Call for Code 2019:

The second year of a 5 year, \$30M investment by IBM.

Call for Code 2019 will inspire developers to create solutions mitigating the impact of natural disasters, with a specific focus on health and well-being.

Call for Code will reward a winning team and four runners up. The winning team will receive:

- A **\$200K** cash prize
- Support from The Linux Foundation as an open source project
- The opportunity to present to NEA, official Call for Code VC Firm
- Implementation of their solution with the IBM Corporate Service Corps

How can your organization Participate?

Join **Call for Code!** Your organization can participate in one of three ways to amplify the Call:

Supporter

Provide promotional support for the Global Initiative and host a Call for Code day encouraging your organization to participate.

<https://callforcode.org/become-a-supporter/>

Affiliate

Offer in-kind support (e.g. promotion within your organization's community or a VC pitch opportunity to the winning team) and rally your team around your own Call for Code Day.

<https://callforcode.org/become-an-affiliate/>

Sponsor

Add your organization's full support to the cause with a paid sponsorship.

<https://callforcode.org/become-a-sponsor/>

January
Announcement

March
Submissions
open

March- June
2018 Winner: Project
Owl Deployment

July
Submissions
Close

August - September
External Judging

October 13
Winner Announced

Some tips before you start

- Start on paper and have a conversation with a friend (***discover intents, entities and create dialog***).
- Don't repeat yourself too many times - unless the information is absolutely necessary to meet the goal or help the end user (***slots***).
- Keep it natural - let the users digress and come back to finish the current conversation (***digressions***).
- Give the users a way out ! (***handlers***)
- Remember details about the users (***context***)
- Forget details when the user starts again (***empty out context***)
- Confirm details in a natural way "I have booked a table for two at 7pm tonight".
- Enable Fuzzy logic – beta feature
- **Enhance user experience with other services via IBM Cloud Functions.**

Watson Assistant

IBM Cloud

Catalog

Docs

Support

Manage

Search for resource...

UPKAR LIDDER's Acco...



Catalog

Search the catalog...

Filter

All Categories

Compute
Containers
Networking
Storage
AI

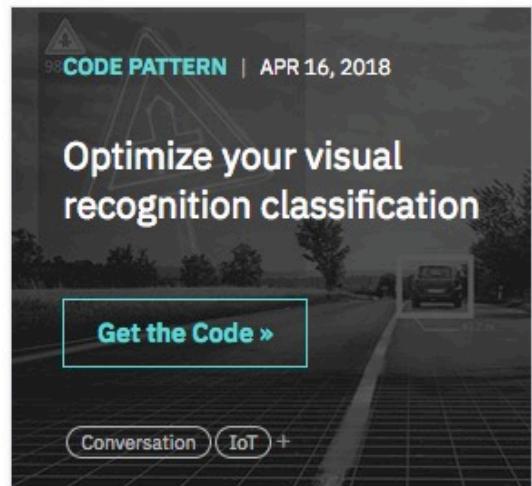
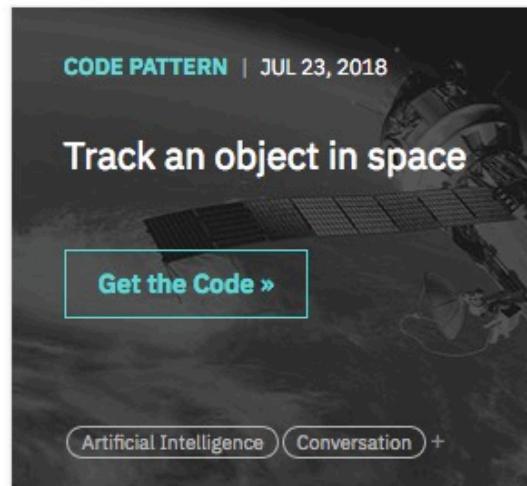
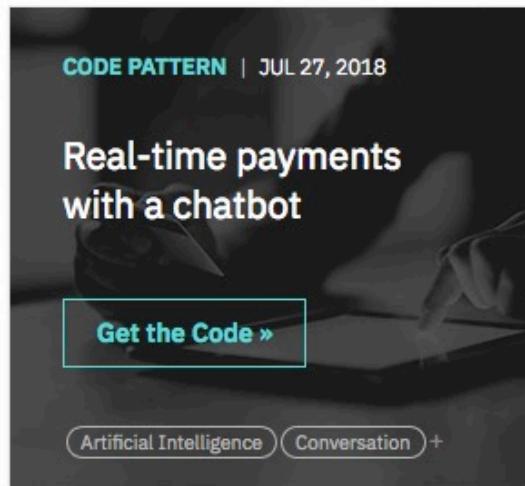
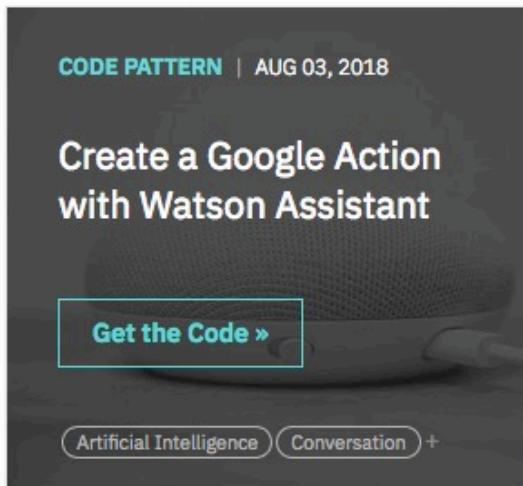
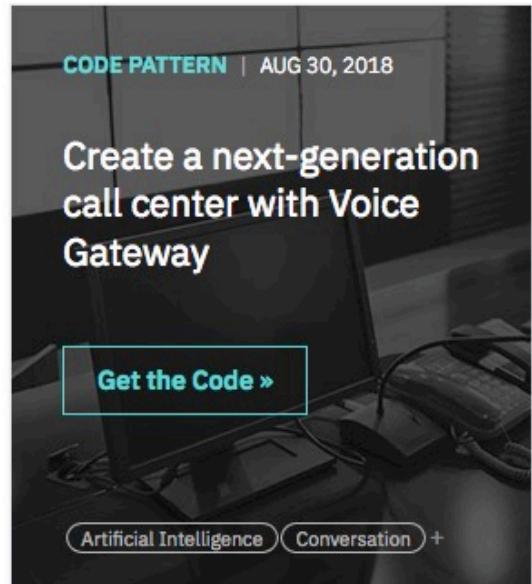
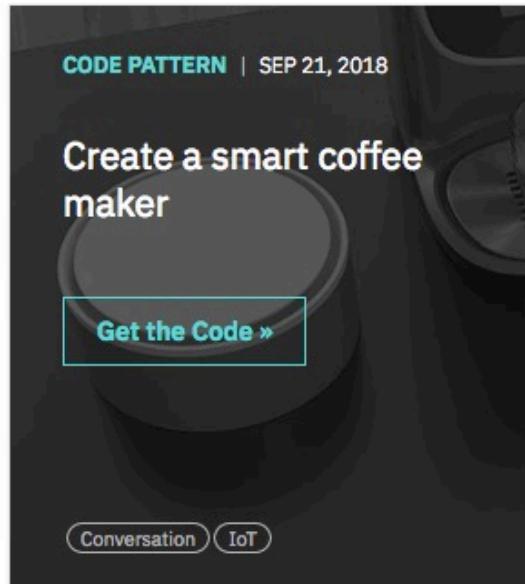
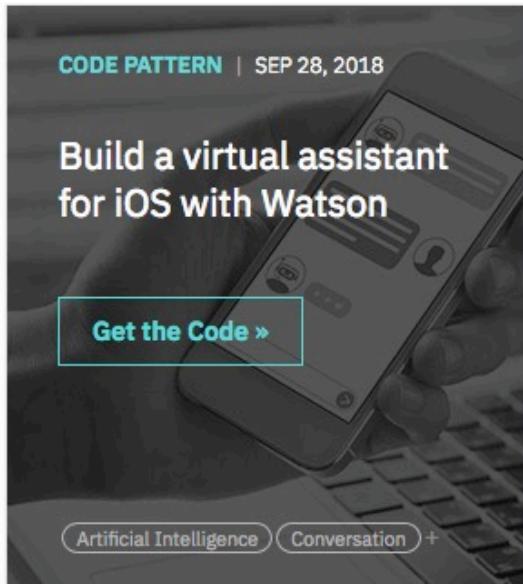
Analytics
Databases
Developer Tools
Integration
Internet of Things
Security and Identity
Starter Kits
Web and Mobile
Web and Application

AI

<p>Watson Assistant (formerly Conversation) Lite • IBM</p> <p>Add a natural language interface to your application to automate interactions with your end users. Common applications inclu...</p>	<p>AI OpenScale Lite • IBM</p> <p>IBM AI OpenScale is an enterprise-grade environment for AI infused applications that provides enterprises with visibility into how...</p>	<p>Compare Comply IBM • Beta</p> <p>Process governing documents to convert, identify, classify, and compare important elements</p>	<p>Discovery Lite • IBM</p> <p>Add a cognitive search and content analytics engine to applications.</p>	<p>Knowledge Catalog Lite • IBM</p> <p>Discover, catalog, and securely share enterprise data.</p>
<p>Knowledge Studio Lite • IBM</p> <p>Teach Watson the language of your domain.</p>	<p>Language Translator Lite • IBM</p> <p>Translate text, documents, and websites from one language to another. Create industry or region-specific translations via...</p>	<p>Machine Learning Lite • IBM</p> <p>IBM Watson Machine Learning - make smarter decisions, solve tough problems, and improve user outcomes.</p>	<p>Natural Language Classifier IBM</p> <p>Natural Language Classifier performs natural language classification on question texts. A user would be able to train their data and th...</p>	<p>Natural Language Understanding Lite • IBM</p> <p>Analyze text to extract meta-data from content such as concepts, entities, emotion, relations, sentiment and more.</p>
<p>Personality Insights Lite • IBM</p> <p>The Watson Personality Insights derives insights from transactional and social media data to identify psychological traits</p>	<p>Speech to Text Lite • IBM</p> <p>Low-latency, streaming transcription</p>	<p>Text to Speech Lite • IBM</p> <p>Synthesizes natural-sounding speech from text.</p>	<p>Tone Analyzer Lite • IBM</p> <p>Tone Analyzer uses linguistic analysis to detect three types of tones from communications: emotion, social, and...</p>	<p>Visual Recognition Lite • IBM</p> <p>Find meaning in visual content! Analyze images for scenes, objects, faces, and other content. Choose a default model off the she...</p>
<p>Watson Studio Lite • IBM</p> <p>Embed AI and machine learning into your business. Create custom models using your own data.</p>	<p>PowerAI Third Party</p> <p>The accelerated deep learning platform for enterprise. Built on the IBM PowerAI platform, powered by Nimbix.</p>			

FEEDBACK

Code Patterns



Basic Terminology

The image displays three side-by-side screenshots of a conversational AI development interface:

- Intents Section:** Shows a list of intents. The first intent, "Intent (20)", is expanded, revealing sub-intents like "#ask_conf_venue", "#ask_day_care", "#ask_general", etc.
- Entities Section:** Shows a list of entities. The first entity, "Entity (2)", is expanded, revealing values like "@email" (with value "email_syntax") and "@track" (with value "C/C++, WebAPI, Ethereum, Compiling, Scala, knowledge manage").
- Dialog Section:** Shows a tree structure of dialog nodes. The root node is "conference-original". It contains nodes for "Welcome", "about_me", "general_response", "ask_register", "general_conf", and "ask_random_talk". Each node provides a brief description and context information.

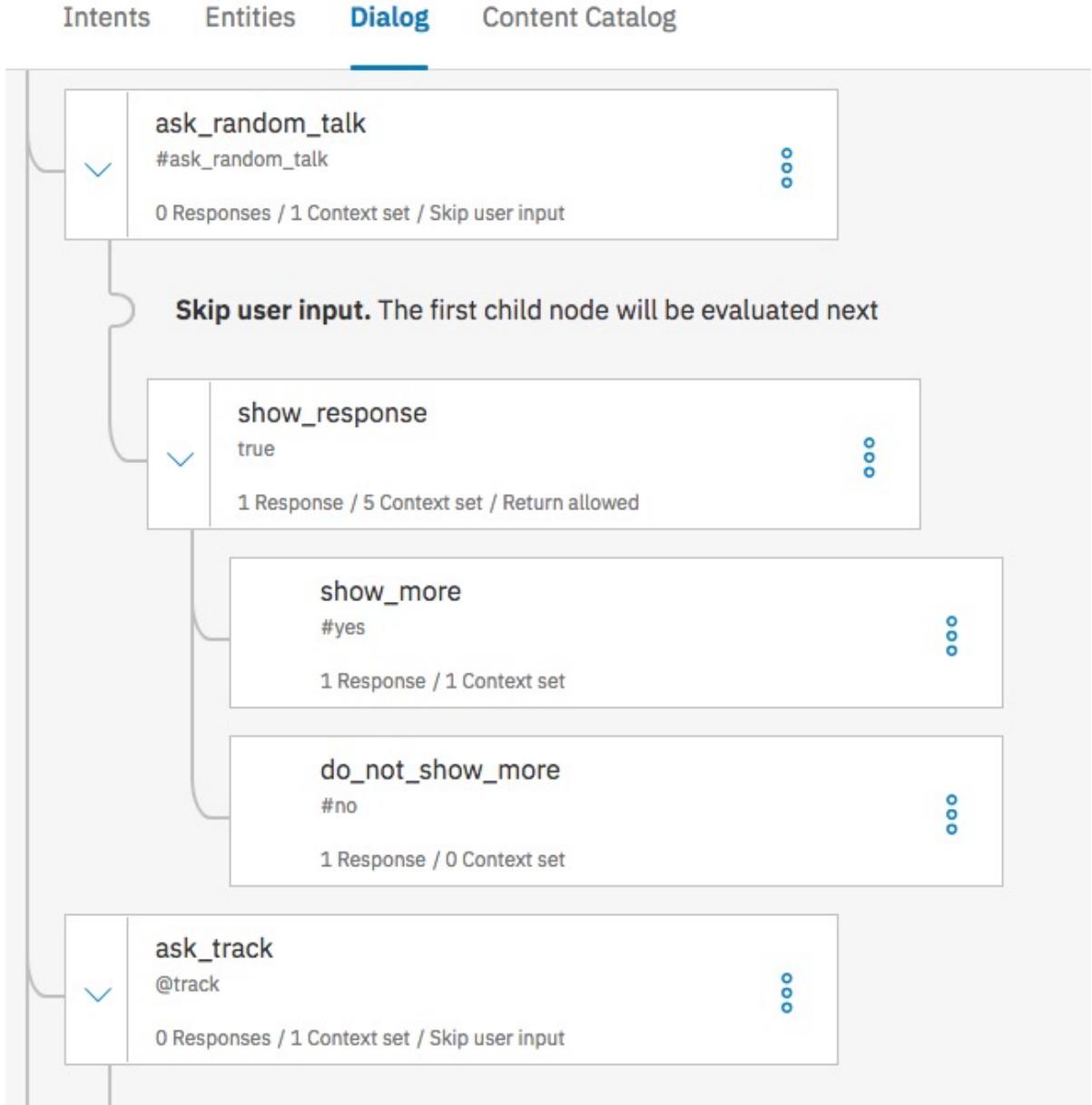
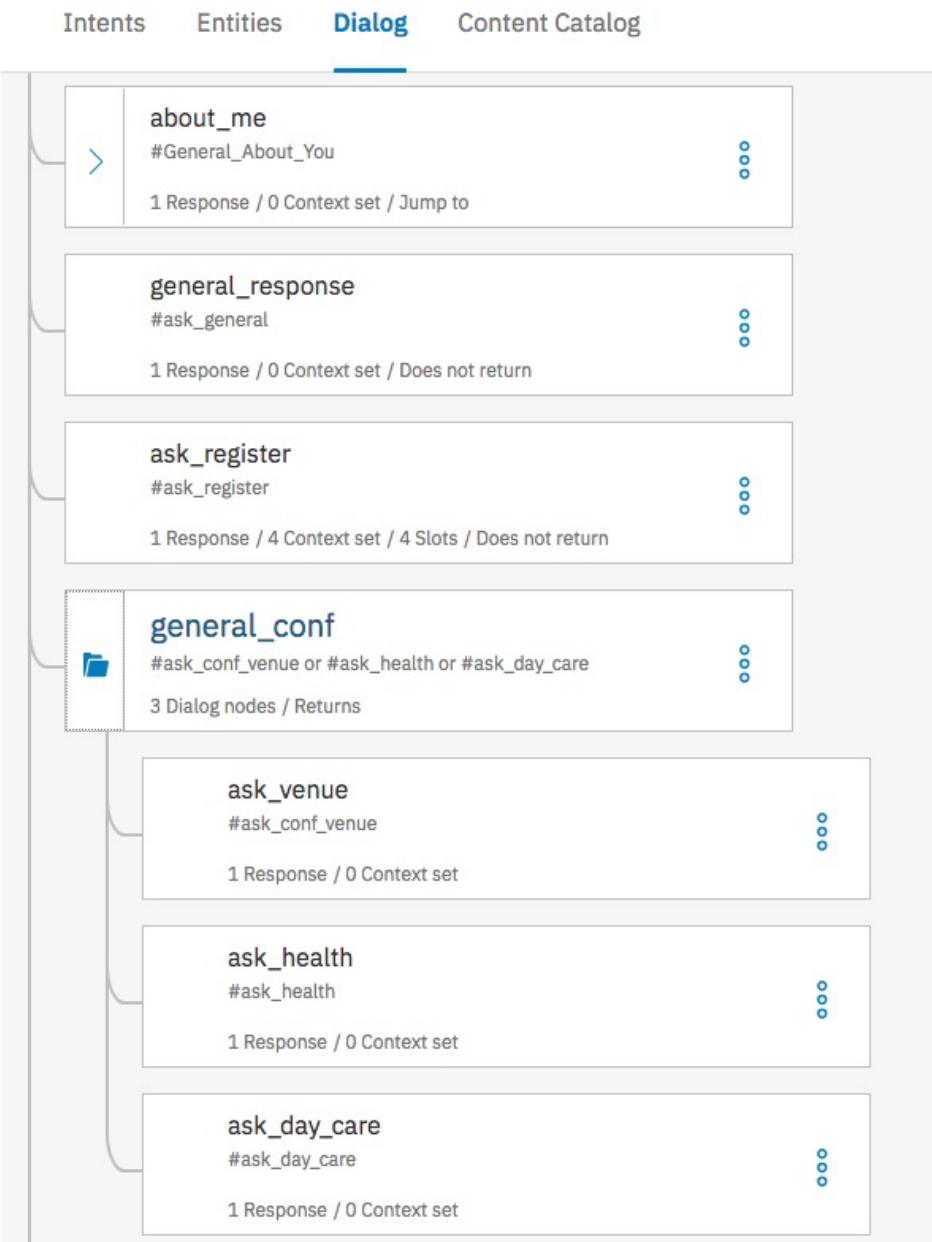
Data Data Data

The screenshot shows the homepage of the Silicon Valley Code Camp website for October 13 & 14, 2018. It features a header with the SVCC logo, event dates, and a "Hosted by PayPal" note. A sidebar on the left displays "98 SESSIONS ACCEPTED" and sections for "JOBS", "SPONSORS", "NEWS", and "ABOUT". The main content area is titled "SESSIONS" and includes a "Instructional Video For Session Planning" section, "FILTERS" for day and time, and a "BECOME A SPONSOR" sidebar listing various sponsors like Agorae, Twilio, Pluralsight, and IBM. Below these are "JOB POSTS" for roles like Senior Software Engineer and Senior Java Software Engineer, and a "NEWS" section with articles about the event.

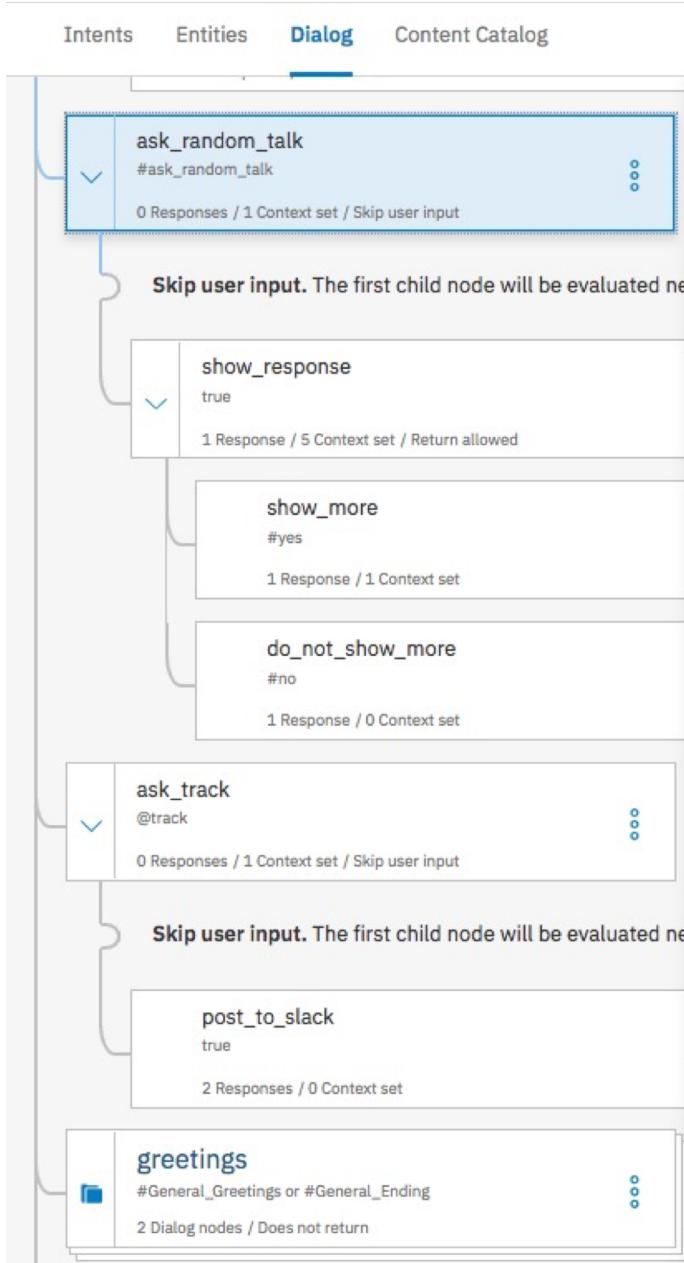
The screenshot shows a document management interface for a "conference" document. The top navigation bar includes "Document ID", "Options", and "JSON" buttons. The main view shows a "All Documents" list with a selected item: "id: \"723f053652de604d48fc9a78b2e059a9\"". The right panel displays the JSON content of this document, which describes a session on "Accelerating Android Development with Google Jetpack". The JSON object includes fields for id, key, value, rev, doc, _id, _rev, author, author_desc, author_img, url, title, desc, date_time, and tags, listing various Android development topics and components.

```
{
  "id": "723f053652de604d48fc9a78b2e059a9",
  "key": "723f053652de604d48fc9a78b2e059a9",
  "value": {
    "rev": "1-7fcfd2481f4e9b0a198d6add459bff05"
  },
  "doc": {
    "_id": "723f053652de604d48fc9a78b2e059a9",
    "_rev": "1-7fcfd2481f4e9b0a198d6add459bff05",
    "author": "Siamak Ashrafi",
    "author_desc": "(Ash) is Bio-Computational researcher@day working on bio-markers (publications*) & CTO@night of technology companies (patents*). His frequent code-a-thon wins have gone on to become published Apps (iOS & Android*). As a thought leader in wearable/mobile development he is an enthusiastic teacher / speaker helping to promote the ecosystem (fashion* & technology*). But what he would really like is to get a major sponsor in all three phases of water. (Snowboarding* [solid], Surfing* [Liquid] & Kiteboarding* [vapor])",
    "author_img": "https://www.siliconvalley-codecamp.com/attendeeimage/20140613181411-410.jpg?format=jpg&width=135&height=135&scale=both&mode=pad&BgColor=F6F4F6",
    "url": "https://www.siliconvalley-codecamp.com/Session/2018/accelerating-android-development-with-google-jetpack",
    "title": "Accelerating Android Development with Google Jetpack",
    "desc": "For the first time, the Android Team is proposing an architecture for Android. This is a significant shift from the past where The Android Team did not give any direction or advice on how to structure an Android App. This led to lots of confusion and poorly designed Apps. Now they are not only giving comprehensive guidance but have a reference implementation that they believe are best practices. Android developers should learn and adopt these components before writing another App. \\"Jetpack is a collection of Android software components to make it easier for you to develop great Android apps. These components help you follow best practices, free you from writing boilerplate code, and simplify complex tasks, so you can focus on the code you care about.\\" - Google Android Team Jetpack covers all four major parts of Android development:1) Foundation components provide core system capabilities, Kotlin extensions and support for multidex and automated testing.2) Architecture components have classes that help manage your UI component lifecycle, handle data persistence, and more.3) Behavior Components help you design robust, testable, and maintainable apps.4) UI components make it easy for you to make your app not only easy, but delightful to use. This session covers all areas of Android development using Jetpack.\nDownload instructions to be prepared for this class\n\nDownload the speaker slides and material",
    "date_time": "3:30 PM Sunday",
    "tags": [
      "Android",
      "Architecture",
      "Design Patterns",
      "functional programming",
      "Google",
      "Kotlin",
      "Mobile"
    ]
  }
}
```

Dialog Flow



External Service



```
1 {
2   "context": {
3     "my_creds": {
4       "user": "REDACTED",
5       "password": "REDACTED"
6     }
7   },
8   "output": {
9     "generic": []
10 },
11 "actions": [
12   {
13     "name": "upkar.ibm.watson@gmail.com_dev/actions/confbot/confbot-get-random-talk",
14     "type": "server",
15     "credentials": "$my_creds",
16     "result_variable": "context.my_input_returned"
17   }
18 ]
19 }
```

Then set context:

Variable	Value
\$author	"<? \$my_input_returned.output.do
\$author_desc	"<? \$my_input_returned.output.do
\$talk_desc	"<? \$my_input_returned.output.do

And respond with:

Move:

<? \$my_input_returned.output.docs.get(0).author ?> talking on <u><i><? \$title ?></i></u> at <? \$time ?>

Enter response variation

Response variations are set to **sequential**. Set to **random | multiline**

Serverless

Functions / Actions / confbot-get-random-talk

Region: US South Org: upkar.ibm.watson@gmail.com

confbot/confbot-get-random-...

Web Action

Space: dev

⋮

Code

Code  Node.js 8

Edit mode - press ESC to exit

Change Input  Invoke 

Parameters

Runtime

Endpoints

Connected Triggers

Enclosing Sequences

Logs



```
10  const Cloudant = require("@cloudant/cloudant");
11
12  function main(params) {
13    const cloudant = Cloudant({ account: params.user, password: params.password });
14    const conferenceDb = cloudant.use(params.database);
15
16  return new Promise(function (resolve, reject) {
17    var randomQuery = {
18      selector: {
19        _id: {
20          $gt: 0
21        }
22      },
23      fields: ["author", "author_desc", "title", "desc", "date_time", "tags"],
24      limit: 1,
25      skip: getRandom(0, 100)
26    };
27
28    conferenceDb.find(randomQuery, function (err, result) {
29      if (err) {
30        console.log(err);
31        reject(err);
32      }
33
34      if (result.docs.length < 1) {
35        resolve({ "output": "No results found." });
36      } else {
37        console.log(result);
38        resolve({ "output": result });
39      }
40    });
41  });
42
43  function getRandom(start, end) {
44    return Math.floor(Math.random() * end) + start;
45  }
46
47 }
48
```

Activations

Collapse 

Clear 

▼  confbot-get-random-talk 570 ms 10/30/2018, 19:25:04

Activation ID:

746dc27a659f4192adc27a659fc1927a

Results:

```
{
  "output": {
    "docs": [
      {
        "author": "Craig Berntson",
        "desc": "We've heard about clean code for years, but what about clean architecture. In this session you will learn how to improve developer productivity by using clean architecture concepts. Topics to be discussed:- Understand function, components, and data separation- Determine what's important and what isn't- Defining boundaries and layers- Organizing components and services- And more",
        "tags": [
          "Architecture",
          "Modular Architecture",
          "Productivity"
        ],
        "date_time": "9:30 AM Saturday",
        "title": "Clean Architecture",
        "author_desc": "Craig has a passion for community and helping other developers improve their skills. He writes the column \"Software Gardening\" in DotNet Curry Magazine and is the co-author of \"Continuous Integration in .NET\" available from Manning. He works as a Senior Software Engineer at HealthEquity."
      }
    ],
    "bookmark": "g1AAAABweJzLYWBgYMpgSmHgKy5JLCrJTq2MT8lPzkzJBYormBsZpxmYGpuZGqWkmhmYpJhYpCVbJppbJBmlGqSYmieB9HHA9BG1IwsAiYsElw",
    "warning": "no matching index found, create an index to optimize query time"
  }
}
```

Bot in Action

Try it out Clear Manage Context 8 X

Hello ! Welcome to the conference. ⬤

Who is talking ?
#ask_random_talk

Aaron Sahagun talking on Which Agile Framework Will Increase the ROI of My Company? at 12:45 PM Sunday ⬤

Would you like to know more ?

Sure
#yes

Great ! Here are the details ⬤
Author: Aaron Sahagun
I am the group manager/section manager for the Technical Program Management Office (TPMO) Section/Group at Kyocera in the SF East Bay. Agile Certified Practitioner (PMI-ACP), Certified Scrum Master (CSM) & Certified

Welcome to the Conference. I am your official 🎖️! I will try my best to help 🙏

You can ask me about speakers, sessions or other conference details.

Who is talking ?

Marek Sadowski talking on Serverless and Containers in the Cloud Age at 2:15 PM

Saturday

Would you like to know more ?

Sure !

Great ! Here are the details

Author: Marek Sadowski

Marek Sadowski is a full stack developer advocate, a robotics startup founder and an entrepreneur. He has about 20 year experience in consulting largest enterprises in USA, Europe, Middle East and Africa as a senior engineer and an IT architect in mobile, web, Java and integration technologies. As a graduate from the International Space University Marek pioneered in a research on VR goggles for the virtual reality system to control robots on Mars in NASA Ames. He founded a startup to deliver robotics solutions and services for space, military, and industrial sectors. Marek moved to Silicon Valley to promote IoT and robotics solutions driven in Swift, Node.js, Node.RED by mobile, AI and Cloud.

Watson understands

```
1 {
2   "intents": [
3     {
4       "intent": "yes",
5       "confidence": 1
6     }
7   ],
8   "entities": [],
9   "input": {
10     "text": "Sure !"
11   },
12   "output": {
13     "text": [
14       "Great ! Here are the details",
15       "Author: Marek Sadowski",
16       "Marek Sadowski is a full stack developer",
17       "Talk: Using the container technology is one of the ways to deploy your application on the internet, the other options include using cloud native applications - PaaS, or alternatively by removing entire middleware overhead and using so called Serverless aka FaaS. During this talk you will learn what it takes to build an application with containers based on the open source Docker and Kubernetes.",
18       "Furthermore you will be able to experience Serverless application. Finally you will get some introduction into a cloud application based on the Cloudfoundry Platform as a Service. Download instructions to be prepared for this class Download the speaker slides and material"
19     ],
20     "node_visited": [
21       "node_4_1538512374597"
22     ],
23     "log_messages": []
24   },
25   "context": {
26     "conversation_id": "fb9949b-b397-4db4-af5c-4a2a2a2a2a2a",
27     "system": {
28       "initialized": true,
29       "dialog_stack": [
30         {
31           "dialog_node": "root"
32         }
33       ],
34       "dialog_turn_counter": 3,
35       "dialog_request_counter": 3,
36       "node_output_map": {}
37     }
38   }
39 }
```

University Marek pioneered in a research on VR goggles for the virtual reality system to control robots on Mars in NASA Ames. He founded a startup to deliver robotics solutions and services for space, military, and industrial sectors. Marek moved to Silicon Valley to promote IoT and robotics solutions driven in Swift, Node.js, Node.RED by mobile, AI and Cloud.

Talk: Using the container technology is one of the ways to deploy your application on the internet, the other options include using cloud native applications - PaaS, or alternatively by removing entire middleware overhead and using so called Serverless aka FaaS. During this talk you will learn what it takes to build an application with containers based on the open source Docker and Kubernetes. Furthermore you will be able to experience Serverless application. Finally you will get some introduction into a cloud application based on the Cloudfoundry Platform as a Service. Download instructions to be prepared for this class Download the speaker slides and material

Do you have anything on python ?

Looks like you are looking for sessions on Python. We found 3 sessions.

- **Tony Nguyen:** Machine learning using the Keras Python library
- **Peter Thoeny:** Regular Expressions, To Match Or Not, That is the Question
- **Sidharth Rajaram:** Web Scraping with Python

Watson Assistant Expression Language

Arrays

`JSONArray.append(object)`

`JSONArray.clear()`

`JSONArray.contains(object value)`

`JSONArray.getRandomItem()`

`JSONArray.join(string delimiter)`

`JSONArray.remove(integer)`

`JSONArray.size()`

Date and Time

`.after(String date or time)`

`.before(String date or time)`

`now()`

Numbers

`java.lang.Math()`

`java.lang.Byte`

`java.lang.Integer`

`java.lang.Long`

`java.lang.Double`

`java.lang.Short`

`java.lang.Float`

`java.util.Random()`

Objects

`JSONObject.clear()`

`JSONObject.has(string)`

Strings

`String.append(object)`

`String.contains(string)`

`String.endsWith(string)`

`String.find(string regexp)`

`String.isEmpty()`

Watson Assistant API

Watson

Get Started Free

Sign in to IBM Cloud

Create counterexample
Get counterexample
Update counterexample
Delete counterexample
Entities
List entities
Create entity
Get entity
Update entity
Delete entity
Mentions
List entity mentions
Values
List entity values
Add entity value
Get entity value
Update entity value
Delete entity value
Synonyms
List entity value synonym
Add entity value synonym
Get entity value synonym
Update entity value synonym
Delete entity value synonym
Dialog nodes
List dialog nodes
Create dialog node
Get dialog node
Update dialog node
Delete dialog node

REQUEST

```
listValues(params, callback())
```

Parameter Description

workspace_id Unique identifier of the workspace.

string
required

entity The name of the entity.

string
required

export Whether to include all element content in the returned data. If **export=false**, the returned data includes only information about the element itself. If **export=true**, all content, including subelements, is included.

boolean
default: false

page_limit The number of records to return in each page of results.

number
default: 100

include_count Whether to include information about the number of records returned.

boolean
default: false

sort The attribute by which returned results will be sorted. To reverse the sort order, prefix the value with a minus sign (-).

Curl

Node

Java

Python

```
var watson = require('watson-developer-cloud');
```

```
var assistant = new watson.AssistantV1({  
  username: '{username}',  
  password: '{password}',  
  version: '2018-09-20'  
});
```

```
var params = {  
  workspace_id: '9978a49e-ea89-4493-b33d-82298d3db20d',  
  entity: 'beverage'  
};
```

```
assistant.listValues(params, function(err, response) {  
  if (err) {  
    console.error(err);  
  } else {  
    console.log(JSON.stringify(response, null, 2));  
  }  
});
```

Deployment

One click deployment

Deploy Options Credentials

Deploy with Cloud Functions ⓘ

Depending on your chat volume, additional costs may apply. [Learn more ↗](#)



Slack

Deploy this workspace to Slack using your own app.

[Deploy](#)



Facebook Messenger

Deploy this workspace to Messenger using your own app.

[Deploy](#)



Web app

Deploy this workspace to a URL that you can share with anyone.

Coming soon

Manual deployment



<https://github.com/howdyai/botkit>

Visual Recognition



Upkar 8:33 AM

Pasted image at 2018-10-31, 8:33 AM ▾



upkar-botkit-1 APP 8:33 AM

Looks like you sent me a picture. I am sending it to Watson for further analysis ...

Here are the results

Watson Assistant

IBM Watson Assistant

The image classifies as the following based on the general default model:

person

0.8

professional football

0.581

contact sport

0.71

sport

0.862

athletic game

0.672

goal

0.511

soccer

0.508

outdoor game

0.505

soccer player

0.5

claret red color

0.805

greenishness color

0.585

AI Conference Bot

BotKit Middleware

The screenshot shows the GitHub repository page for 'watson-developer-cloud / botkit-middleware'. The repository has 106 commits, 2 branches, 6 releases, and 9 contributors. The latest commit was made 14 days ago. The repository description states: 'A middleware to connect Watson Conversation Service to different chat channels using Botkit'. It also links to the npm package page.

A middleware to connect Watson Conversation Service to different chat channels using Botkit
<https://www.npmjs.com/package/botkit-...>

106 commits	2 branches	6 releases	9 contributors		
Branch: master	New pull request	Create new file	Upload files	Find file	Clone or download
germanattanasio committed on GitHub Merge pull request #82 from Naktibalda/patch-2 ...			Latest commit cd79ce4 14 days ago		
examples	Merge pull request #77 from Naktibalda/patch-1				28 days ago
lib/middleware	updateContext ignores error of storage.users.get				a month ago
test	updateContext ignores error of storage.users.get				a month ago
.gitignore	Initial commit 🚀				11 months ago
.npmignore	ignore the test folder				10 months ago
.travis.yml	add travis file				10 months ago
CHANGELOG.md	updateContext ignores error of storage.users.get				a month ago
LICENSE	rename license file				10 months ago
README.md	[Readme] Fixed typo in updateContext example				14 days ago
package-lock.json	1.4.2				28 days ago
package.json	1.4.2				28 days ago

IBM Bot Asset Exchange

IBM Code

Code

Content

Community

Open Source

Bot Asset Exchange

Your community-driven chatbot development hub.

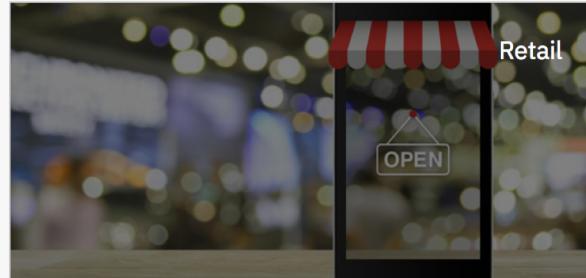
Discover, configure, deploy, and be rewarded for bots built with Watson Assistant. Join the revolution--build a chatbot today.

[Get a Bot](#)[Upload a Bot](#)[Learn More](#)

Featured bots



Shrink - The Emotion Bot



Online Store Chatbot



Simple Banking Chatbot

IBM Code SF – Upcoming Events

WED, MAR 6, 9:30 AM

Online Meetup: Serverless Java - Mobile Serverless Backend as a Service

Needs a location



REGISTER on Crowdcast: <https://www.crowdcast.io/e/serverless-java--mobile> So you've been hearing a lot of buzz about Serverless tech in conjunction with Mobile, but what exactly is the serverless or cloud functions? Come find out at IBM Developer SF's online meetup! Serverless has

Manage ▾

Attend



15 attendees

WED, MAR 13, 9:30 AM

Online Meetup: IBM Enterprise Blockchain architecture in the Cloud

Needs a location



RSVP on Crowdcast NOW! <https://www.crowdcast.io/e/ibm-enterprise> Join IBM Developer SF's online meetup on cloud-based IBM Blockchain architecture. This talk will cover: - frameworks such as IBM Food Trust (<https://www.ibm.com/blockchain/solutions/food-trust>), Trade Lens

Manage ▾

Attend



20 attendees

THU, MAR 7, 6:00 PM

Meetup: Introduction to Jupyter notebooks in Watson Studio

Galvanize - San Francisco



Join IBM Developer SF for an introductory session on exploring and analyzing data using Python on the IBM Watson Studio platform. You will learn: - how to obtain/read a data file using python in Watson Studio - how to clean noise in data - selecting and querying data - reshaping and filtering

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Going



25 attendees

WED, MAR 27, 9:30 AM

Online Meetup: Introduction to GraphQL, a query language for APIs

Needs a location



REGISTER on Crowdcast: <https://www.crowdcast.io/e/introduction-to-graphql> Join IBM Developer SF for two talks regarding Apache Openwhisk and Graph QL. MAIN TALK GraphQL is a query language for APIs and a runtime for fulfilling those queries with your existing data. Learn

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Attend



42 attendees

THANK YOU