Artificial Intelligence-as-a-Service with IBM Watson

For developers

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1. IBM Cloud Introduction

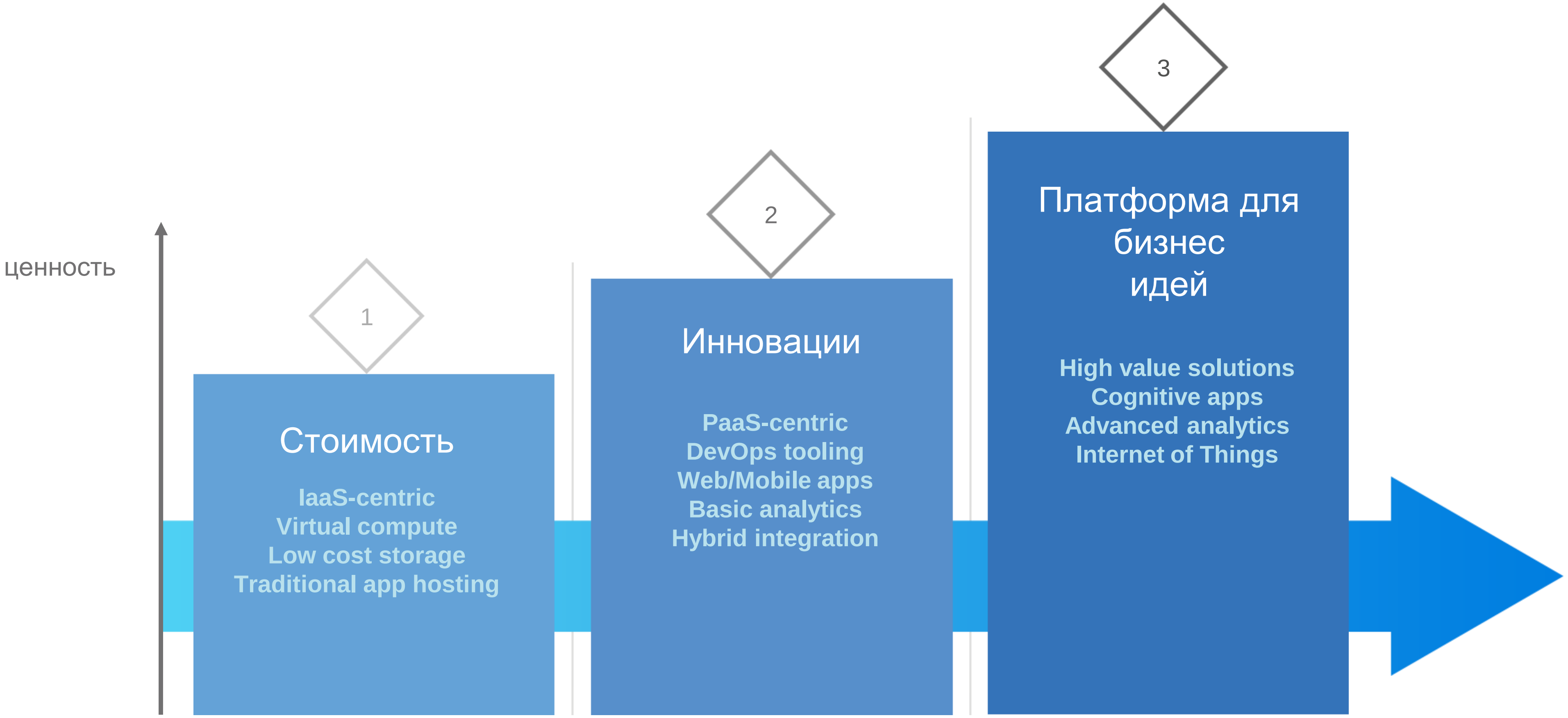
2. How can Watson help developers to quickly build cognitive apps ?

3. Demo: TJBot meeting the human:
TJBot meets the Human #IBMCloud #Watson #BOT

4. Toolkit for developers to get started with Watson today

IBM Cloud

Роль облаков



ценность

1

Стоимость

IaaS-centric
Virtual compute
Low cost storage
Traditional app hosting

2

Инновации

PaaS-centric
DevOps tooling
Web/Mobile apps
Basic analytics
Hybrid integration

3

Платформа для бизнес идей

High value solutions
Cognitive apps
Advanced analytics
Internet of Things

Облачные технологии помогают инновациям и развитию бизнеса

Различные варианты сред исполнения в IBM Cloud

Bare-Metal

Максимальная Производительность и контроль

Виртуальный сервер или Vmware

Использование своих инструментов и языков

Контейнеры

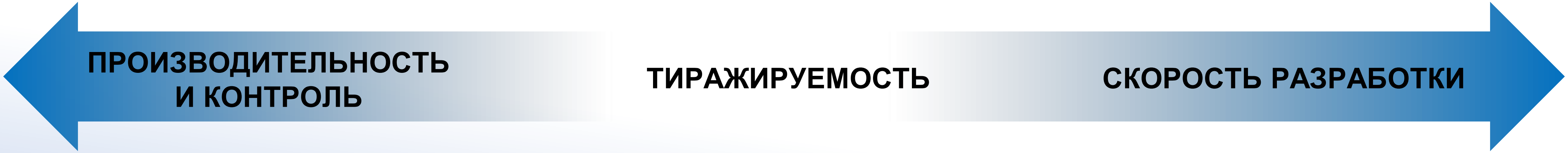
Максимальная тиражируемость и переносимость

Cloud Foundry

PaaS среда исполнения

OpenWhisk

Среда для безсерверных приложений

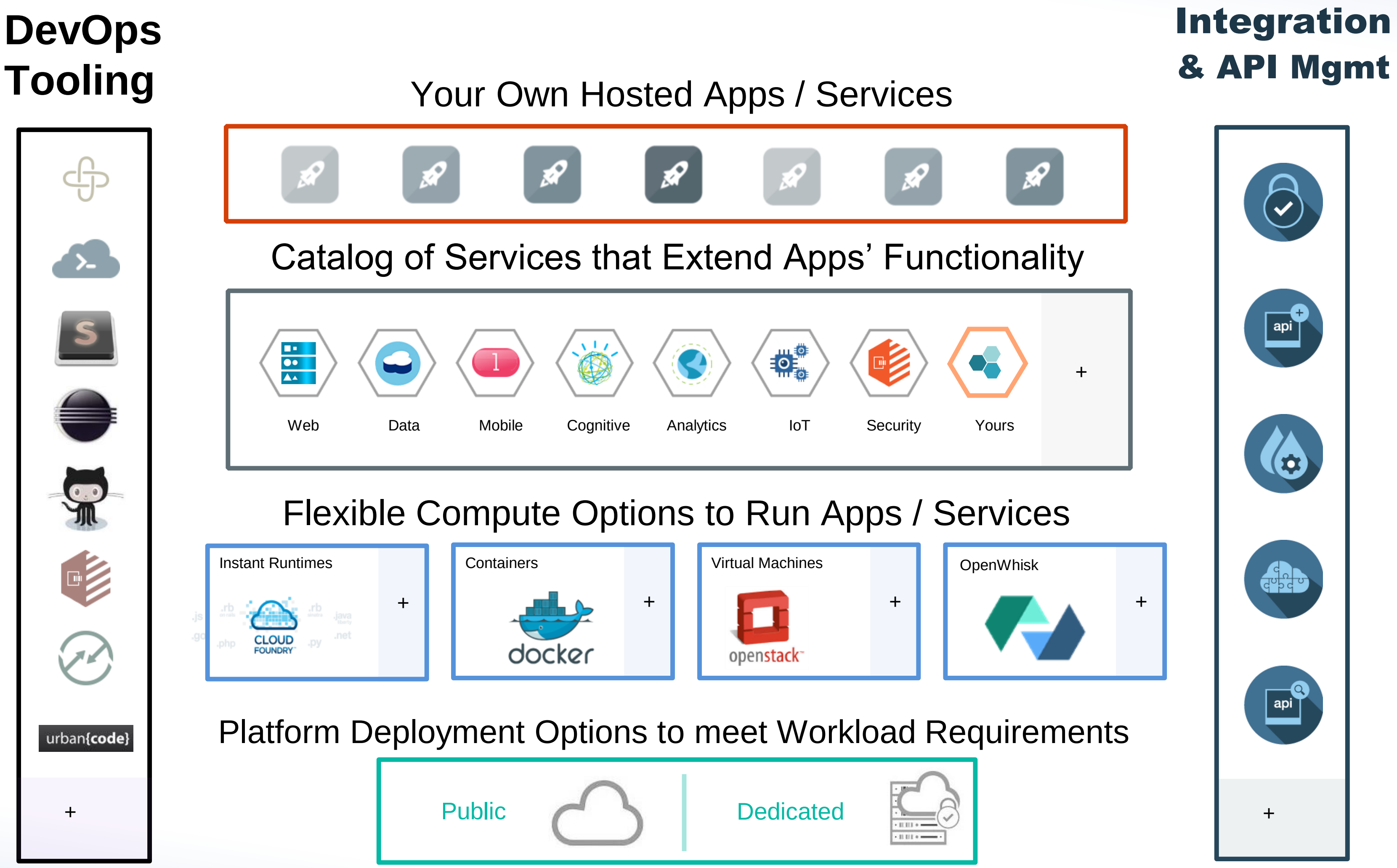


ПРОИЗВОДИТЕЛЬНОСТЬ И КОНТРОЛЬ

ТИРАЖИРУЕМОСТЬ

СКОРОСТЬ РАЗРАБОТКИ

IBM Cloud



DevOps Tooling

Your Own Hosted Apps / Services

Catalog of Services that Extend Apps' Functionality

Web | Data | Mobile | Cognitive | Analytics | IoT | Security | Yours | +

Flexible Compute Options to Run Apps / Services

Instant Runtimes + | Containers + | Virtual Machines + | OpenWhisk +

Platform Deployment Options to meet Workload Requirements

Public | Dedicated

Integration & API Mgmt

IBM Watson APIs for developers & tools

Speech

- Text To Speech
- Speech To Text

Language

- Language Translator
- Natural Language Classifier

Empathy

- Tone Analyzer
- Personality Insights

AI Assistant

- Watson Assistant

Vision

- Visual Recognition

Knowledge

- Discovery
- Natural Language Understanding
- Knowledge Studio

Data

- Watson Studio
- Watson Machine Learning
- Watson Knowledge Catalog

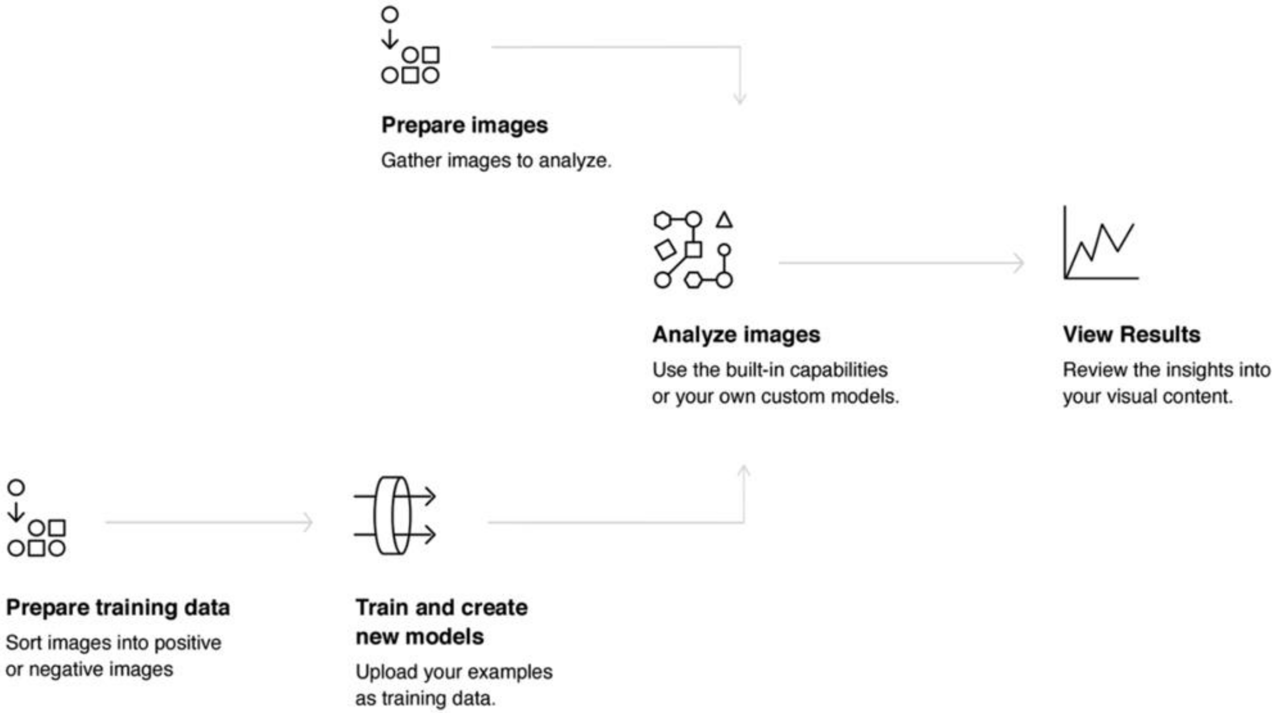
IBM Watson: the Visual Recognition example

A set of available built-in models provides highly accurate results without training:

- **General model**: Default classification from thousands of classes.
- **Face model:** Facial analysis with age and gender.
- **Explicit model (Beta):** Whether an image is inappropriate for general use.
- **Food model (Beta):** Specifically for images of food items.
- **Text model (Private beta):** Text extraction from natural scene images.

You can also train custom models to create specialized classes.

How To use the service:



Prepare images
Gather images to analyze.

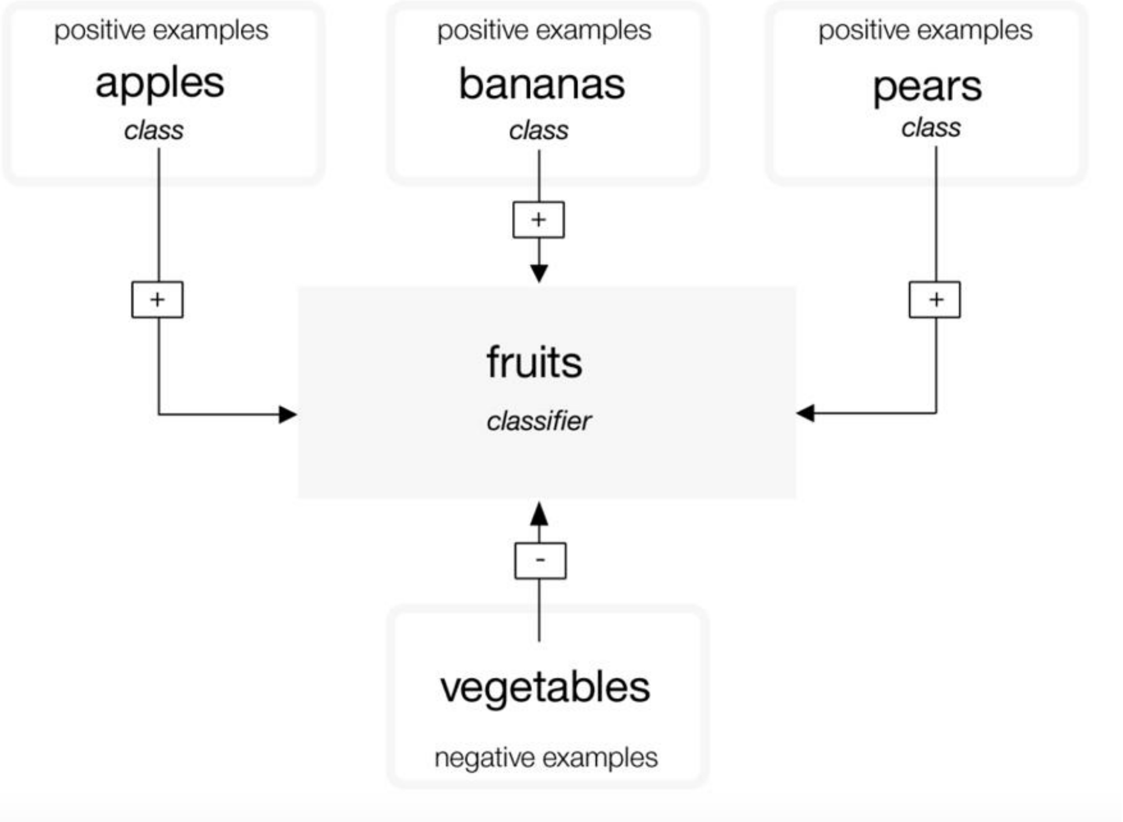
Analyze images
Use the built-in capabilities or your own custom models.

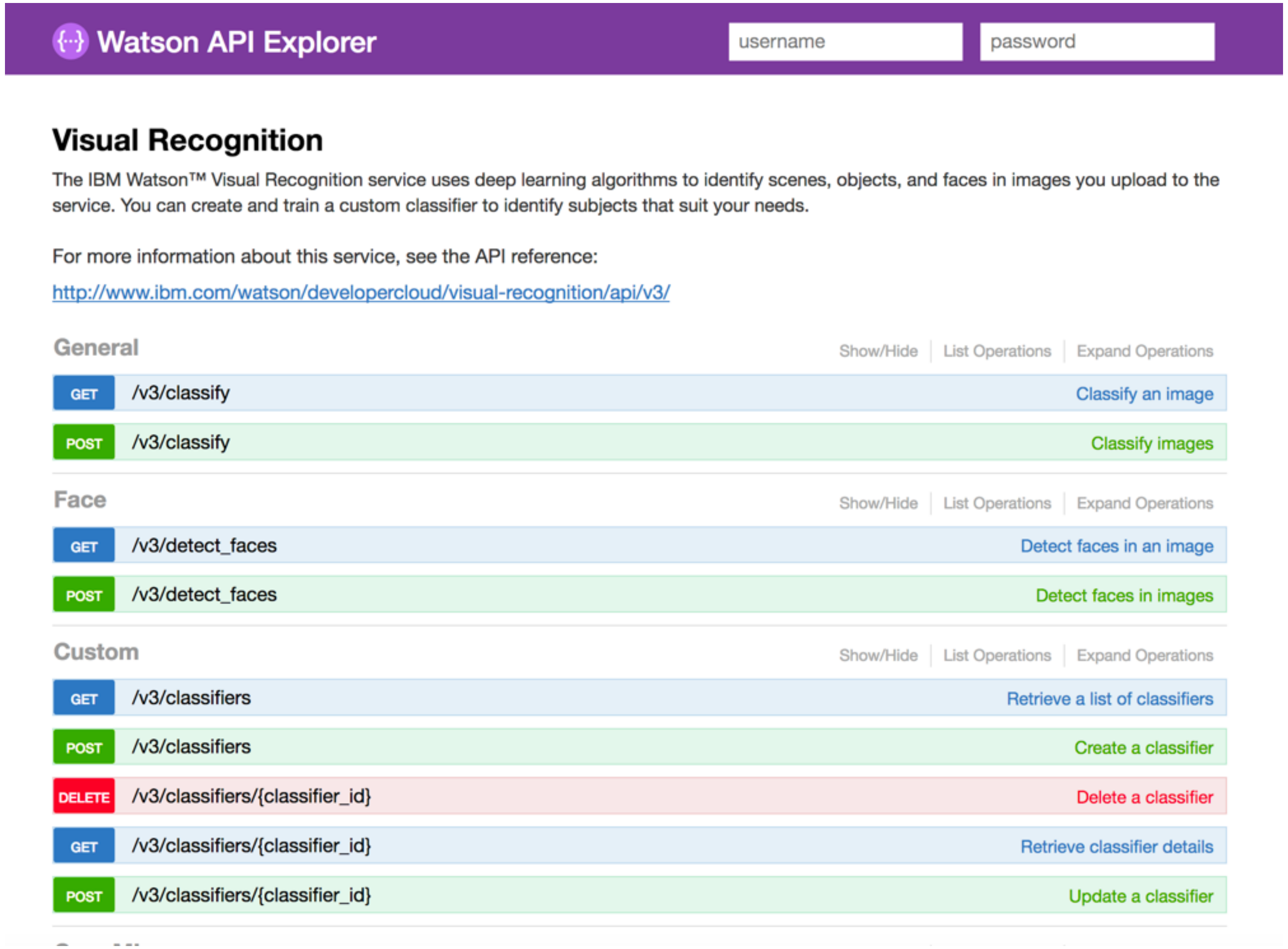
View Results
Review the insights into your visual content.

Prepare training data
Sort images into positive or negative images

Train and create new models
Upload your examples as training data.

IBM Watson: the Visual Recognition example





Watson API Explorer username password

Visual Recognition

The IBM Watson™ Visual Recognition service uses deep learning algorithms to identify scenes, objects, and faces in images you upload to the service. You can create and train a custom classifier to identify subjects that suit your needs.

For more information about this service, see the API reference:

http://www.ibm.com/watson/developercloud/visual-recognition/api/v3/

General — Show/Hide | List Operations | Expand Operations

GET	/v3/classify	Classify an image
POST	/v3/classify	Classify images

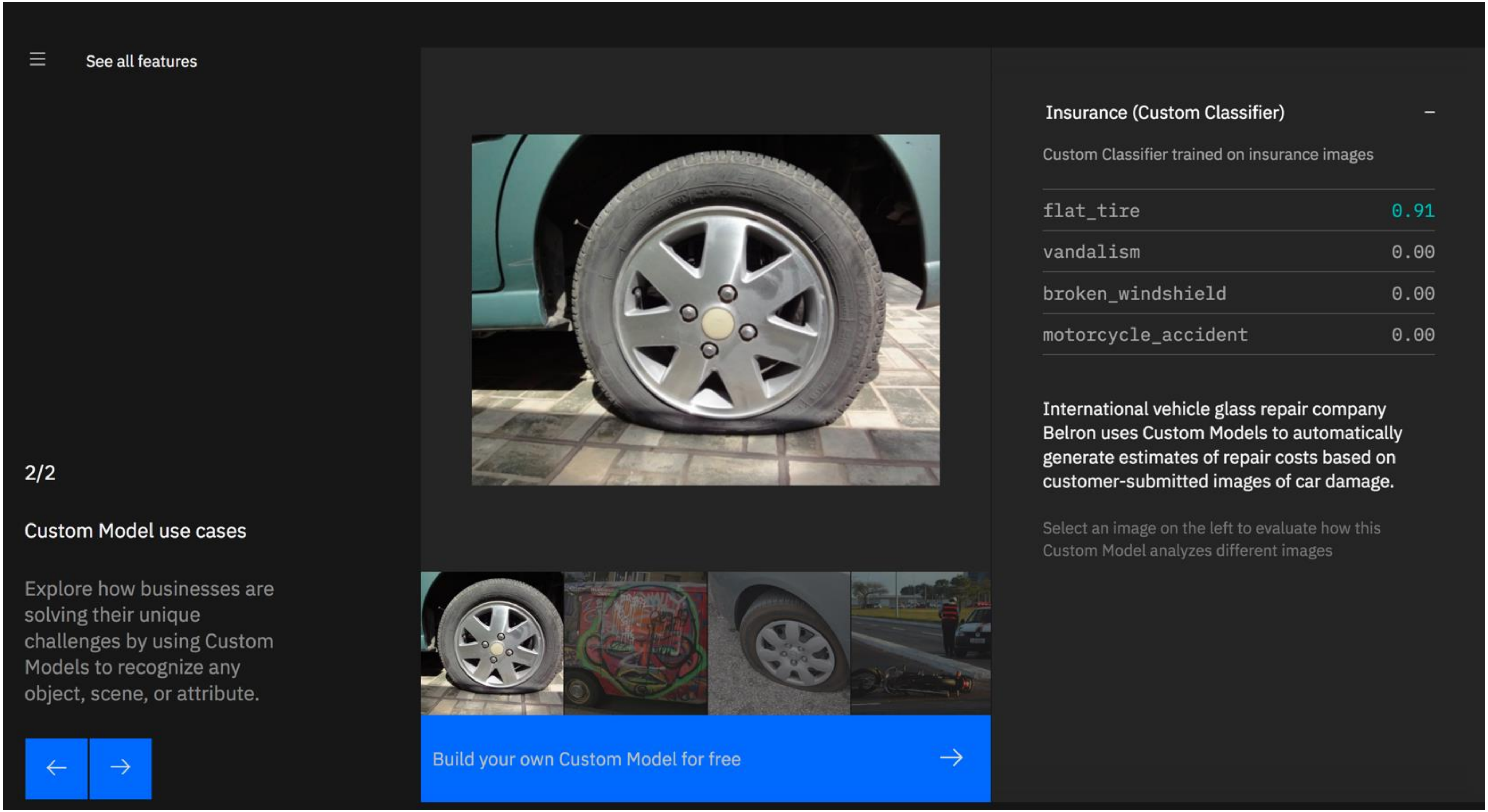
Face — Show/Hide | List Operations | Expand Operations

GET	/v3/detect_faces	Detect faces in an image
POST	/v3/detect_faces	Detect faces in images

Custom — Show/Hide | List Operations | Expand Operations

GET	/v3/classifiers	Retrieve a list of classifiers
POST	/v3/classifiers	Create a classifier
DELETE	/v3/classifiers/{classifier_id}	Delete a classifier
GET	/v3/classifiers/{classifier_id}	Retrieve classifier details
POST	/v3/classifiers/{classifier_id}	Update a classifier

IBM Watson: the Visual Recognition example



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Custom Model use cases

Explore how businesses are solving their unique challenges by using Custom Models to recognize any object, scene, or attribute.

Insurance (Custom Classifier) –

Custom Classifier trained on insurance images

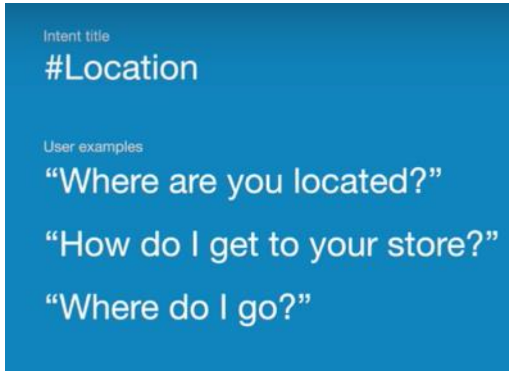
flat_tire	0.91
vandalism	0.00
broken_windshield	0.00
motorcycle_accident	0.00

International vehicle glass repair company Belron uses Custom Models to automatically generate estimates of repair costs based on customer-submitted images of car damage.

Select an image on the left to evaluate how this Custom Model analyzes different images

IBM Watson: the Watson Assistant example

1. **Create Intents:** An intent is a category that defines a users goal or purpose.
You can think of intents as the actions your users might want to perform with your application.



Intent title

#Location

User examples

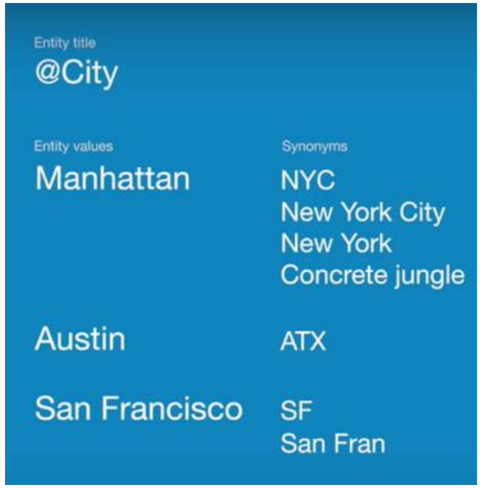
“Where are you located?”

“How do I get to your store?”

“Where do I go?”

→ You can add pre-defined intents from a content catalog

2. **Create Entities:** Watson’s way of handling significant parts of an input that should be used to alter the way it responds to the intent

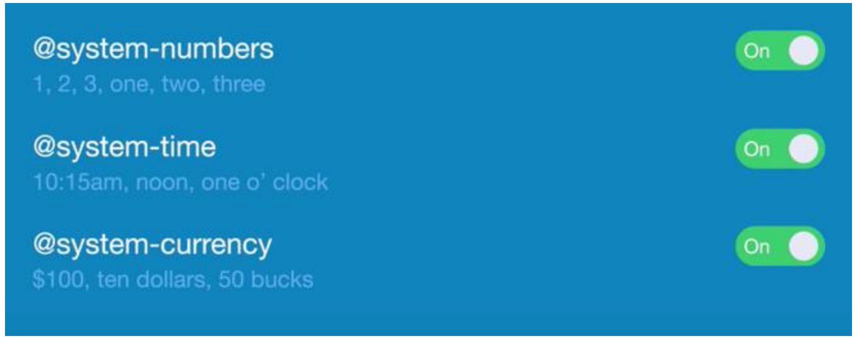


Entity title

@City

Entity values	Synonyms
Manhattan	NYC New York City New York Concrete jungle
Austin	ATX
San Francisco	SF San Fran

→ You can use existing trained-entities such as currency, dates ..



@system-numbers — On
1, 2, 3, one, two, three

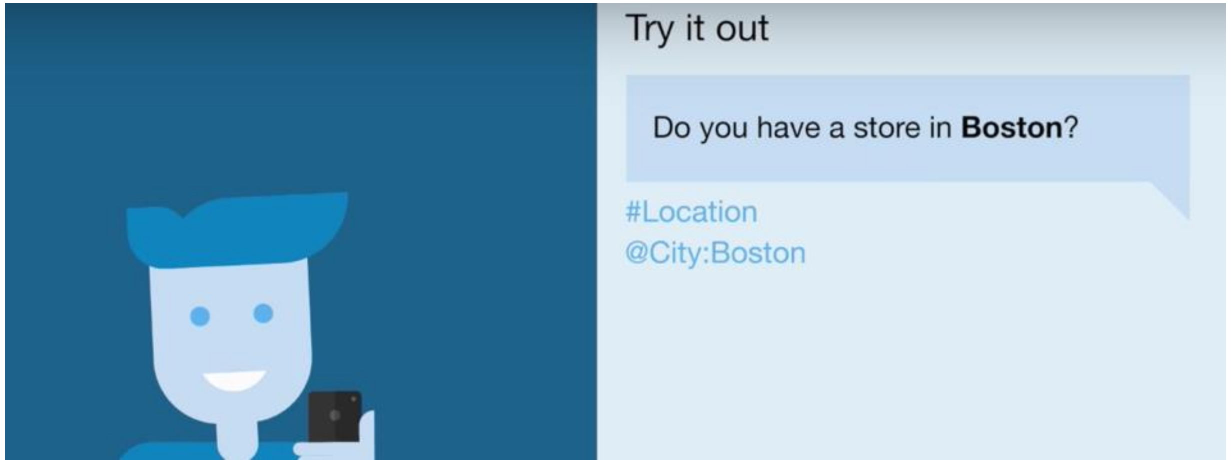
@system-time — On
10:15am, noon, one o’ clock

@system-currency — On
$100, ten dollars, 50 bucks

IBM Watson: the Watson Assistant example

3. Try it out ! (But wait until training is done)

If the phrase is wrongly identified, you have the ability to change it in the Try it out panel and the service will retrain with your updates.



Try it out

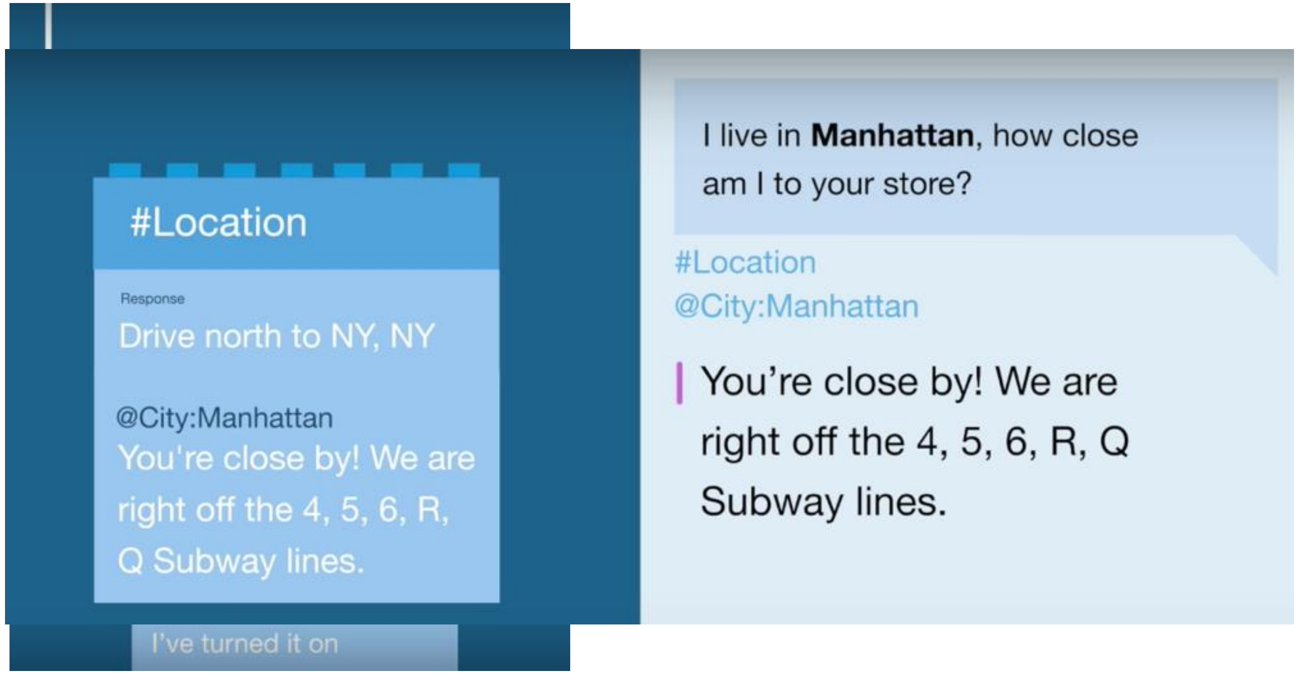
Do you have a store in **Boston**?

#Location
@City:Boston

4. Design the dialog flow and responses:

A dialog defines the flow of your conversation in the form of a logic tree. Each node of the tree has a condition that triggers it, based on user input.
A **Dialog** uses **Intents** and **Entities** identified, plus **Context** of the application to interact with the user, and automatically provide a response.

You can add a response condition.



#Location

Response
Drive north to NY, NY

@City:Manhattan
You're close by! We are right off the 4, 5, 6, R, Q Subway lines.

I've turned it on

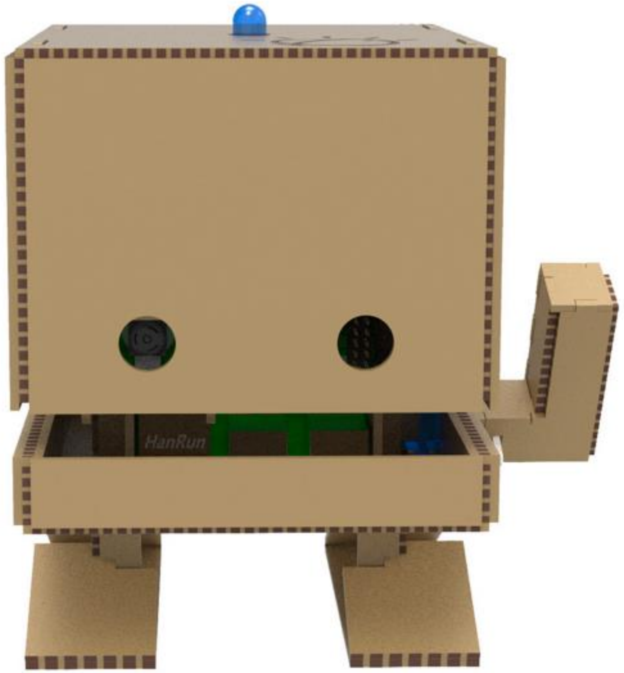
I live in **Manhattan**, how close am I to your store?

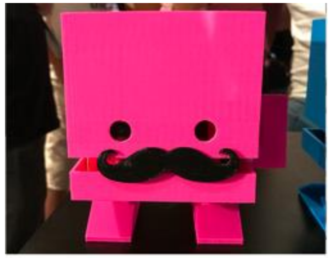
#Location
@City:Manhattan

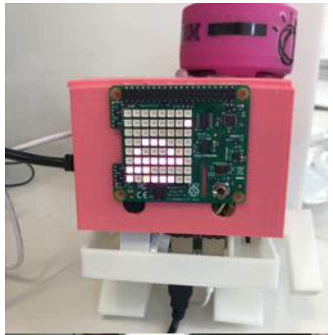
You're close by! We are right off the 4, 5, 6, R, Q Subway lines.

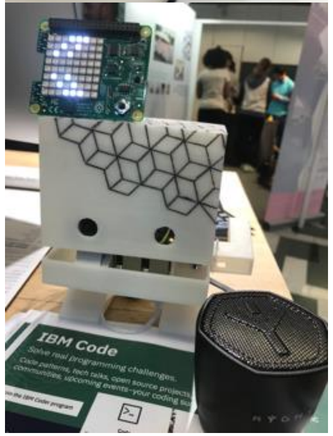
Demo: TJBot meeting the human: TJBot meets the Human #IBMCloud #Watson #BOT

IBM Watson Maker Kits are a collection of DIY open source templates to connect to Watson services in a fun way. TJBot is the first maker kit in the collection and was created as an experiment to find the best practices in the design and implementation of cognitive objects.





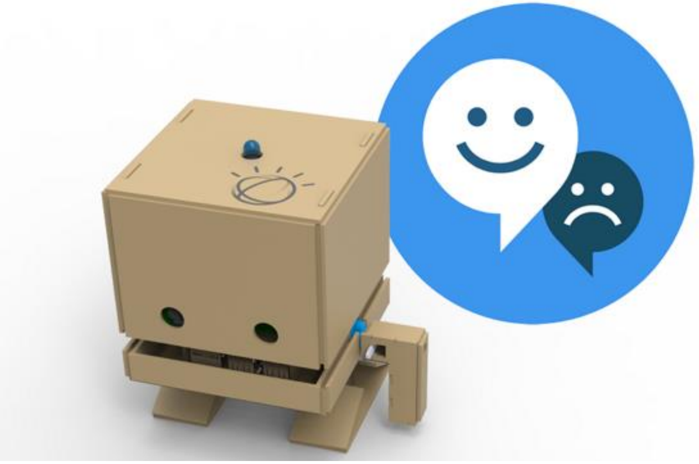




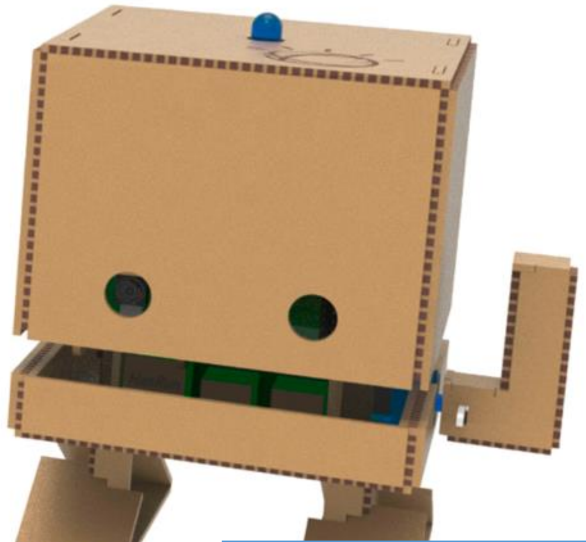
Build TJBot:
You can download the design files an laser cut or 3D print TJBot.
Here is an instructable to help you with the details of how to build your Bot

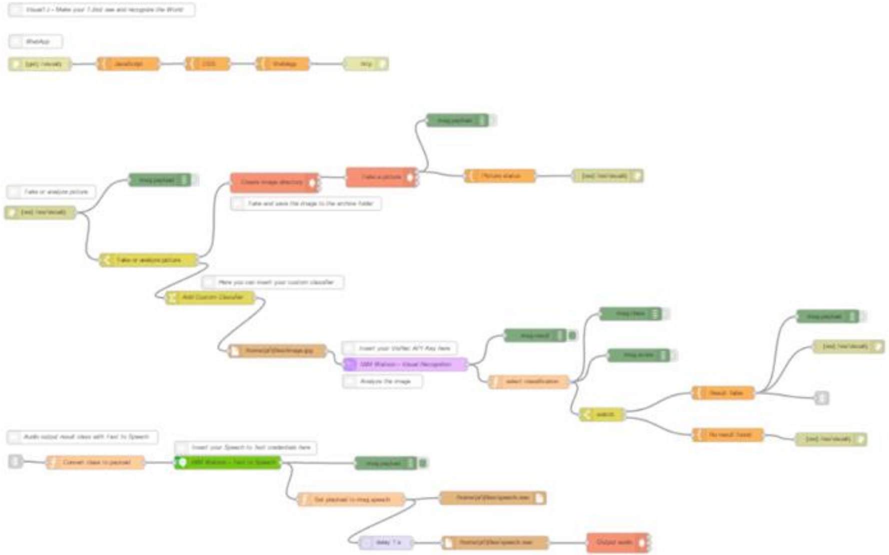
Bring TJBot to life!
Recipes are step by step instructions to help you connect your TJBot to Watson services.
The recipes are designed based on a Raspberry Pi. You can either run one of the available recipes or create your own.
View recipes on github and Instructables.

Demo: TJBot, how does it works ?



Hardware: Raspberry Pi, Camera, Servo Motor, Speakers, Microphone, SenseHat (optional)





Software:

- Node-RED running on the Raspberry Pi
- **IBM Watson APIs** called with Node-RED
- Raspberry integration with Node-RED (GPIO, camera, microphone, speakers nodes…)

Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways

A Toolkit for developers to get started with Watson today

Tech talks, Open source, Tutorials …

- ibm.com/developerworks
- developer.ibm.com/code/
- medium.com/ibm-watson
- ibm.com/watson/
- console.bluemix.net/docs

TJBot

https://ibmtjbot.github.io/
https://github.com/binnes/tobyjnr/wiki

Events

- developer.ibm.com/code/community/events

Thank you !