



Collaboration Solutions

80 % aller Daten rund um den Globus sind heute unsichtbar – unstrukturierte, verborgene Daten. Die meisten Systeme können nichts damit anfangen und keine nutzbaren Erkenntnisse daraus ziehen. Was entgeht uns dadurch? Sensorische Daten aus dem Bereich Internet of Things, Kundendaten aus sozialen Netzwerken. Daten unserer Geschäftspartner. Die IBM Cloud kann helfen, Daten aufzuspüren und nutzbar zu machen – in welcher Form auch immer. Die IBM Cloud wurde dafür gemacht, um weiter zu sehen als das, was wir bislang nicht gesehen haben.

Bluemix Watson Services Das kognitive Update für IBM Domino Anwendungen



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<https://hbauer.net>
https://twitter.com/hagen_bauer

Profil | Dateien X



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Chat | Weitere Aktionen ▾

Agenda

- **Erste kognitive Anwendungen gehen in Produktion**
- **Kognitive Anwendungen erfordern neue Kenntnisse im Vergleich zu klassischer Programmierung**
- **Nutzen Sie die Bluemix Watson Services für die ersten Schritten in die kognitive Welt**
- **Schnelle und einfache Integration von Bluemix Watson Services in IBM Domino Anwendungen**





SUCHE

Suchbegriff eingeben

HERREN

DAMEN

KINDER

AUSRÜSTUNG

INNOVATION

BLOG

SPORTLER

EVENTS

KOSTENFREIER VERSAND FÜR ALLE BESTELLUNGEN + KOSTENLOSER RÜCKVERSAND

DEN GANZEN SOMMER LANG AUF ENTDECKUNGSREISE

Begib dich mit unserer Reiseausrüstung
in dein nächstes Abenteuer

HERREN

DAMEN

AUSRÜSTUNG

EIN FESTIVAL FÜR ABENTEURERDAS

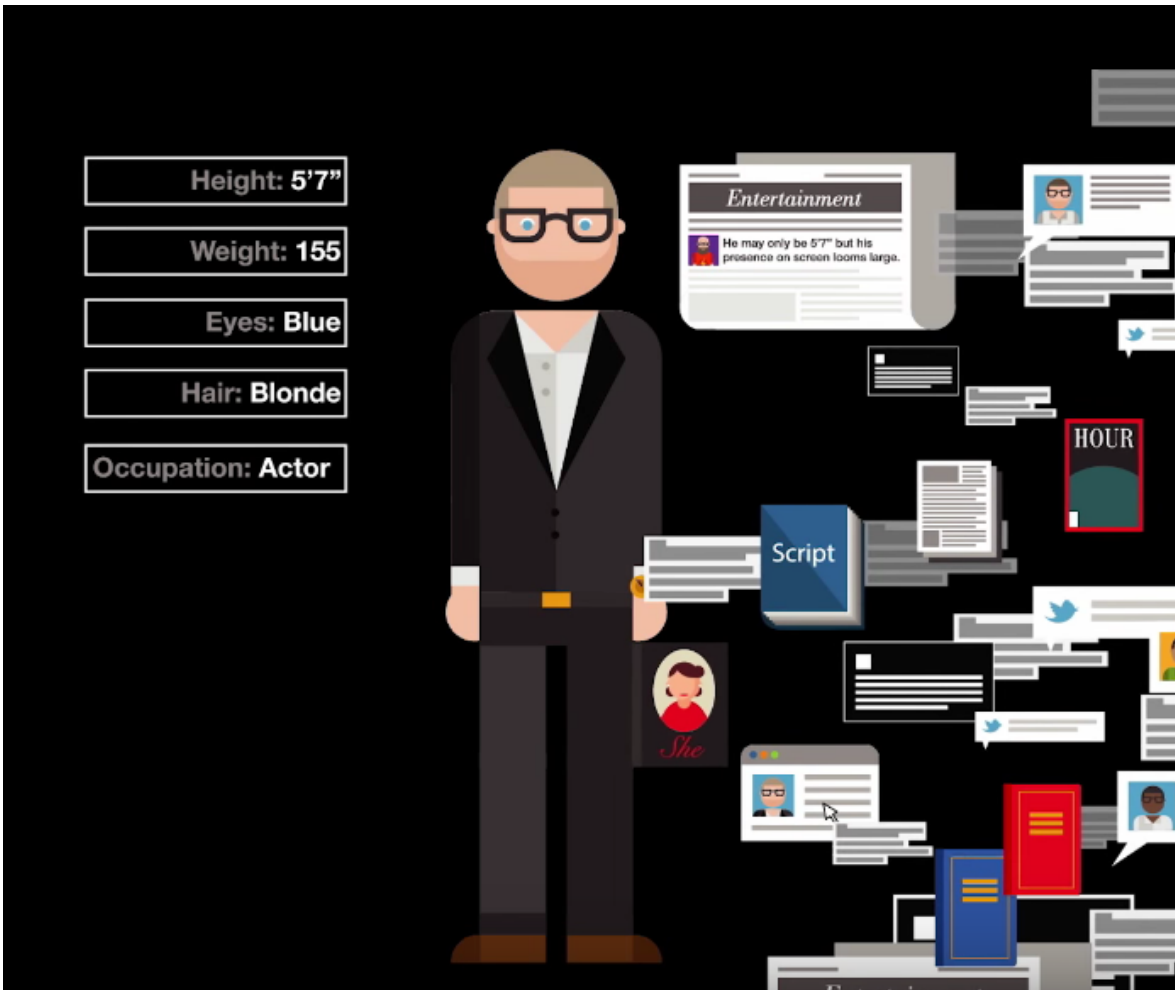
THE NORTH FACE®

MOUNTAIN FESTIVAL

AM FUSS DES EIGERS

16. - 18. SEPTEMBER 2016

Cognitive Anwendungen: Sprache anstatt Zahlen



Verständnis von
Texten und Bildern

Lernen

Interpretieren
organisieren

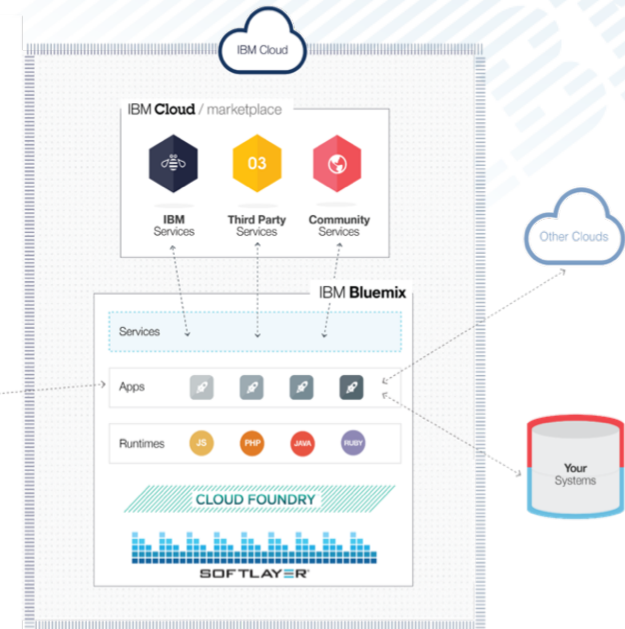
Agenda

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- **Schnelle und einfache Integration von Bluemix Watson Services in IBM Domino Anwendungen**



Was ist IBM Bluemix?

- **BlueMix ist das IBM PaaS (Platform as a Service) Angebot**
- **Eine Cloud basierende Plattform für das**
 - schnelle Entwickeln,
 - verwalten und
 - bereitstellen von Anwendungen verschiedenster Arten (Web, Mobil, Big Data, Social, ...).
- **Kombinierbare Objekte ermöglichen eine schnelle Entwicklung**
- **Entwickler können Services von IBM oder Partnern in einem pay-as-you-go Model nutzen**



Bluemix Watson Services

IBM Bluemix Ready? Try the new Bluemix

DASHBOARD
SOLUTIONS
CATALOG
PRICING
DOCS
COMMUNITY
91

ORG: hagen.ba...
🔍 Type to search

Starters

- ☐ Boilerplates

Compute

- ☐ Runtimes
- ☐ Containers

Services

- ☐ Watson
- ☐ Mobile
- ☐ DevOps
- ☐ Web and Application
- ☐ Network
- ☐ Integration
- ☐ Data and Analytics
- ☐ Security
- ☐ Storage
- ☐ Business Analytics
- ☐ Internet of Things

Provider

- ☐ IBM
- ☐ Third Party

Services // The building blocks of any great app

Watson

Build cognitive apps that help enhance, scale, and accelerate human expertise

AlchemyAPI IBM	Concept Expansion IBM BETA	Concept Insights IBM	Dialog IBM	Document Conversion IBM	Language Translation IBM
Natural Language Classifier IBM	Personality Insights IBM	Relationship Extraction IBM BETA	Retrieve and Rank IBM	Speech To Text IBM	Text to Speech IBM
Tone Analyzer IBM BETA	Tradeoff Analytics IBM	Visual Recognition IBM BETA	Cognitive Commerce™ Third Party	Cognitive Graph Third Party	Cognitive Insights™ Third Party

Das heutige Beispiel

- **IBM Domino Anwendungen sollen erweitert werden um Sprachklassifikation**
 - In einer Autoteiledatenbank sollen Kunden nach Teilen suchen können
 - Volltextsuche liefert nur limitierte Trefferlisten.
 - Natürlich sprachliche Anfragen sollen in Baugruppen zugeordnet werden

Ein kleines Trainingsset für die Klassifikation von Teilen in Baugruppen

Antenna assembly	electrical
Antenna cable	electrical
Radio and media player	electrical
Car Video assembly	electrical
Car Rear View Camera	electrical
Headrest / Armrest Monitors	electrical
Mirror Monitors	electrical
Roof Monitors	electrical
Speedometer	electrical
Tachometer	electrical
Temperature gauge	electrical
Tire pressure gauge	electrical

Ein kleines Trainingsset für die Klassifikation von Teilen in Baugruppen

Brake warning light	chassis
Calibrated friction brake	chassis
Caliper	chassis
Combination valve	chassis
Dual circuit brake system	chassis
Hold-down springs	chassis
Hose	chassis
Brake booster hose	chassis
Air brake nylon hose	chassis
Brake duct hose	chassis
Hydraulic booster unit	chassis
Load-sensing valve	chassis
Master cylinder	chassis
Metering valve	chassis

Die Testfragen

Where to look for loudspeaker	
What about a head lamp	
More information about a windshield	

Demonstration

IBM Domino meets Bluemix

[Home](#)[Watson Services](#)[Text To Speech](#)[Textübersetzung](#)[Sprachklassifizierung](#)

Watson Language Classifier

[Startseite](#)[Erklärungen zu dem Beispiel](#)[Trainingsset](#)[Testfragen](#)

Der Service Natural Language Classifier verwendet Maschinenlernalgorithmen, um für kurze Texteingaben die am besten passenden vordefinierten Klassen zurückzugeben. Er ist für die Arbeit mit kurzen Texten optimiert und kann für jede beliebige Domäne oder Anwendung trainiert werden.

Eingabe:



Klassifizieren

Kategorien:

electrical	84,71%
chassis	15,29%

Agenda

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Ablauf der Sprachklassifikation

- **Anlegen eines neuen Services über das Bluemix Webinterface**
- **Hochladen eines Trainingssets**
- **Warten**
- **Erste Anfragen und Training**



Natural Language
Classifier

IBM

IBM Bluemix

[Why Bluemix](#)
[Products](#)
[Solutions](#)
[Services](#)
[Resources](#)
[Docs](#)
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[IBM](#) > [Bluemix](#)

IBM Bluemix

The cloud platform to accelerate innovation on both sides of the firewall

[Get started free](#)

Introducing the Swift Runtime for IBM Bluemix



Das IBM Bluemix Dashboard

IBM Bluemix Ready? [Try the new Bluemix](#)

DASHBOARD SOLUTIONS CATALOG PRICING DOCS COMMUNITY 95

ORG: [hagen.bauer@de.ibm...](#)

+ Create a Space

dev

- CF APPS (1)
- SERVICES (5)
- CONTAINERS (0)
- VIRTUAL SERVERS (0)

Cloud Foundry Apps
512 MB/2 GB Used

CREATE APP

Containers
0 B/2 GB
0/0 Public IPs Requested | 0 Used

START CONTAINERS

Virtual Servers
0 B/0 B | 0/0 Public IPs

RUN VIRTUAL SERVERS

Services & APIs
5/10 Used

USE SERVICES OR APIS

Applications

XPages-Fusion-Application-hbau...
XPages-Fusion-Application-hbauer-1650.eu-gb.my...

Den gewünschten Service auswählen

The screenshot displays the IBM Bluemix Catalog interface. The top navigation bar includes links for DASHBOARD, SOLUTIONS, CATALOG (active), PRICING, DOCS, and COMMUNITY. A user profile icon and a '95' badge are also visible. The left sidebar shows a navigation menu with categories: Starters, Compute, Services, and Provider. The 'Services' category is expanded, showing a list of services including Watson, Mobile, DevOps, Web and Application, Network, Integration, Data and Analytics, Security, Storage, Business Analytics, and Internet of Things. The main content area is titled 'Services // The building blocks of any great app' and features a grid of Watson services. The 'Natural Language Classifier' service is highlighted with a blue border and a 'View More' button. The URL at the bottom of the page is <https://console.eu-gb.bluemix.net/catalog/services/natural-language-classifier/>.

IBM Bluemix Ready? Try the new Bluemix

DASHBOARD SOLUTIONS CATALOG PRICING DOCS COMMUNITY 95

ORG: hagen.ba... Type to search

Services // The building blocks of any great app

Watson
Build cognitive apps that help enhance, scale, and accelerate human expertise

Services

- Watson
- Mobile
- DevOps
- Web and Application
- Network
- Integration
- Data and Analytics
- Security
- Storage
- Business Analytics
- Internet of Things

Provider

- IBM

Services Grid:

Service Name	Provider
AlchemyAPI	IBM
Concept Expansion	IBM BETA
Concept Insights	IBM
Dialog	IBM
Document Conversion	IBM
Language Translation	IBM
Natural Language Classifier	IBM
Personality Insights	IBM
Relationship Extraction	IBM BETA
Retrieve and Rank	IBM
Speech To Text	IBM
Text to Speech	IBM
Tone Analyzer	IBM BETA
Tradeoff Analytics	IBM
Visual Recognition	IBM BETA
Cognitive Commerce™	Third Party
Cognitive Graph	Third Party
Cognitive Insights™	Third Party

<https://console.eu-gb.bluemix.net/catalog/services/natural-language-classifier/>

Den gewünschten Service konfigurieren

 IBM Bluemix Ready? [Try the new Bluemix](#)

DASHBOARD SOLUTIONS CATALOG PRICING DOCS COMMUNITY 95

[Back to All Categories](#)



Natural Language Classifier

IBM

PUBLISH DATE
02/23/2016

AUTHOR
IBM

TYPE
Service

LOCATION
US South

[VIEW DOCS](#)

The Natural Language Classifier service applies cognitive computing techniques to return the best matching classes for a sentence or phrase. For example, you submit a question and the service returns keys to the best matching answers or next actions for your application. You create a classifier instance by providing a set of representative strings and a set of one or more correct classes for each training. After training, the new classifier can accept new questions or phrases and return the top matches with a probability value for each match.

Natural Language Classifier

Using the Service



Pick a plan

Monthly prices shown are for country or region: [Germany](#)

Plan	Features	
✓ Standard	1 Natural Language Classifier instance free per month 1000 API calls free per month 4 Training Events free per month	€15.04 EUR/ Instance per month €0.0026 EUR/ API call €2.26 EUR/ Training Event

 You will be charged per API call, per instance, and per training event

[TEDMS](#)

Add Service

Space:

App:

Service name:

Credential name:

Selected Plan:

[CREATE](#)

Der Service ist startklar

The screenshot displays the IBM Bluemix console interface. At the top, the header includes the IBM Bluemix logo and navigation links: DASHBOARD, SOLUTIONS, CATALOG, PRICING, DOCS, and COMMUNITY. A user profile icon with the number 95 is also visible. Below the header, a dark sidebar on the left contains the text 'hb-rezepte' and a 'Manage' link with a right-pointing arrow. Under 'Manage', there are three options: 'Service Credentials' (which is highlighted with a mouse cursor), 'Service Access Authorization', and 'APPS USING SERVICE'. The main content area has a dark header bar with a back arrow, the text 'Back to Dashboar...', and a dropdown arrow. To the right of this bar is a hexagonal icon and the text 'hb-rezepte'. The main content area features a large blue icon of a person at a computer, followed by the title 'Natural Language Classifier' and a description: 'Interpret natural language and classify it with confidence'. To the right of this, under the heading 'Developer resources:', there are two green links: 'Documentation' and 'Demo'. Below this section, the title 'Natural Language Classifier Toolkit (beta)' is displayed, accompanied by a green button labeled 'Access the beta toolkit' with an external link icon. A paragraph states: 'Manage your training data and classifiers through a web application.' The final section is titled 'Intended Use' and contains the text: 'You can use the Natural Language Classifier service with any application and tune it for any domain'.

IBM Bluemix Ready? Try the new Bluemix

DASHBOARD SOLUTIONS CATALOG PRICING DOCS COMMUNITY 95

Back to Dashboar... hb-rezepte DOCS

hb-rezepte

Manage >

Service Credentials

Service Access Authorization

APPS USING SERVICE

 **Natural Language Classifier**

Interpret natural language and classify it with confidence

Developer resources:

- Documentation
- Demo

Natural Language Classifier Toolkit (beta)

Access the beta toolkit

Manage your training data and classifiers through a web application.

Intended Use

You can use the Natural Language Classifier service with any application and tune it for any domain

Activities

Firefox Web Browser

Di 18:10

dev

📶

🔊

🔌

IBM Watson Natural Language Classifier - Mozilla Firefox

Dashboard - IBM Blu...

IBM Watson Natural...

+

🔍

https://natural-language-classifier-toolkit.eu-gb.bluemix.net/ce9fd8a2-91f2-40a7-840

↻

🔍

fahrwerk

➔

☆

📄

📧

⬇️

🏠

🌐

🔧

🔥

📱

☰

IBM Watson Natural Language Classifier

Training data

Classifiers

🔍

👤

Classifiers

These classifiers are connected to the service instance. You can test and improve the performance of a classifier that has a status of **Available**.

+

Add training data

Add texts and classes to your training data to create a classifier.

Activities

Firefox Web Browser

Di 18:11

dev

IBM Watson Natural Language Classifier - Mozilla Firefox

Dashboard - IBM Blu... x IBM Watson Natural... x

<https://natural-language-classifier-toolkit.eu-gb.bluemix.net/ce9fd8a2-91f2-40a7-840>

fahrwerk

IBM Watson Natural Language Classifier

Training data Classifiers

Import Importing carparts.csv

Import Complete carparts.csv import complete.

Classes 2

+

 Add class

chassis

14

electrical

12

Search

Newest first

+

 Add text

Air brake nylon hose

chassis

Antenna assembly

electrical

Antenna cable

electrical

Brake booster hose

chassis

Brake duct hose

chassis

Create classifier

Upload

Download

Delete

Search

Newest first

© 2016 IBM Watson

Contact

Privacy

Terms of use

Activities

Firefox Web Browser

Di 18:11

de

IBM Watson Natural Language Classifier - Mozilla Firefox

Dashboard - IBM Blu...

IBM Watson Natural...

+

<https://natural-language-classifier-toolkit.eu-gb.bluemix.net/ce9fd8a2-91f2-40a7-840>

fahrwerk

IBM Watson Natural Language Classifier

Training data

Classifiers

Import

Importing carparts.csv

✕

Import Complete

carparts.csv import complete.

✕

Training Requested

Request to train was submitted

✕

Training Data Validated

Starting to train classifier...

✕

Classifiers

These classifiers are connected to the service instance. You can test and improve the performance of a classifier that has a status of **Available**.

Sort By: Newest first

IBM Watson is creating and training a classifier

You don't need to watch this progress bar. You can leave and come back later.

Cancel

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Activities

Firefox Web Browser

Di 18:22

dev

IBM Watson Natural Language Classifier - Mozilla Firefox

Dashboard - IBM Blu...
IBM Watson Natural...

https://natural-language-classifier-toolkit.eu-gb.bluemix.net/ce9fd8a2-91f2-40a7-840

fahrwerk

IBM Watson Natural Language Classifier

Training data
Classifiers

Import

Importing carparts.csv

✕

Import Complete

carparts.csv import complete.

✕

Training Requested

Request to train was submitted

✕

Training Data Validated

Starting to train classifier...

✕

Classifiers

These classifiers are connected to the service instance. You can test and improve the performance of a classifier that has a status of **Available**.

Sort By: Newest first

carparts

Created: 04-10-2016 18:10

Classifier ID: 2a3456x99-nlc-3914

Available

→

Activities

Firefox Web Browser

Di 18:24

dev

IBM Watson Natural Language Classifier - Mozilla Firefox

Dashboard - IBM Blu...
IBM Watson Natural...

https://natural-language-classifier-toolkit.eu-gb.bluemix.net/ce9fd8a2-91f2-40a7-840

fahrwerk

IBM Watson Natural Language Classifier

Training data
Classifiers

Classifiers / 2a3456x99-nlc-3914

Improve performance

Use test data

Review live system texts that have incorrect or low-confidence classifications and add them to your training data. Then train a new classifier with the updated data.

Enter text to test Watson's performance

Classify

3 results in 24 hours

spoiler

chassis (0.94)

electrical (0.06)

✓

✗

wheel

chassis (0.95)

electrical (0.05)

✓

✗

loud speaker

electrical (0.85)

chassis (0.15)

✓

✗

Live system progress

✓

Approved 0

✗

Flagged 0

Add to training data

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Contact
Privacy
Terms of use

Ablauf Sprachklassifikation

- **Anlegen eines neuen Services über das Bluemix Webinterface**
- **Hochladen eines Trainingssets über die REST API**
- **Warten**
- **Erste Anfragen über die REST API**



Integration Domino Xpages



Natural Language
Classifier

IBM

Integration des Bluemix Service in IBM Domino Anwendungen

IBM Domino meets Bluemix

[Home](#)[Watson Services](#)[Text To Speech](#)[Textübersetzung](#)[Sprachklassifizierung](#)

Watson Language Classifier

[Startseite](#)[Erklärungen zu dem Beispiel](#)[Trainingsset](#)[Testfragen](#)

Der Service Natural Language Classifier verwendet Maschinenlernalgorithmen, um für kurze Texteingaben die am besten passenden vordefinierten Klassen zurückzugeben. Er ist für die Arbeit mit kurzen Texten optimiert und kann für jede beliebige Domäne oder Anwendung trainiert werden.

Eingabe:

where to look for loudspeakers



Klassifizieren

Kategorien:

electrical	84,71%
chassis	15,29%

Eine einfache Domino Maske
mit einem Button der
etwas Java aufruft

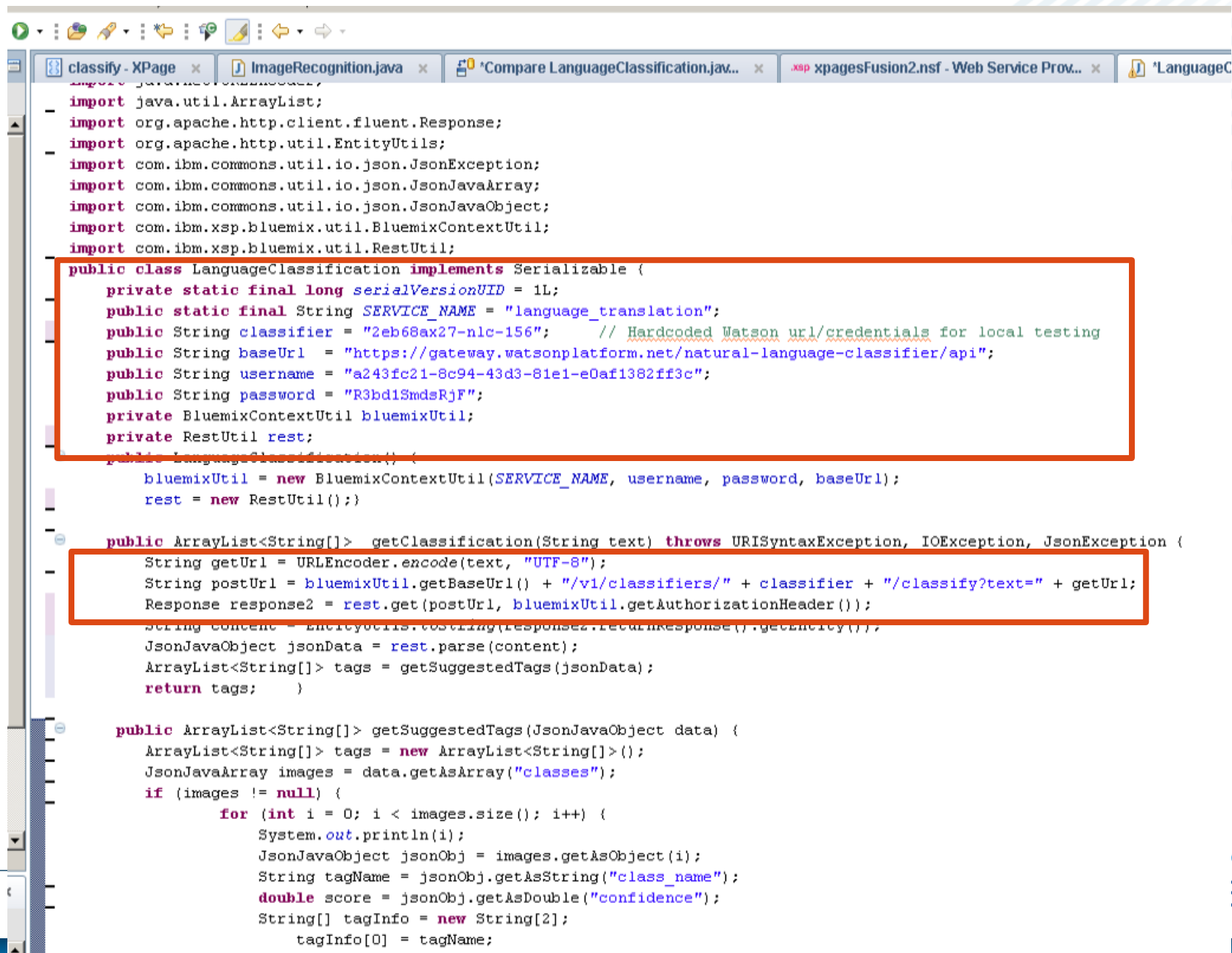
The screenshot displays the IBM Domino Designer interface with the following components:

- Top Tab Bar:** Contains several open files including `*classify - XPage`, `ImageRecognition.java`, `*Compare LanguageClassification.jav...`, `.xsp xpagesFusion2.nsf - Web Service Prov...`, and `*LanguageClassification.java`.
- Left Column:** A tree view showing the page structure:
 - LeftColumn
 - Page 1
 - Page 2 (selected)
 - Subpage 1
 - Subpage 2
 - Subpage 3
 - Page 3
- Design View:**
 - Title:** "IBM Domino Anwendungen und der Watson Language Classifier".
 - Description:** "Der Service Natural Language Classifier verwendet Maschinenlernalgorithmen, um für kurze Texteingaben die am besten passenden vordefinierten Klassen zurückzugeben. Natural für die Arbeit mit kurzen Texten optimiert und kann für jede beliebige Domäne oder Anwendung trainiert werden."
 - Form:** A text input field labeled "Texteingabe:" with a vertical scrollbar.
 - Buttons:** A "Classify" button and a "Powered by IBM Watson" logo, both highlighted with red rectangles.
 - Text Classifiers:** A section at the bottom showing "(classifierHome)" and "(classifierDefault)".
- Bottom Panels:**
 - Properties:** Shows "Design" and "Source" tabs.
 - Events:**
 - Mouse:** Includes events like onclick, ondblclick, onmousedown, onmouseup, onmouseover, onmousemove, and onmouseout.
 - Focus:** Includes focus-related events.
 - Key:** Includes key-related events.
 - Script Editor:**
 - Client:** Selected tab.
 - Simple Actions:** Radio button is selected.
 - Script:**

```

var text = getComponent("textContent").getValue();
var newText = text.trim();
if (null != newText && newText != "") {
    viewScope.textError = false;
    var result = classify.getClassification(newText);
}
if (null != result) {
    viewScope.watsonTags = result;
} else { println("tag analysis failed"); }
```

.... und der einfache Java Code
der die REST API
aufruft



```
import java.util.ArrayList;
import org.apache.http.client.fluent.Response;
import org.apache.http.util.EntityUtils;
import com.ibm.commons.util.io.json.JsonException;
import com.ibm.commons.util.io.json.JsonJavaArray;
import com.ibm.commons.util.io.json.JsonJavaObject;
import com.ibm.xsp.bluemix.util.BluemixContextUtil;
import com.ibm.xsp.bluemix.util.RestUtil;

public class LanguageClassification implements Serializable {
    private static final long serialVersionUID = 1L;
    public static final String SERVICE_NAME = "language_translation";
    public String classifier = "2eb68ax27-nlc-156"; // Hardcoded Watson url/credentials for local testing
    public String baseUrl = "https://gateway.watsonplatform.net/natural-language-classifier/api";
    public String username = "a243fc21-8c94-43d3-81e1-e0af1382ff3c";
    public String password = "R3bd1SmdsRjF";
    private BluemixContextUtil bluemixUtil;
    private RestUtil rest;

    public LanguageClassification() {
        bluemixUtil = new BluemixContextUtil(SERVICE_NAME, username, password, baseUrl);
        rest = new RestUtil();
    }

    public ArrayList<String[]> getClassification(String text) throws URISyntaxException, IOException, JsonException {
        String getUrl = URLEncoder.encode(text, "UTF-8");
        String postUrl = bluemixUtil.getBaseUrl() + "/v1/classifiers/" + classifier + "/classify?text=" + getUrl;
        Response response2 = rest.get(postUrl, bluemixUtil.getAuthorizationHeader());
        String content = EntityUtils.toString(response2.returnResponse().getEntity());
        JsonJavaObject jsonData = rest.parse(content);
        ArrayList<String[]> tags = getSuggestedTags(jsonData);
        return tags;
    }

    public ArrayList<String[]> getSuggestedTags(JsonJavaObject data) {
        ArrayList<String[]> tags = new ArrayList<String[]>();
        JsonJavaArray images = data.getAsArray("classes");
        if (images != null) {
            for (int i = 0; i < images.size(); i++) {
                System.out.println(i);
                JsonJavaObject jsonObj = images.getAsObject(i);
                String tagName = jsonObj.getString("class_name");
                double score = jsonObj.getDouble("confidence");
                String[] tagInfo = new String[2];
                tagInfo[0] = tagName;
```

Das war wirklich nicht schwer.

Erweitern Sie IBM Domino Anwendungen um kognitive Elemente

- **Natursprachliche Eingaben statt starre Checkboxes**
- **Automatische Übersetzungen von Texten**
- **Menschliche Dialogführung**
- **Kognitive Empfehlungssysteme für schnellere und gezieltere Vorschläge für Kunden im Telefongespräch**
- **Elektronische Post wird durch Stimmungsanalyse priorisiert**
- **Anfragen werden durch Sprachklassifikation einem ersten Bearbeiter zugewiesen**

Zusammenfassung

- **Erste kognitive Anwendungen gehen in Produktion**
- **Kognitive Anwendungen erfordern neue Erfahrungen im Vergleich zu klassischer Programmierung**
- **Bluemix Watson Services ermöglichen einen einfachen und kostengünstigen ersten Schritt in die kognitive Welt**
- **Warten Sie nicht, starten Sie heute und erweitern Sie Ihre bestehenden IBM Domino Anwendungen**



Collaboration Solutions

80 % aller Daten rund um den Globus sind heute unsichtbar – unstrukturierte, verborgene Daten. Die meisten Systeme können nichts damit anfangen und keine nutzbaren Erkenntnisse daraus ziehen. Was entgeht uns dadurch? Sensorische Daten aus dem Bereich Internet of Things, Kundendaten aus sozialen Netzwerken. Daten unserer Geschäftspartner. Die IBM Cloud kann helfen, Daten aufzuspüren und nutzbar zu machen – in welcher Form auch immer. Die IBM Cloud wurde dafür gemacht, um weiter zu sehen als das, was wir bislang nicht gesehen haben.

Bluemix Watson Services Das kognitive Update für IBM Domino Anwendungen



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https://twitter.com/hagen_bauer

Profil | Dateien X



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