

Name:K.Varsha

Year:3

Reg.no:822221104304

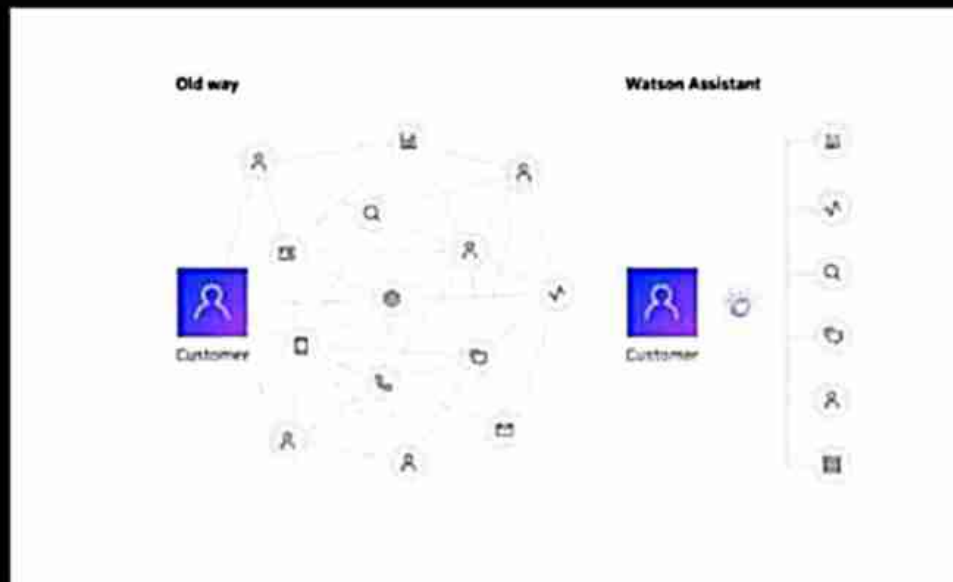
Title:Chatbox Devlopment with IBM Watson

College: University college of engineering,Thirukkuvalai

Chatbot With Asistent

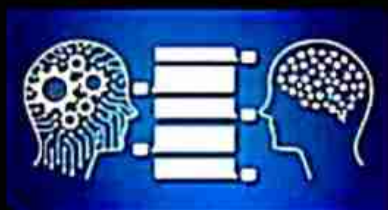
What is Watson Assistant ?

- Watson Assistant is an AI assistant for business.
- Watson Assistant is an offering for building conversational interfaces into any application, device, or channel.

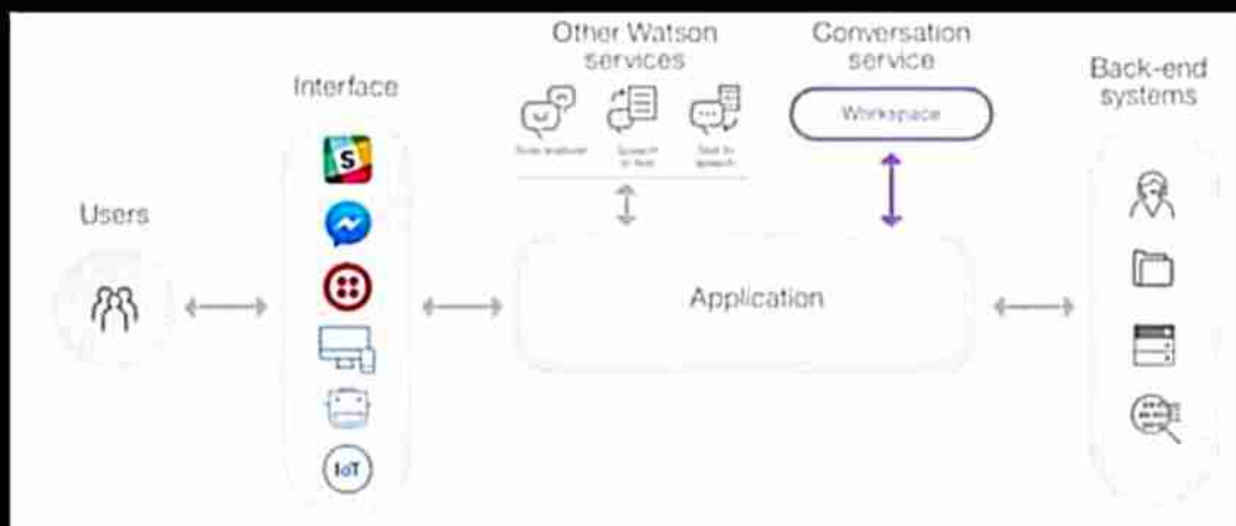


Why Watson Assistant ?

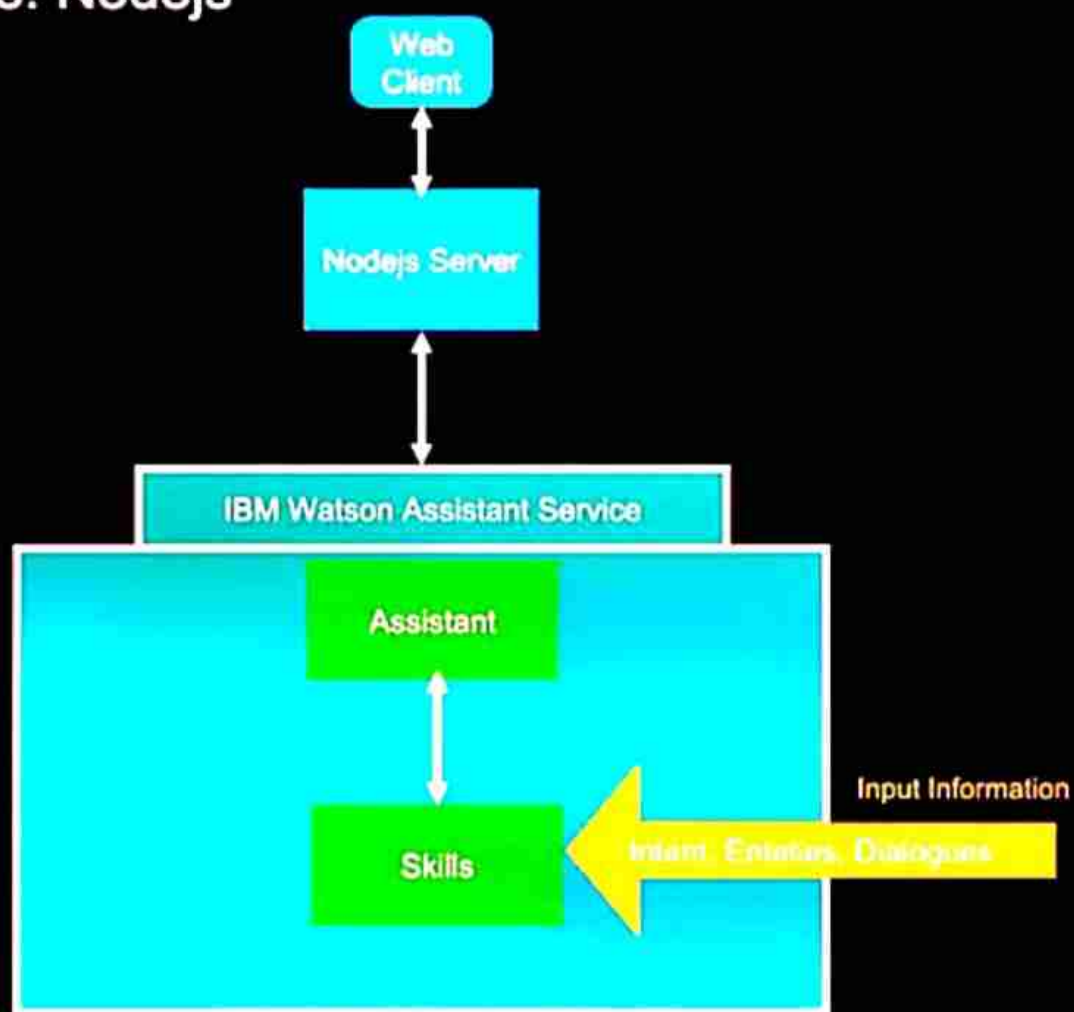
- Most chatbots try to mimic human interactions, which can frustrate users when a misunderstanding arises.
- Watson Assistant is more. It knows when to search for an answer from a knowledge base, when to ask for clarity, and when to direct you to a human.
- Watson Assistant can run on any cloud – allowing businesses to bring AI to their data and apps wherever they are.



Architecture



Architecture: Nodejs



IBM Watson Assistant Service

Assistant

Skills: Customer Care

Skills: Banking

#Intent:Appointment

#Intent:Store Location

#Intent

@Entities:Holiday

@Entities:Phone

@Entities:Specialist

Dialog

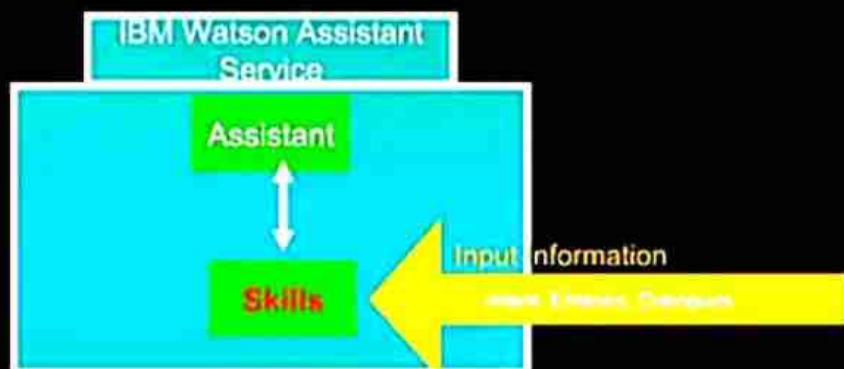
Opening

Hours of Operation

Make an Appointment

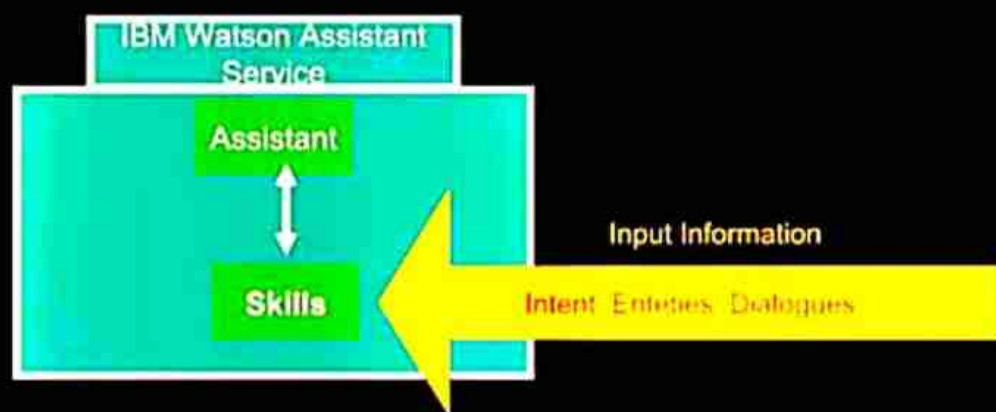
Skill

- A skill is an atomic, reusable program that represents a capability in a specific domain.
- for example, providing weather forecasts or controlling your IOT devices in your home, such as your thermostat and lighting.
- Users converse with skills to automate tasks or to make decisions.



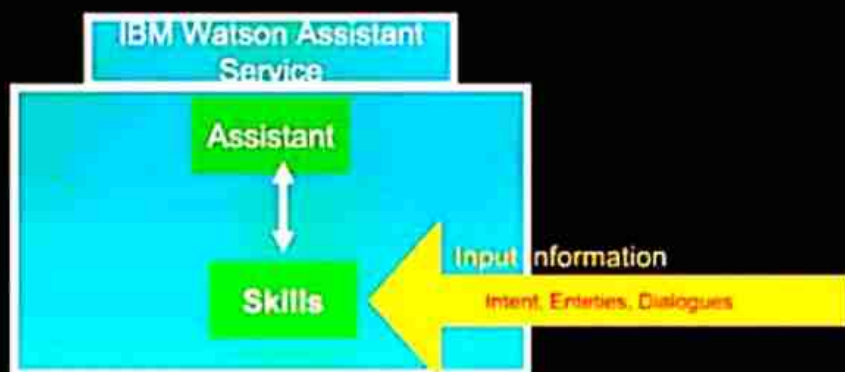
Key artifacts of a skill

- Intents
- Entities
- Dialog



- **Intents**

- Goals that you anticipate your users will have when they converse with the skill.
- A user goal when conversing with a weather skill is to get the forecast



- Intents

- The following are examples of intent names:

- *#weather_conditions*

- *#pay_bill*

- *#escalate_to_agent*

- The following might be examples for the

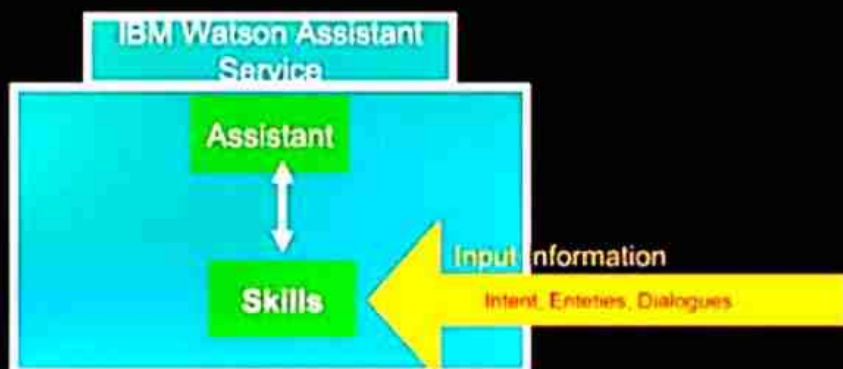
- *#pay_bill* intent:

- *I need to pay my bill.*

- *Pay my account balance make a payment*

- **Entities**

- Objects or terms that your users might use in their utterance, which provide context for an intent.
- For example, an entity might be a city name, which helps the routing core determine which city to provide a forecast for.



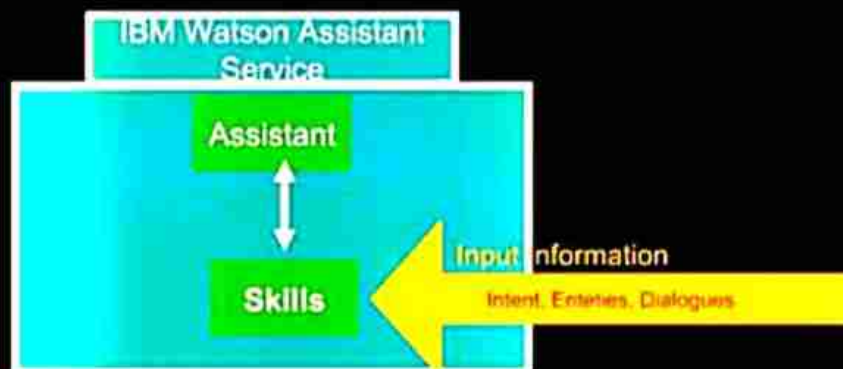
- Entities

- For example, you might have a *#buy_something* intent.
- When a user makes a request that triggers the *#buy_something* intent, the assistant's response should reflect an understanding of what the something is that the customer wants to buy.
- You can add a *@product* entity, and then use it to extract information from the user input about the product that the customer is interested in
- you can add multiple responses to your dialog tree with wording that differs based on the *@product* value that is detected in the user's request



- Dialog

- The flow of conversation between the user and the skill or skills.
- When a skill receives a converse request, a condition is evaluated and an action is triggered.
- A condition might include a specific intent, such as *#get_weather*. A response might be *"today will be sunny with clear skies"*



Information available to your skills

- With Watson Assistant Solutions, you can create AI assistants that converse with *multiple skills*.
- As a skill developer, you can use several features that enhance the conversation flow with a single skill and the conversation flow between multiple skills.
- You can add intelligence to your skills to respond in a personalized way and to enhance routing

The following types of information to add intelligence to your skills

- **Profile information**
 - **Information about the user that remains relatively unchanged, for example, their email address.**
 - **Instead of each skill managing profile data separately, using the Profile REST API, you can store this information in a central location for all skills to use.**

The following types of information to add intelligence to your skills

Contextual information

- Information that changes frequently, such as current location or the time of day. You can configure context variables to include:
 - **Session context**
 - Context information that is available to all skills. For example, when a user asks "What's on in the cinema tonight", an entertainment skill captures the time of day in the session context.
 - **Built-in shared context**
 - Context information that is available to all skills. Unlike session context information, information in the built-in shared context must be in a prescribed format and is restricted to a specific set of fields.
 - For example, when a user asks "What's the weather like in Manhattan", the weather skill stores Manhattan in the last referenced location variable. Later when a user asks "Any concerts on there", the events skill accesses the variable and provides an event listing for Manhattan.

- **Skill context**

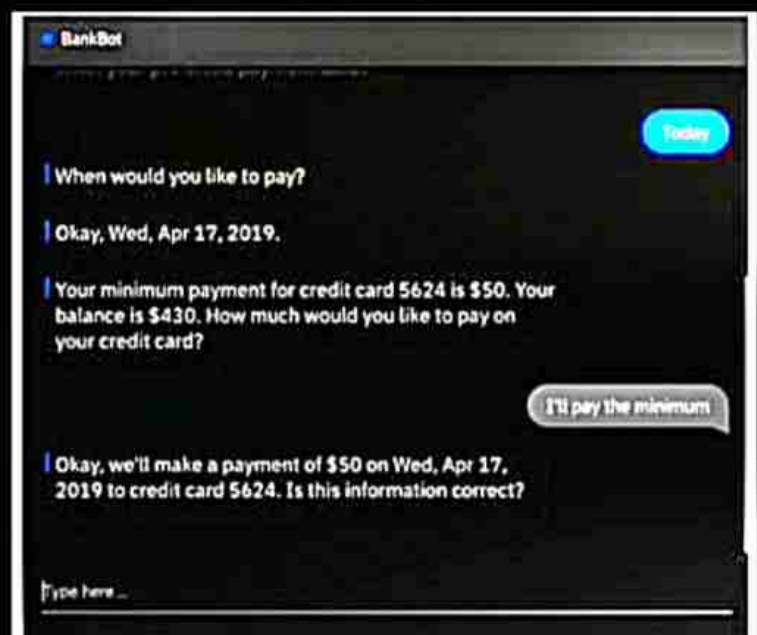
- Context information that enhances the flow of conversation within a skill. For example, when a user says "I'm looking for an open-air concert", the entertainment skill captures the event type in the skill context.
- Later in the conversation, when the user asks the assistant "Are there any free ones on today", the entertainment skill knows from the skill context that the user is asking for a free open-air concert. *

- **Utterance context**

- Context information, such as your current location, that is sent by your edge device in the utterance.
- The utterance context might capture whether the user is at home or in her car. A skill might use a different response depending on the utterance context.
- For example, when a user is at home and asks for a cinema listing, the film poster is sent with the response.

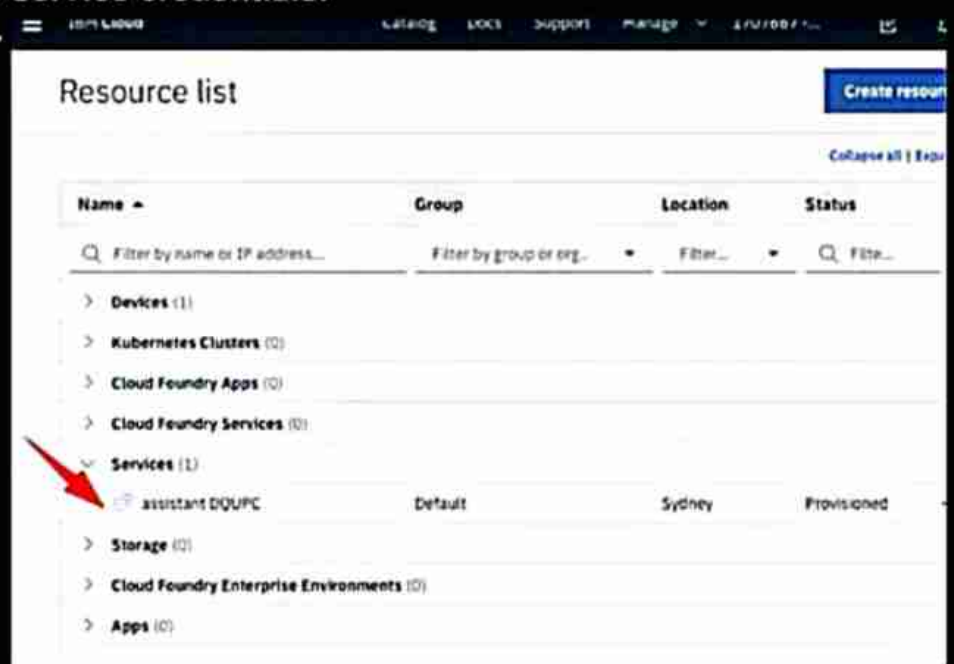
Application Example ?

In this sample application, you're engaging with a banking virtual assistant/Customer Service Representative.
The assistant simulates a few scenarios, such as making a credit card payment, booking a flight, or checking account balances.
Watson can understand your entries and respond accordingly



Prerequisites - Setting up : IBM Watson Assistant Service

- Sign up for an IBM Cloud account.
- Create an instance of the Watson Assistant service and get your credentials:
 - Go to the Watson Assistant page in the IBM Cloud Catalog.
 - Log in to your IBM Cloud account.
 - Click Create.
 - Click Show to view the service credentials.
 - Copy the apikey value.
 - Copy the url value.



Credentials

IBM Cloud Catalog Tools Support Manage 1/0/00/...

Navigation Menu

- Service credentials
- Plan
- Connections

Resource list /

assistant DQUPC

Resource group: Default Location: Sydney [Add Tags](#)

Get started by launching the tool. Plan: Lite [Upgrade](#)

[Launch tool](#) [Getting started tutorial](#) [API reference](#)

Credentials [Download](#) [Show Credentials](#)

API Key:

.....

URL:

<https://gateway-syd.watsonplatform.net/assistant/>

Copy the Credentials

Three Steps to follow

Three easy steps

Follow these steps to create an assistant.

1

Build a skill

A skill contains the training data and machine learning logic that enable your chat bot to understand and help customers. Add training data built by IBM or use graphical tools that help you build your own.

[Learn more](#) 

2

Deploy with an assistant

An assistant orchestrates the flow of information between a skill and your customers. Add your skill to an assistant, and then deploy the assistant to the media channel of your choice.

[Learn more](#) 

3

Analyze and improve

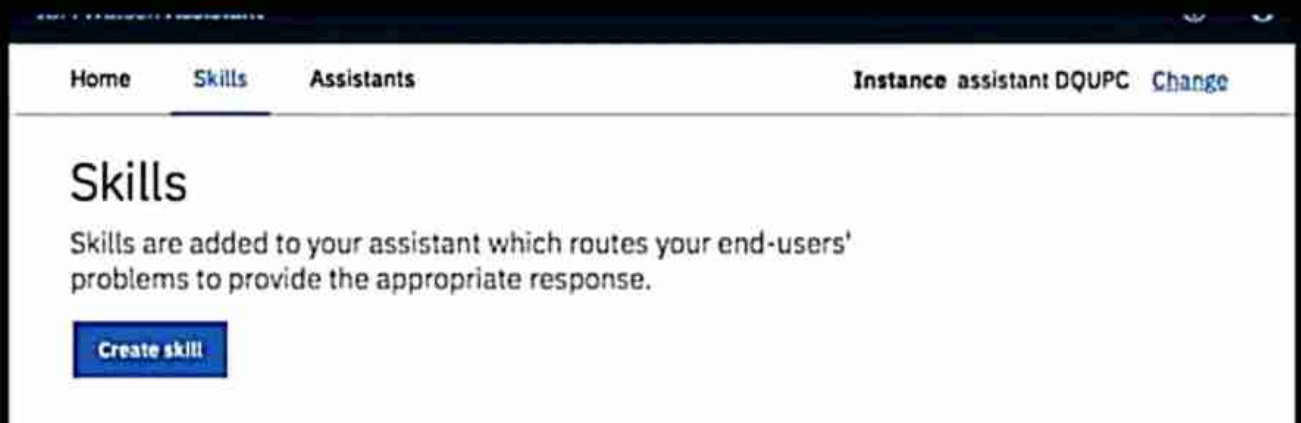
Use metrics collected from conversations with real customers to iteratively improve your skill.

[Learn more](#) 

Get Started Now

[Create a Skill](#)

Step 1



Step 1 Cont.

Create Dialog Skill

Create a new skill, start building a skill using the Customer care sample, or import an existing skill.

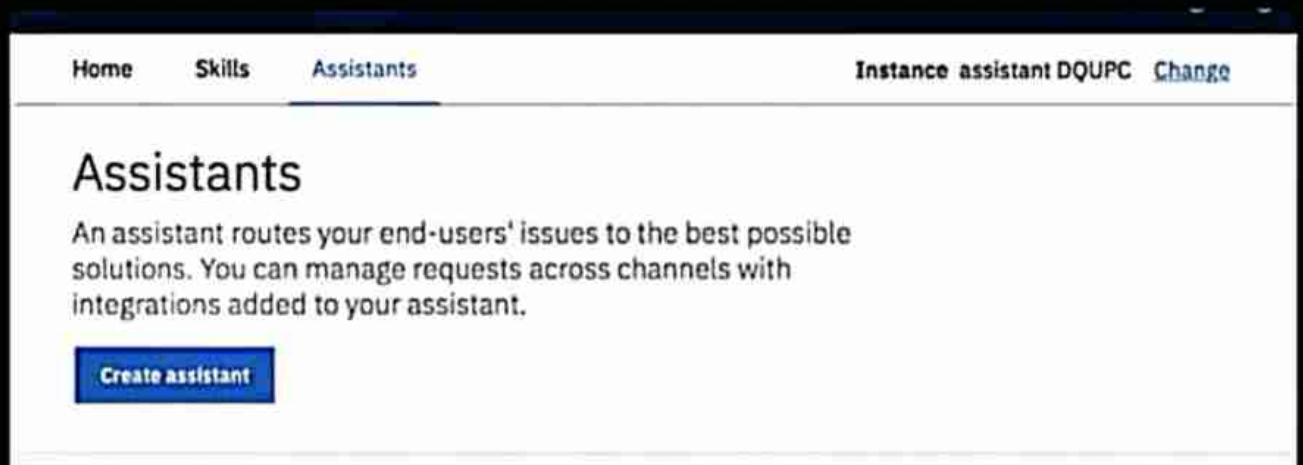
Create skill Use sample skill Import skill

Customer Care Sample Skill

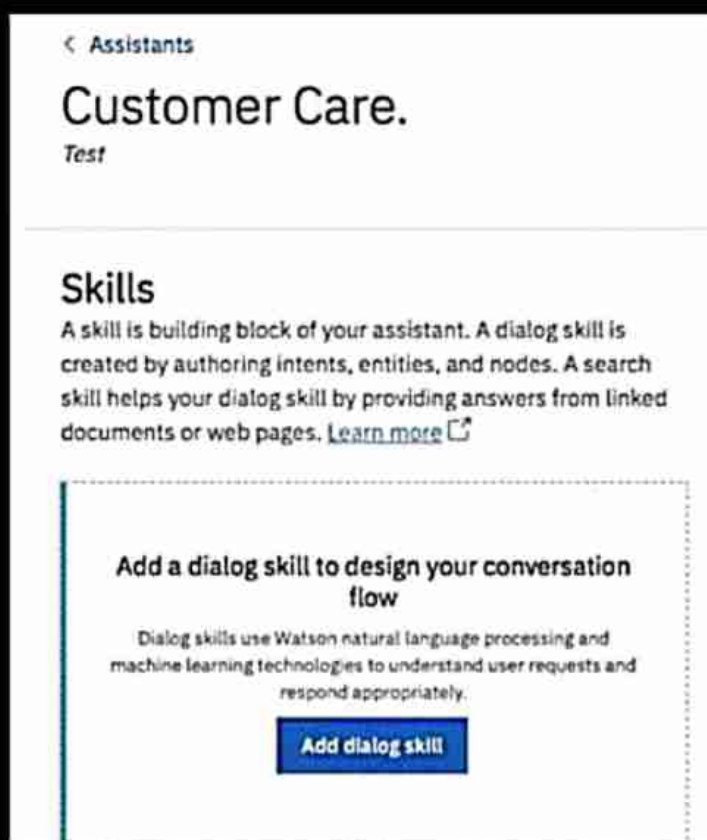
TYPE: Dialog — English (US)
Sample simple customer service skill to get you started.

[Copy to clipboard](#) [Copy to clipboard](#)

Step 2



Step 2 Cont.




The screenshot shows the 'Assistants' page in the IBM Watson Assistant console. The assistant is named 'Customer Care.' and is in 'Test' mode. The 'Skills' section is highlighted, explaining that skills are building blocks for the assistant, created by authoring intents, entities, and nodes. A search skill is mentioned as a way to provide answers from linked documents or web pages. A callout box with a dashed border contains the text 'Add a dialog skill to design your conversation flow' and explains that dialog skills use Watson's natural language processing and machine learning technologies to understand user requests and respond appropriately. A blue button labeled 'Add dialog skill' is located at the bottom of the callout box.

< Assistants

Customer Care.

Test

Skills

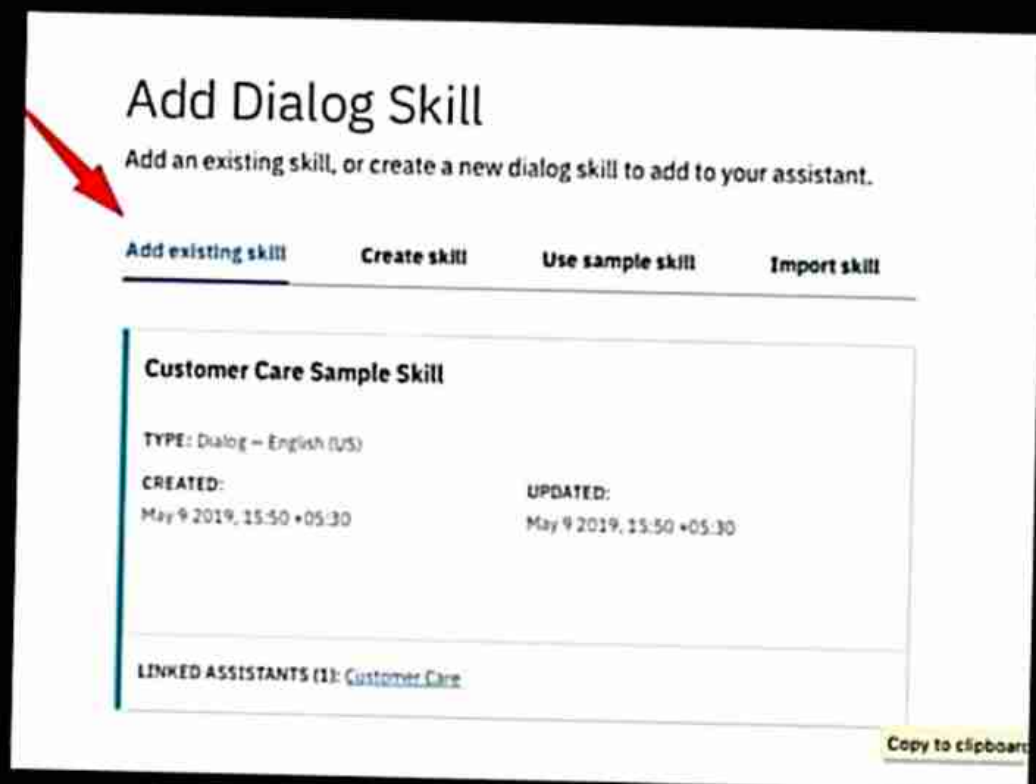
A skill is building block of your assistant. A dialog skill is created by authoring intents, entities, and nodes. A search skill helps your dialog skill by providing answers from linked documents or web pages. [Learn more](#) 

Add a dialog skill to design your conversation flow

Dialog skills use Watson natural language processing and machine learning technologies to understand user requests and respond appropriately.

Add dialog skill

Step 2 Cont.



Add Dialog Skill

Add an existing skill, or create a new dialog skill to add to your assistant.

Add existing skill Create skill Use sample skill Import skill

Customer Care Sample Skill

TYPE: Dialog – English (US)

CREATED:	UPDATED:
May 9 2019, 15:50 +05:30	May 9 2019, 15:50 +05:30

LINKED ASSISTANTS (1): [Customer Care](#)

Copy to clipboard

Running Client Locally: Nodejs

Download the example Nodejs source code :Client

<https://github.com/watson-developer-cloud/assistant-demo.git>



What is the Natural language understanding (NLU)?

- Define NLU and its significance in processing human language. Explain how NLU goes beyond simple keyword recognition, understanding context and intent.

BENEFITS OF NLU

- ▶ **Improved User Experience:** Enhancing interactions with intuitive communication.**Accurate Intent Recognition:** Understanding user needs and queries more precisely.**Personalization:** Tailoring responses based on individual preferences.
- ▶ **CHALLENGES AND SOLUTIONS**
- ▶ **Challenges in implementing NLU:** Complexity, training data, and language nuances.**Solutions:** Advanced algorithms, machine learning, and continuous training to overcome challenges.

REAL-LIFE APPLICATION

- ▶ Chatbots and Virtual Assistants: Enhancing customer support and user engagement.Voice Assistants: Enabling natural conversations with devices.Language Translation Services: Providing accurate translations based on context.
- ▶ **FUTURE TRENDS**
- ▶ Discuss upcoming trends in NLU technology, such as emotion recognition and multilingual understanding.How these trends can further enhance user experience.

CASES STUDIES

- ▶ Present real-world examples of companies successfully implementing NLU. Discuss how these implementations led to improved user satisfaction and business outcomes.

- ▶ **IMPLEMENTATION PROCESS**

Steps involved in integrating NLU into existing systems. Importance of thorough testing and iteration for optimal performance.

IBM OBJECT STORAGE – REVOLUTIONIZING DATA MANAGEMENT

INTRODUCTION TO IBM OBJECT STORAGE
DEFINITION AND EXPLANATION OF
OBJECT STORAGE TECHNOLOGY
IMPORTANCE IN MODERN DATA
MANAGEMENT
KEY FEATURES OF IBM OBJECT STORAGE
SCALABILITY: HANDLING
LARGE VOLUMES OF DATA
DURABILITY: ENSURING DATA INTEGRITY AND
RELIABILITY
FLEXIBILITY: SUPPORT FOR VARIOUS DATA TYPES AND
WORKLOADS
COST-EFFECTIVENESS: OPTIMIZING STORAGE COSTS
USE CASES
CLOUD STORAGE: ENABLING CLOUD-NATIVE APPLICATIONS
BIG DATA ANALYTICS: STORING AND ANALYZING MASSIVE DATASETS
BACKUP AND DISASTER RECOVERY: ENSURING DATA RESILIENCE
IOT DATA MANAGEMENT: HANDLING STREAMS OF DATA FROM IOT DEVICES

BENEFITS OF IBM OBJECT STORAGE

- EFFICIENT DATA MANAGEMENT: MINIMIZING REDUNDANCY AND COMPLEXITY
- ACCESSIBILITY: ANYTIME, ANYWHERE ACCESS TO DATA
- SECURITY: ADVANCED ENCRYPTION AND ACCESS CONTROL MEASURES
- COMPLIANCE: MEETING REGULATORY AND INDUSTRY STANDARDS
- INTEGRATION AND COMPATIBILITY
- INTEGRATION WITH CLOUD SERVICES AND ON-PREMISES INFRASTRUCTURE
- COMPATIBILITY WITH VARIOUS OPERATING SYSTEMS AND APPLICATIONS

- CASE STUDIESREAL-LIFE EXAMPLES OF BUSINESSES UTILIZING IBM
OBJECT STORAGE SUCCESSFULLYCHALLENGES AND
SOLUTIONSADDRESSING CHALLENGES SUCH AS DATA SECURITY AND
COMPLIANCE
SOLUTIONS AND BEST PRACTICES FOR OVERCOMING
OBJECT STORAGE CHALLENGES
FUTURE TRENDS
PREDICTIONS FOR THE
FUTURE OF OBJECT STORAGE TECHNOLOGY
INNOVATIONS AND
DEVELOPMENTS IN IBM OBJECT STORAGE

IBM WATSON ASSISTANT

INTRODUCTION

BRIEF INTRODUCTION TO AI-POWERED CHATBOTS
IMPORTANCE OF CHATBOTS IN MODERN BUSINESS

WHAT IS IBM WATSON ASSISTANT?

DEFINITION AND OVERVIEW OF IBM WATSON ASSISTANT
ITS ROLE IN CONVERSATIONAL AI

IBM WATSON ASSISTANT

KEY FEATURES

NATURAL LANGUAGE PROCESSING (NLP) INTENT
RECOGNITION CONTEXTUAL CONVERSATIONS MULTI-
CHANNEL

LEARNING CAPABILITIES

USE CASE

CUSTOMER SUPPORT AUTOMATION VIRTUAL
ASSISTANTS FOR WEBSITES AND APPS ENHANCING
EMPLOYEE PRODUCTIVITY INDUSTRY-SPECIFIC
APPLICATIONS (E.G., HEALTHCARE, FINANCE)

IBM OBJECT STORAGE

BENEFITS

IMPROVED CUSTOMER SERVICE
COST SAVINGS AND EFFICIENCY
PERSONALIZED USER EXPERIENCES
DATA-DRIVEN INSIGHTS

HOW EASTON ASSISTANT WORKS?

EXPLANATION OF THE TECHNOLOGY BEHIND WATSON ASSISTANT
FLOWCHART OR DIAGRAM SHOWING THE INTERACTION PROCESS

INTEGRATION AND DEPLOYMENT

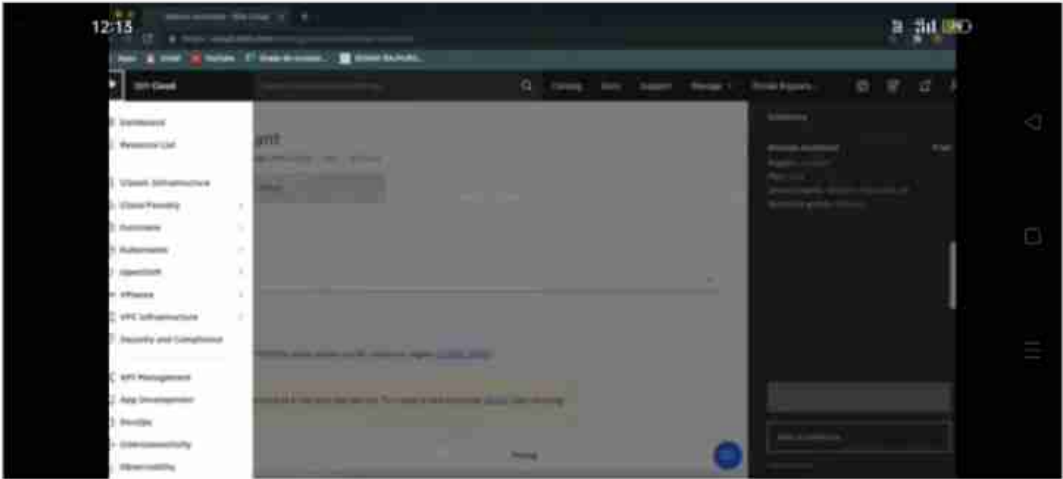
INTEGRATION WITH EXISTING SYSTEMS AND DATABASES
DEPLOYMENT OPTIONS (WEBSITES, MESSAGING PLATFORMS, ETC.)

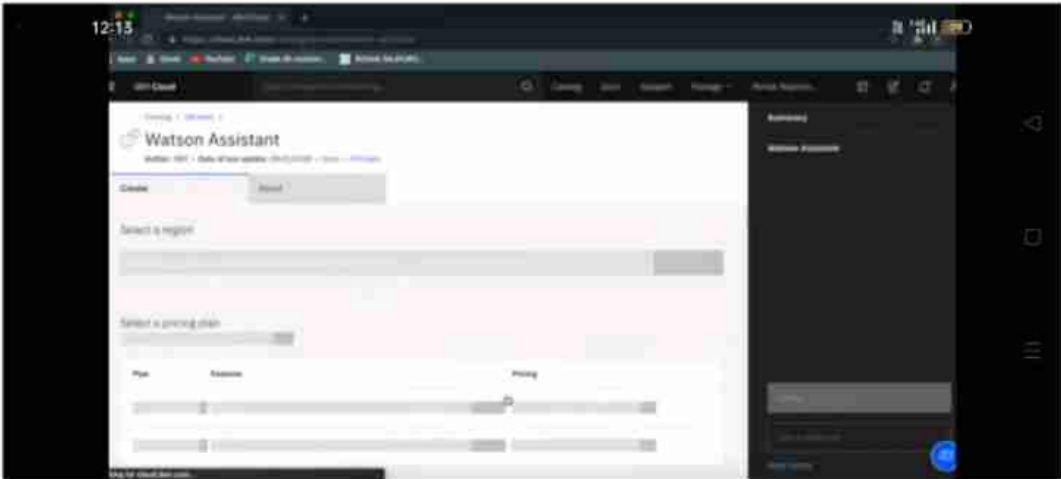
IBM WATSON ASSISTANT

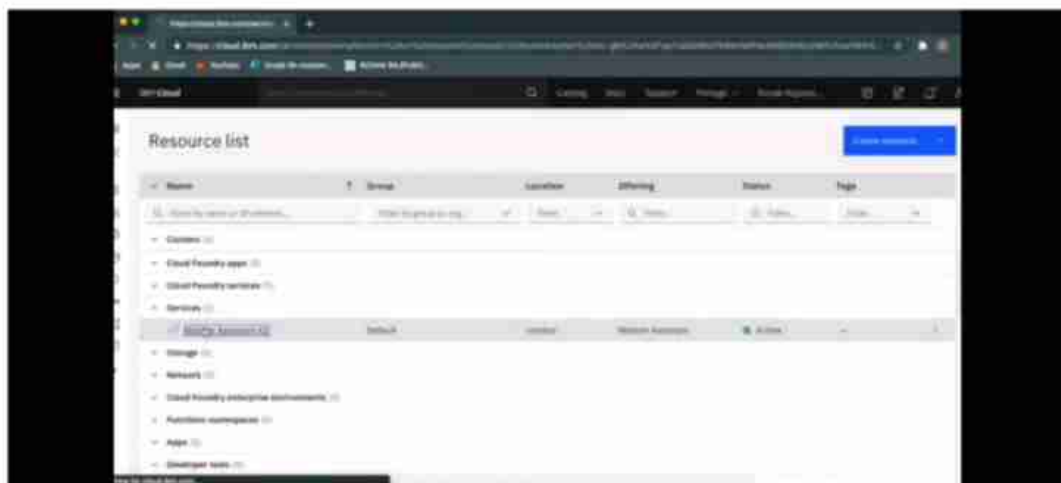
- : CASE STUDIES REAL-LIFE EXAMPLES OF BUSINESSES USING IBM WATSON ASSISTANT SUCCESSFULLY SLIDE 10: FUTURE OF CONVERSATIONAL AI EMERGING TRENDS IN CONVERSATIONAL AI PREDICTIONS FOR THE FUTURE OF IBM WATSON ASSISTANT SLIDE 11: CHALLENGES AND CONSIDERATIONS PRIVACY AND SECURITY CONCERNS ETHICAL CONSIDERATIONS IN AI-POWERED CUSTOMER INTERACTIONS

What is the Natural language understanding (NLU)?

- Define NLU and its significance in processing human language. Explain how NLU goes beyond simple keyword recognition, understanding context and intent.









Microsoft Service Page

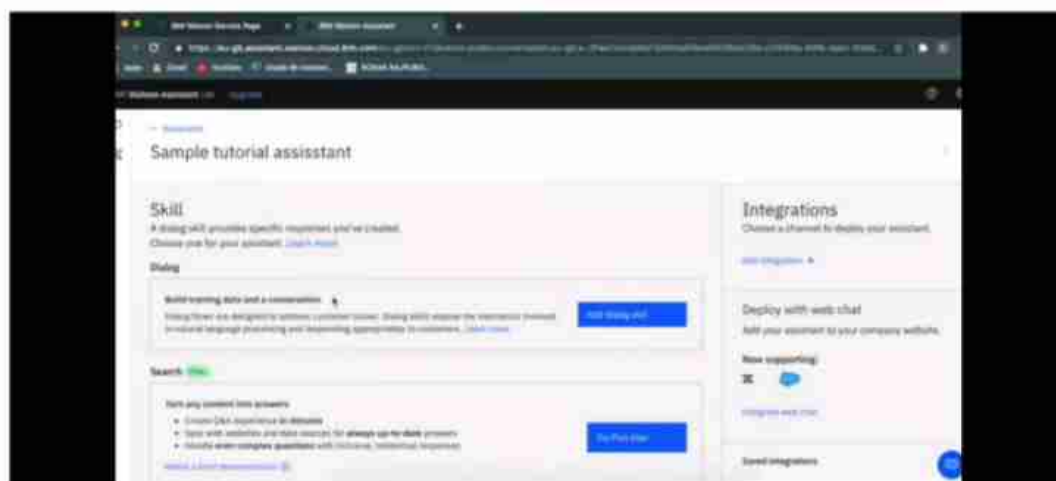
Create assistant

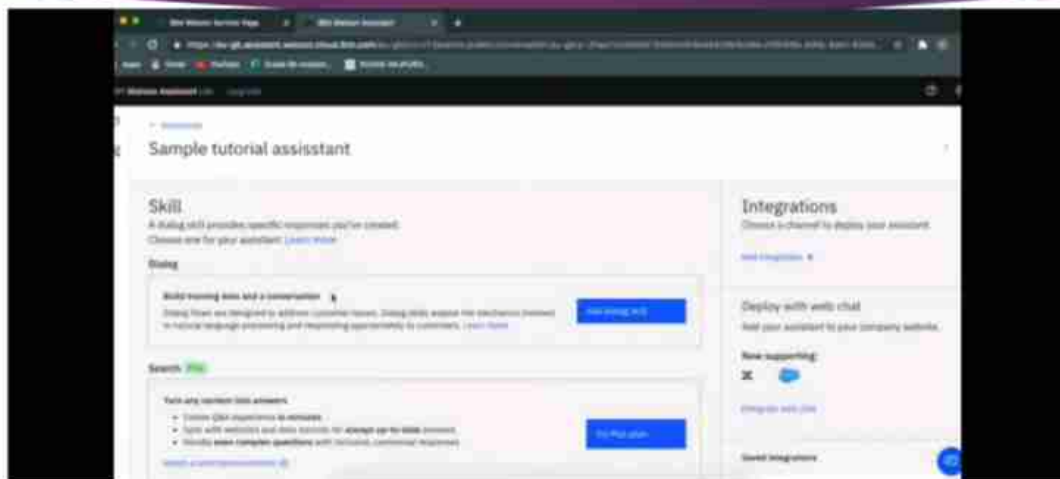
Create an assistant to deploy the skill that addresses your customer's goals.

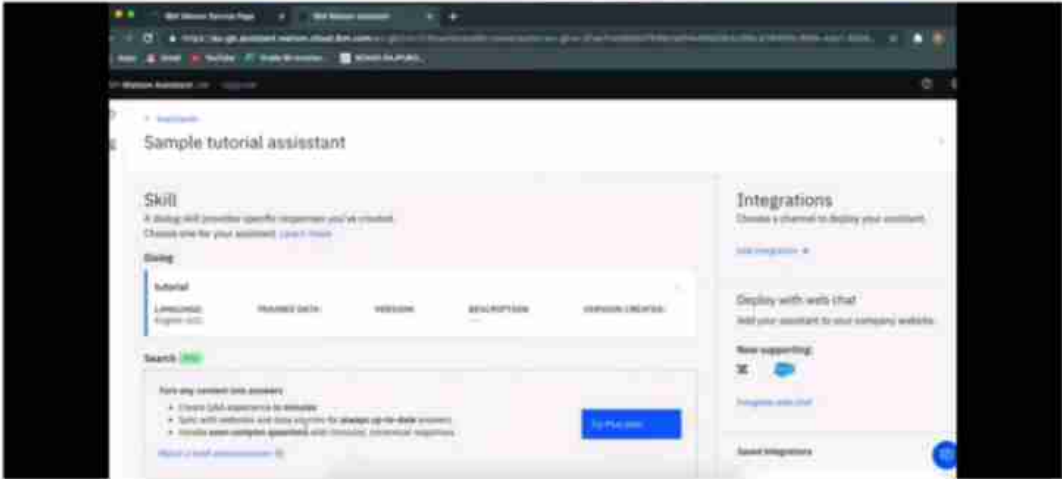
Name
Skill name (required) (255 characters maximum)
Name

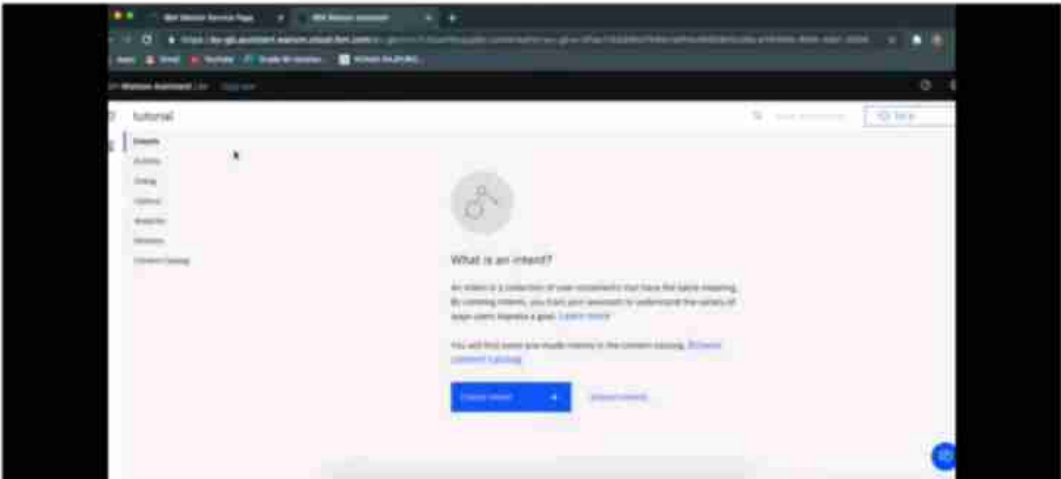
Description (optional)

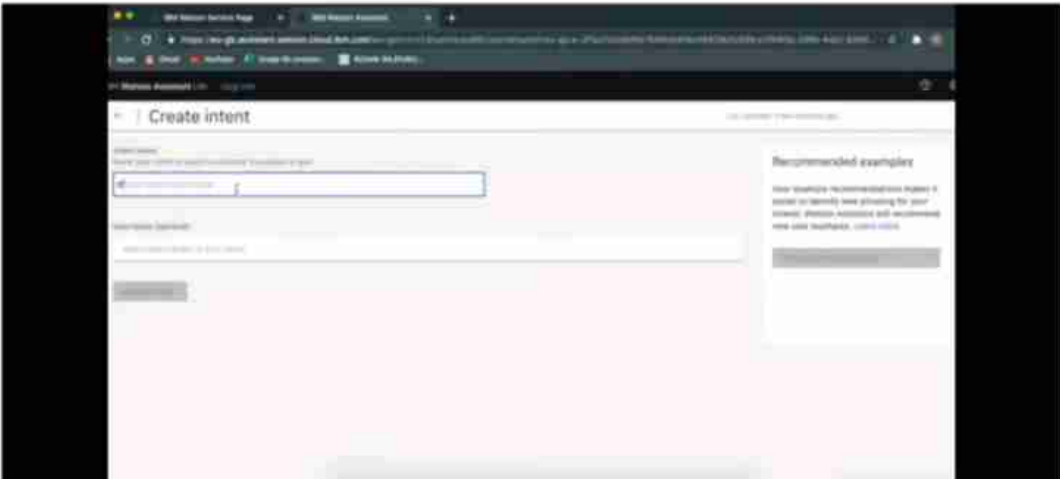
Privacy link
☒ Enable customer data

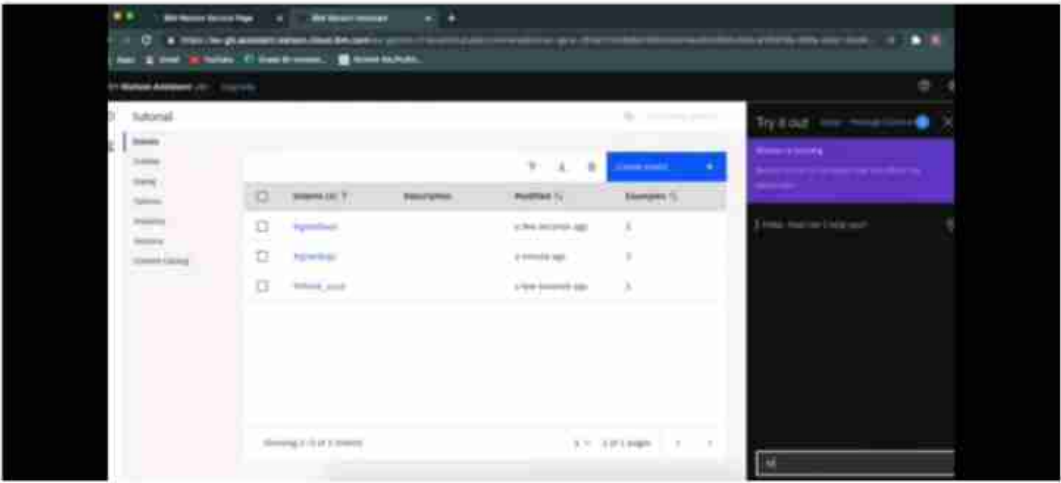












BENEFITS OF NLU

- ▶ **Improved User Experience:** Enhancing interactions with intuitive communication.**Accurate Intent Recognition:** Understanding user needs and queries more precisely.**Personalization:** Tailoring responses based on individual preferences.
- ▶ **CHALLENGES AND SOLUTIONS**
- ▶ **Challenges in implementing NLU:** Complexity, training data, and language nuances.**Solutions:** Advanced algorithms, machine learning, and continuous training to overcome challenges.

REAL-LIFE APPLICATION

- ▶ Chatbots and Virtual Assistants: Enhancing customer support and user engagement.Voice Assistants: Enabling natural conversations with devices.Language Translation Services: Providing accurate translations based on context.
- ▶ **FUTURE TRENDS**
- ▶ Discuss upcoming trends in NLU technology, such as emotion recognition and multilingual understanding.How these trends can further enhance user experience.

CASES STUDIES

- ▶ Present real-world examples of companies successfully implementing NLU. Discuss how these implementations led to improved user satisfaction and business outcomes.

- ▶ **IMPLEMENTATION PROCESS**

Steps involved in integrating NLU into existing systems. Importance of thorough testing and iteration for optimal performance.