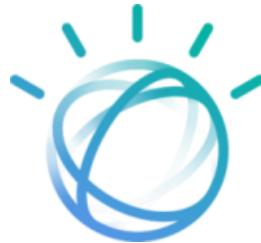


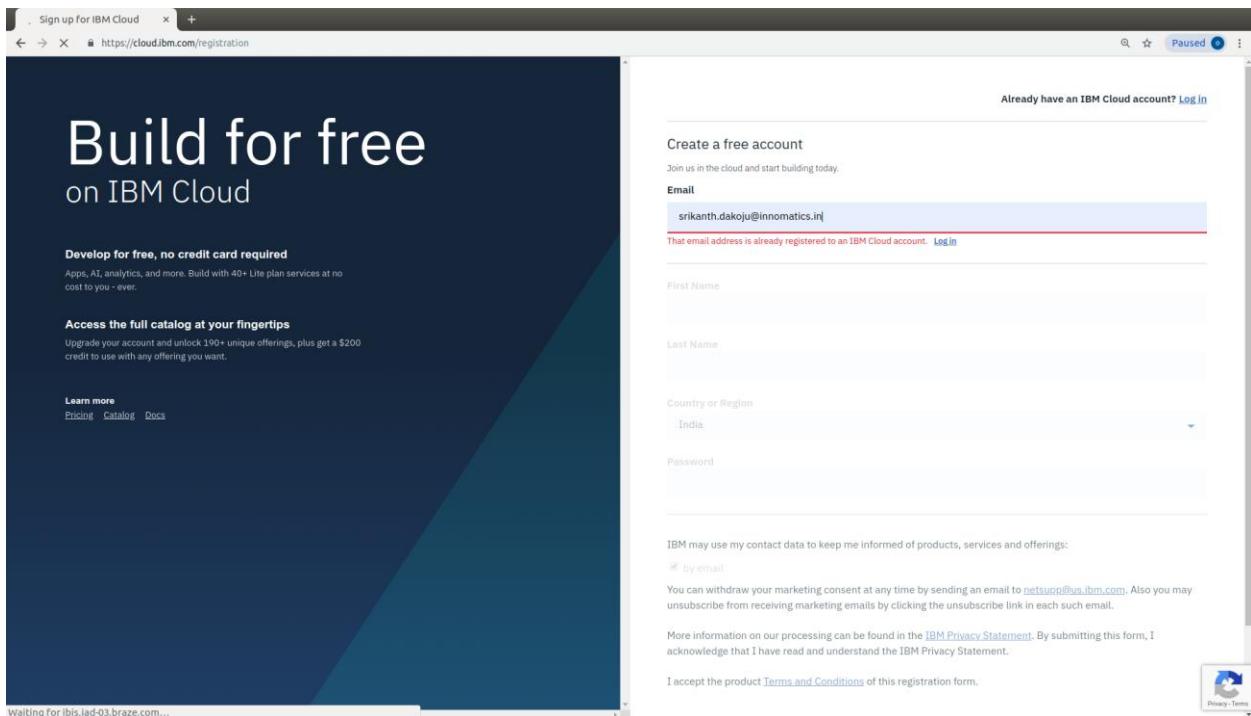
BUILD CHATBOT WITH



IBM WATSON ASSISTANT

GitHub: <https://github.com/innomaticsresearchlab/ibmchatbot/>

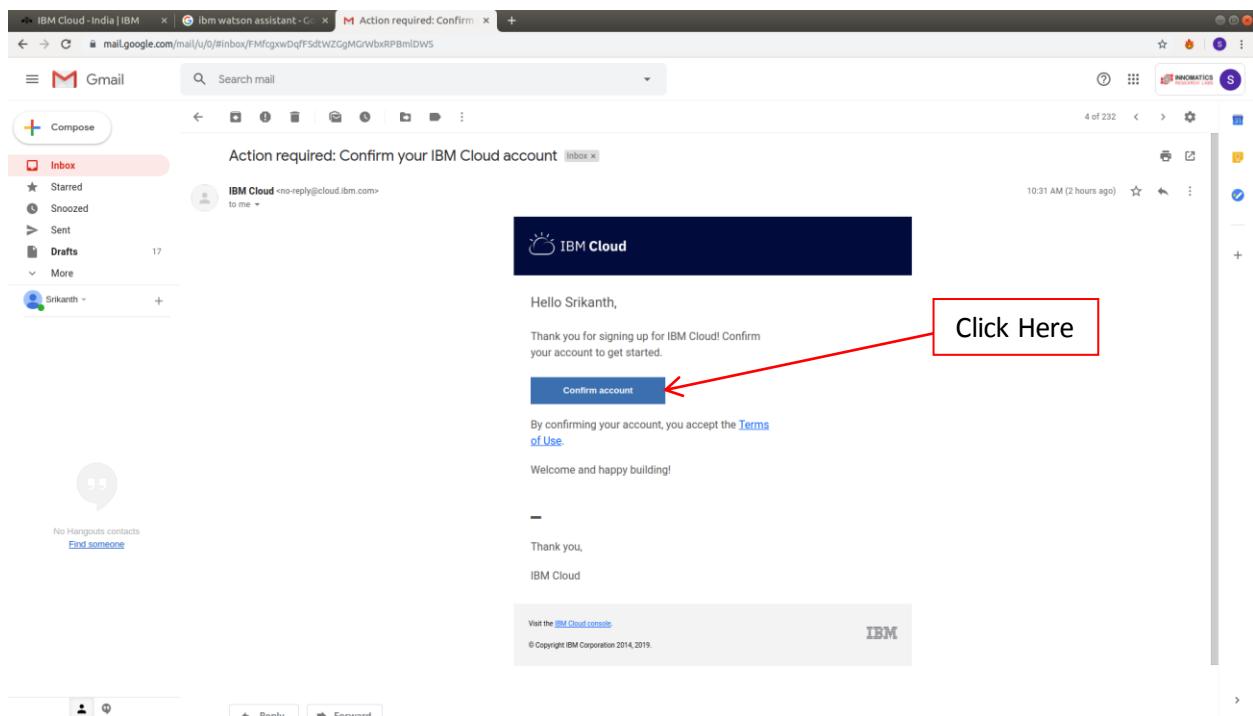
Step-1: Signup to IBM Cloud with following link below: <https://cloud.ibm.com/login>



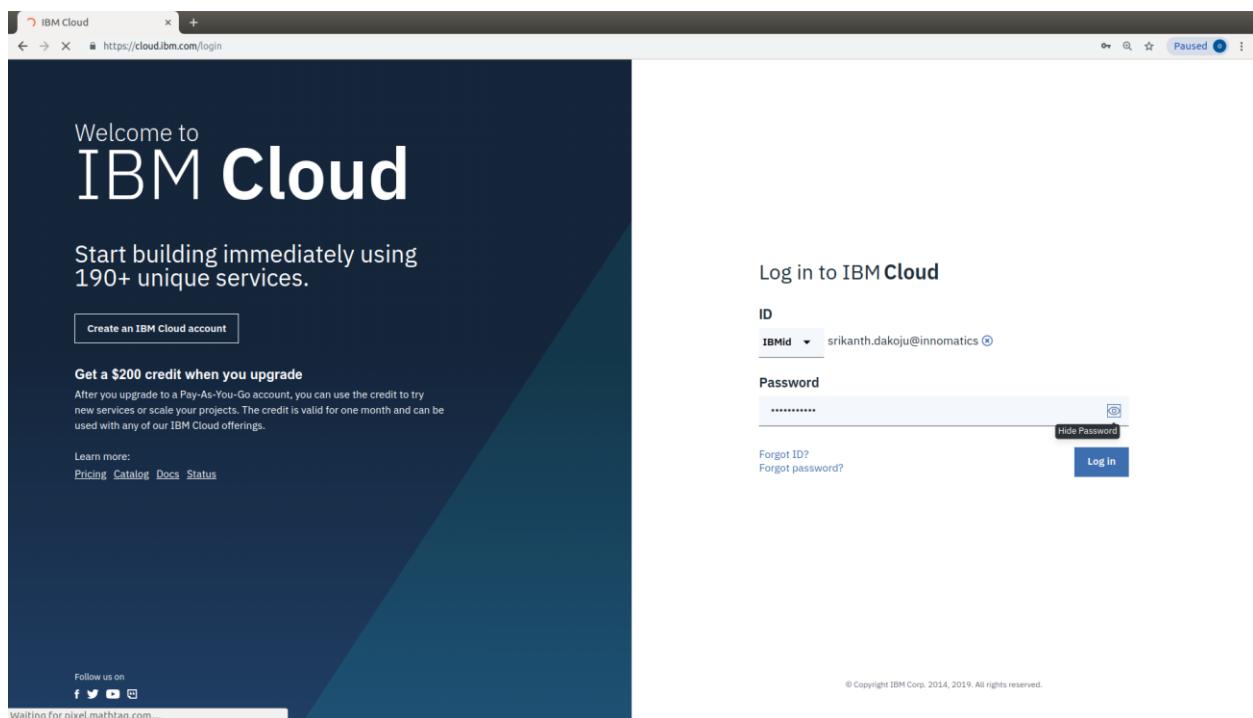
The screenshot shows a web browser window for the IBM Cloud registration page (<https://cloud.ibm.com/registration>). The main heading is "Build for free on IBM Cloud". On the right, there's a form titled "Create a free account" with fields for Email, First Name, Last Name, Country or Region, and Password. The "Email" field contains "srikanth.dakoju@innomatics.in", which is highlighted in red with an error message: "That email address is already registered to an IBM Cloud account. [Log in](#)". Above the form, there's a link "Already have an IBM Cloud account? [Log in](#)". At the bottom left of the page, it says "Waiting for ibis.iad-03.braze.com...". The bottom right corner of the screenshot has a small "Privacy Terms" link.

Step-2: Once you sign up, you will receive a mail for confirmation from IBM cloud.

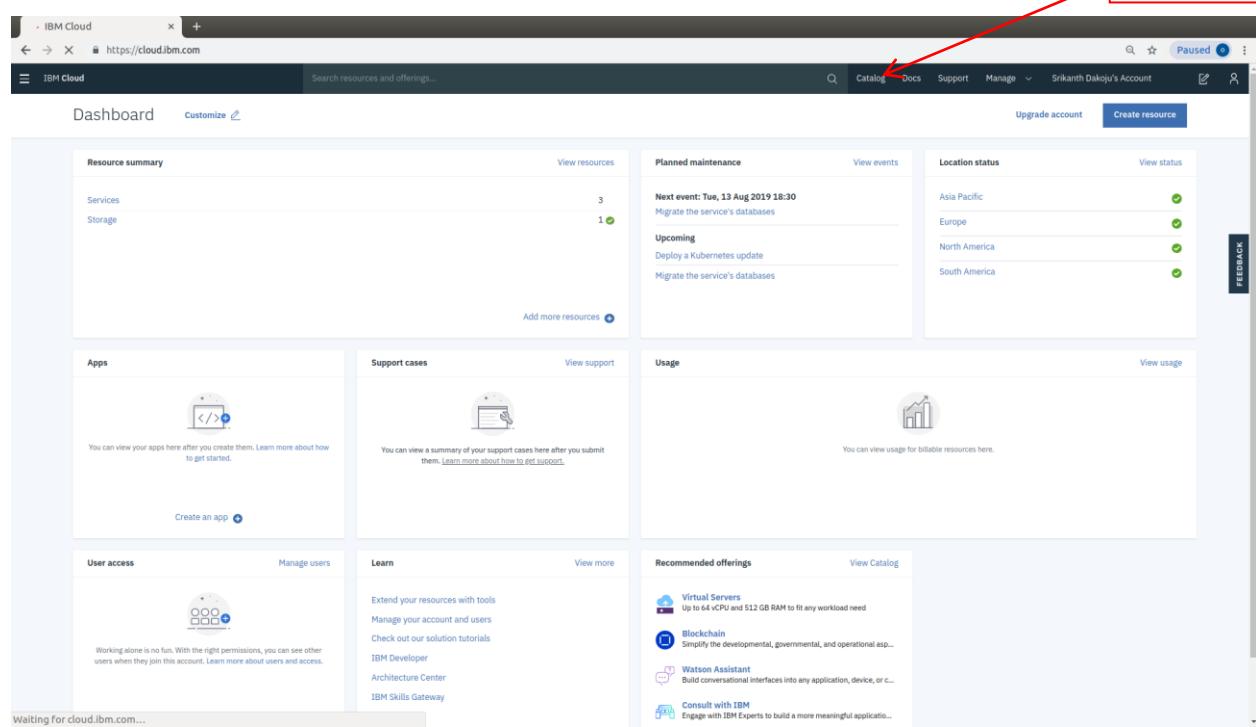
→ Click on “Create account” for confirmation



Step-3: Login to IBM Cloud with your email and password as given in signup.

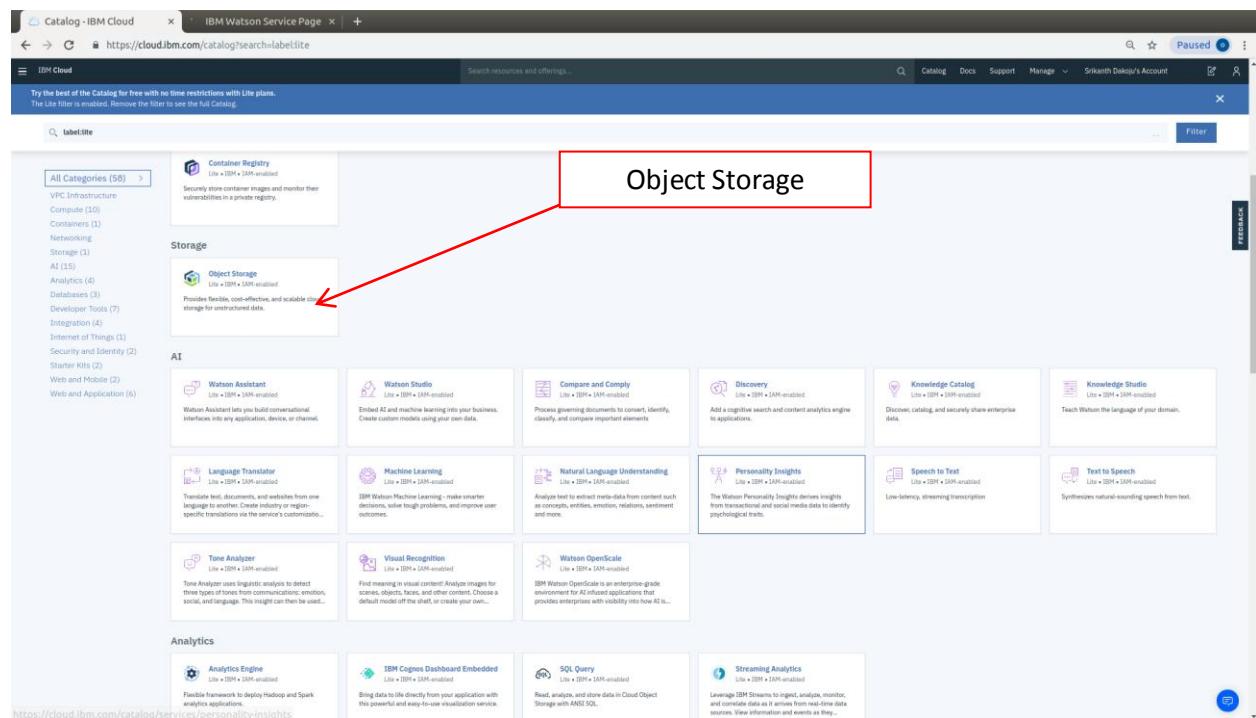


Step-4: After logged in you will redirect to a page (Dashboard) as show below:



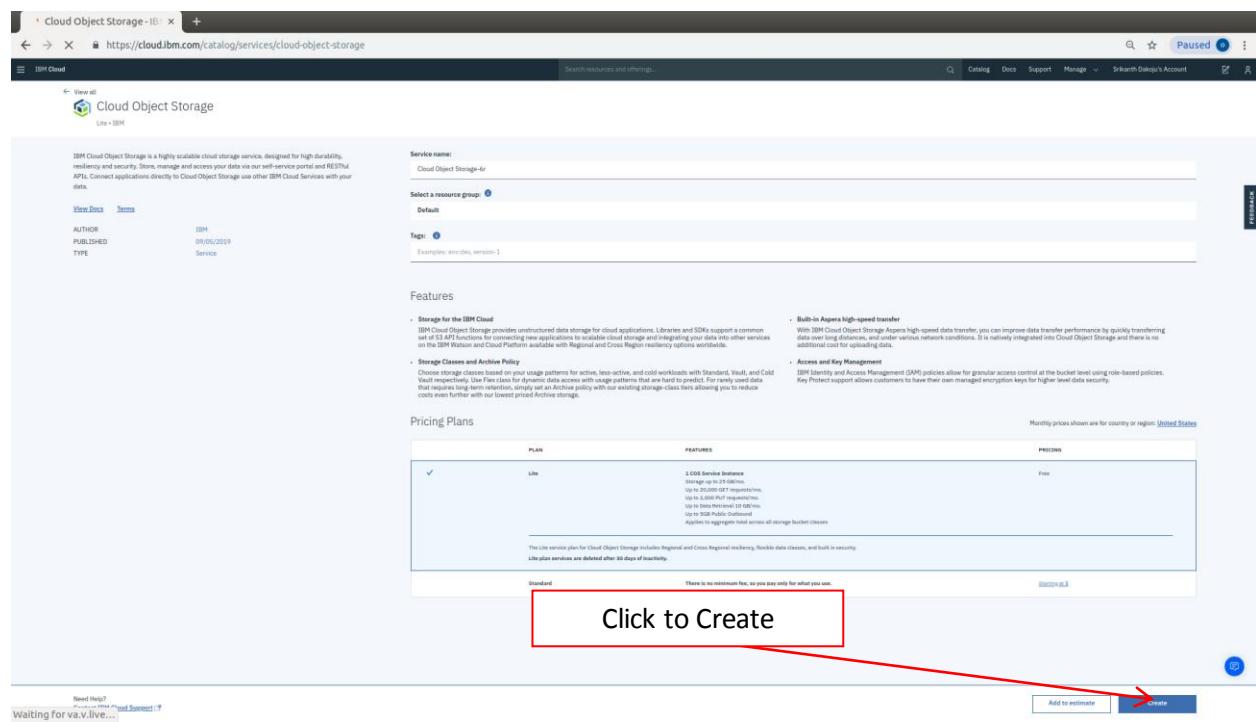
The screenshot shows the IBM Cloud Dashboard. At the top, there's a navigation bar with links for Catalog, Docs, Support, Manage, and a user account dropdown. A red arrow points from the text above to the 'Catalog' link in the navigation bar. The dashboard itself has several sections: Resource summary, Planned maintenance, Location status, Apps, Support cases, Usage, User access, Learn, and Recommended offerings. The 'Catalog' link is located in the top right corner of the dashboard area.

Step-5: Click on catalog and you will redirect to services provided by IBM. Scroll down to find Object Storage service.



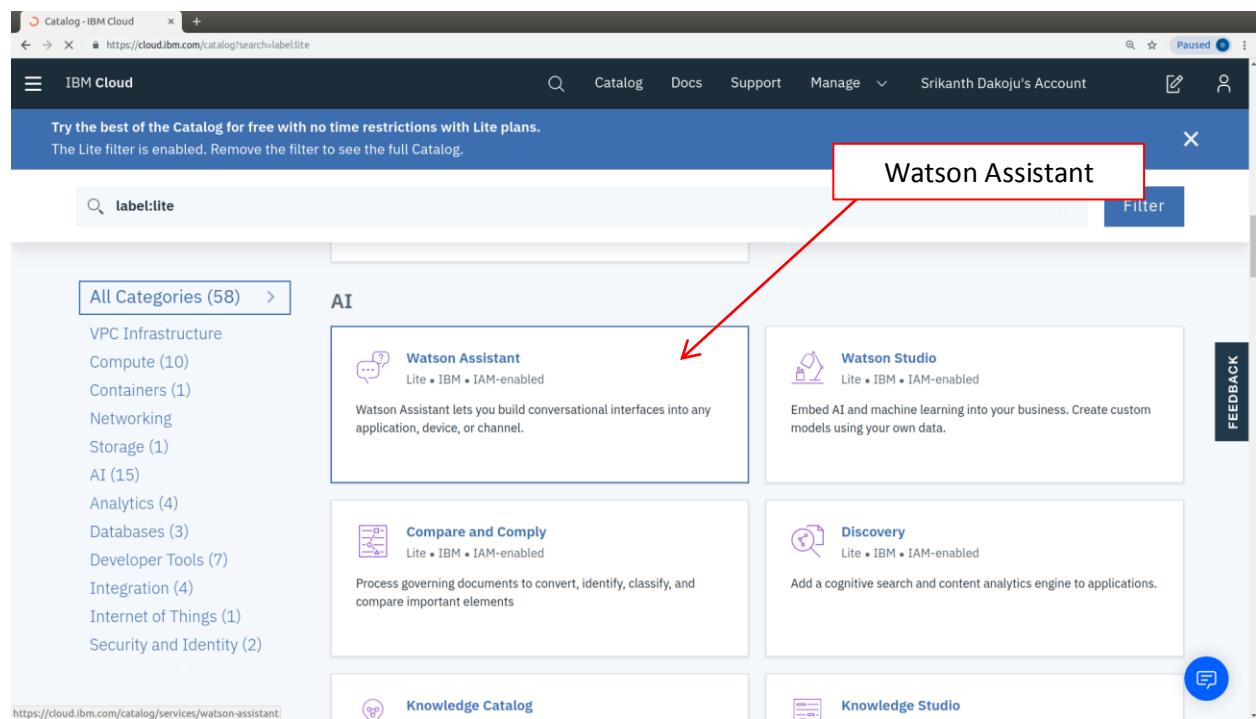
The screenshot shows the 'Catalog - IBM Cloud' page. A red arrow points from the text above to the 'Object Storage' service card. The service card is highlighted with a red box and labeled 'Object Storage'. Other services listed include Container Registry, Watson Assistant, Watson Studio, Compare and Comply, Discovery, Knowledge Catalog, Knowledge Studio, Language Translator, Machine Learning, Natural Language Understanding, Personality Insights, Speech to Text, Text to Speech, Tone Analyzer, Visual Recognition, Watson OpenScale, Analytics Engine, IBM Cognos Dashboard Embedded, SQL Query, and Streaming Analytics. The URL at the bottom of the page is <https://cloud.ibm.com/catalog/services/personality-insights>.

Step-6: Create Object Storage service with **lite plan**.



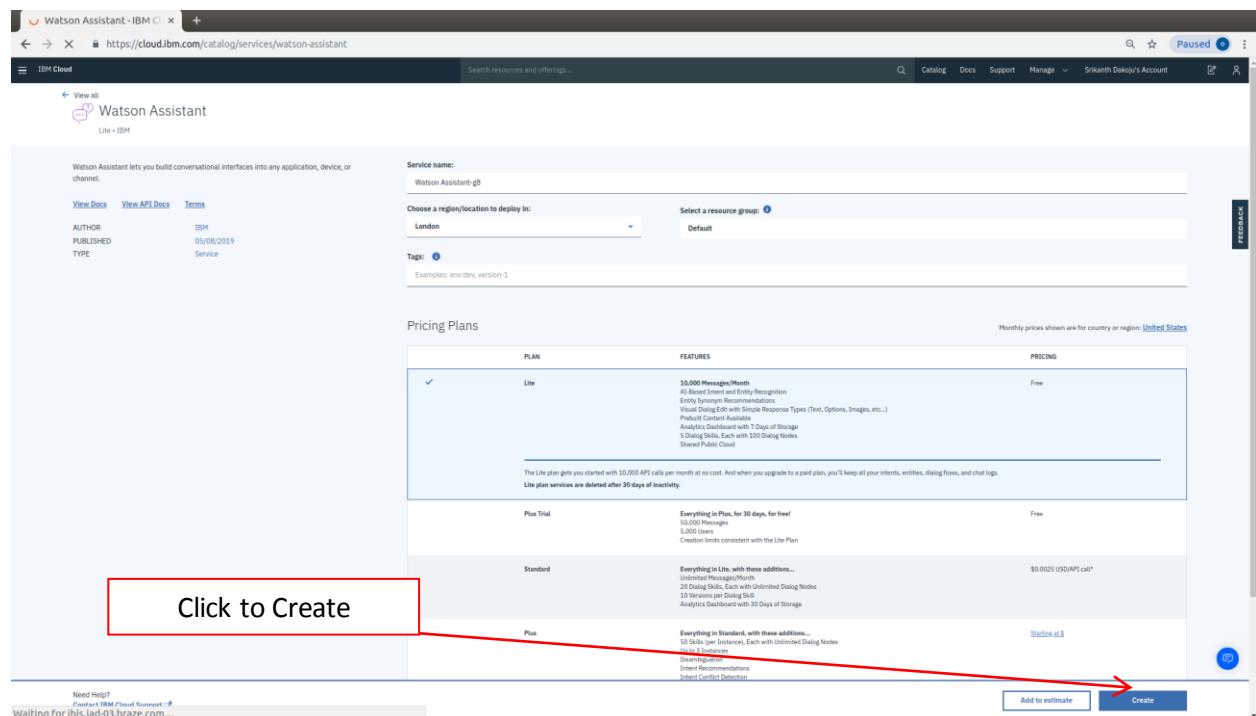
The screenshot shows the IBM Cloud Catalog interface for creating a Cloud Object Storage service. The 'Service name' field is set to 'Cloud Object Storage-4'. Under 'Select a resource group', 'Default' is chosen. In the 'Tags' field, 'Examples: encodes, version-1' is entered. The 'Features' section includes descriptions of 'Storage for the IBM Cloud' and 'Built-in Aspera high-speed transfer'. The 'Pricing Plan' table shows a single row for the 'Lite' plan, which is free. A red box highlights the 'Click to Create' button, and a red arrow points from it to the 'Create' button at the bottom right of the page.

Step-7: Similarly go to catalog and scroll down to find Watson Assistant.



The screenshot shows the IBM Cloud Catalog interface with a search filter applied for 'label:lite'. A red box highlights the 'Watson Assistant' service card, and a red arrow points from it to the 'Watson Assistant' text above the card. The 'Watson Assistant' card includes a description: 'Watson Assistant lets you build conversational interfaces into any application, device, or channel.' Other AI services listed include Watson Studio, Compare and Comply, Discovery, Knowledge Catalog, and Knowledge Studio.

Step-8: Create with **lite plan**.



Watson Assistant - IBM Cloud

Watson Assistant

Watson Assistant lets you build conversational interfaces into any application, device, or channel.

View Docs View API Docs Terms

AUTHOR IBM
PUBLISHED 05/08/2019
TYPE Service

Service name: Watson Assistant-gb

Choose a region/location to deploy to: London Select a resource group: Default

Tags: Examples: env:dev, version:1

Pricing Plans Monthly prices shown are for country or region: United States

PLAN	FEATURES	PRICING
Lite	10,000 Messages/Month AI-Based Intent and Entity Recognition Entity Extraction Visual Dialog Edit with Simple Response Type (Text, Options, Images, etc...) Prebuilt Content Available Analytics Dashboard with 7 Days of Storage 5 Dialog Skills, Each with 100 Dialog Nodes Shared Public Cloud	Free
Plus Trial	Everything in Lite, for 30 days, for free! 50,000 Messages 5,000 Users Creation limits consistent with the Lite Plan	Free
Standard	Everything in Lite, with these additions... Unlimited Messages/Month 20 Dialog Skills, Each with Unlimited Dialog Nodes 500 Words of Chat History Analytics Dashboard with 30 Days of Storage	\$0.0025 USD/API call*
Plus	Everything in Standard, with these additions... 100 Skills (per instance), Each with Unlimited Dialog Nodes 100 Words of Chat History Disambiguation Dialect Translations Intent Conflict Detection	Start trial

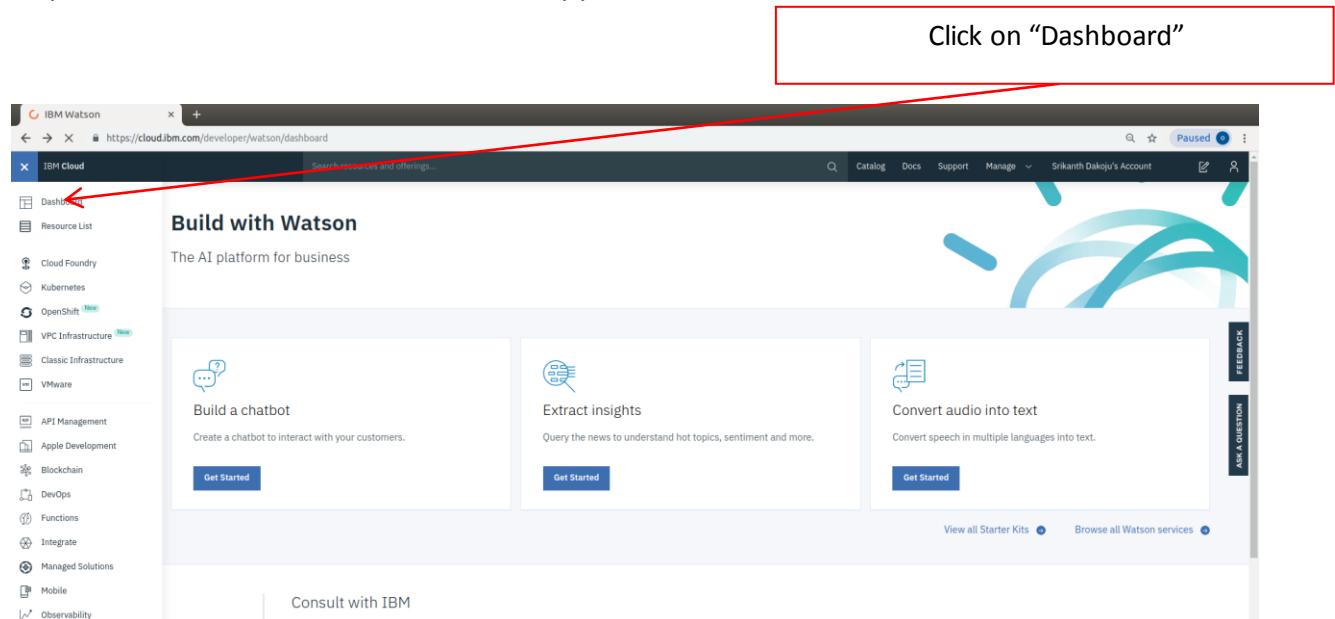
The Lite plan gets you started with 10,000 API calls per month at no cost. And when you upgrade to a paid plan, you'll keep all your intents, entities, dialog flows, and chat logs. Lite plan services are deleted after 30 days of inactivity.

Add to estimate Create

Need Help? Contact IBM Cloud Support

Waiting for ibis.lad-03.braze.com...

Step-9: Go to Dashboard. In resource summary you can find all the services which created now.



IBM Watson

IBM Cloud

Dashboard Resource List

Cloud Foundry Kubernetes OpenShift VPC Infrastructure Classic Infrastructure VMware API Management Apple Development Blockchain DevOps Functions Integrate Managed Solutions Mobile Observability

Build with Watson The AI platform for business

Build a chatbot Create a chatbot to interact with your customers. Get Started

Extract insights Query the news to understand hot topics, sentiment and more. Get Started

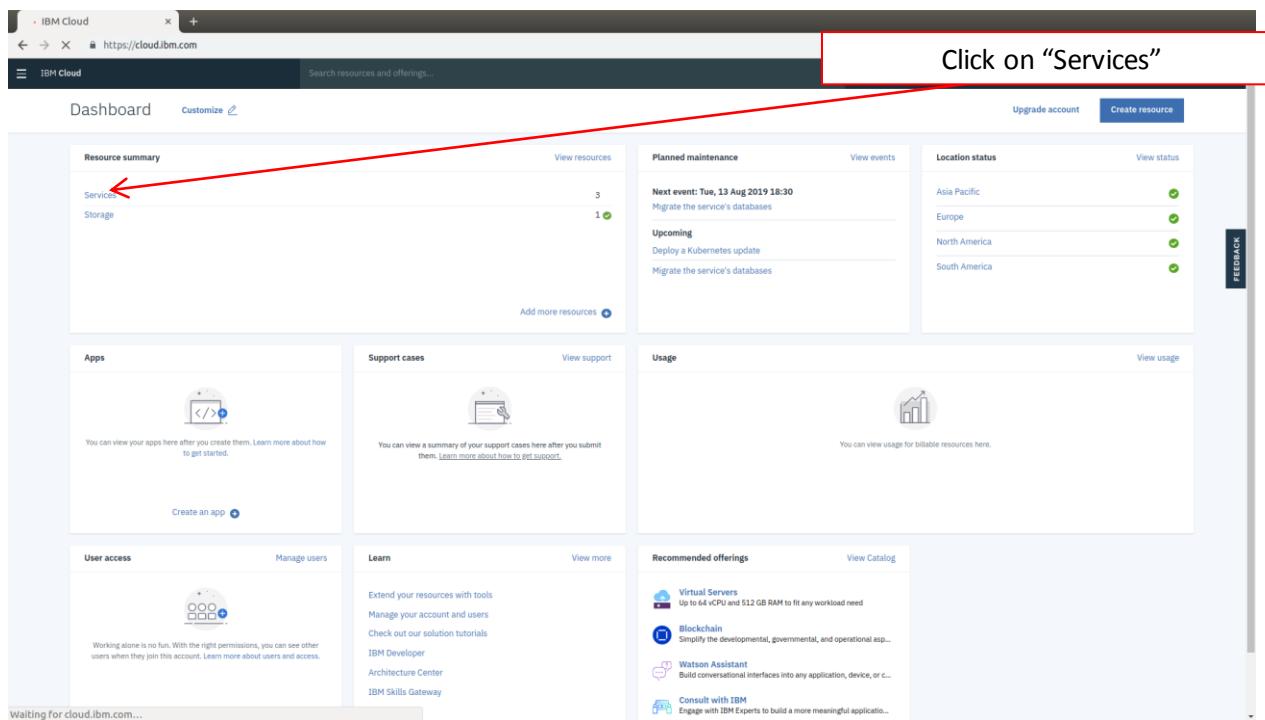
Convert audio into text Convert speech in multiple languages into text. Get Started

Consult with IBM

View all Starter Kits Browse all Watson services Ask a question

Click on "Dashboard"

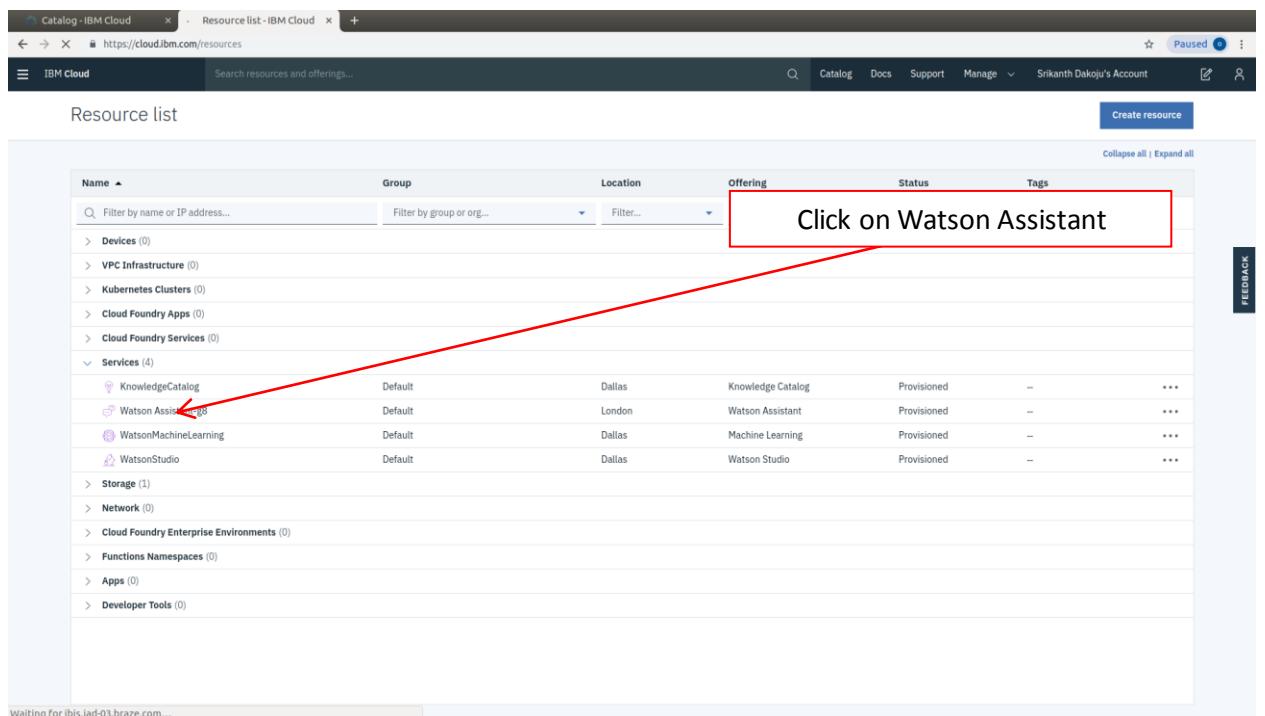
Click on “Services”



The screenshot shows the IBM Cloud Dashboard. A red arrow points to the 'Service' link under the 'Resource summary' section. The dashboard includes sections for Resource summary, Planned maintenance, Location status, Apps, Support cases, Usage, User access, Learn, and Recommended offerings.

Step-10: Click to expand resource list as show below. Now click on Watson Assistant.

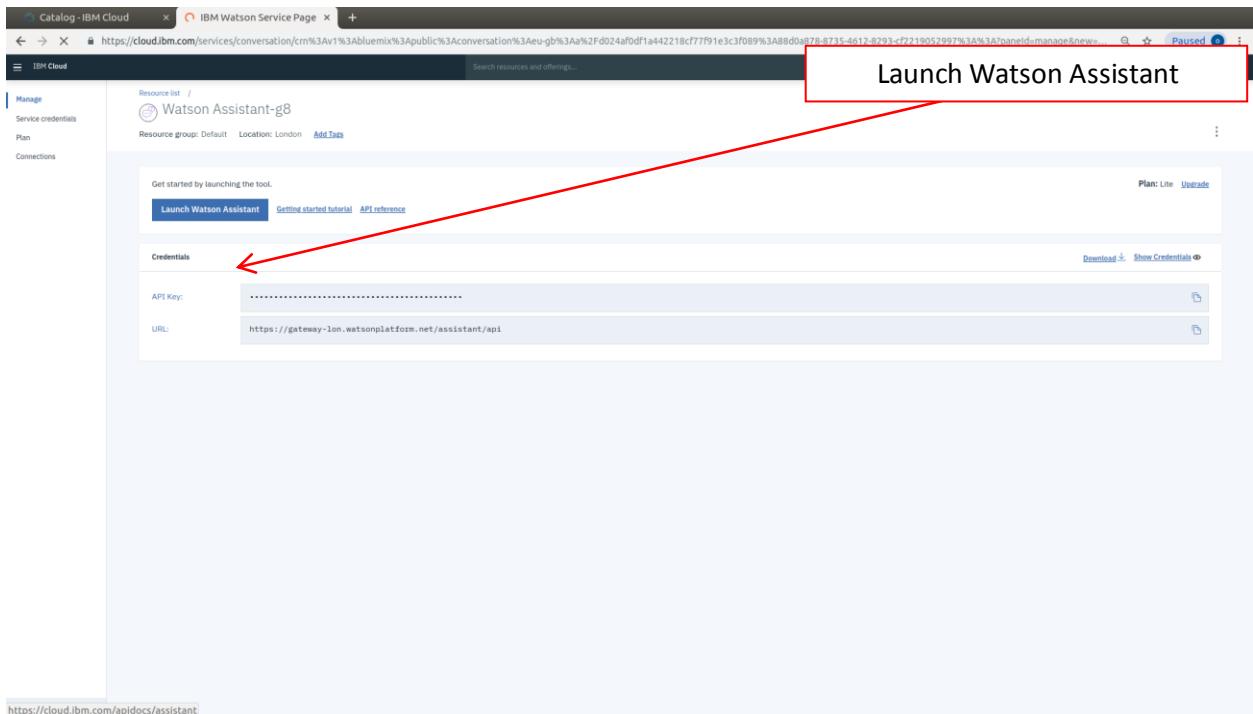
Click on Watson Assistant



The screenshot shows the Resource list page. The 'Services' section is expanded, and the 'Watson Assistant' entry is highlighted with a red arrow. The table columns are Name, Group, Location, Offering, Status, and Tags. The Watson Assistant row shows it is provisioned in London.

Name	Group	Location	Offering	Status	Tags
Watson Assistant	Default	London	Watson Assistant	Provisioned	--

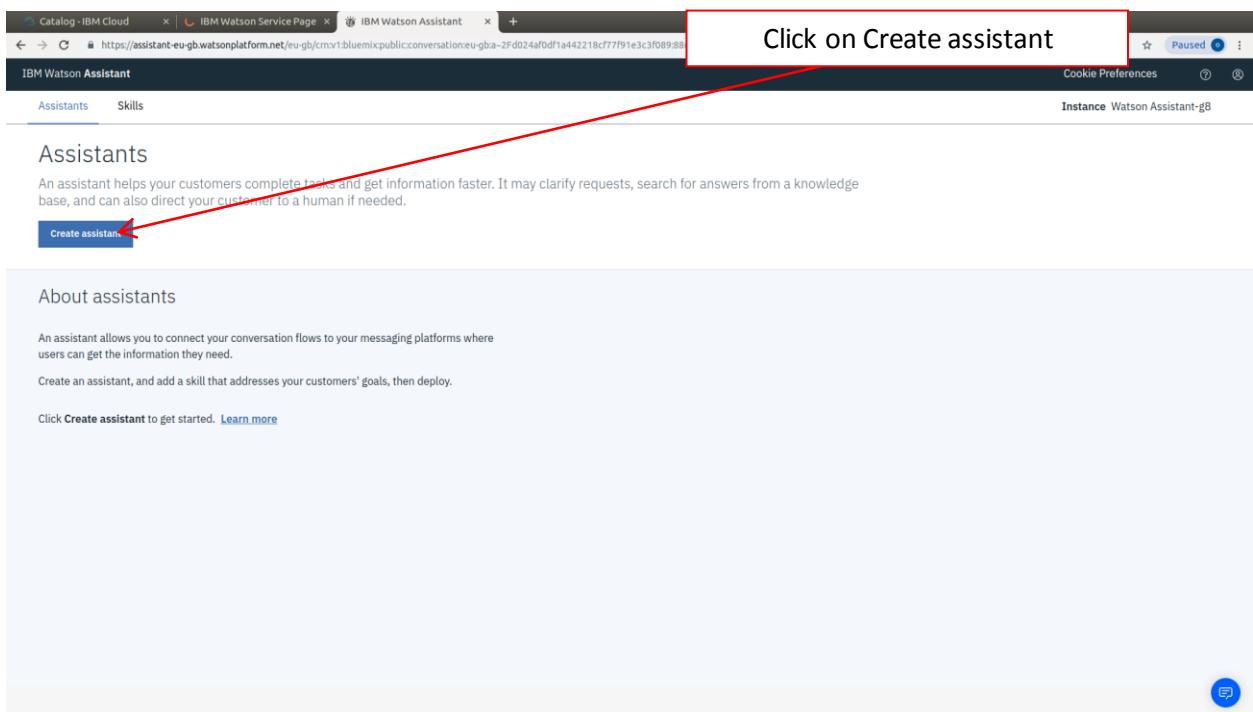
Step-11: You will redirect to page as show below click on Launch Watson Assistant.



The screenshot shows the IBM Watson Service Page for a resource named "Watson Assistant-g8". The "Launch Watson Assistant" button is highlighted with a red box and an arrow pointing to it. The URL in the address bar is <https://cloud.ibm.com/apidocs/assistant>.

Step-12,13,14,15 are optional, you can directly go to step number 16.

Step-12 (optional): You will in assistant page, now click on **create assistant**.

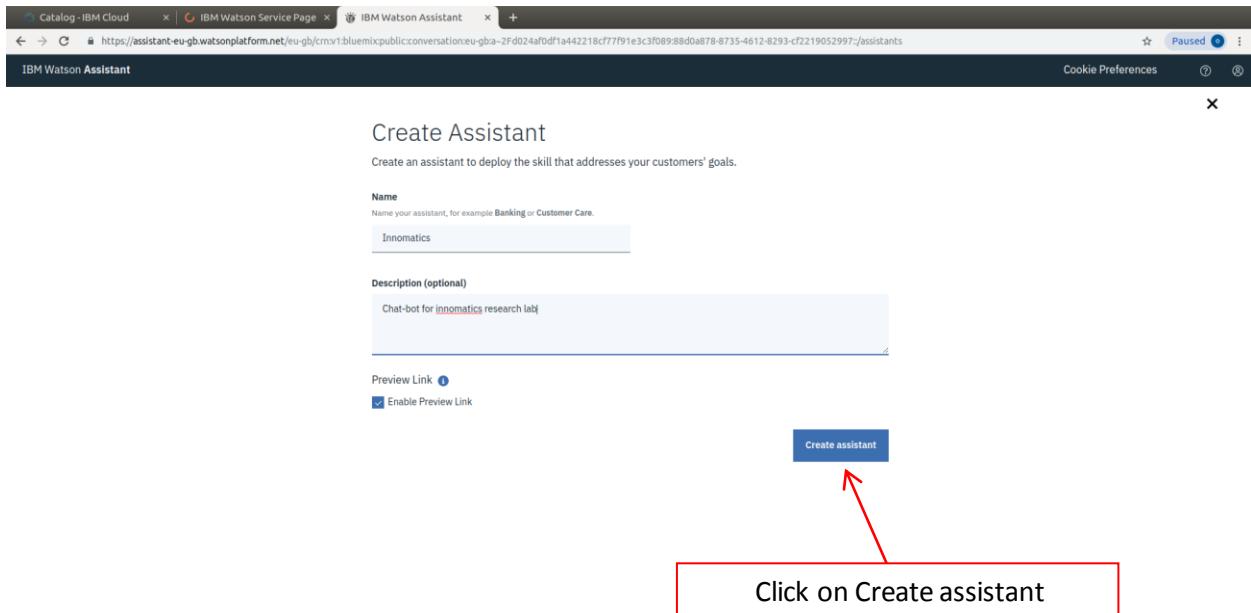


The screenshot shows the IBM Watson Assistant page for the instance "Watson Assistant-g8". The "Create assistant" button is highlighted with a red box and an arrow pointing to it. The URL in the address bar is <https://assistant-eu-gb.watsonplatform.net/eu-gb/cmv1/bluemix/public/conversation:eu-gba-2Fd024af0df1a42218cf77f91e3c3f0898>. A red box also highlights the "Click on Create assistant" text at the top right of the page.

Step-13 (optional): You will in Create Assistant page, **enter the following details and click on create assistant**

Eg: Name: Innomatics

Description: Chatbot for innomatics research lab



Create Assistant

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

Name
Name your assistant, for example Banking or Customer Care.
Innomatics

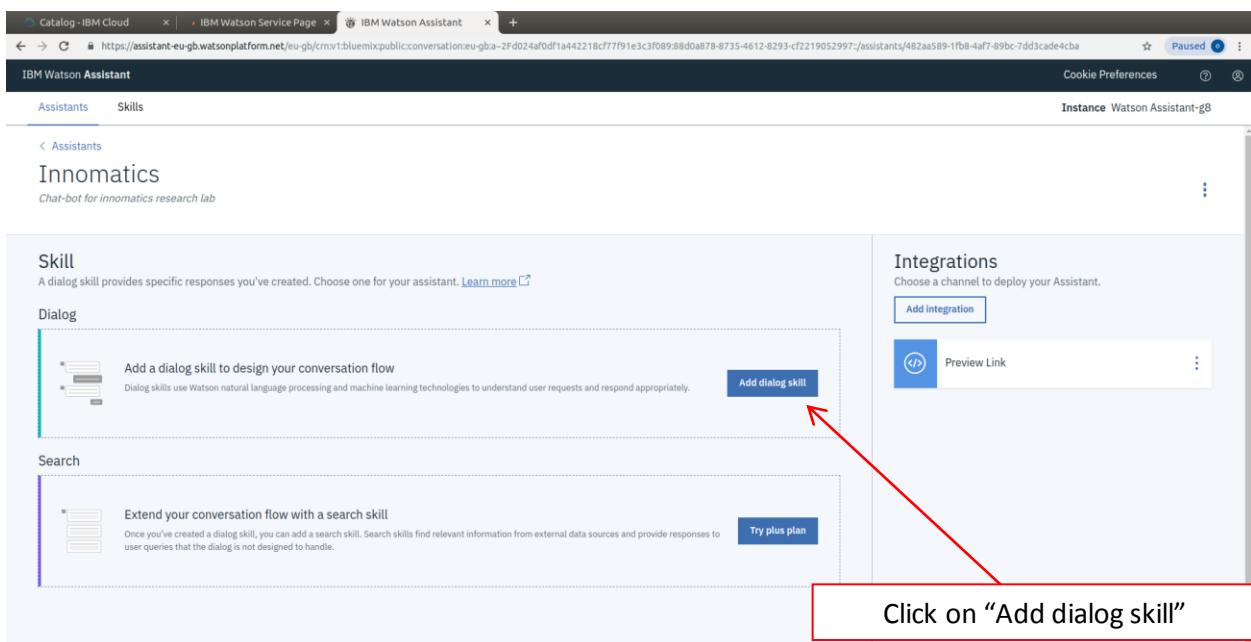
Description (optional)
Chat-bot for innomatics research lab

Preview Link ⓘ
 Enable Preview Link

Create assistant

Click on Create assistant

Step-14(optional): Now you are in “Innomatics” assistant page. Click on “Add dialog skill”.



Skills

A dialog skill provides specific responses you've created. Choose one for your assistant. [Learn more](#) ⓘ

Dialog

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

Search

Extend your conversation flow with a search skill
Once you've created a dialog skill, you can add a search skill. Search skills find relevant information from external data sources and provide responses to user queries that the dialog is not designed to handle.

Try plus plan

Integrations

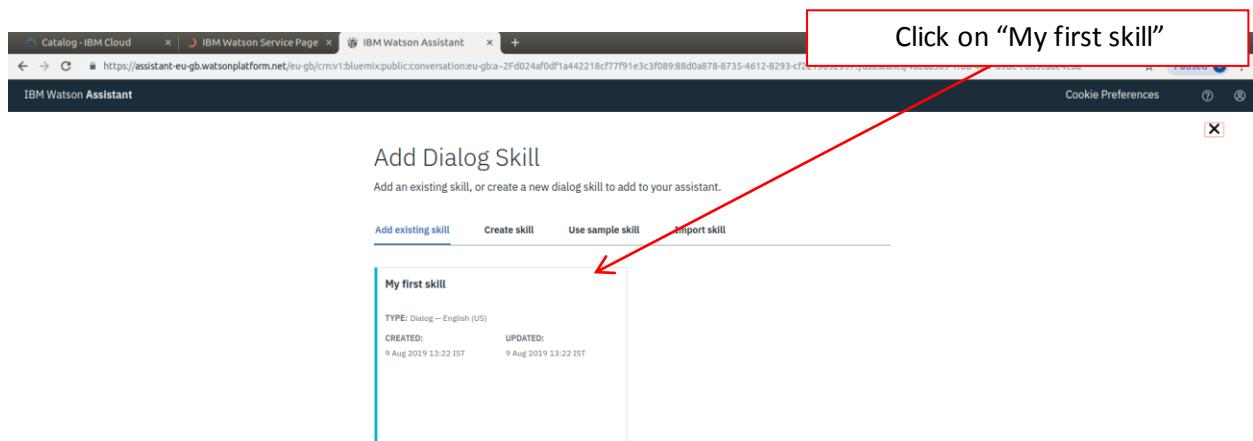
Choose a channel to deploy your Assistant.

Add integration

Preview Link

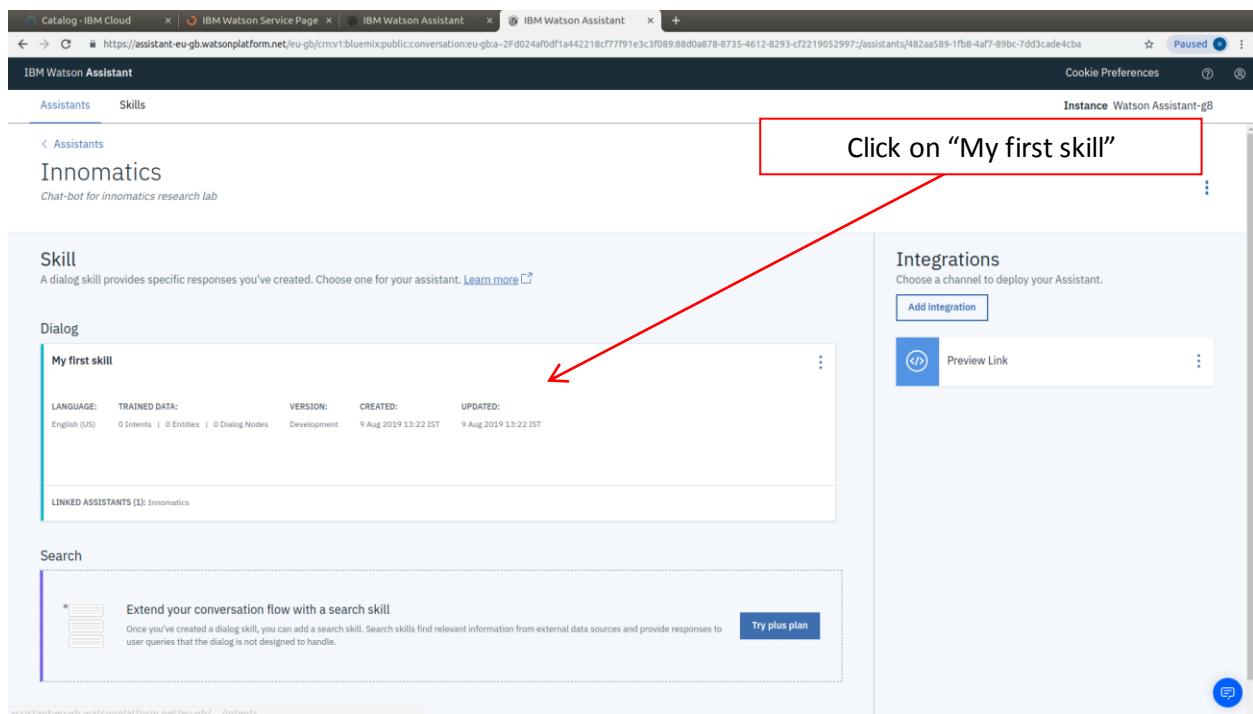
Click on “Add dialog skill”

Step-15(optional): Now click on “My first skill”



The screenshot shows the 'Add Dialog Skill' page. At the top, there are four tabs: 'Add existing skill', 'Create skill', 'Use sample skill', and 'Import skill'. Below the tabs, a card titled 'My first skill' is displayed. The card shows the following details:
 TYPE: Dialog – English (US)
 CREATED: 9 Aug 2019 13:22 IST UPDATED: 9 Aug 2019 13:22 IST

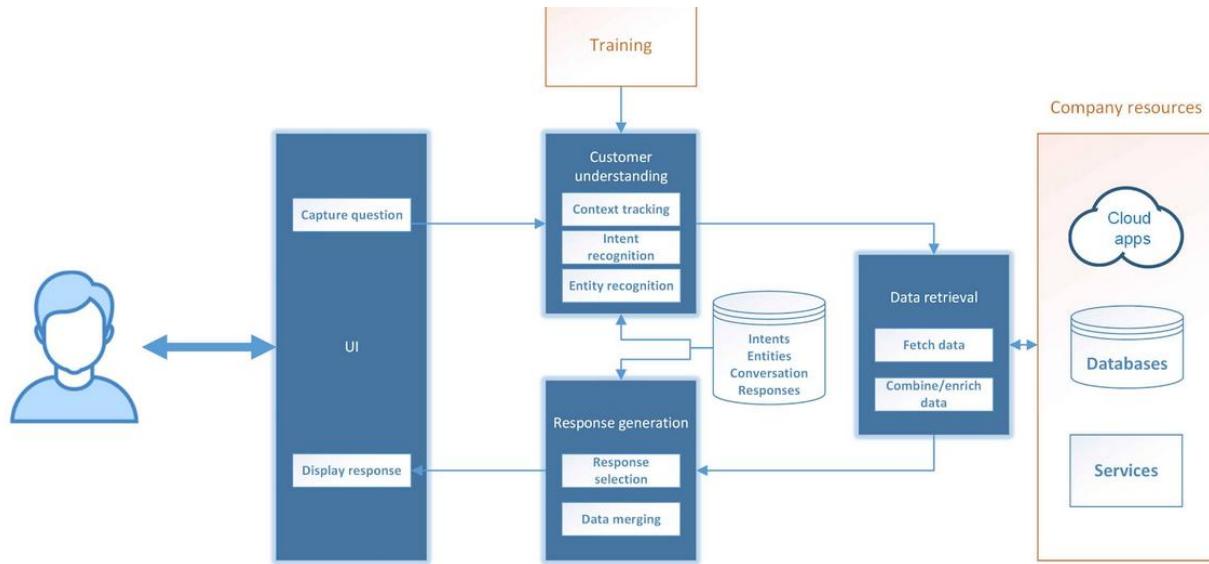
Step-16: In skill, a skill is added with the name “My first skill”.



The screenshot shows the 'Skill' page. On the left, under the 'Dialog' section, a card for 'My first skill' is shown. The card details are:
 LANGUAGE: English (US) TRAINED DATA: 0 Intents | 0 Entities | 0 Dialog Nodes
 VERSION: Development CREATED: 9 Aug 2019 13:22 IST UPDATED: 9 Aug 2019 13:22 IST

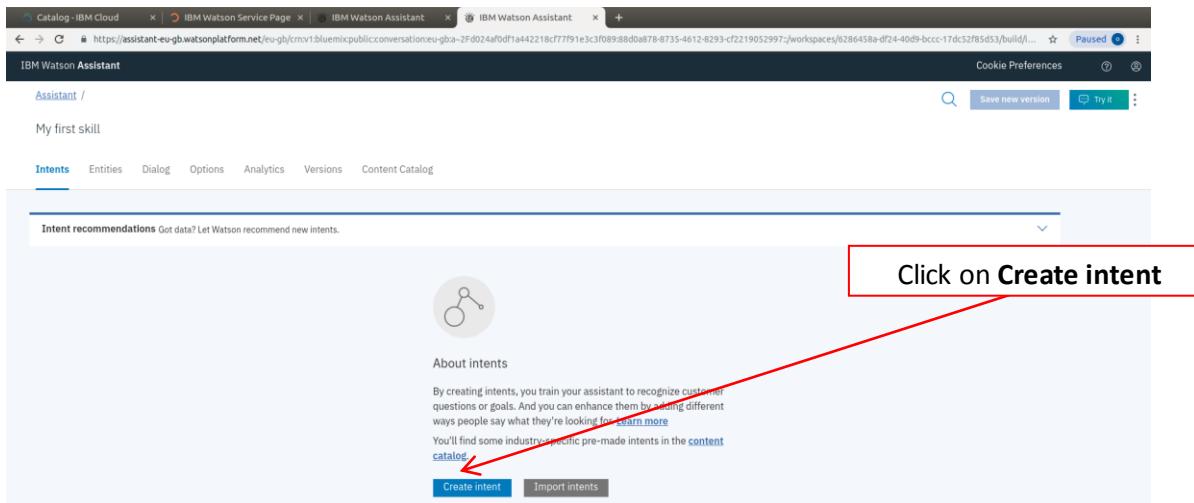
On the right, under the 'Integrations' section, there is a 'Preview Link' button.

IBM Watson Assistant Flow Diagram:



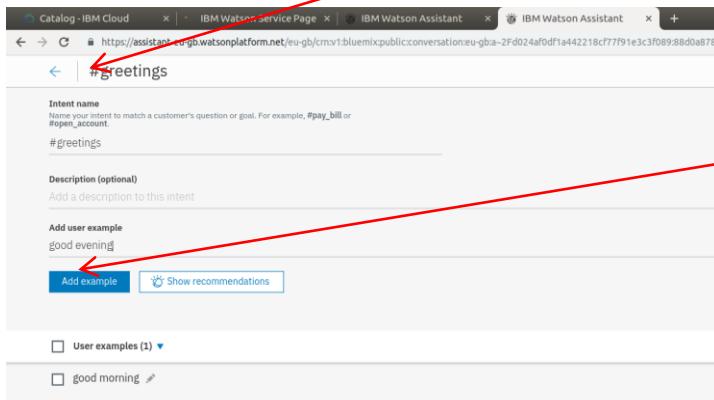
Step-17: Creating "#Intents"

- Click on **Create intent** to create intent of question. E.g. greetings, location etc. as shown below.
- Intents should create with **hash tag (#)**.



The screenshot shows the IBM Watson Assistant interface with the 'Intents' tab selected. At the bottom of the screen, there is a red box highlighting the 'Create intent' button. A red arrow points from the text 'Click on Create intent' to this button. The interface also shows sections for 'Intent recommendations', 'About intents', and links to 'learn more' and 'content catalog'.

Hashtag (#)



#greetings

Intent name
Name your intent to match a customer's question or goal. For example, #pay_bill or #open_account.
#greetings

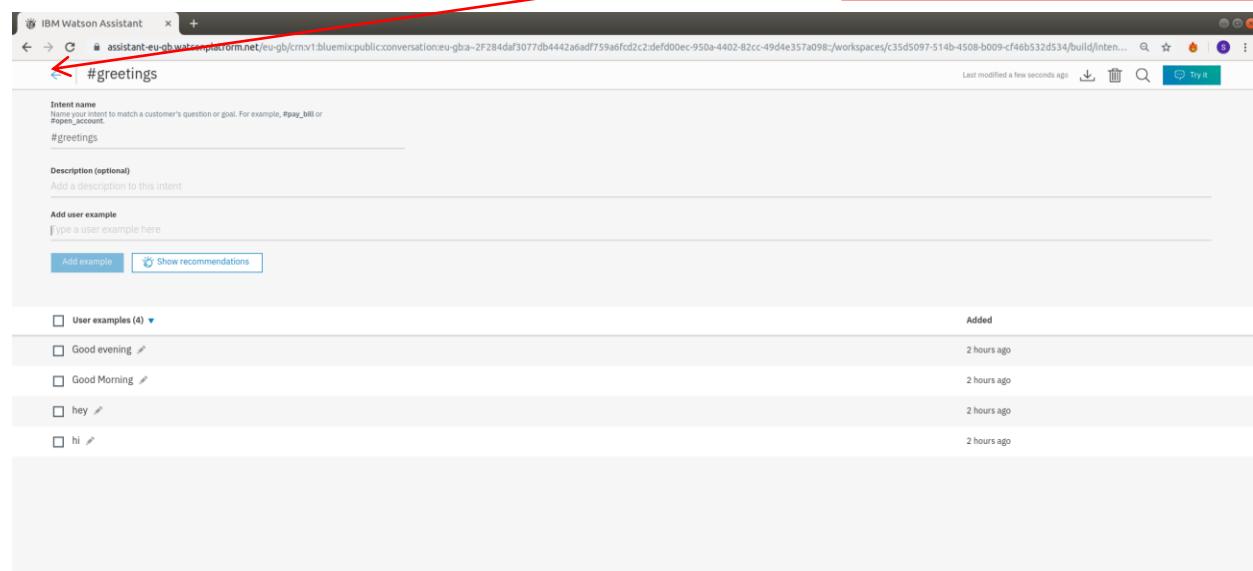
Description (optional)
Add a description to this intent.

Add user example
good evening

User examples (1) ▾
 good morning ↗

Click on “Addexample”

Click here to “back button” and it go to “My First skill” home



#greetings

Intent name
Name your intent to match a customer's question or goal. For example, #pay_bill or #open_account.
#greetings

Description (optional)
Add a description to this intent.

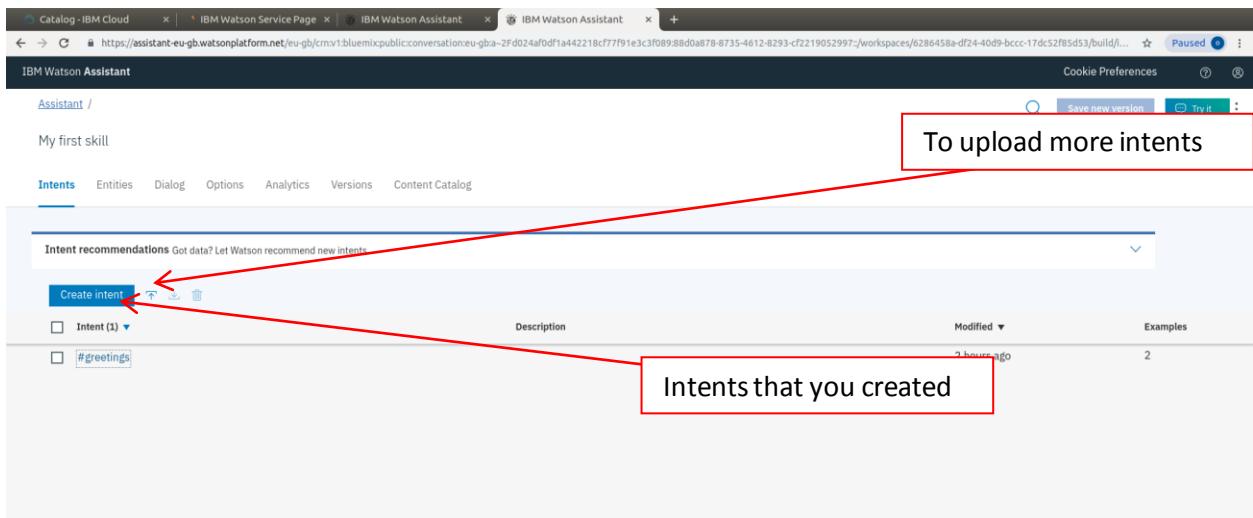
Add user example
Type a user example here

User examples (4) ▾

	Added
<input type="checkbox"/> Good evening ↗	2 hours ago
<input type="checkbox"/> Good Morning ↗	2 hours ago
<input type="checkbox"/> hey ↗	2 hours ago
<input type="checkbox"/> hi ↗	2 hours ago

- Now to can find the intent (#greetings) which you have created.

To upload more intents



Assistant / My first skill

Intents Entities Dialog Options Analytics Versions Content Catalog

Intent recommendations Got data? Let Watson recommend new intents.

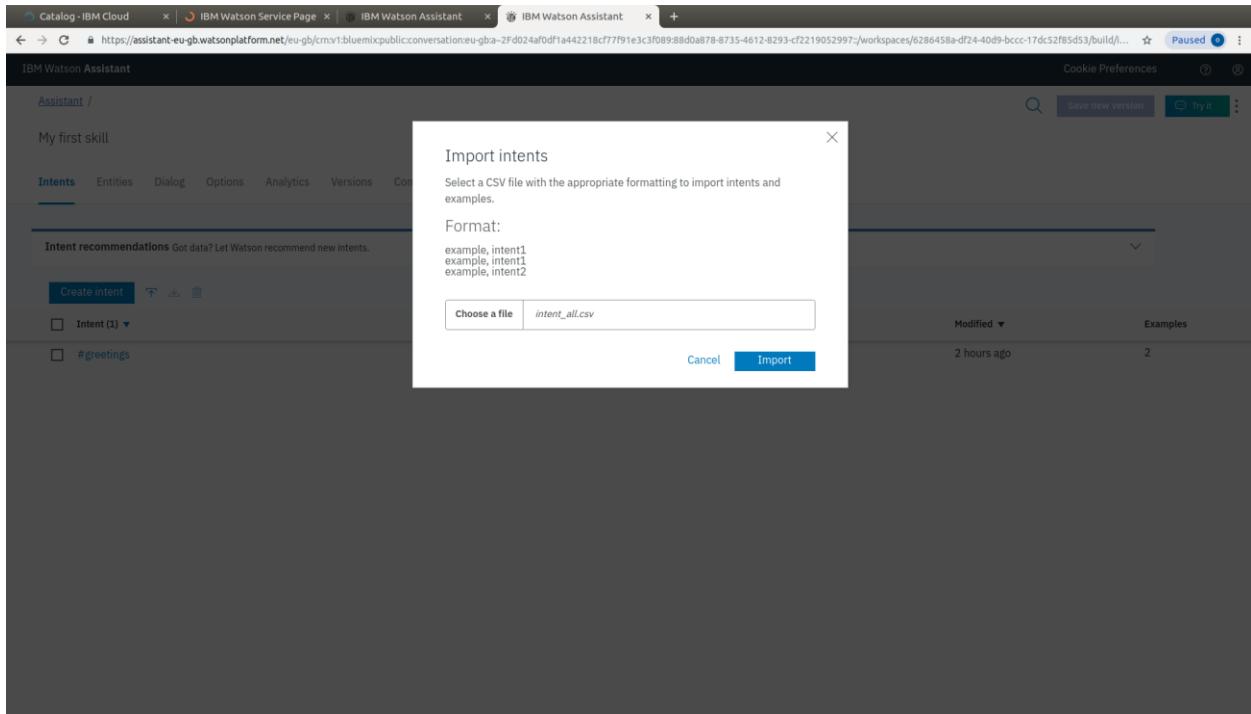
Create intent

	Description	Modified	Examples
<input type="checkbox"/> Intent (1) ▾		2 hours ago	2
<input type="checkbox"/> #greetings		2 hours ago	2

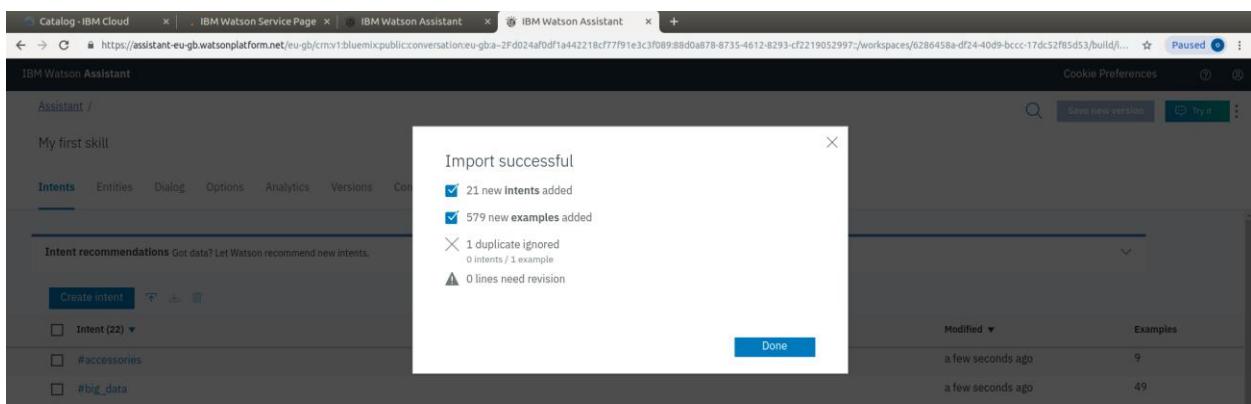
Intents that you created

Like this you can create intents. Or can upload intents [intent_all.csv](#) or data in csv with specified with [intent names](#) files as shown below.

- Drag and drop your csv or click on choose a file to upload intent_all.csv

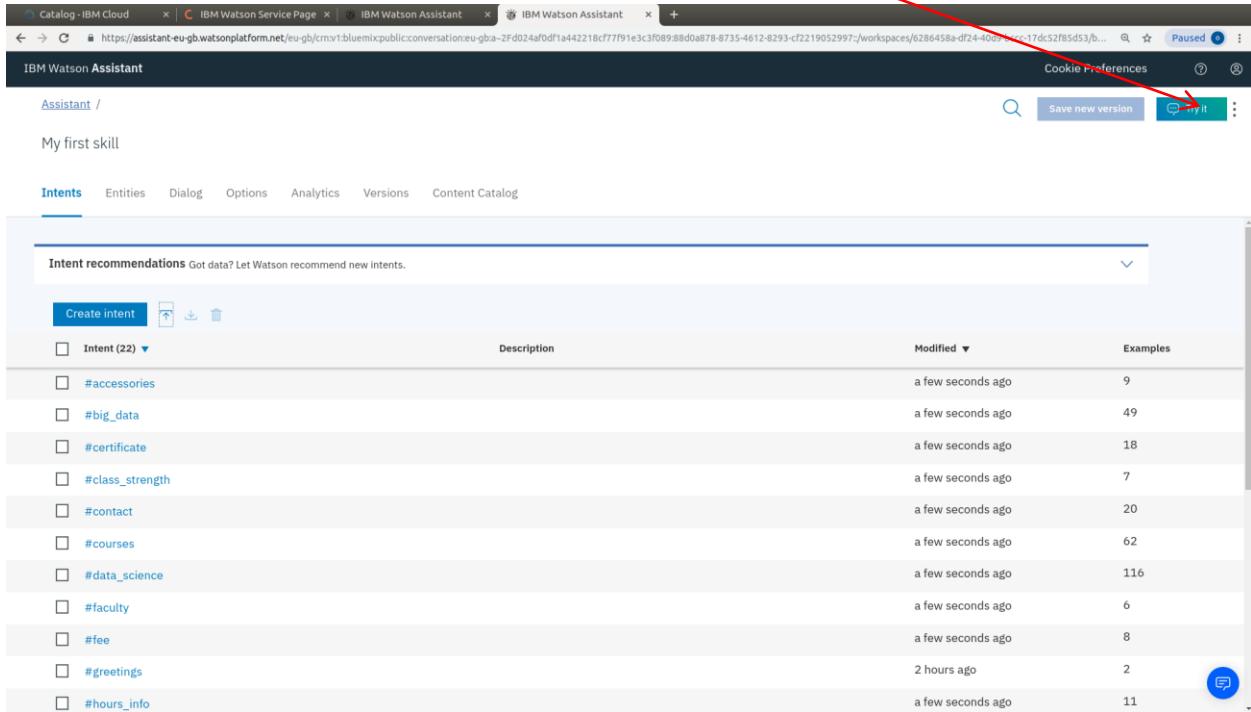


- It shows that 21 intent and total of 579 examples



Click on **Try it** to see how Watson able to detect intents using “cosine similarity”

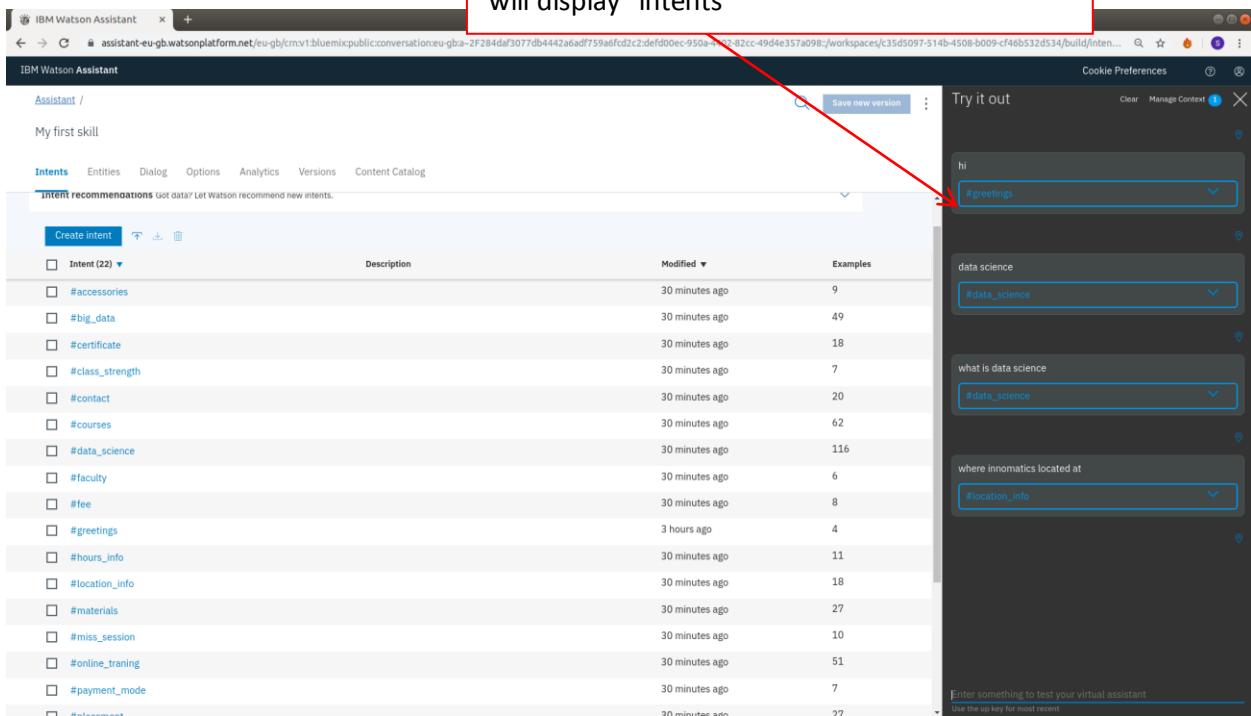
Click on “Done” now you can see all intents (21).



Intent recommendations Got data? Let Watson recommend new intents.

	Description	Modified	Examples
<input type="checkbox"/> Intent (22) ▾			
<input type="checkbox"/> #accessories		a few seconds ago	9
<input type="checkbox"/> #big_data		a few seconds ago	49
<input type="checkbox"/> #certificate		a few seconds ago	18
<input type="checkbox"/> #class_strength		a few seconds ago	7
<input type="checkbox"/> #contact		a few seconds ago	20
<input type="checkbox"/> #courses		a few seconds ago	62
<input type="checkbox"/> #data_science		a few seconds ago	116
<input type="checkbox"/> #faculty		a few seconds ago	6
<input type="checkbox"/> #fee		a few seconds ago	8
<input type="checkbox"/> #greetings		2 hours ago	2
<input type="checkbox"/> #hours_info		a few seconds ago	11

You can something into virtual assistant. That will display “intents”



Try it out

hi
#greetings

data science
#data_science

what is data science
#data_science

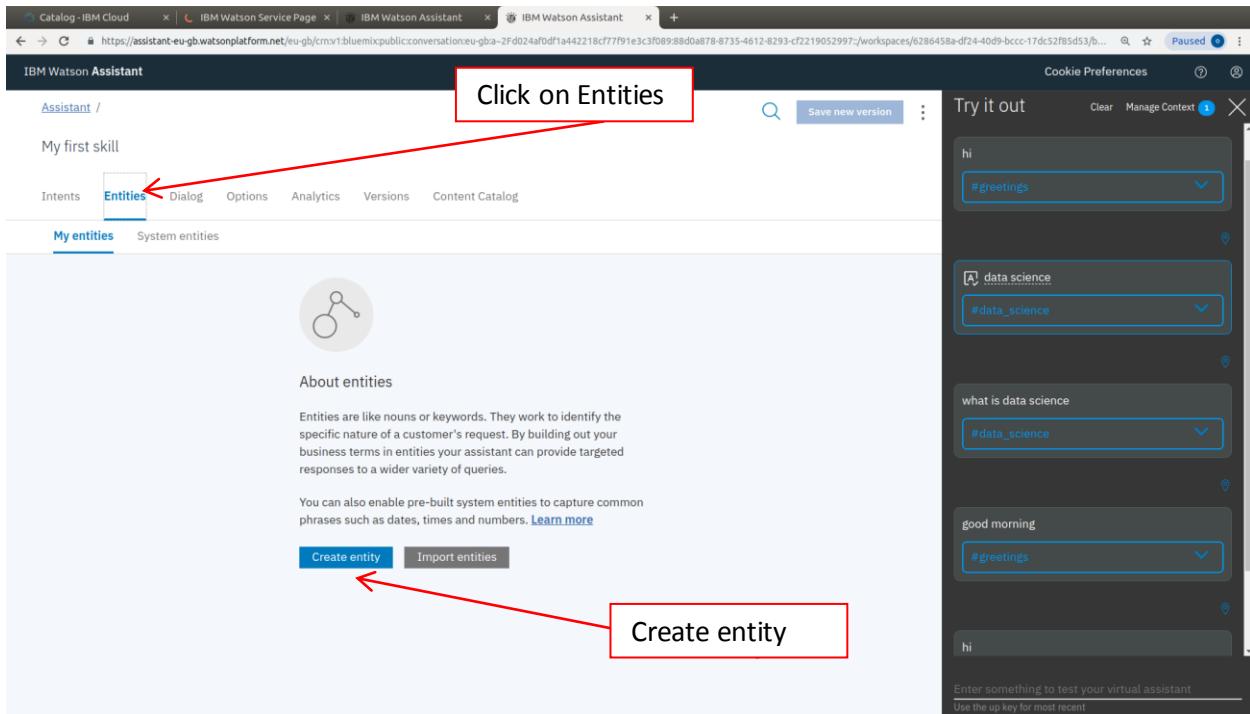
where innomatics located at
#location_info

Enter something to test your virtual assistant
Use the up key for most recent

Step-18: Create Entities:

- Create with '@'

Click on Entities



My first skill

Intents Entities Dialog Options Analytics Versions Content Catalog

My entities System entities

About entities

Entities are like nouns or keywords. They work to identify the specific nature of a customer's request. By building out your business terms in entities your assistant can provide targeted responses to a wider variety of queries.

You can also enable pre-built system entities to capture common phrases such as dates, times and numbers. [Learn more](#)

Create entity Import entities

hi
#greetings

#data_science
#data_science

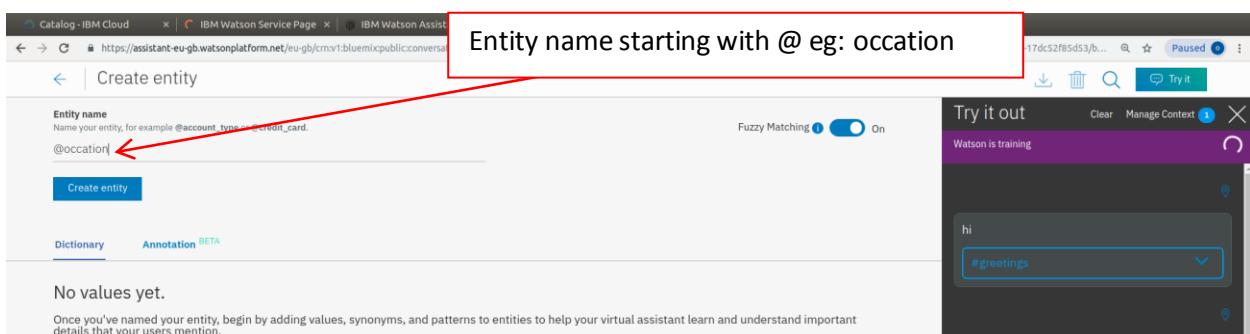
what is data science
#data_science

good morning
#greetings

hi

Enter something to test your virtual assistant
Use the up key for most recent

Entity name starting with @ eg: occation



Create entity

Entity name
Name your entity, for example @account_type or @credit_card.
@occation

Create entity

Dictionary Annotation BETA

No values yet.

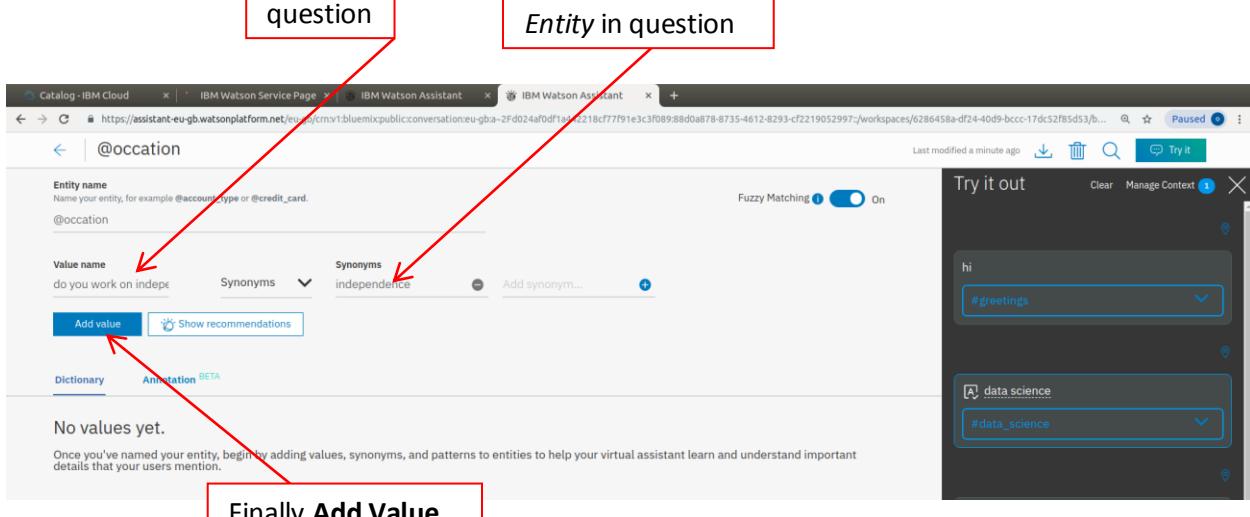
Once you've named your entity, begin by adding values, synonyms, and patterns to entities to help your virtual assistant learn and understand important details that your users mention.

Try it out Clear Manage Context

Watson is training

hi
#greetings

question Entity in question



@occation

Entity name
Name your entity, for example @account_type or @credit_card.
@occation

Value name
do you work on indepe

Synonyms
independence

Add value Show recommendations

Dictionary Annotation BETA

No values yet.

Once you've named your entity, begin by adding values, synonyms, and patterns to entities to help your virtual assistant learn and understand important details that your users mention.

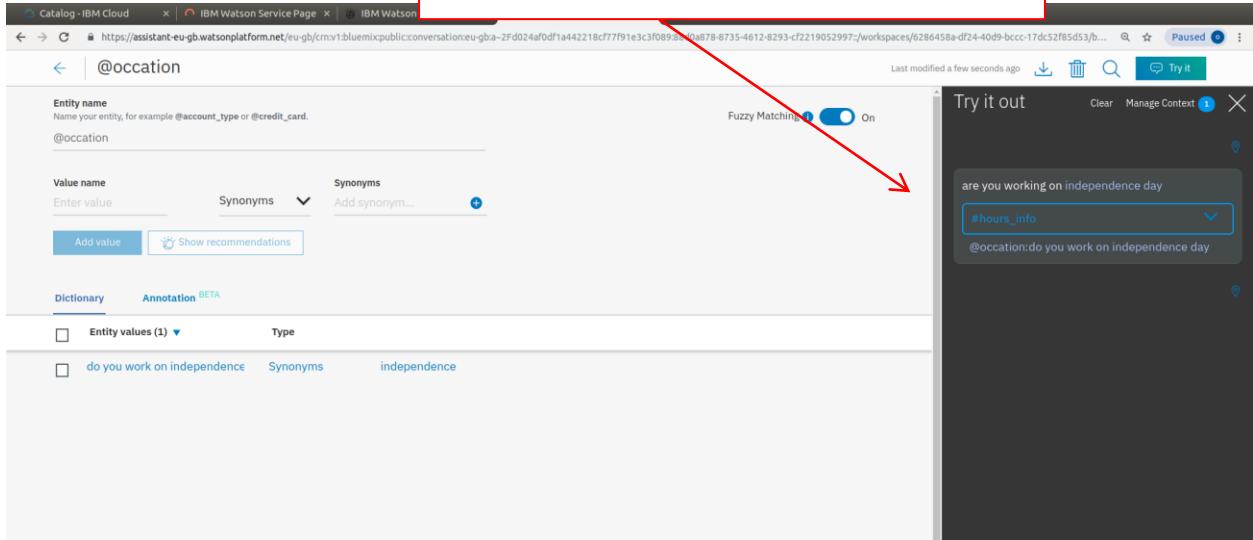
Finally Add Value

Try it out Clear Manage Context

hi
#greetings

#data_science
#data_science

You can something into virtual assistant. That will display "intents"



The screenshot shows the IBM Watson Entity Catalog interface. A red box highlights the text "You can something into virtual assistant. That will display 'intents'" above the interface. A red arrow points from this text box to the "Try it out" panel on the right.

Entity name: @occation

Value name: Enter value

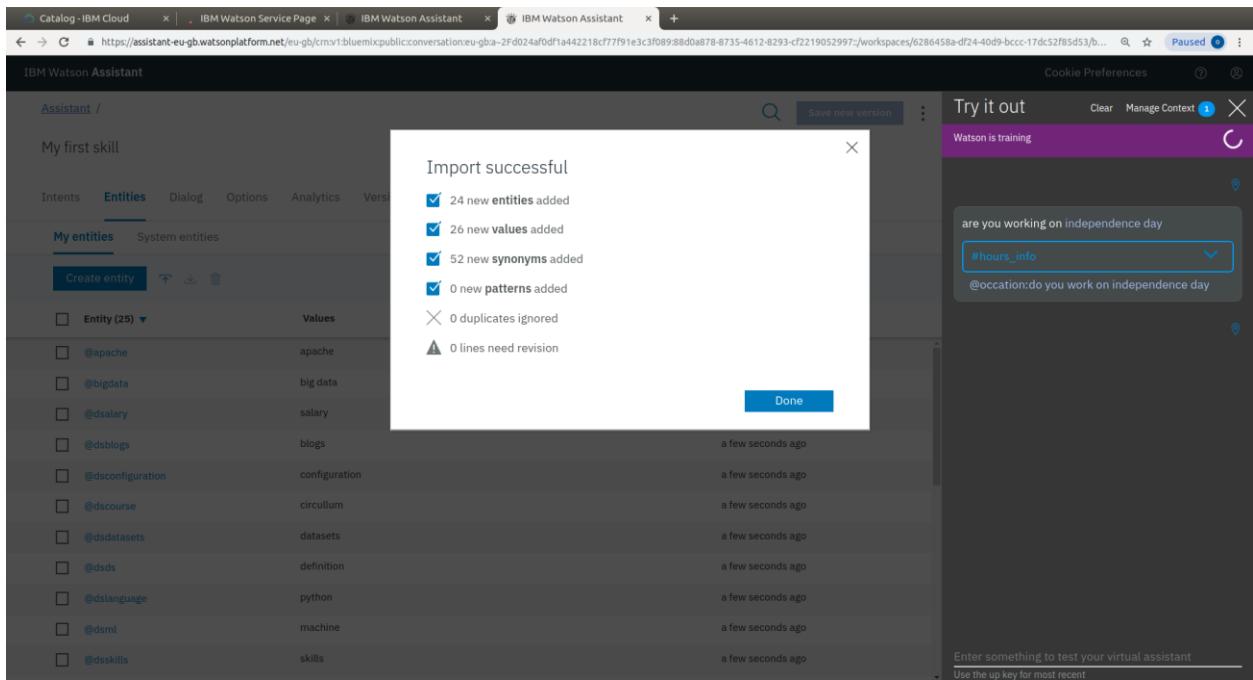
Synonyms: Add synonym...

Fuzzy Matching: On

Try it out:

```
are you working on independence day
#hours_info
@occation:do you work on independence day
```

Go back to the My first skill and now you create entity similarly as show above or upload entities which are in .csv file.

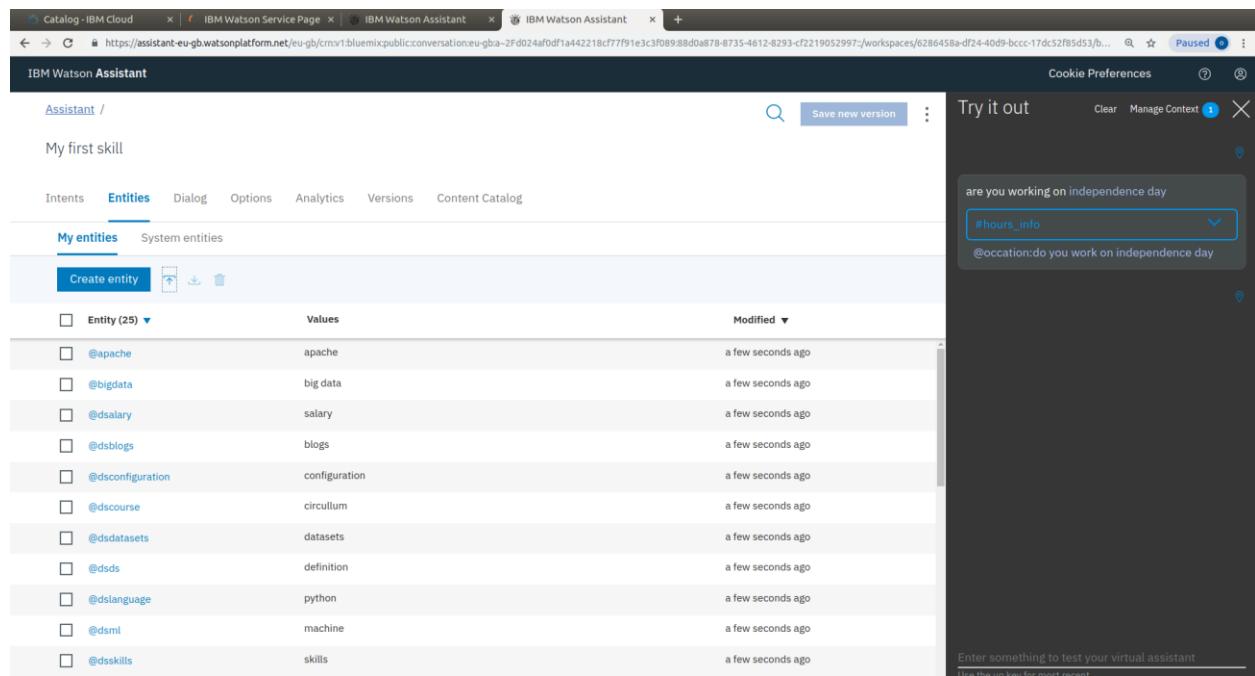


The screenshot shows the IBM Watson Assistant interface. A modal window titled "Import successful" displays the following message:

- 24 new entities added
- 26 new values added
- 52 new synonyms added
- 0 new patterns added
- 0 duplicates ignored
- 0 lines need revision

A "Done" button is at the bottom of the modal. To the right, the "Try it out" panel shows the same test message as the previous screenshot.

- After uploading entities you can now find all entities which you uploaded listed below.



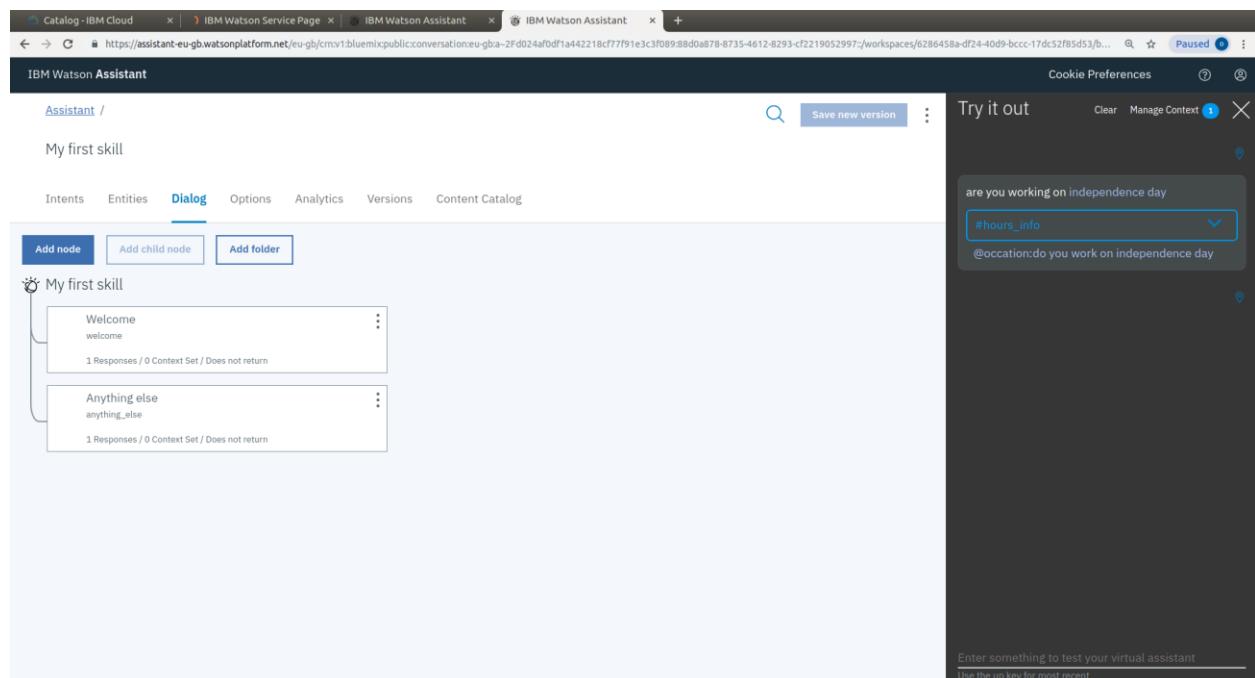
The screenshot shows the 'Entities' tab in the IBM Watson Assistant interface. A list of 25 entities is displayed in a table:

Entity (25) ▾	Values	Modified
@apache	apache	a few seconds ago
@bigdata	big data	a few seconds ago
@dsalary	salary	a few seconds ago
@dsblogs	blogs	a few seconds ago
@dsconfiguration	configuration	a few seconds ago
@dscourse	circulum	a few seconds ago
@dsdatasets	datasets	a few seconds ago
@dsds	definition	a few seconds ago
@dslanguage	python	a few seconds ago
@dsml	machine	a few seconds ago
@dsskills	skills	a few seconds ago

Step-19: Dialog Flow:

Where you can find “Add node”, “Add child node”, “Add folder”

- We need to create a dialog flow as shown below



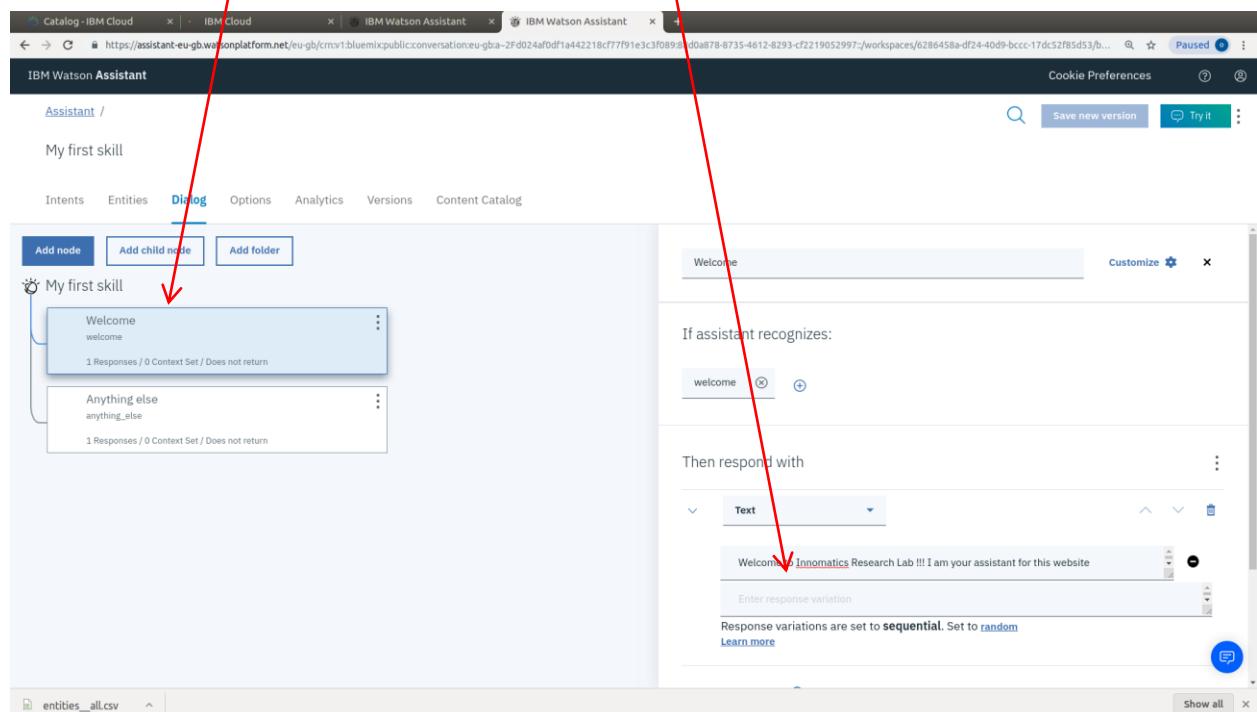
The screenshot shows the 'Dialog' tab in the IBM Watson Assistant interface. A dialog flow with two nodes is displayed:

```

graph TD
    Start(( )) --> Node1[Welcome  
welcome  
1 Responses / 0 Context Set / Does not return]
    Node1 --> Node2[Anything else  
anything_else  
1 Responses / 0 Context Set / Does not return]
    
```

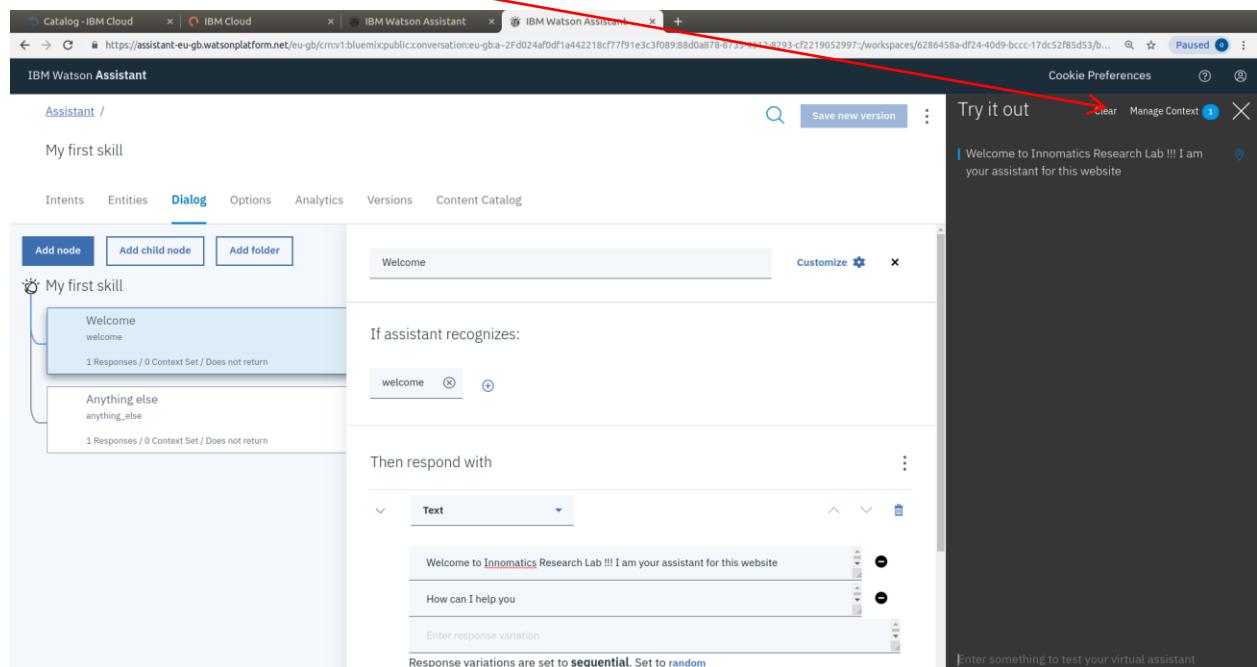
The 'Add node' button is highlighted in blue.

- Click on **Welcome**, you will get screen as shown below,
In Then respond with, use text and enter any value which will be welcome screen message.



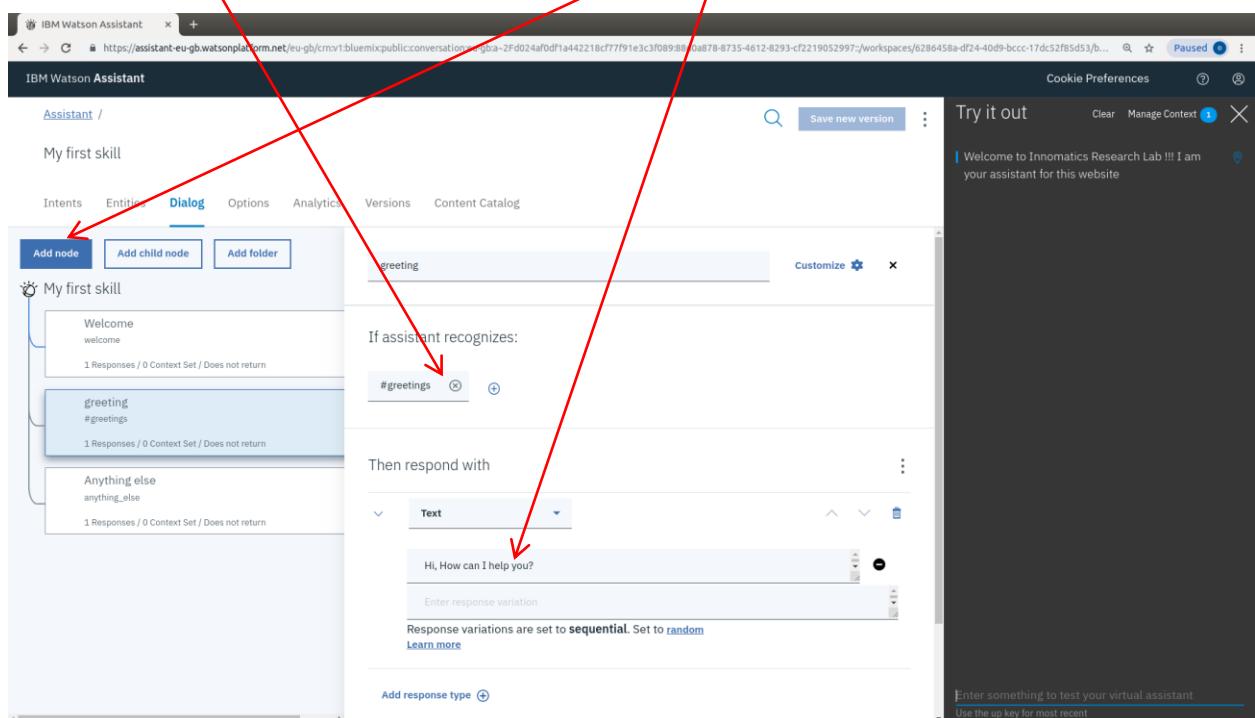
The screenshot shows the IBM Watson Assistant interface. The left sidebar shows a skill named "My first skill" with two nodes: "Welcome" and "Anything else". The "Welcome" node has the text "welcome". The "Anything else" node has the text "anything_else". The right panel shows the "Welcome" configuration. Under "If assistant recognizes:", there is a entry for "welcome". Under "Then respond with:", the "Text" dropdown is selected, and the text "Welcome to Innomatics Research Lab !!! I am your assistant for this website" is entered. A red arrow points from the "Welcome" node in the sidebar to this text input field.

- In Try it, click on **clear**. Now you will get welcome screen message



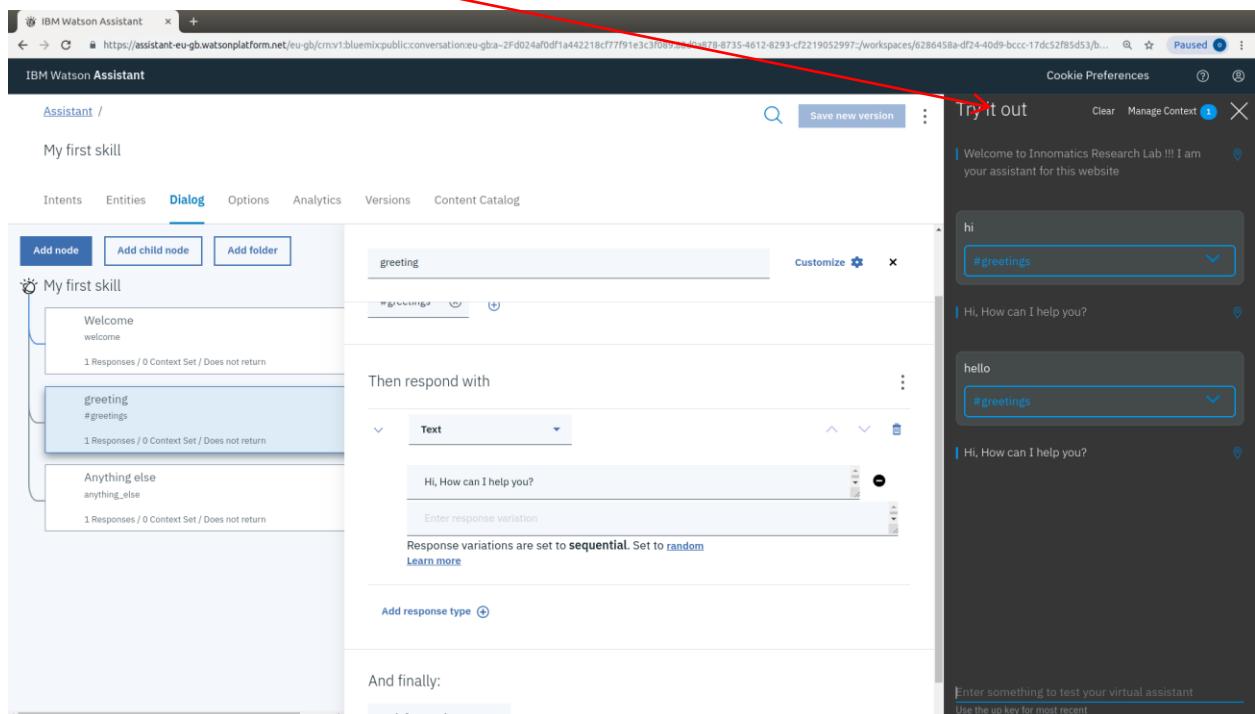
The screenshot shows the "Try it out" section of the IBM Watson Assistant interface. The text area displays the message "Welcome to Innomatics Research Lab !!! I am your assistant for this website". Above the text area, there is a "clear" button. A red arrow points from the "clear" button to the text area.

- You can create any number of nodes you want. Click on "Add node" and name with any name, now select the intent you want.
 Eg: greetings. If Watson recognizes this enter the respond you want.



The screenshot shows the IBM Watson Assistant interface. On the left, under 'My first skill', there are three nodes: 'Welcome' (intent: welcome), 'greeting' (intent: #greetings), and 'Anything else' (intent: anything_else). The 'greeting' node is currently selected. On the right, a modal window titled 'Customize' is open, showing the configuration for the 'greeting' intent. The 'If assistant recognizes:' field contains '#greetings'. Below it, the 'Then respond with' section is set to 'Text', with the response 'Hi, How can I help you?'. A red arrow points from the text 'You can create any number of nodes you want.' to the 'Add node' button at the top left of the interface.

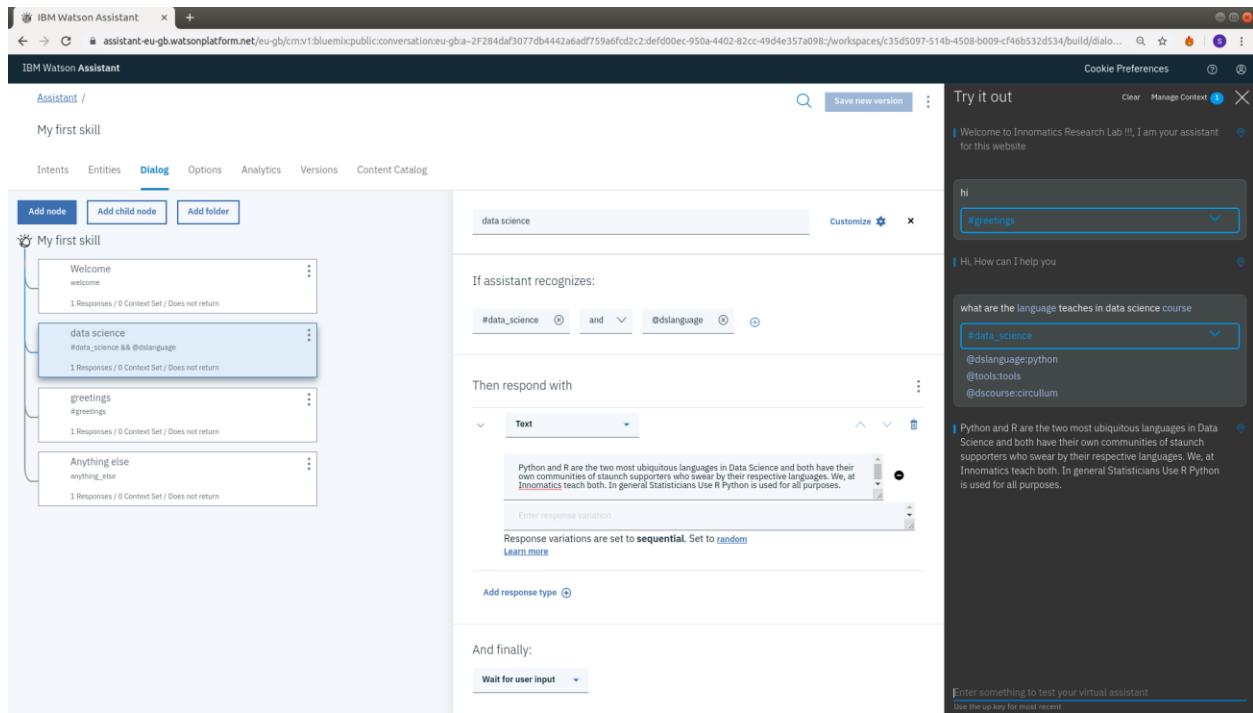
- You test with try it.



The screenshot shows the IBM Watson Assistant interface after testing. The 'greeting' node has been triggered, and the response 'Hi, How can I help you?' is displayed in the 'Try it out' panel. A red arrow points from the text 'You test with try it.' to the 'Try it out' button at the top right of the interface.

→ You can create dialog flow with #intent and @entity

Test it in **Try it**

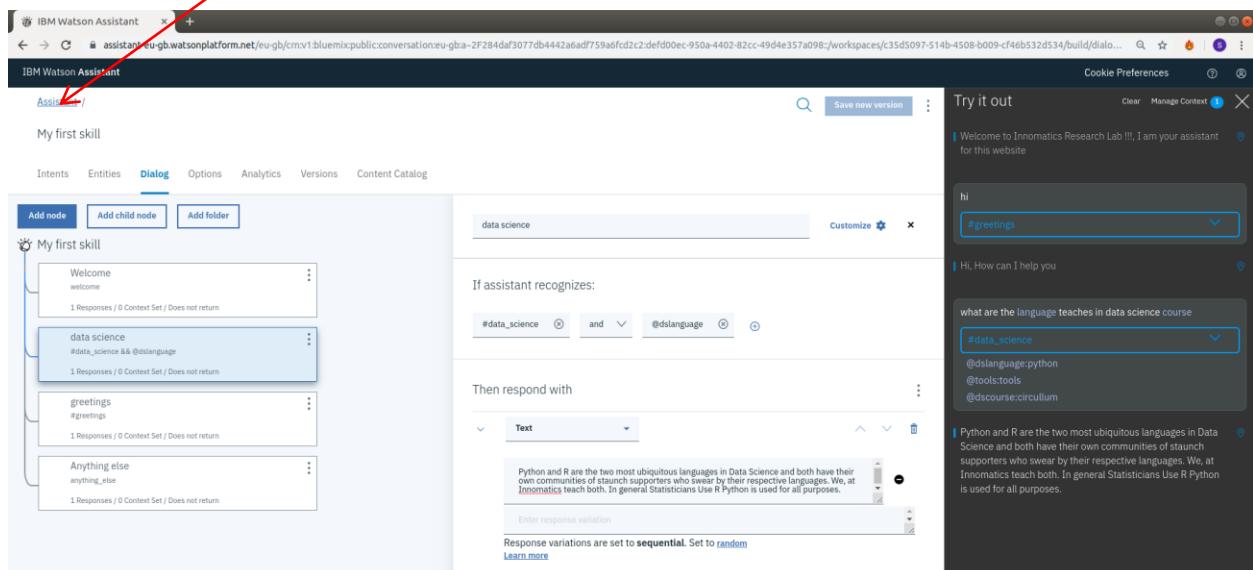


The screenshot shows the IBM Watson Assistant interface. On the left, under the 'Dialog' tab, there's a list of intents: 'Welcome', 'data science', 'greetings', and 'Anything else'. The 'data science' intent is selected. In the 'If assistant recognizes:' section, the condition '#data_science & @dslanguage' is set. The 'Then respond with' section contains a text message: 'Python and R are the two most ubiquitous languages in Data Science and both have their own communities of staunch supporters who swear by their respective languages. We, at Innomatics teach both. In general Statisticians Use R Python is used for all purposes.' Below this, there's a note about response variations and a 'Wait for user input' button.

and so on...

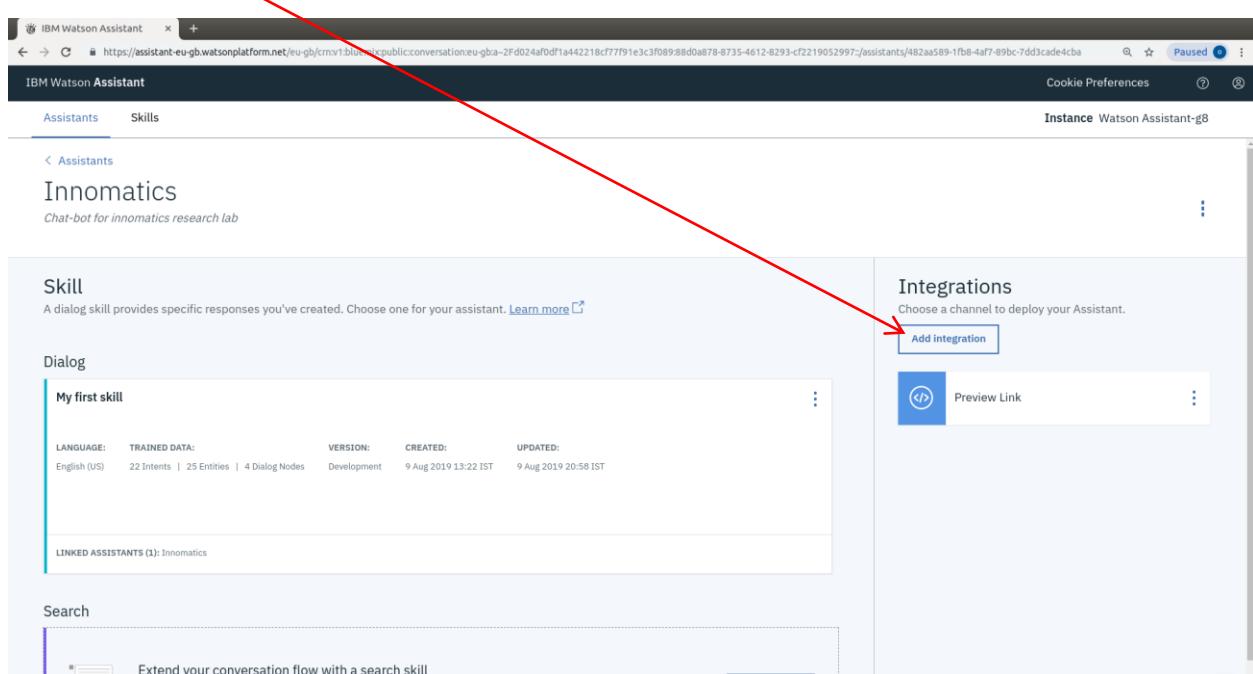
Step-20: Deployment

→ Click on Assistant



The screenshot shows the same IBM Watson Assistant interface as before, but with a red arrow pointing to the 'Assistant /' link in the top navigation bar. This indicates the step to click on the assistant to proceed with deployment.

- Add Integrations



IBM Watson Assistant Paused

https://assistant-eu-gb.watsonplatform.net/eu-gb/cmrvtbluemix/public/conversation/eu-gba-2Fd024af0df1a442218cf77f91e3c3f08988d0a878-8735-4612-8293-cf2219052997-/assistants/482aa589-1fb8-4af7-89bc-7dd3cade4cba

Cookie Preferences Instance Watson Assistant-g8

IBM Watson Assistant

Assistants Skills

< Assistants

Innomatics

Chat-bot for innomatics research lab

Skill
A dialog skill provides specific responses you've created. Choose one for your assistant. [Learn more](#)

Dialog
My first skill

LANGUAGE: English (US) TRAINED DATA: 22 Intents | 25 Entities | 4 Dialog Nodes VERSION: Development CREATED: 9 Aug 2019 13:22 IST UPDATED: 9 Aug 2019 20:58 IST

LINKED ASSISTANTS (1): Innomatics

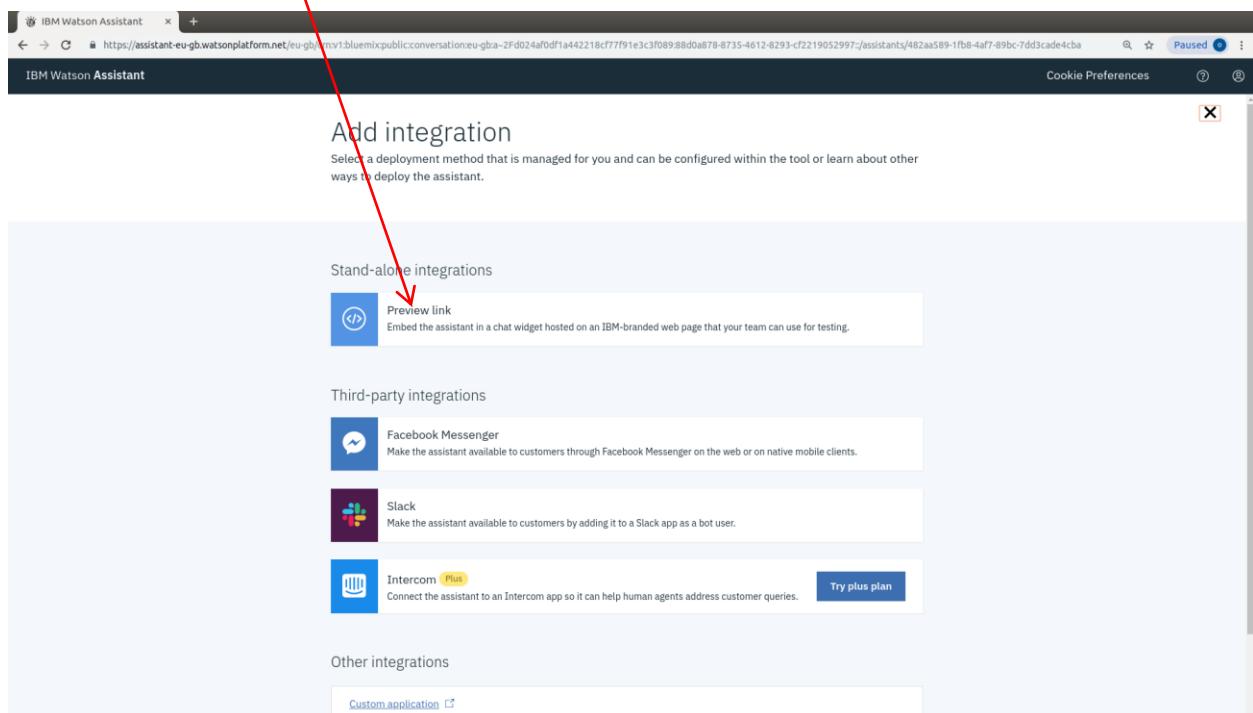
Search
Extend your conversation flow with a search skill

Integrations
Choose a channel to deploy your Assistant.

Add integration

Preview Link

- Click on **Preview link**



IBM Watson Assistant Paused

https://assistant-eu-gb.watsonplatform.net/eu-gb/cmrvtbluemix/public/conversation/eu-gba-2Fd024af0df1a442218cf77f91e3c3f08988d0a878-8735-4612-8293-cf2219052997-/assistants/482aa589-1fb8-4af7-89bc-7dd3cade4cba

Cookie Preferences

IBM Watson Assistant

Add integration

Select a deployment method that is managed for you and can be configured within the tool or learn about other ways to deploy the assistant.

Stand-alone integrations

Preview link
Embed the assistant in a chat widget hosted on an IBM-branded web page that your team can use for testing.

Third-party integrations

Facebook Messenger
Make the assistant available to customers through Facebook Messenger on the web or on native mobile clients.

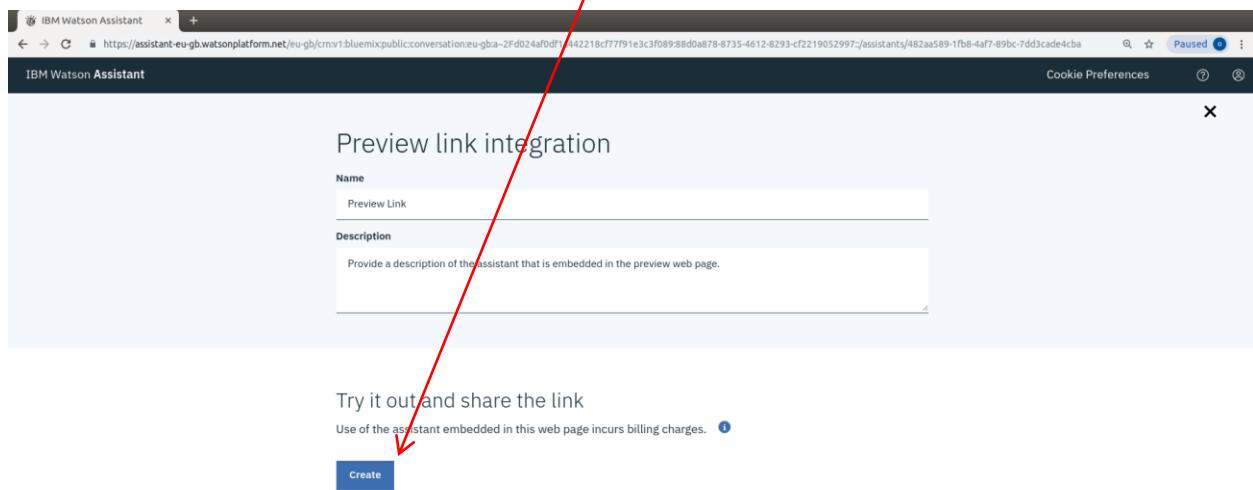
Slack
Make the assistant available to customers by adding it to a Slack app as a bot user.

Intercom Plus
Connect the assistant to an Intercom app so it can help human agents address customer queries. **Try plus plan**

Other integrations

Custom application

- Enter the name and description and then create



IBM Watson Assistant

https://assistant-eu-gb.watsonplatform.net/eu-gb/cm/v1/bluemix/public/conversation.eu-gba-a-2Fd024af0df1a42218cf77f91e3c3f08988d0a878-8735-4612-8293-cf2219052997-/assistants/482aa589-1fb8-4af7-89bc-7dd3cad4cba

IBM Watson Assistant

Cookie Preferences

Paused

Preview link integration

Name: Preview Link

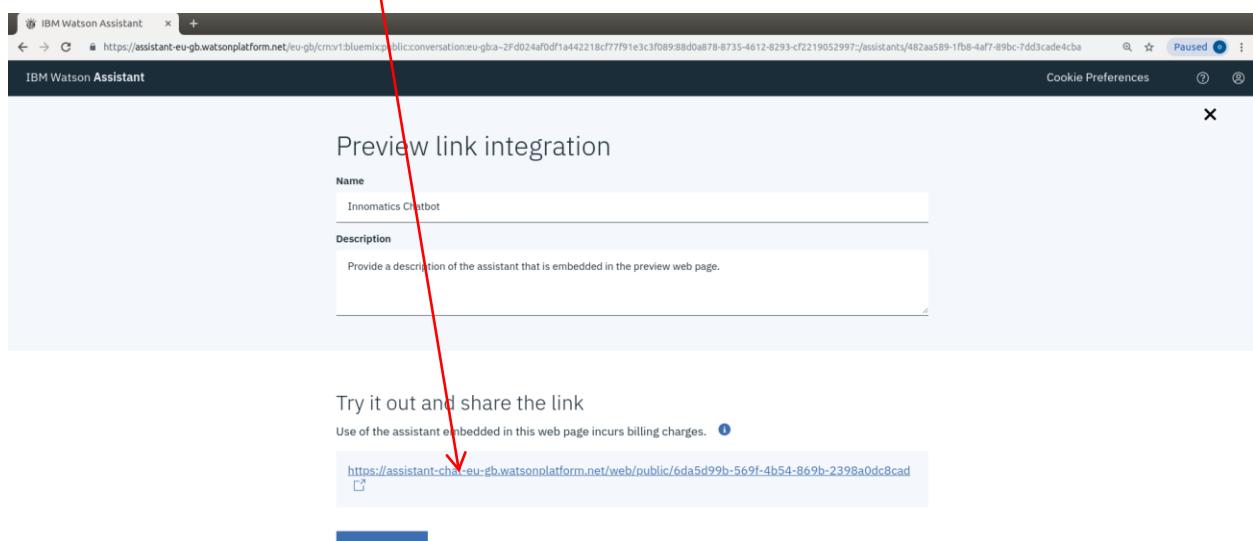
Description: Provide a description of the assistant that is embedded in the preview web page.

Try it out and share the link

Use of the assistant embedded in this web page incurs billing charges.

Create

- Your chat bot is deployed successfully and you can share that link.



IBM Watson Assistant

https://assistant-eu-gb.watsonplatform.net/eu-gb/cm/v1/bluemix/public/conversation.eu-gba-a-2Fd024af0df1a42218cf77f91e3c3f08988d0a878-8735-4612-8293-cf2219052997-/assistants/482aa589-1fb8-4af7-89bc-7dd3cad4cba

IBM Watson Assistant

Cookie Preferences

Preview link integration

Name: Innomatics Chatbot

Description: Provide a description of the assistant that is embedded in the preview web page.

Try it out and share the link

Use of the assistant embedded in this web page incurs billing charges.

<https://assistant-chat-eu-gb.watsonplatform.net/web/public/6da5d99b-569f-4b54-869b-2398a0dc8cad>

Save changes

URL:

<https://assistant-chat-eu-gb.watsonplatform.net/web/public/e9fc0d82-1ae8-4de6-be7f-096b69cf215e>

Build your own assistant using
[IBM Watson Assistant](#)

Assistant preview

Welcome to Innomatics Research Lab
!!!, I am your assistant for this website

Friday, 9 August 2019 21:35

hi

Hi, How can I help you

what language teach in data science course

Python and R are the two most ubiquitous languages in Data Science and both have their own communities of staunch supporters who swear by their respective languages. We, at Innomatics teach both. In general Statisticians Use R Python is used for all purposes.

Type something... →

Thank you,

Innomatics Research Lab Team