

## watsonx.ai integration with IBM watsonx Assistant to enable Gen AI

The goal of this exercise is to show how you can leverage and integrate watsonx.ai LLMs to add <u>Generative AI</u> capabilities to your assistant. We are going to create a travel assistant with watsonx Assistant and use a <u>Large Language Model (LLM)</u> to generate the travel information.

## 1. Obtain the watsonx.ai OpenAPI file

1. Download the <u>watsonx-openapi.zip</u> and extract the **watsonx-openapi.json** file. You will use this watsonx.ai OpenAPI enpoint file later in this exercise.

## 2. Get your watsonx.ai project ID

- Log in to the watsonx.ai platform
   (https://dataplatform.cloud.ibm.com/wx/home?context=wx) with the
   email you use to access your IBM Cloud account.
- 2. From the navigation menu at the top-left corner, select **View all projects**.

×	IBM watsonx	
Fil	ter navigation	$\succeq$
ඛ	Home	
01	Data	^
	Platform connections	
	Projects	^
	View all projects	
	Jc View all projects	

- 3. Select New Project > Create an empty project.
- 4. Give the project any name. In the **Storage** panel, "watsonx Challenge COS" will be pre-selected for you by default.



Conversational AI Hackathon with IBM watsonx Assistant

≣ IBM watsonx						
Create a project Start with a new, blank project o	r select from where to import an existing project.					
+ New	Define details					
교 Local file xgr. Resource hub	Name watsonx-project					
	Description (optional) What's the purpose of this project?					
	<u>k</u>					
	watsonx-Challenge COS					
	Project includes integration with Cloud Object Storage for storing project assets.					
	Advanced settings 🗸					

- 5. Click **Create**. You will be taken to the project's overview dashboard.
- 6. Select the **Manage** tab on your project dashboard, select the **Services &** integrations on the left pane, and click **Associate service +**.

IBM watsonx				٩	2758876 - Watson	X Challe 🗸	Dallas 、	~ G
Projects / My first watsonx project				Ť	A+ Launch IDE	~ ©	5 S	<b>I</b>
Overview Assets	Jobs	Manage						
Project @ General	Services & integrations							
Access control	IBM services	Third-party integrations						
Environments	Q Find services					Associat	e service	+
Services & integrations	Name		Service type					
		ĺ	No services Click Associate service or ask a project Admin to associat	e one				

7. From the list of services, select the "**watsonx-Challenge WML**" Watson Machine Learning instance and then click **Associate** button to complete associating the machine learning service.

Associa Choose an exis	Associate service Choose an existing or add a new service to associate with your project.						
Resource Gro	oups v 2 × Locations v						
Q Find servi	ces						
Name		Туре	Plan	Loc			
watsonx	Challenge COS	Cloud Object Storage	Lite	Glo			
watsonx	Challenge WS	Watson Studio	Professional	Da			
watsonx	Challenge WML ①	Watson Machine Learning	Essentials	Da			



8. In the same Manage tab, select **General** on the left pane. Copy and note down the Project ID value. This value will be used later in this exercise.

Overview	Assets	Deployments	Jobs	Manage	
Project		General			
Access control		Details			Ø
<ul> <li>Environments</li> <li>Resource usage</li> <li>Services &amp; integrat</li> </ul>	ions	Name wxA-integration			
		Description What's the purpose of this proj	ect?		
		Tags Add tags to make projects easi	er to find.		Ľ
		Project ID			
		2befee5f-7274-4e51	51		

## 3. Create an IBM Cloud API key

- 1. Go to your IBM Cloud account dashboard.
- 2. Select Manage > Access (IAM) at the top of the IBM Cloud dashboard.



- 3. Select **API keys** on the left pane and click the **Create +** button.
- 4. Give a name for the API key, enter optional description, select **Yes** for the **Session creation** and click the **Create** button.



Create IBM Cloud API key	×				
Name					
wxA-integration					
Description (optional)					
Enter description					
Leaked action         If API key is discovered to have been leaked out in the world, what would you like the system to do?         O         Disable the leaked key         O         Delete the leaked key         O         Nothing					
Session creation Will this API key create a session in the CLI? Yes No					
Cancel	Create				

5. An API key will be created. Download and save the file in a secure path for future references.



#### 4. Create a new assistant

1. If you have an existing assistant already created, create a new assistant for this exercise. In your watsonx Assistant home page, select your assistant drop down at the top of the dashboard and select **Create New +**.





2. Enter a name for your travel assistant, optional description and click the **Create assistant** button.

Create a new assistant	×
Assistant name	
Travel assistant	
Your assistant name will be kept internally and not visible to your customers	
Description (optional)	0/128
Add a description for this assistant	
	//.
Assistant language	
English (US)	~
This is the language your assistant will speak.	



page. Note, you can always switch between assistants by selecting the assistant drop down at the top of the dashboard.

IBM	vatsonx Assistant Trial 29 days left Extend trial Travel assistan 🗸
ඛ	View all assistants 臣
Ę	Assistant Builder Home
$\square$	Travel assistant Last updated on October 30, 2024 7:12:29 PM EDT
ER.	3 Your assistant now has new watsonx generative AI features! Learn more about intelligent information gathering.
~	Enhance your assistant         Further improve and customize your assistant with these recommendations.         Build actions         Enhance and improve your assistant's actions.         Welcome your users in a unique way that aligns with your brand.         →
	Assistant architecture Here's an overview that depicts the structure of your assistant.



## 5. Add a new custom extension for watsonx.ai LLM integration

1. On the left navigation menu, select **Integrations**.



2. Scroll down to the section called **Extensions** and click on the **Build custom extension** button.



- 3. Review the Get Started steps and click the **Next** button.
- 4. Enter an extension name (example: wx-ai-custom-extension) with optional description and click the **Next** button.
- 5. Import the watsonx.ai OpenAPI file (watsonx-openapi.json) that was previously downloaded in <u>Step 1. Obtain the watsonx.ai OpenAPI file</u> of this exercise and click the **Next** button.



- 6. Review the extension details and click the **Finish** button.
- 7. Notice that a new **wx-ai custom extension** will be created in the Extensions section. Click the **Add +** button. A pop-up will appear. Click the **Add** button again to confirm.



Conversational AI Hackathon with IBM watsonx Assistant

Extensions Add features or content to your assistant using custom or pre-built extensions. Learn more	Ę		Segment	Segment
Build custom extension $\rightarrow$	Search Extend the scope of what your assistant can answer by searching documents and websites.		Get a better understanding of your users' end-to-end journeys by combining your assistant's data with other sources.	Get a better understanding of your users' end-to-end journeys by combining your assistant's data with other sources.
	Add +		Learn more	Learn more
	•	]		
	wx-ai-custom-extension			
	Add +			

- 8. Review the Get Started steps and click the **Next** button.
- 9. In the Authentication setting panel:
  - a. Configure the Authentication type as OAuth 2.0
  - b. In the **Apikey** field, enter the IBM Cloud API key that you created and saved in <u>Step 3. Create an IBM Cloud API key</u> of this exercise.
  - c. Click the **Next** button.

Custom extension Date	Close Next
C Get started ( Authentication C Review operations	
Authentication	
Authentication types are determined in the OpenAPI document and provide security for the extension.	
Authentication type	
OAuth 2.0 V	
Grant type	
Custom apikey V	
Custom Secrets	
Apikey	
©	

10.Review operations and click the **Finish** button. The watsonx.ai extension is now successfully integrated, and you can click the **Close** button if you are not automatically navigated to the **Extensions** page.

#### 6. Create an action

1. Let's create an action for the travel assistant. On the left navigation menu, select Actions and select **Create action +** button.

IBN				Conversational AI Hackathon with IBM watsonx Assistant
Ĺ	9	Actions		
E	Ņ	All items	^	
C	>	Created by you		
		Set by assistant		
5	3	Variables	^	
Lis.	R	Created by you		
		Set by assistant		
6	~	Set by integration		
		Saved responses		Create your first action
				With actions, you can help your customers accomplish their goals.
				Create action +

2. Select the **Start from scratch** option.

Create an action	
------------------	--

How would you like to build your action?

Start from scratch	Quick start with templates
Build with actions using your own use case.	Use one of our pre-built templates and use cases.

3. You need to "train" your assistant's topic-recognition AI by giving it some example sentences to start an interaction. Enter "Travel" and select the **Save** button.

New action			×
What does your	customer say to start this inte	raction?	
Travel			
			1
Cancel		Save	

You can add more example sentences later.

## **IEM** Conversa 7. Create first conversation step

Now it's time to create the first step in the Travel interaction.

 A blank first step is already created for you. Select the Edit step tile pencil icon next to Step 1 text and enter "Specify country" as title. Let's add a clarification question in the Assistant says text box and enter "What country would you like to travel to?". Expand the Define customer response drop down and select Free Text. Select the save button on top right of the page. Finally, Step 1 should like below image.

		Visualization	
sustomer starts with: iravel	Step 1 Specify country	×	
versation steps	Is taken without conditions $$	Set variable values fx	
Specify country			
What country would you like to travel to?	Assistant says		
Tr Free text	B I @ fx Cg CS F3 E3 60 00		
↓ Continue to next step	What country would you like to travel to?		
		11.	
		User enters free text	
	Edit response Edit validation	a = 0	
	And then		
	↓ Continue to next step	v .	

## 8. Create second conversation step

- 1. Select **New step +** on the left pane. A new Step 2 will be created.
- 2. Name the Step 2 as "Information on country". Select with conditions for the step. In the **Conditions**, click the first item, click "**Action step variables**" and select **1. Specify country**.

Step 2	Information on country				×
Is taken	with conditions $~~$			Set variable values	fx
Conditio	ons			1 condition	^
If All	$\sim$ of this is true:				
	1. Specify country	is	defined		×
and	Add condition +				



In the Assistant says text box, enter "Would you like information on \$". A drop-down menu appears. Click "Action step variables" and select 1.
 Specify country. Select the Define customer response drop down and select the Confirmation option.



4. Click save at the top right of the page and the step should look like below image.

Т	ravel		Editor Vis	ualization	]	
C	ustomer starts with:	Is taken with conditions $\checkmark$		Set varia	ble values	fx
Tr	avel 🗸	Conditions			1 condition	^
Con	versation steps					
	Specify country	If All V of this is true:				
	What country would you like to travel to?	1. Specify country is	defined			×
1	T <sub>T</sub> Free text	and Add condition +				
	↓ Continue to next step 🗇 🔟					
	Information on country	New condition group +				
	1 IS Defined					
2	Would you like information on Step 1					
	Confirmation	Assistant says				
	↓ Continue to next step 🗇 🔟	B I 🖉 fx 🎲 🛯 🎜 🖽 🙆 🛛				
		Would you like information on 1 Specify country				
		would you like information on 1. Specify country				
						1
						///.
		Yes No				
		View response Edit validation			© =	t D
		And then				
		↓ Continue to next step				~
	New step +					

## 9. Create third conversation step

- Select New step + on the left pane. Name the Step 3 as "No information on country required". Select with conditions for the step. In the Conditions, click the first item, click "Action step variables" and select 2. Information on country. Click the third item and select No.
- 2. Expand **Continue to next step** under the **And then** section, and specify that the next step is **End the action**. When you click **End the action**, the UI shows **End the action** in the **And then** panel. This step means a user can end the dialogue flow if they don't want information on the country specified.
- 3. Click save at the top right of the page and the step should look like below image.

Т	ravel	<b>Editor</b> Visualization	
Ci Tr	istomer starts with: avel	Step 3 No information on country required	×
Con	versation steps	Is taken with conditions ~ Set variable values	fx
	Specify country	Conditions 1 condition	^
1	What country would you like to travel to?	If All V of this is true:	
	↓ Continue to next step 🗇 🗓	2. Information on country is No	×
	Information on country 1 is Defined	and Add condition +	
2	Would you like information on Step 1 Confirmation	New condition group +	
	↓ Continue to next step	Assistant says	
	No information on country required       2 is No		
3	This step has no content	For example: What size do you want to order?	
	⊘ Action complete  □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □		
			//.
		A Define customer response	~
		And then	
		⊘ End the action	~

## 10. Create fourth conversation step

 Select New step + on the left pane to create Step 4. Name the Step 4 as "Call LLM for general country information". Select with conditions for the step. In the Conditions, click the first item, click "Action step variables" and select 2. Information on country. Click the third item and select Yes.



itep 4	Call LLM for general country infor	rmation				×
s taken	with conditions $\checkmark$			Se	t variable values	f×
Conditio	ns				1 condition	^
Conditio	ns 🗸 of this is true:				1 condition	^

#### 2. Select Set variable values button.

Step 4	Call LLM for general country information	×
Is taken	with conditions $\checkmark$	Set variable values $f_x$
Conditio	IS	1 condition 🔨

3. Select **Set new value +** under the variable values section. And select the **New session variable** option.

,	Variable values	
:	Set variable values. Learn more.	
	Set new value +	
	Q	
As	Integration variables >	
E	Expression	
	+ New session variable	

4. A session variable prompt will be displayed. Enter "**prompt**" for the **Name** field. Select **Choose a type** drop-down under the **Type** section and select the **Free text** option. Click **Apply**.

Session variable		×
Name	Variable ID (i)	
prompt	prompt	ū
Туре		
Tr Free text		~
Initial value (optional) (j		Use expression
Description (optional)		
Privacy 🗊		
Protect data stored in this variable		
Cancel	Apply	



5. For the variable assignment **To**, select **Expression**, and type **"Tell me about the country "** (with the double quotes), then enter "+" sign and next enter "\$" sign. A drop-down menu appears. Click "**Action step variables**" and select **1. Specify country**. Click **Apply**.



6. The variable value should look like below image.

Variable values						^
Set variable values. Learn more.						
I Set TT prompt	$\sim$	То	"Tell me about the country " +	1. Specify country	$\sim$	×
Set new value +						

7. Under the **And then** section, select the **Continue to next step** drop-down and select **Use an extension** option.

And then	
$\downarrow$ Continue to next step	
Continue to next step	Use an extension
Re-ask previous step(s)	Share information from your ass
Go to a subaction	party service to provide persona
Use an extension	You can add extensions to your

8. In the Extension setup, for the **Extension** field, select the **wa-ai-customextension** that you add created. For the **Operation** field, select **Generation** option. In the **Parameters** section, for version, choose **Enter text**, and then



enter **2023-05-29**. For input, choose **Session Variables**, and then choose **prompt**. For the model\_id, choose **Enter text**, enter **ibm/granite-13b-chat-v2**. For the project\_id, choose **Enter text**, enter the watsonx.ai project ID that you had captured in <u>Step 2. Get your watsonx.ai project ID</u> of this exercise. Don't click the **Apply** button yet.

Use a	Use an extension									
Exte	ension setup									
Choose an extension and operation. Then select the information to be shared with the external application to respond to your users' needs. Learn more										
Exten	Extension ①									
w>	-ai-custom-extension				~					
Choos	se an extension that has been ad	dded to your assistant.								
Opera	ation (j									
Ge	neration				~					
Choos	se from a list of operations inclu	ıded in your extension.								
Priva	cy i									
L F	Protect data returned from th	nis extension								
Paran	neters (j									
Set	T <sub>T</sub> version		То	2023-05-29	~					
Set	Tr input		То	T <sub>T</sub> prompt	~					
Set	Tī model_id		То	ibm/granite-13b-chat-v2	~					
Set	T⊤ project_id		То	2befee5f-7274-4e51-a775	~					

- 9. Expand the **Optional parameters** drop-down. For this text generation scenario:
  - a. Set parameters.temperature to 0.7
  - b. Set parameters.max\_net tokens to 900
  - c. Set parameters.min\_new\_tokens to 50
  - d. Set parameters.repetition penalty to 2
  - e. Set parameters.decoding\_method to sample
  - f. Click **Apply**.



Optional parameters

_						
Set	xxx parameters.temperature	То	0.7		$\checkmark$	
Set	123 parameters.max_new_tokens	То	900		~	
Set	123 parameters.min_new_tokens	То	50		~	
Set	Tr parameters.decoding_method	То	sample		~	
Set	123 parameters.repetition_penalty	То	2		~	
Set	123 parameters.top_k	То			~	
Set	123 parameters.top_p	То			~	
Set	129 parameters.time_limit	То			~	
Set	123 parameters.random_seed	То			~	
Set	parameters.stop_sequences	То			~	
Set	• parameters.include_stop_sequence	То			~	
Cancel			Apply			

10.Click **save** at the top right of the page. Finally, the Step 4 should look like below image.

avel			Editor	Visualization	
stomer starts with:	Step 4 Call LLM for general country int	formation			×
ersation steps	Is taken with conditions $$			Delete variable va	ues <i>fr</i>
Specify country	Conditions				dialana a
t country would you like to travel to?	Conditions			1 00	dition A
Tr Free text	If All V of this is true:				
'ep	2. Information on country	is	Yes		×
	and Add condition +				
	New condition group +				
	Variable values				^
	Sativariable values Learn more				
	Set variable values. Learn more.		Tell me shou	the equator (	
	* Set Tr prompt	Ŷ	Io Tell me abou	t the country + 1. Specify country	~ ×
	Set new value +				
	Assistant says				
		00			¢
	For example: What size do you want to ore	der?			
					//
	A Define customer response				~
	And then				
	St Use an extension				~
	Extension () wx-a	ai-custom-extension			
	Operation () Gene	eration			
	Parameters ① input	it	set to	Tr prompt	
	mod	lel_id	set to	ibm/granite+13b+chat+v2	
	proje	ect_id	set to	2befee5f-7274-4e51-a775-baacc7045c5	
	para	ameters.temperature	set to	0.7	
	para	ameters.max_new_tokens	set to	50	
	para	ameters.decoding_method	set to	sample	
	para	ameters.repetition_penalty	set to	2	
	versi	ion	set to	2023-05-29	
	Edit extension				

# **11.** Create fifth conversation step

 Select New step + on the left pane to create Step 5. Name the Step 5 as "Country info response". Select with conditions for the step. In the Conditions, click the first item, select wx-ai-custom-extension (step 4) and select Ran successfully.

Step 5	Country info response				×
Is taken	with conditions			Set variable values	fx
Condit	tions			1 condition	^
If A	All $\checkmark$ of this is true:				
	4 🖫 Ran successfully	==	true		×
and	Add condition +				

- 2. Select **Set variable values** button. Select **Set new value +** under the variable values section. And select the **New session variable** option.
- 3. A session variable prompt will be displayed. Enter "**result country info**" for the **Name** field. Select **Choose a type** drop-down under the **Type** section and select the **Free text** option. Click **Apply**.

Session variable			×
Name		Variable ID (i)	
result country info		result_country_info	
Туре			
T⊤ Free text			~
Initial value (optional) (j			Use expression
Description (optional)			
Privacy 🛈			
Protect data stored i	in this variable		
			_
Cancel		Apply	

4. For the variable assignment **To**, select **Expression**, and type "\$". A dropdown menu appears. Select **wx-ai-custom-extension (step 4)**.



Variabl	e va	lues

Set variable values. Learn more.		
Set TT result country info ~	То	~ ×
Set new value +	< All variables	
	Expression	د <sup>م</sup>
sistant says	Action step variables	>
For example: What type of transfer would you like to make?	wx-ai-custom-extension (step	4) >
	Session variables	wx-ai-custom-extensi
	Assistant variables	>
	Car Integration variables	>
2 Define customer response		~

5. Next select **body.results** option. The box fills in with the assignment for the **result\_country\_info** variable. Now append "[0].generated\_text" to the expression. Click **Apply**.

Variable values					^
Set variable values. Learn more.					
Set TT result country info	~	То		~	×
Set new value +		< All variables			
		Expression		× ۲	
Assistant says		4 🗟 body.results	[0].generated_text		
B <i>I ⊘ f</i> <sub>x</sub> ♀ ₽ ₽ ● 00					
For example: What type of transfer would you like t	to make?				
		Cancel	Apply		//.
8 Define customer response					~

6. The full expression for the variable should be displayed, as shown in the following image.

Variable	values						^
Set varia	able values. Learn more.						
∷ Set	Tr result country info	~	То	4 🖙 body.results	[0].generated_text	~	×
Set ne	w value +						

7. In the Assistant says panel, select function, and then enter "\${result\_country\_info}". Or you can select Session variables, and then result\_country\_info. This panel will display the information to the assistant user as returned by the LLM when inferenced. It uses the result\_country\_info variable to store the result from the LLM.



#### Assistant says

BIØ	fx ធ្រៃ ៥	] 1]	⊞ (	0	<>>
TT result cou	ntry info				

8. Click **Save** at the top right of the page and the Step 5 should look like below image.

Т	ravel	Editor Visualization	
Сі Ті	ustomer starts with: avel	Step 5 Country info response	×
Con	versation steps	Is taken with conditions $$	fx -
	Specify country	· 101	
	What country would you like to travel to?	Conditions 1 condition	^
1	Tr Free text	If All $\checkmark$ of this is true:	
	↓ Continue to next step	4 Stan successfully == true	×
	Information on country	and Add condition +	
	1 is Defined		
2	Would you like information on Step 1 Confirmation	New condition group +	
	↓ Continue to next step	Variable values	^
	No information on country required	Set variable values. Learn more.	
	2 is No	Il Est Ta coult country info	~
3	This step has no content	:: Set 17 result country into VIO 4 28 body/results [t0].generated_text V	~
	⊘ Action complete	Set new value +	
	Call LLM for general country information	Assistant save	
	2 is Yes		
4	This step has no content		
	Survey an extension	Tr result country info	
	Country info response		
	4 is true		//.
5	result country info	8 Define customer response	~
L	↓ Continue to next step 🛱 🗎	And then	
		↓ Continue to next step	~
	New step +		

## 12. Create sixth conversation step

- Select New step + on the left pane to create Step 6. Name the Step 5 as "More info on country". In the Assistant says, add text "Would you like more information on" and add "\$". A drop-down menu appears. Click "Action step variables" and select 1. Specify country. Next, append text "that is specific to your interests?". In Define customer response, select Confirmation option.
- 2. Click **Save** on the top right of the page and Step 6 should like below image.

IBN			Conversational AI Hacl	kathon with IB	M watsonx Assistant
1	Travel			Editor Visualization	
	Specify country				
	What country would you like to travel to?	Step 6	More info on country		×
1	Tr Free text	Is taken	without conditions ~	Se	t variable values f.
	↓ Continue to next step	10 tenen			
	Information on country	Assistant			
	1 is Defined	Assistant	a ay s		
2	Would you like information on Step 1	в х			
2	Confirmation	Would	you like more information on 1. Specify country that is specific to yo	pur interests?	
	Continue to next step				
	<ul> <li>common to many maps</li> </ul>				
	No information on country required				11.
	2 is No				
3	This step has no content	Yes	No		
	Action complete	View re	esponse Edit validation		C 10
		1			
	Call LLM for general country information	And then			
	2 is Yes	↓ Co	ontinue to next step		~
4	This step has no content				
	Se Use an extension				
	Country info response				
	4 is true				
5	A result country info				
	↓ Continue to next step				
	More info on country				
	Would you like more information on Step 1 that is				
6	specific to your interests?				
0	Confirmation				
	L Continue to next step 👘 👼				
_	Commune to next step				
	New step +				

## 13. Create seventh conversation step

- Select New step + on the left pane to create Step 7. Name the Step 7 as "Specific interests on country". In this step, select with conditions. In the condition, click the first item, click "Action step variables" and select 6. More info on country. Click the third item and select Yes. In the Assistant says, add text "Please list your interests". In Define customer response, select Free Text option.
- 2. Click **Save** on the top right of the page and Step 7 should like below image.

	Travel	Editor Visualizat	tion
2	1 is Defined Would you like information on Step 1	Step 7 Specific interests on country	×
-	Confirmation	Is taken with conditions 🗸	Set variable values $f_s$
	↓ Continue to next step	Conditions	1 condition
	No information on country required	o o nomen o	2 0010100
	2 is No	If All $\checkmark$ of this is true:	
3	This step has no content	6. More info on country is Yes	×
	Action complete	and Add condition +	
	Call LLM for general country information		
4	2 is Yes	New condition group +	
	This step has no content		
	Subsean extension	Assistant savs	
	Country info response		
	4 is the		
5	result country info	Please list your interests	
	↓ Continue to next step		
			11.
	More info on country		
	Would you like more information on Step 1 that is		lser enters free text
6	Confirmation	Edit response Edit validation	© # 0
	↓ Continue to next step	And then	
	Encolfic interacte on country	J. Continue to next step	~
	6 is Yes		
	Please list your interests		
7	Tr Free text		
	↓ Continue to next step 🗇 🖻		

## 14. Create eighth conversation step

- Select New step + on the left pane to create Step 8. Name the Step 8 as "No specific interests on country". In this step, select with conditions. In the condition, click the first item, click "Action step variables" and select 6. More info on country. Click the third item and select No. In the And then section, select End the action option.
- 2. Click **Save** on the top right of the page and Step 8 should like below image.

	Tra	avel	Editor Visualization	
		No information on country required		
		2 is No	Step 8 No specific interests on country	×
1	3	This step has no content	Is taken with conditions V	fx
		Action complete		
			Conditions 1 condition	^
		Call LLM for general country information		
		2 is Yes	If All v of this is true:	
4	4	This step has no content	6. More info on country is No	×
		Ge Use an extension	and Add condition +	
		Country info response		
5		4 is true	New condition group +	
	5	▲ result country info		
		↓ Continue to next step		
			Assistant says	
		More info on country		
		Would you like more information on Step 1 that is specific to your interests?	For example: What type of transfer would you like to make?	
1	ذ	Confirmation		
		↓ Continue to next step		1
				///.
		Specific interests on country	8 Define customer response	~
		6 is Yes		
	7	Please list your interests	And then	
		TT Free text		
		Continue to next step	⊘ End the action	~
Γ	Т	No specific interests on country		
		6 is No		
1	3	This step has no content		
		Action complete		

## 15. Create ninth conversation step

 Select New step + on the left pane to create Step 9. Name the Step 9 as "Call LLM for specific country information". In this step, select with conditions. In the condition, click the first item, click "Action step variables" and select 7. Specific interests on country.

Step 9	Ē	Call LLM	1 for specific country informat	ion				×
Is take	en	with cor	nditions ∨				Delete variable values	f <sub>x</sub>
Con	dition	s					1 condition	^
If	All		of this is true:					
		7. Specifi	c interests on country	is	defined	]		×
a	nd /	Add cond	ition +					



- 2. Select **Set variable values** button. Select **Set new value +** under the Variable values section and select the **New session variable** option.
- 3. A session variable prompt will be displayed. Enter "**prompt specific**" for the **Name** field. Select **Choose a type** drop-down under the **Type** section and select the **Free text** option. Click **Apply**.

Session variable		×
Name	Variable ID (j)	
prompt specific	prompt_specific	
Туре		
Tr Free text		~
Initial value (optional) (		Use expression
Description (optional)		
Privacy (j)		
Protect data stored in this variable		
Cancel	Apply	

4. For the variable assignment **To**, select **Expression**, and following previous variable assignment steps instructions, enter the text as shown in the below image.

Variable values				^
Set variable values. Learn more.	_		-	
Set T <sub>T</sub> prompt specific	~ То		$\checkmark$	×
Set new value +		< All variables		
		Expression	2	
Assistant says		"I am thinking of traveling to" + 1. Specify country		
B <i>I ∅ f</i> <sub>x</sub> 🖏 🗷 <i>F</i> 🖬 🗿 00		+ ". I like " + 7. Specific interests on country + ". Give me 5 short sentences on " +		
For example: What size do you want to order?		1. Specify country		
		Cancel Apply		

- 5. In the And then section, select Use an extension option.
- 6. In the Extension setup, for the **Extension** field, select the **wa-ai-custom-extension** that you add created. For the **Operation** field, select **Generation** option. In the **Parameters** section, for version, choose **Enter text**, and then enter **2023-05-29**. For input, choose **Session Variables**, and then



choose **prompt\_specific**. For the model\_id, choose **Enter text**, enter **ibm/granite-13b-chat-v2**. For the project\_id, choose **Enter text**, enter the watsonx.ai project ID that you had captured in <u>Step 2. Get your watsonx.ai</u> <u>project ID</u> of this exercise. Don't click the **Apply** button yet.

Use a	n extension			×				
Exte	Extension setup							
Choo users	Choose an extension and operation. Then select the information to be shared with the external application to respond to your users' needs. Learn more							
Exten	sion ①							
wx	-ai-custom-extension			$\sim$				
Choos	e an extension that has been added to your assistant.							
Opera	tion ①							
Ge	neration			$\sim$				
Choos	e from a list of operations included in your extension.							
Priva	cy ①							
	rotect data returned from this extension							
Param	neters (j)							
Set	Tr version	То	2023-05-29	~				
Set	Tr input	То	Tr prompt specific	~				
Set	Tr model_id	То	ibm/granite-13b-chat-v2	~				
Set	Tr project_id	То	2befee5f-7274-4e51-	~				
	tional noremators							
Ομ	tional parameters			~				

Cancel Apply
--------------

- 7. Expand the **Optional parameters** drop-down. For this text generation scenario:
  - a. Set parameters.temperature to 0.7
  - b. Set parameters.max\_net tokens to 900
  - c. Set parameters.min\_new\_tokens to 50
  - d. Set parameters.repetition penalty to 2
  - e. Set parameters.decoding\_method to sample
  - f. Click **Apply**.



Optional parameters

Set	123 parameters.temperature	То	0.7
Set	<pre>123 parameters.max_new_tokens</pre>	То	900
Set	<pre>123 parameters.min_new_tokens</pre>	То	50
Set	Tr parameters.decoding_method	То	sample
Set	<pre>123 parameters.repetition_penalty</pre>	То	2
Set	123 parameters.top_k	То	
Set	123 parameters.top_p	То	
Set	<pre>warameters.time_limit</pre>	То	
Set	<pre>sea parameters.random_seed</pre>	То	
Set	parameters.stop_sequences	То	
Set	• parameters.include_stop_sequence	То	
Canc	əl		Apply

8. Click Save on the top right of the page and Step 9 should look like below image.

Confirm
bd
ő
information
ny -
formation on Step 1 the ts?
Confirm
tep
intry
Tr Free
y



## 16. Create tenth conversation step

 Select New step + on the left pane to create Step 10. Name the Step 10 as "Specific country info response". Select with conditions for the step. In the Conditions, click the first item, select wx-ai-custom-extension (step 9) and select Ran successfully.

Step 10	Specific country info response					×
Is taken	with conditions $\checkmark$				Delete variable values	fx
Conditions 1 condit				1 condition	^	
If All	$\sim$ of this is true:					
- F	9 🖫 Ran successfully	==	true			×
and	Add condition +					

 Select Set variable values button, select the Set new value + button and select the New session variable option. A session variable prompt will be displayed. Enter "result country specific info" for the Name field. Select Choose a type drop-down under the Type section and select the Free text option. Click Apply.

Session variable		×
Name	Variable ID (i)	
result country specific info	result_country_specific_info	
Туре		
T⊤ Free text		~
Initial value (optional) (j		Use expression
Description (optional)		
Privacy (j)		
Protect data stored in this variable		
Cancel	Apply	

3. For the variable assignment **To**, select **Expression**, and type "\$". A dropdown menu appears. Select **wx-ai-custom-extension (step 9)**.



 $\overline{}$ 

Variable values

Set variable values. Learn more.		
Set TT result country specific info $\checkmark$ To	×	× ×
Set new value +	< All variables	
	Expression 2	
lssistant says		
B I Ø fx & C I E I O U	Action step variables >	
For example: Please select from the following options:	wx-ai-custom-extension (step 4) >	
	wx-ai-custom-extension (step 9) >	
	Session variables >	
	Car Assistant variables >	
8 Define customer response	Integration variables >	~

4. Next select **body.results** option. The box fills in with the assignment for the **result\_country\_info** variable. Now append "[0].generated\_text" to the expression. Click **Apply**.

Variable values		^
Set variable values. Learn more.		
Set TT result country specific info V To	~	×
Set new value         +         <         All variables		
Expression	بر لا	
Assistant says 9 🔓 body.results [0].generated_t	ext	
For example: Please select from the following options:		
Cancel		//.
A Define customer response		~

5. The full expression for the variable should be displayed, as shown in the following image.

Variable values							^
Set variable values. Learn more.							
<b>:: Set</b> T <sub>T</sub> result country specific info	$\sim$	То	9 🖙 body.results	[0].generated_text	~	•	×
Set new value +							



6. In the Assistant says panel, select function, select Session variables, and then result\_country\_specific\_info.



- 7. In the And then section, select End the action option.
- 8. Click **Save** at the top right of the page and the Step 5 should look like below image.

Control to registre   4   5   4   5   4   5   4   5   4   5   5   4   5   5   6   5   6   5   6   5   7   6   6   5   7   5   6   6   5   7   5   6   5   7   5   6   5   7   5   6   5   7   5   6   5   7   5   7   5   7   5   7   5   7   5   7   5   7   5   7   5   7   5   7   5   7   5   7    5   7   5   7   5   6   5   7   5   6   5   7   5   5   7   5   5   7   5   5   6   5   5 </th <th>al</th> <th>Editor Visualization</th> <th></th>	al	Editor Visualization	
A is item   A issued   A issued   A issued   A issued   A control tools of the issue   Conditions   Conditions to net step   Conditions to net step   A condition for exact step   A is is in form   A issued constry information   Place lity vuri interests   Conditions to net step   Variable values   Variable values   Sectific interests on constry   A is form   A is information   Conditions to net step   Variable values   Set variable values <tr< th=""><th>ountry into response</th><th></th><th></th></tr<>	ountry into response		
▲ sent country the   ↓ Continue to next step     More info on country   Would you like more information on step; 1) that is specific to your interests?   ↓ Continue to next step   ▲ Continue to next step     Conditions on country   ● is is on   ↓ Continue to next step   New condition group +    Please list your interests    ↓ Continue to next step   New condition group +    New condition group +    New condition in group +    Please list your interests    ↓ Continue to next step   ↓ In the next step	is true	Step 10 Specific country info response	
<ul> <li>↓ Continue to next step</li> <li>More info an constry</li> <li>Would you like more information</li> <li>↓ Continue to next step</li> <li>↓ Set Traceult country specific info</li> <li>↓ Or o \$Q\$ hody-result [0].generated_text</li> <li>↓ Lease</li> <li>↓ Leas</li></ul>	result country info	Is taken with conditions 🗸	able values
New india or condition 1 conditions   Would you like more information on Signify that is specific to your interests? 1 continue to next step   If all of of this is true: 9 Signific and Add condition +   If continue to next step New condition group +   Please list your interests Variable values.   It is is no sected to interest on country If is is no sected to interest on country specific info   It is is no sected to country information If is is no sected to interest on country specific info   It is is no sected to country information If is of is is is in the is true:   It is is no counter If is of is is in the is is no country information   If is is no counter If is is in the is is no country information   If is is no counter If is in the is is no sected to information   If is in the is in the is is no country information If is in the is is in t	↓ Continue to next step		
Multiply outlike motionmation on Skipg 1: that is   specific to your interests?   Continue to next stpp   Specific interests on country   6 is Yes   Please list your interests   The free toxt   Continue to next stpp   Variable values. Learn more.   If set Tr result country specific info   To 9 Qb body/results [0],generated_text   Set list your interests   Continue to next stpp   No specific interests on country   So failed to next stpp   Set list your interests   Call LLM for specific country information   7 is Defined   This step has no content   Specific country infor response   9 is true   A define customer response   9 is true   A befine customer response	fore info on country	Conditions	1 condition
Would your interests?     Continuation        Continuation		If All $\checkmark$ of this is true:	
Continuation   ↓ Continue to next step     Specific interests on country   ↓ is ves     Please list your interests   ↓ Continue to next step     Variable values   Set variable values. Learn more.   ↓ Continue to next step   Set variable values. Learn more.   ↓ Set variable values.   ↓ Set next value   ↓ Set next value     ↓ Continue to next step   Set variable values.   ↓ Set next value     ↓ Set next value     ↓ List pass on content   ↓ the next ension     ★ Define customer response   ↑ is true   ▲ result country specific info     ★ Define customer response     A chine content	fould you like more information on Step 1 that is pecific to your interests?		
↓ Continue to nost step     Specific interests on country   ७ is ive   Prove condition group +   Variable values. Learn more.   ↓ Continue to nost step   No specific interests on country   ७ is ive   ♥ Action complete   CallLLM for specific country information   ↑ is ive   ♥ Use an extension   ♥ is ive   ♥ is ive   ♥ is ive   ♥ is ive   Parelific country specific info   ♥ is ive   Assistant says   ♥ is ive   Parelific country specific info	Confirmation	9 😪 Ran successfully == true	
continue to next step specific interests on country r is res Prease list your interests Tr f ree text Variable values Set variable values. Learn more. Set variable values. Learn more. Set variable values. Learn more. Set new value + This step has no content Specific country information r is res Specific country information Specific country information Specific country inform	Commuter	and Add condition +	
Specific interests on country   Please list your interests   Continue to next step   No specific interest on country   Specific country information   This step has no content   Specific country information   This is to phas no content   Specific country information   This is to phas no content   Specific country information   This is to phas no content   Specific country information   This is to phas no content   Specific country information   This is to phas no content   Specific country information   Specific country information   Specific country information   Specific country information	↓ Continue to next step		
New condition group + Please list your interests Tr free text Variable values Set new value + Set new value + Set new value + Set new value + Tr esult country specific info To 9 % body.results [0].generated_text Set new value + Set new value + Tr esult country specific info To 9 % body.results [0].generated_text Set new value + This step has no content Set new value + Tr esult country specific info To 9 % body.results [0].generated_text Set new value + This step has no content Set new value + Tr esult country specific info Tr esult country specific info Tr esult country specific info Mex content % Use an extension Specific country inforesponse % Define customer response % Define customer response % Information % Define customer response % A Define customer response Matter	pecific interests on country		
Please list your interests	is Yes	New condition group +	
Tr Free text     Tr Free text     Variable values     Sepecific interests on country     6 is No     This step has no content     Set new value     Assistant says     B I Ø f, Q D F D 0 0     Tr result country specific info     Specific country information   7 is Defined   This step has no content   Q Use on extension     A Define customer response   9 is true   A result country specific info	lease list your interests		
↓ Continue to next step   Set variable values. Learn more.  Set variable value. +  To set value +  To set value +  To set value +  To set value f, f, G, G, G, F, G, G, F, G, G, F, G, G, G, F, G,	To Free built	Variable values	
↓ Continue to next step     Set continue to next step     Set variable values. Learn more.     If Set Tr result country specific info     If Set Tr result country specific info     If Set new value +     Assistant says     If I Defined     Tr result country specific info     If Set new value +     If I Defined     Tr result country specific info     If I Defined     Tr result country specific info     If I Defined     If I Defined     If I Defined     If I Define customer response     Is true     If I Define customer response	IT Free text		
If:       Set:       Tr result country specific info       ✓ To       ♥ ♀ g body,results [0],generated_text       ✓         6       is No       If:       Set:       If:       Set:       If:       Set:       If:       If:       Set:       Set:       Set:       Set: </td <td>↓ Continue to next step</td> <td>Set variable values. Learn more.</td> <td></td>	↓ Continue to next step	Set variable values. Learn more.	
6 is no   This step has no content   ② Action complete   Call LLM for specific country information   7 is Defined   This step has no content   ③ Use an extension   Specific country infor response   9 is true   A perfine customer response   9 is true   A content response   A for specific country specific info	lo specific interests on country	If Set     Tr result country specific info     Y     To     9 % body.results     [0].generated_text	~
This step has no content	is No	Set new value +	
Action complete  Assistant says  B I Ø f, G D F D D D  Tr result country specific info  bs tep has no content  per Use an extension  per Use an extension  per Use an extension  Add then  Assistant says  And then	his step has no content		
Action complete     Assistant says     B I O I D O O     B I O I D O O     Tr result country specific info     Specific country information     Assistant says     B I O I D O O     Tr result country specific info     Specific country information     A Define customer response     A result country specific info     And then	na step nas no content		
Call LLM for specific country information     Image: Call LLM for specific country information       7 is Defined     Image: Call LLM for specific country specific info       Tr result country specific info     Image: Call LLM for specific country specific info       Specific country information     Image: Call LLM for specific info       Specific country information     Image: Call LLM for specific info       Specific country information     Image: Call LLM for specific info       Specific country information     Image: Call LLM for specific info       And then     Image: Call LLM for specific info	O Action complete	Accietant cauc	
Call LW for specific country information     Pa     Image: Specific country information     Pa     Specific country information     Specific country information     Pa </td <td></td> <td>Assistant says</td> <td></td>		Assistant says	
7 is Defined     Tr result country specific info       This step has no content     Tr result country specific info       Specific country info response        9 is true        A result country specific info        And then	all LLM for specific country information	B I @ fx 🕃 🗔 🖼 🗔 00	
This step has no content   Spe Use an extension   Specific country info response   9 is true   A result country specific info   And then	is Defined	Tr result country specific info	
Be Use an extension       Specific country info response       9 is true       A result country specific info         And then	his step has no content		
Specific country info response          9 is true         A Define customer response         And then			
Specific country info response 9 is true A result country specific info	ੇ Barrier Ba		
9 is true     A Define customer response       • A result country specific info     And then			
result country specific info     And then	Specific country into response	2 Define customer response	
Aresult country specific info	15 1100		
	A result country specific info	And then	
C Andrea Compare	Action complete	Q End the action	

## 17. Test the travel assistant

- 1. Now, let's test the travel assistant action. Select **Preview** on the bottom right corner of the screen. You can restart the conversation and start fresh by selecting **Restart conversation arrow** at the top of the Preview.
- 2. Enter "travel" in the Preview chat field. You can notice the assistant provides the right response asking which country to travel. Enter "Greece" in the chat field. Now it responds asking if you want info about Greece.



	Preview C -
큤	Greet customer [default]
fx	Welcome, how can I assist you?
	You 12:40 PM travel
	(F) 12:40 PM
	Travel recognized
	What country would you like to travel to?
	You 12:42 PM
	Greece
	U2:42 PM Would you like information on Greece
	Type something

3. Click **Yes** and if everything worked, you should receive a response from the model containing the info on the country you specified. In the response, you will see something different if you rerun for the same country because you are using a sampling (versus greedy) decoding approach.





4. If you click **Yes** for information more specific to your interests, then you will be prompted to enter your interests. Enter some interests like "water sports and food". Once interests are entered, if everything worked, you should receive a response from the model with more specific info on the country.

	Preview C -
	Please list your interests
귚	You 4:30 PM
fx	water sports and food
8	
	A:30 PM     Extension called     in English:
	1. Known for its stumming Mediterrahean coastlines, ancient ruins,. 2)"Souvlaki" is a popular Greek fast-food dish that consists offlamen seasoned with tomatoes onions & herbs grilled upon skewers 3). The Acropolis at Athens , which served as the citadel during Mycenean times 4), In Santorini's Red Beach you'll find vibrant red volcanic sand created by an historic volcano eruption5.) Aegea
	i Extension info Inspect
	Action complete
	Use the up arrow for prior messages

## 18. Next steps

- 1. Experiment and try:
  - a. Use different AI models available on watsonx.ai platform to see the different responses generated by the models. You can refer to <u>Foundational model IDs documentation</u> to get the list of all supported AI models on the watsonx.ai platform.
  - b. Change the model parameters to fine tune the model responses. You can refer to <u>Foundational model parameters documentation</u> to learn how to adjust the model parameters.