

# **Creating a Chatbot using IBM Cloud Watson Assistant**

## **Introduction**

This project report outlines the step-by-step process of creating a chatbot using IBM Cloud Watson Assistant. The chatbot's primary purpose is to provide automated responses and assistance to users in a specific domain. This report serves as a comprehensive guide to the development of the chatbot.

## **Project Overview**

### **Purpose**

The project's primary goal is to create a functional chatbot that can efficiently handle user queries, provide relevant information, and improve the user experience within a specific domain.

### **Tools and Technologies**

- IBM Cloud Watson Assistant: The core platform for building and deploying the chatbot.
- IBM Cloud Services: For hosting and managing the chatbot.
- Natural Language Processing (NLP) techniques: To enhance the chatbot's understanding of user queries.

## **Step-by-Step Guide**

### **Step 1: Define Chatbot Requirements**

Before starting the development, define the project's specific requirements:

- Domain: Determine the domain or subject matter the chatbot will cover.

- Use Cases: Identify the primary use cases and tasks the chatbot will assist with.
- Target Audience: Understand the user demographic and their specific needs.

## Step 2: Set Up IBM Cloud Account

The screenshot displays the IBM Cloud Watson Assistant service page. The main heading is 'Watson Assistant' with a subtext: 'Watson Assistant lets you build conversational interfaces into any application, device, or channel.' Below this, there are 'Create' and 'About' tabs. A 'Pricing plans' section is visible, stating 'Displayed prices do not include tax. Monthly prices shown are for country or location: India'. A table lists the pricing plans:

Plan	Features and capabilities	Pricing
Lite	<p>Everything you need to get started, free for as long as you need it</p> <ul style="list-style-type: none"> <li>Up to 1,000 unique monthly active users (MAUs) chatting with your assistant</li> <li>Up to 10,000 messages per month</li> </ul> <p>--- Features ---</p> <ul style="list-style-type: none"> <li>- World-class conversational AI with Watson</li> <li>- Make your website assistant your own with Webchat - deploy Webchat in minutes, or use our fully extensible architecture</li> <li>- Bootstrap your assistant by using some of our prebuilt content</li> <li>- Connect to any application or database with a prebuilt integration, or build your own custom integration on top of API endpoints</li> <li>- Create engaging user interactions using images, buttons, and more</li> <li>- Analyze and enhance your assistant with our analytics dashboard</li> <li>- Take comfort knowing your assistant is reliably hosted on IBM Public Cloud</li> </ul> <p>--- Limits ---</p> <ul style="list-style-type: none"> <li>Up to 5 Skills (Dialog, Action, Search)</li> <li>7 days of usage analytics</li> <li>Session inactivity timeout 5 minutes</li> <li>Services are deleted after 30 days of inactivity</li> </ul>	Free

On the right side, a 'Summary' section shows 'Watson Assistant Plan: Lite' with a 'Free' price. A 'Sign up to create' button is prominently displayed. Below it, there is an 'Add to estimate' button and a link for 'Already have an account? Log in'.

- Create an IBM Cloud account if you don't already have one.
- Log in to your IBM Cloud account.

## Step 3: Create a Watson Assistant Service

The screenshot shows the IBM Watson Assistant 'Create your first assistant' page. The browser tabs include 'Recording | Session Recording', '(1) Build a simple AI Assisted IB...', 'ibm watson chatbot free - Goo...', 'IBM Watson Service Page', and 'IBM'. The URL is 'eu-gb.assistant.watson.cloud.ibm.com/cm%3Av1%3Abluemix%3Apublic%3Aconversation%3Aeu-gb%3Aa%2F778139d356b94616aaa2a890b1471a3e%3A6dba5288-cba8-4394-8337-818...'. The page has a dark header with 'IBM watsonx Assistant Lite' and an 'Upgrade' button. A 'Next' button is in the top right. The main content area has tabs for 'Create', 'Personalize', 'Customize', and 'Preview'. The 'Create' tab is active, showing a form to create a new assistant. The form includes: 'Assistant name' (Macklin coffee bot), 'Description (optional)' (Add a description for this assistant), and 'Assistant language' (English (US)). A 'Next' button is in the top right of the form area. The Windows taskbar at the bottom shows the date as 16-10-2023 and time as 13:17.

Welcome to watsonx Assistant

Create your first assistant

Let's get your assistant up and running. Name your assistant, add a description, and choose a language. In following steps we'll gather more information, show you basic customizations, and give you a preview of what your assistant will look like.

Assistant name

Macklin coffee bot

Your assistant name will be kept internally and not visible to your customers

Description (optional)

Add a description for this assistant

Assistant language

English (US)

This is the language your assistant will speak.

- Navigate to the IBM Cloud Dashboard.
- Create a new Watson Assistant service instance.

## Step 4: Design the Chatbot Persona

The screenshot shows the IBM Watson Assistant 'Quick start with templates' page. The browser tabs include 'Recording | Session Recording', '(1) Build a simple AI Assisted IB...', 'ibm watson chatbot free - Goo...', 'IBM Watson Service Page', and 'Actions | IBM watsonx Assistant'. The URL is 'eu-gb.assistant.watson.cloud.ibm.com/cm%3Av1%3Abluemix%3Apublic%3Aconversation%3Aeu-gb%3Aa%2F778139d356b94616aaa2a890b1471a3e%3A6dba5288-cba8-4394-8337-818...'. The page has a dark header with 'IBM watsonx Assistant Lite', 'Upgrade', and 'Macklin coffeeeb...'. A 'Learning resources' link is in the top right. The main content area has a 'Quick start with templates' section with a 'Start from scratch' button. Below this are three cards: 'Recommended for you', 'Do more with starter kits', and 'New paths to explore'. The 'Recommended for you' card is highlighted. Below the cards are filters for 'Filter by topic' (General, Account management, Appointments, Getting information, Bot conversations) and 'Filter by industry' (Banking, Healthcare, Insurance). At the bottom are four cards: 'Date and time control', 'Hobbies', 'Jokes please!', and 'Just looking!'. The Windows taskbar at the bottom shows the date as 16-10-2023 and time as 13:21.

Quick start with templates

Build at hyperspeed

Choose from an extensive catalog of templates to supercharge your build time and get your assistant in front of customers fast.

Start from scratch

Recommended for you

Do more with starter kits

New paths to explore

Filter by topic

General Account management Appointments Getting information Bot conversations

Filter by industry

Banking Healthcare Insurance

Clear all filters

Date and time control

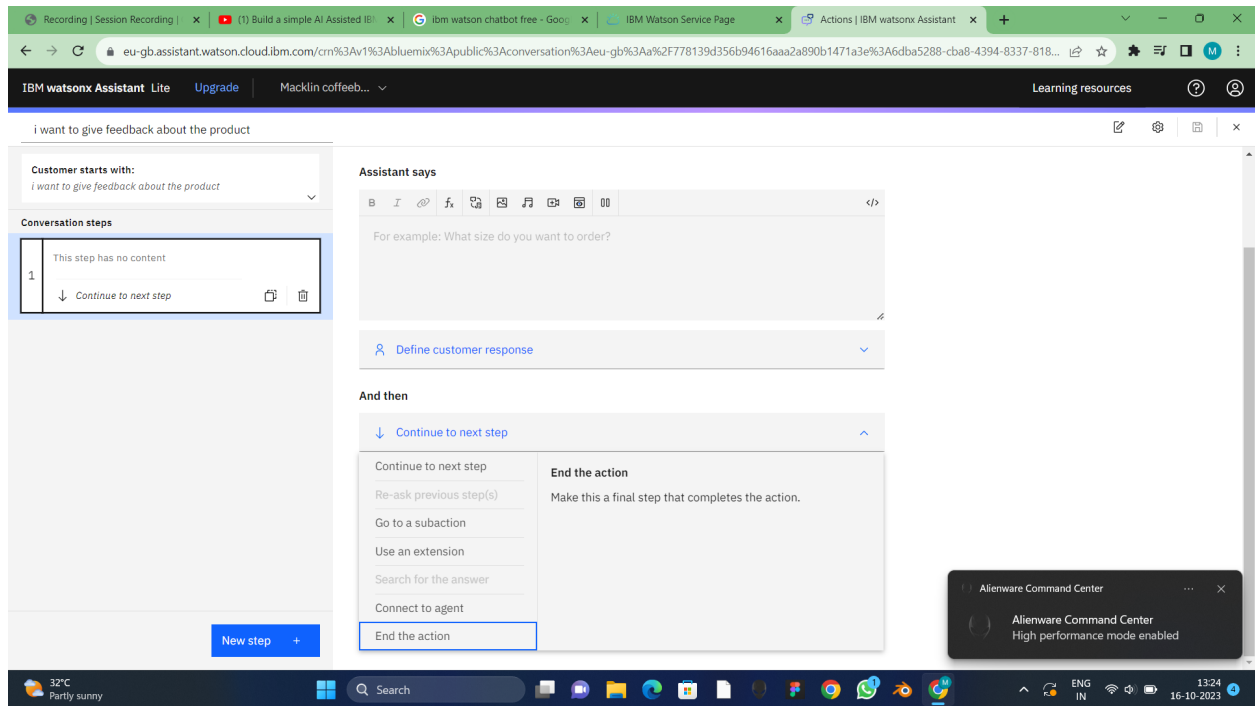
Hobbies

Jokes please!

Just looking!

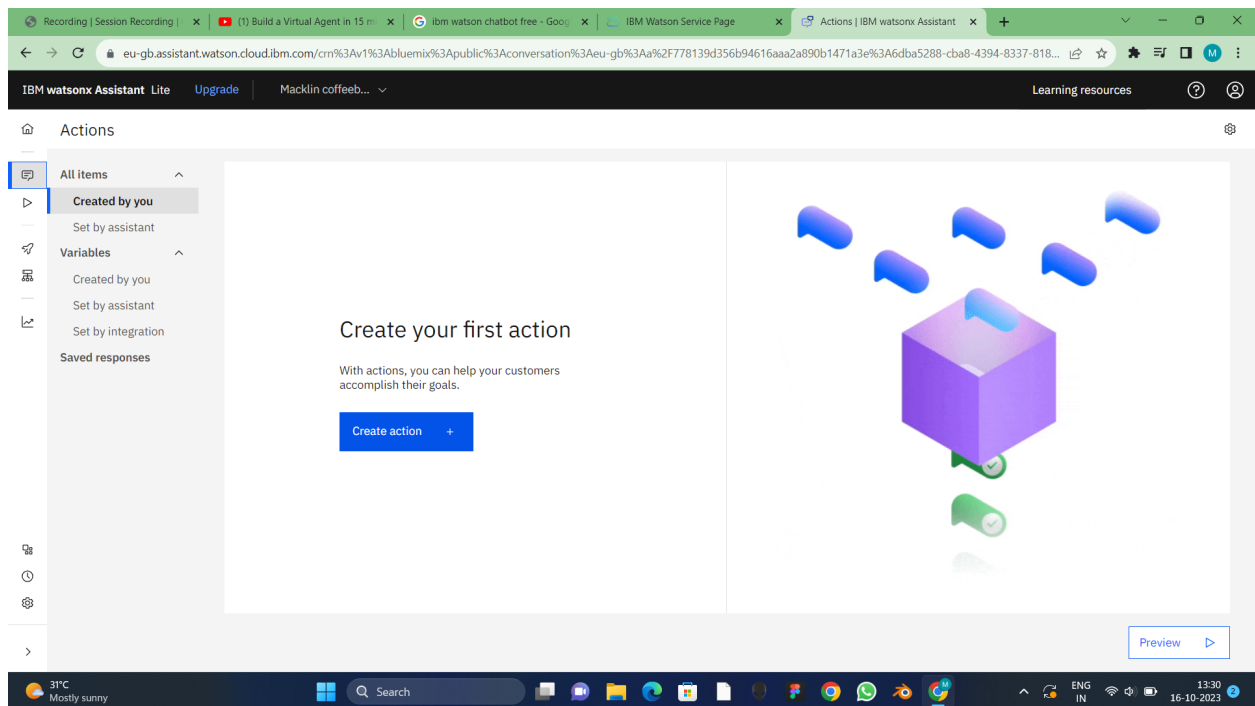
- Define the chatbot's persona, including its name, avatar, and personality.
- Consider the tone and style of communication that align with the target audience.

## Step 5: Conversation Flow Design



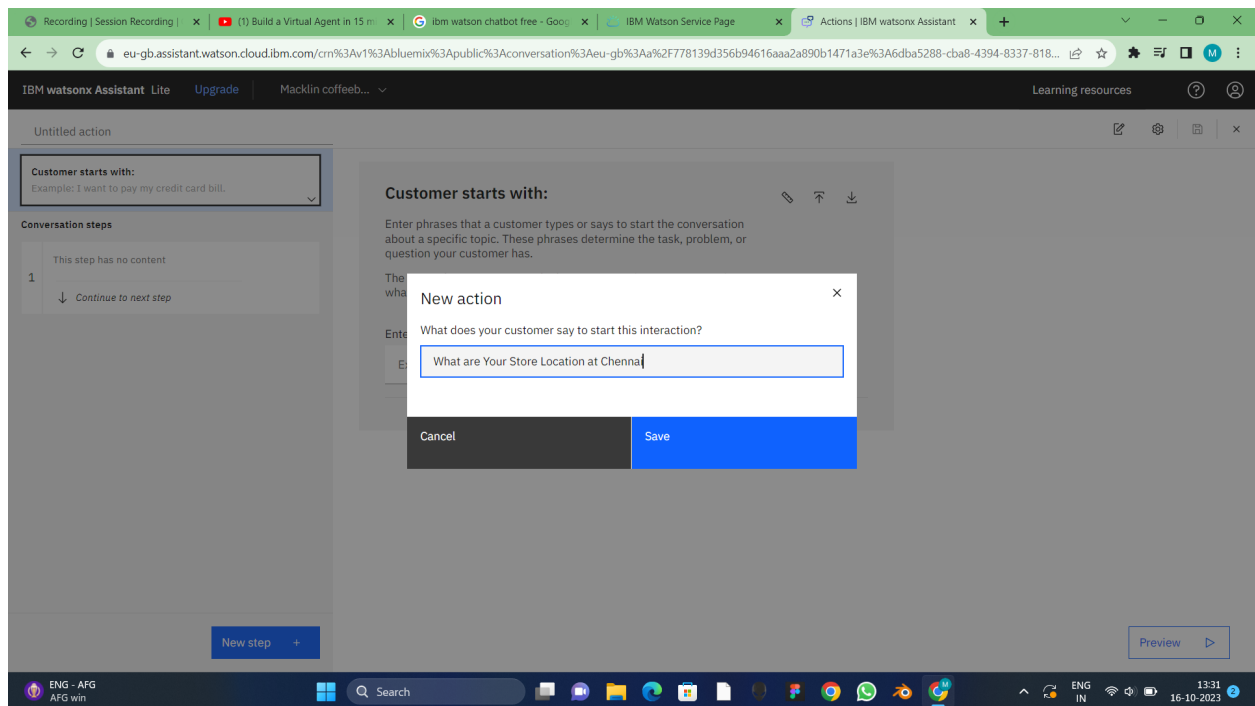
- Design the conversation flow by outlining the typical user interactions.
- Create a flowchart or diagram to visualize the chatbot's responses to various user inputs.

## Step 6: Create Intents



- Identify user intents, i.e., the different reasons why users would interact with the chatbot.
- Create intent labels such as "Greeting," "Query," "Help," etc.

## Step 7: Define Entities



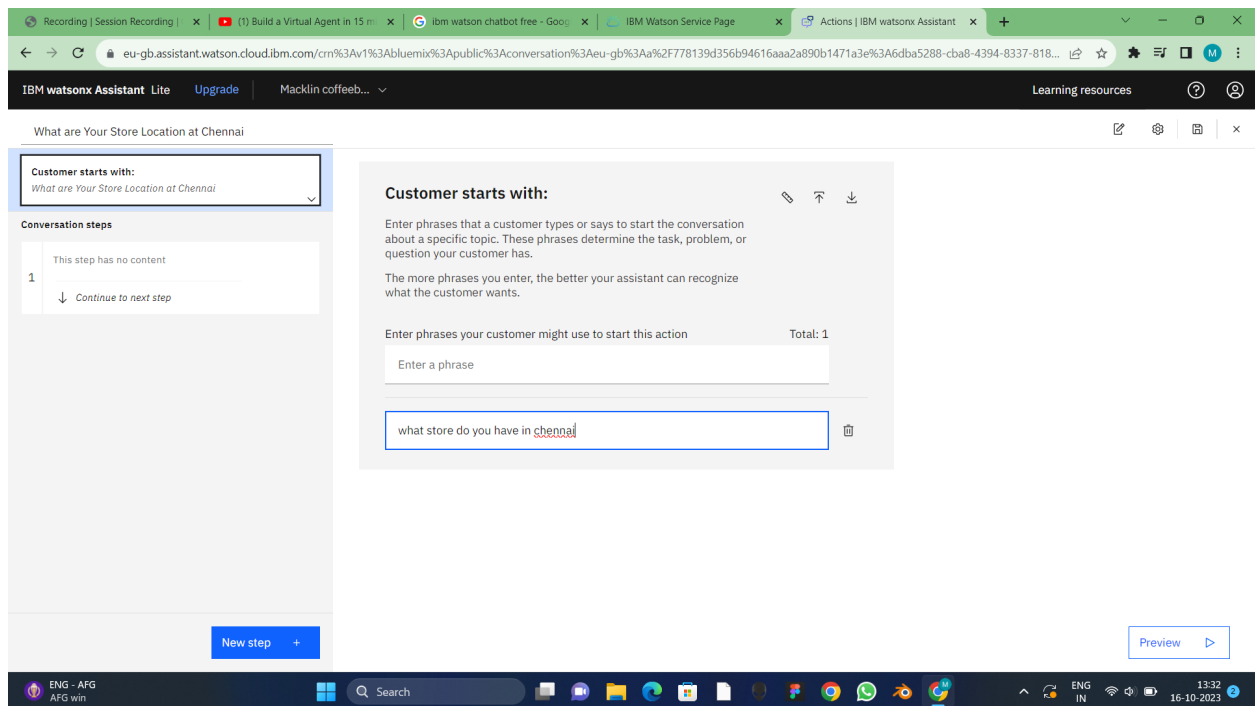
- Determine entities, which are specific pieces of information the chatbot should identify within user queries.
- Define entity types (e.g., "Product," "Location") and sample values.

## Step 8: Build Dialog Nodes

The screenshot displays the IBM Watson Assistant console interface. At the top, the browser address bar shows the URL: `eu-gb.assistant.watson.cloud.ibm.com/cm%3Av1%3Abluemix%3Apublic%3Aconversation%3Aeu-gb%3Aa%2F778139d356b94616aaa2a890b1471a3e%3A6dba5288-cba8-4394-8337-818...`. The console header includes 'IBM watsonx Assistant Lite', an 'Upgrade' button, and a user profile 'Macklin coffeeb...'. The main content area is titled 'What are Your Store Location at Chennai'. On the left, a 'Conversation steps' panel shows a single step with the text 'our nearest store in chennai is st.thomas mount chennai'. The main workspace is divided into sections: 'Step 1' with a dropdown 'without conditions' and a 'Set variable values' button; 'Assistant says' with a rich text editor containing the same text as the conversation step; 'Define customer response' with a dropdown; and 'And then' with a 'Continue to next step' dropdown. A 'New step' button is at the bottom left, and a 'Preview' button is at the bottom right. The Windows taskbar at the bottom shows the time as 13:34 on 16-10-2023.

- Construct dialog nodes to determine the chatbot's responses based on user intents and identified entities.
- Associate dialog nodes with intents and entities to create a dynamic conversation.

## Step 9: Train the Chatbot



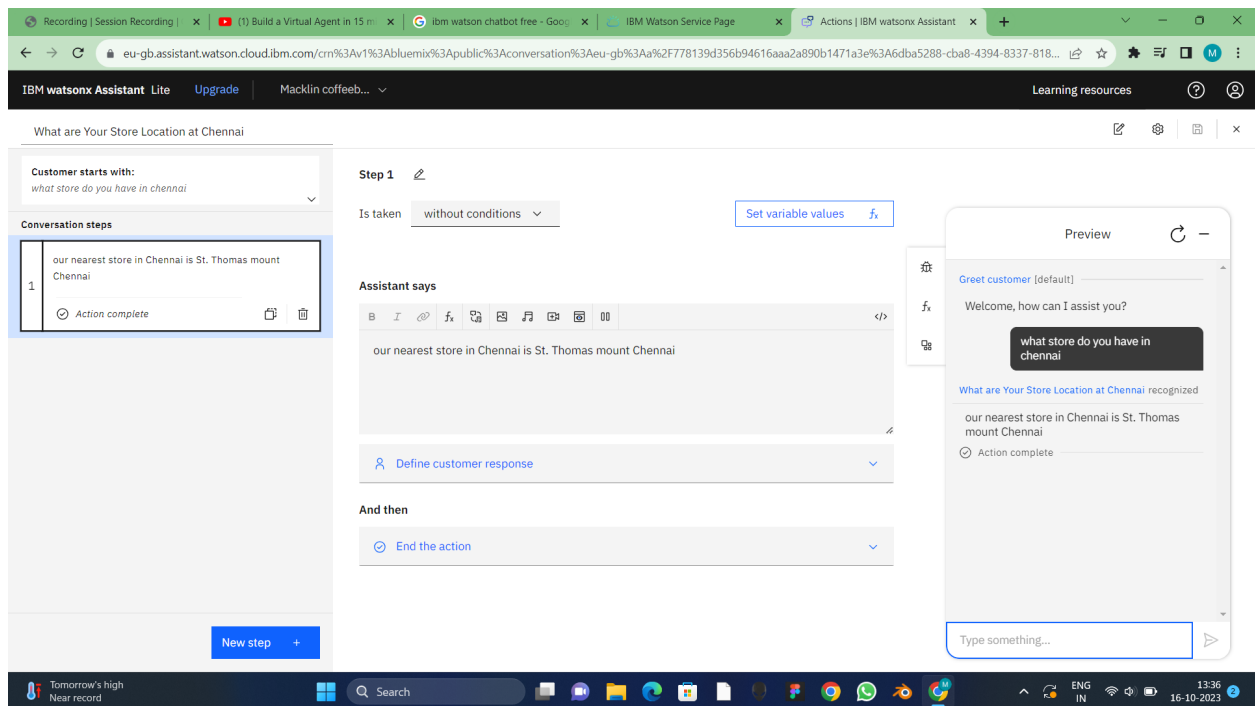
- Train the chatbot by providing examples of user queries and associating them with the relevant intents and entities.
- This helps the chatbot understand and respond to similar queries.

## Step 10: Test and Iterate

- Test the chatbot within the IBM Watson Assistant interface.
- Iterate and refine dialog nodes, intents, and entities based on test results.
- Use sample user queries to ensure the chatbot provides accurate and relevant responses.



## Step 11: Deploy the Chatbot



- Deploy the chatbot to a platform where users can interact with it (e.g., a website, messaging app, or custom application).
- Ensure that the deployment is secure and accessible to users.

## Step 12: Collect and Analyze User Feedback

- Collect user feedback and usage data to understand how the chatbot is performing.
- Use feedback to make improvements and enhancements.

## Conclusion

Creating a chatbot using IBM Cloud Watson Assistant is a multi-step process that involves defining requirements, designing conversation flows, configuring intents and entities, and deploying the chatbot for users. With careful planning and continuous refinement, a chatbot can provide valuable assistance and improve user experiences in various domains.