MOVIE TICKET CHATBOT USING WATSON ASSISTANT AND INTEGRATING WITH NODE-RED

By

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INTRODUCTION

1.1 Overview

A chatbot A chatbot is an artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through messaging applications, websites, mobile apps or through the telephone.

A chatbot is one of the most advanced and promising expressions of interaction between humans and machines. However, from a technological point of view, a chatbot only represents the natural evolution of a Question Answering system leveraging Natural Language Processing (NLP). Formulating responses to questions in natural language is one of the most typical Examples of Natural Language Processing applied in various enterprises' end-use applications.

1.2 Purpose

Chatbot applications streamline interactions between people and services, enhancing customer experience. At the same time, they offer companies new opportunities to improve the customers engagement process and operational efficiency by reducing the typical cost of customer service.

Chatbots are being made to ease the pain that the industries are facing today. The purpose of chat bots is to support and scale business teams in their relations with customers. It could live in any major chat applications like Facebook Messenger, Slack, Telegram, Text Messages, etc.

To be successful, a chatbot solution should be able to effectively perform both of these tasks. Human support plays a key role here: Regardless of the kind of approach and the platform, human intervention is crucial in configuring, training and optimizing the chatbot system.

LITERATURE SURVEY

2.1 Existing problem

Many customers are kept at hold while operators connect us to a customer care executive. On an average people spend around 7 minutes until they are assigned to a person. This leads to high degree of frustration of waiting in a queue for the next available operative.

Earlier each executive can deal on a one-on basis. This reduces the handling capacity.

2.2 Proposed solution

They are replacing live chat and other forms of slower contact methods such as emails and phone calls.

Since chatbots are basically virtual robots they never get tired and continue to obey your command. They will continue to operate every day throughout the year without requiring to take a break. This improves your customer UX and helps you rank highly in your sector. Another advantage of this instant response is that you can also skillfully craft your chatbot to maintain your image and brand.

Unlike humans who can only communicate with one human at a time, chat bots can simultaneously have conversations with thousands of people. No matter what time of the day it is or how many people are contacting you, every single one of them will be answered immediately.

THEORITICAL ANALYSIS

3.1 Block diagram

At the core of a chatbot, there are two different tasks.

i. User request analysis:

How a Chatbot Works: *As you can see in this graphic, a chatbot returns a response based on input from a user. This process may look simple; in practice, things are quite complex.*

This is the first task that a chatbot performs. It analyzes the user's request to identify the user intent and to extract relevant entities. The ability to identify the user's intent and extract data and relevant entities contained in the user's request is the first condition and the most relevant step at the core of a chatbot: If you are not able to correctly understand the user's request, you won't be able to provide the correct answer.

ii. Returning the response

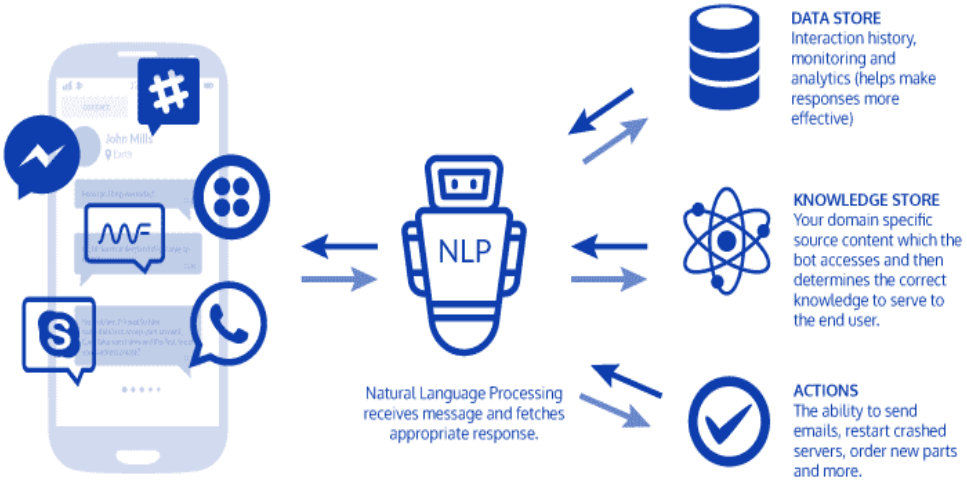
Once the user's intent has been identified, the chatbot must provide the most appropriate response for the user's request. The answer may be:

- a generic and predefined text
- a text retrieved from a knowledge base that contains different answers
- a contextualized piece of information based on data the user has provided
- data stored in enterprise systems
- the result of an action that the chatbot performed by interacting with one or more backend application

• a disambiguating question that helps the chatbot to correctly understand the user's request

3.2 Hardware / Software designing

Below is the basic chatbot architecture diagram that depicts how the program processes a request.

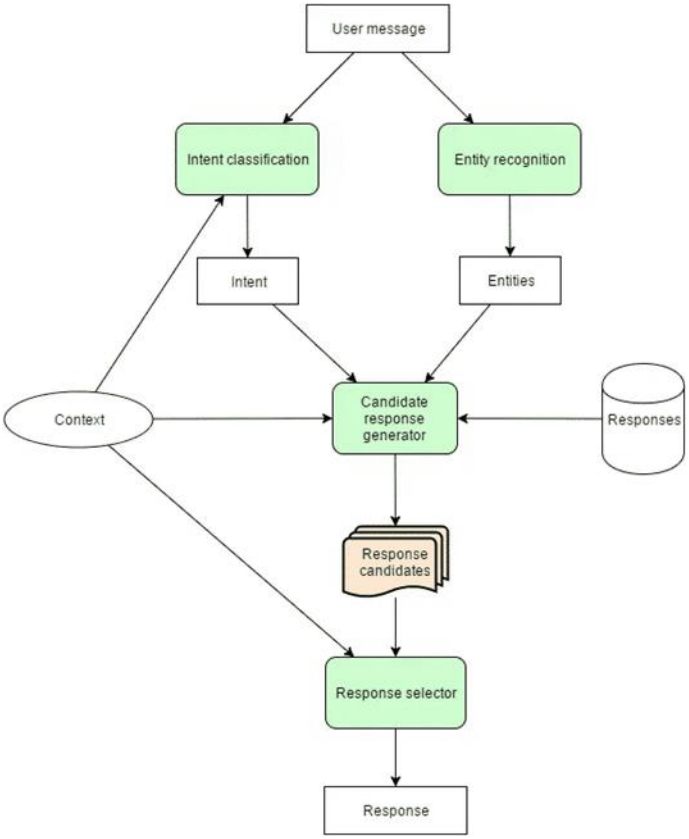


EXPERIMENTAL INVESTIGATIONS

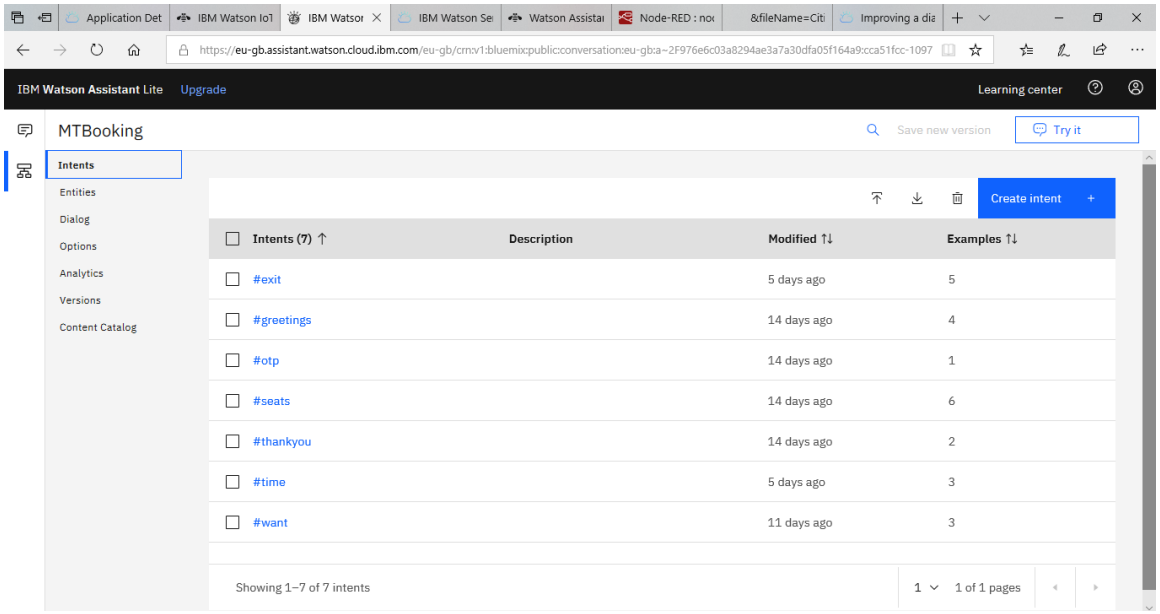
In a movie ticketing chatbot, use of Watson assistant of IBM cloud services, is done. The chatbot welcomes the customer and then waits for intent. As the intent is recognized the chatbot gives a list of movies that is available and requests the customer to choose a movie. The chatbot also asks for customer input for location, number of seats to be booked, date of the show and timings of the show and accordingly books the ticket after proper authentication via customers phone number and OTP.

FLOWCHART

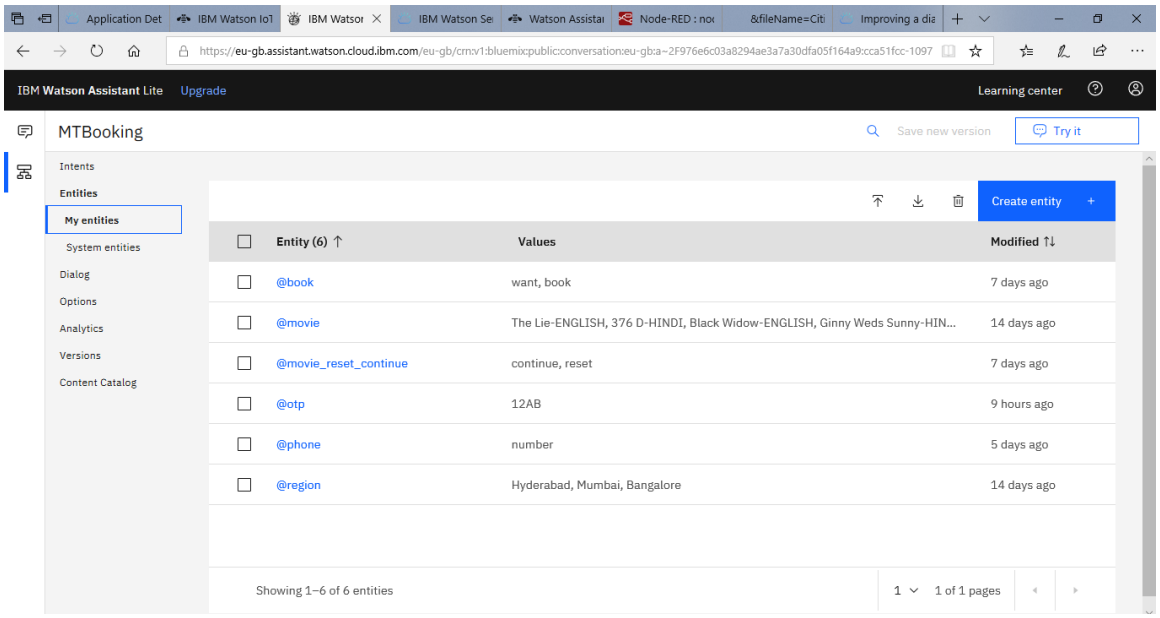
The following flowchart shows how the Watson assistant behind a chatbot analyzes a query and fetches an appropriate response.



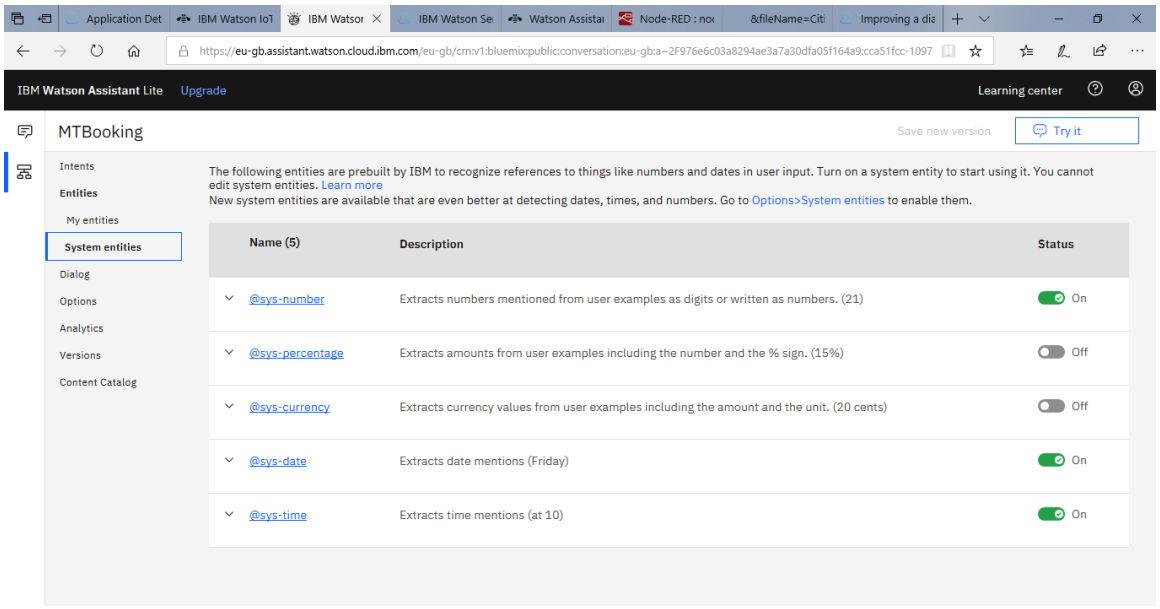
Creating Intents:



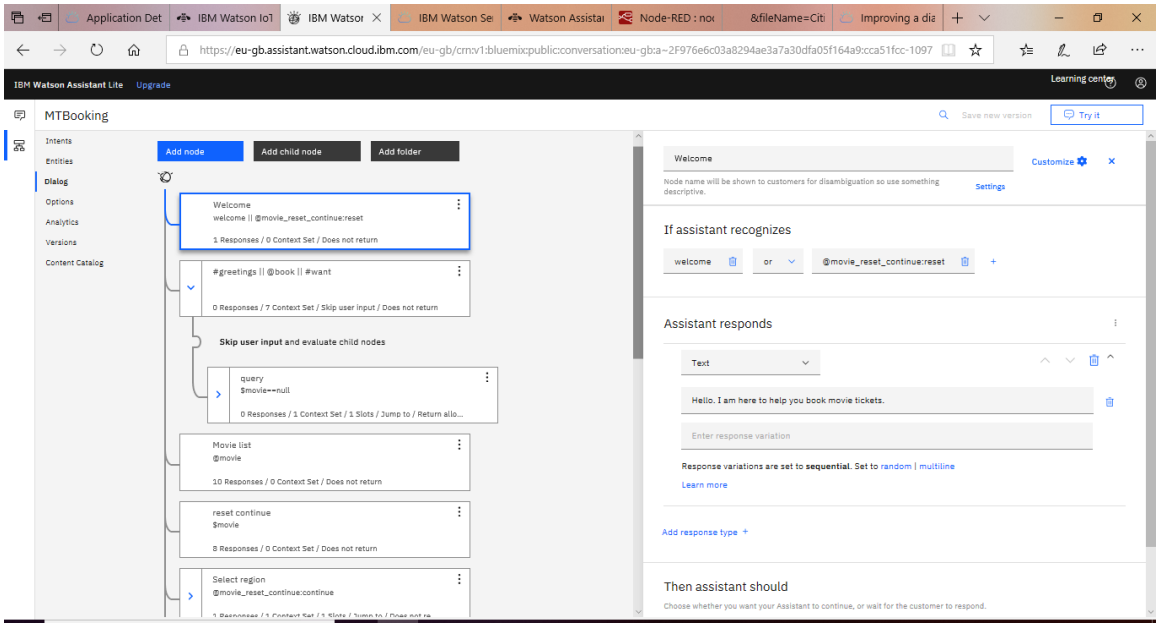
Creating Entities:



The system entities:



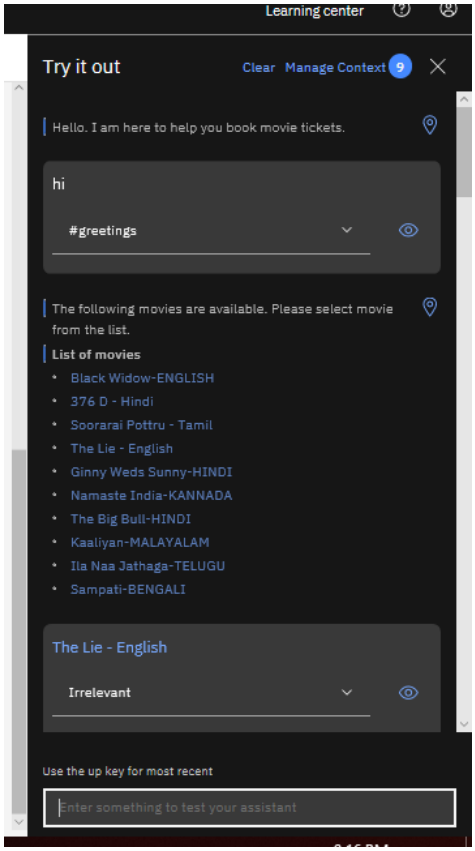
Creating Welcome node, child nodes:

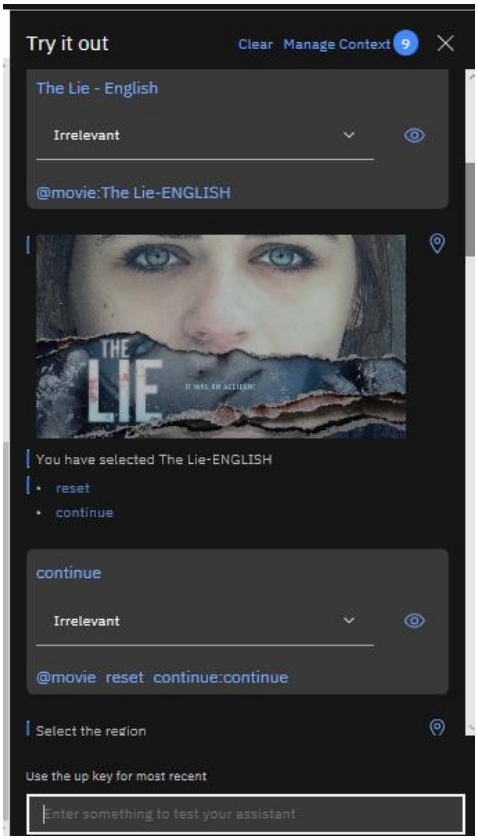


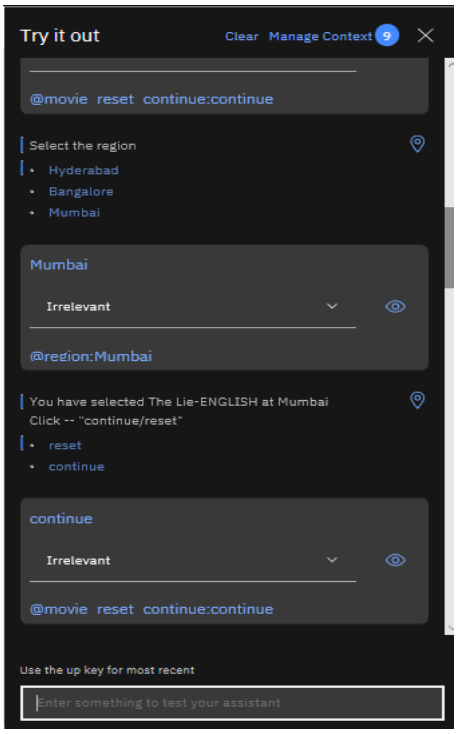
Exit handlers are also created.

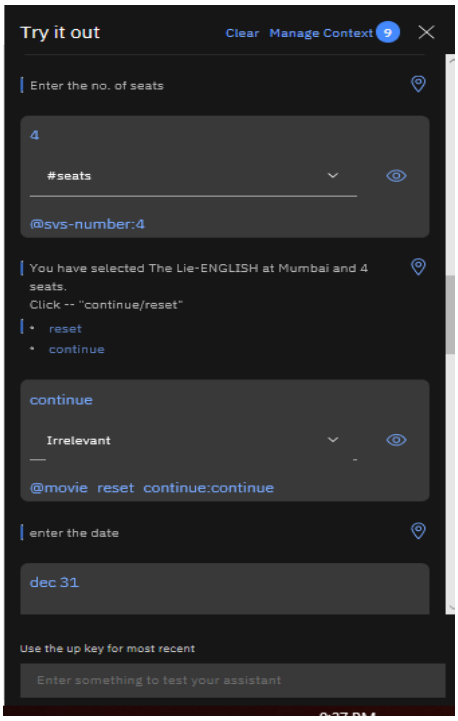
Testing the chatbot:

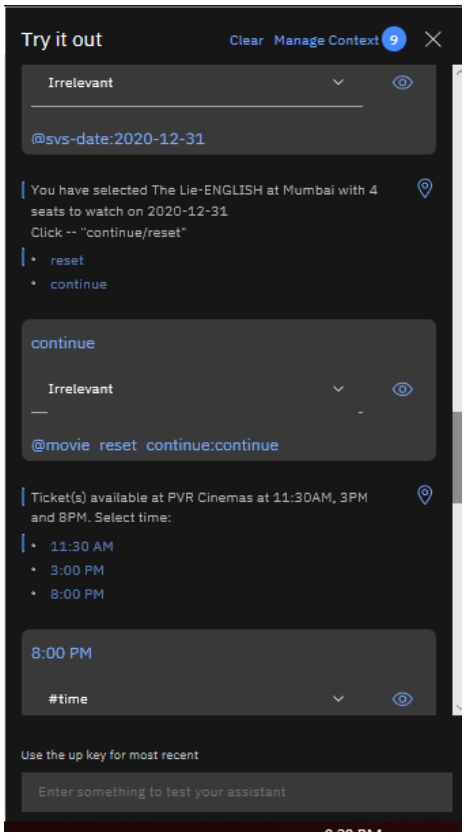
The following screen prints show the working of the chatbot.

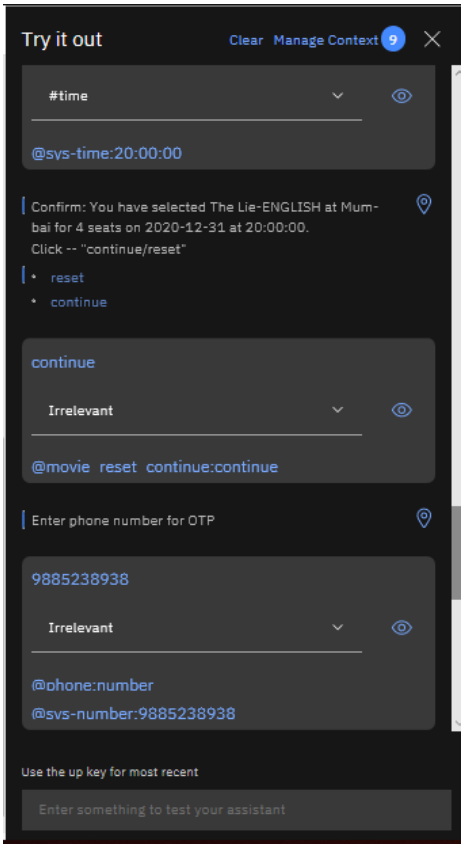


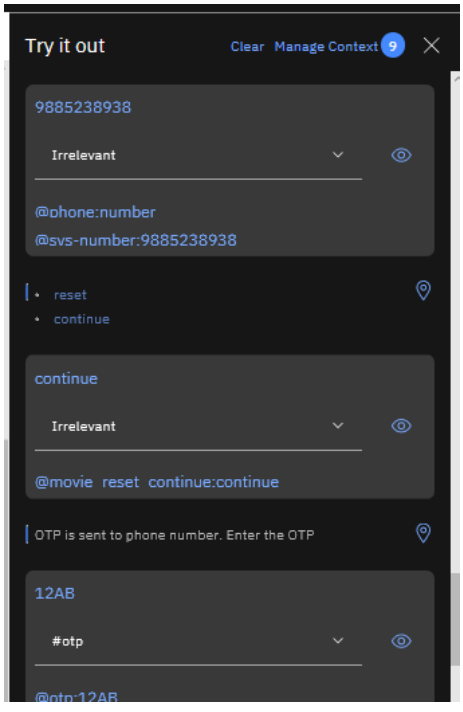


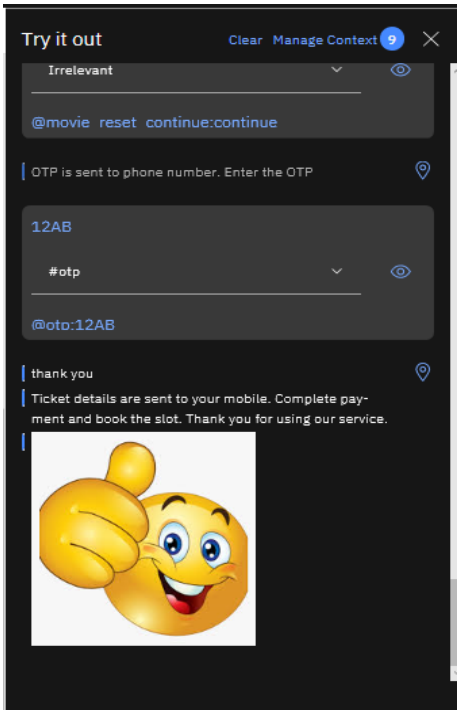





Try it out
Clear
Manage Context
9
Irrelevant
@svs-date:2020-12-31
You have selected The Lie-ENGLISH at Mumbai with 4 seats to watch on 2020-12-31
Click -- "continue/reset"
reset
continue
continue
Irrelevant
@movie reset continue:continue
Ticket(s) available at PVR Cinemas at 11:30AM, 3PM and 8PM. Select time:
11:30 AM
3:00 PM
8:00 PM
8:00 PM
#time
Use the up key for most recent
Enter something to test your assistant

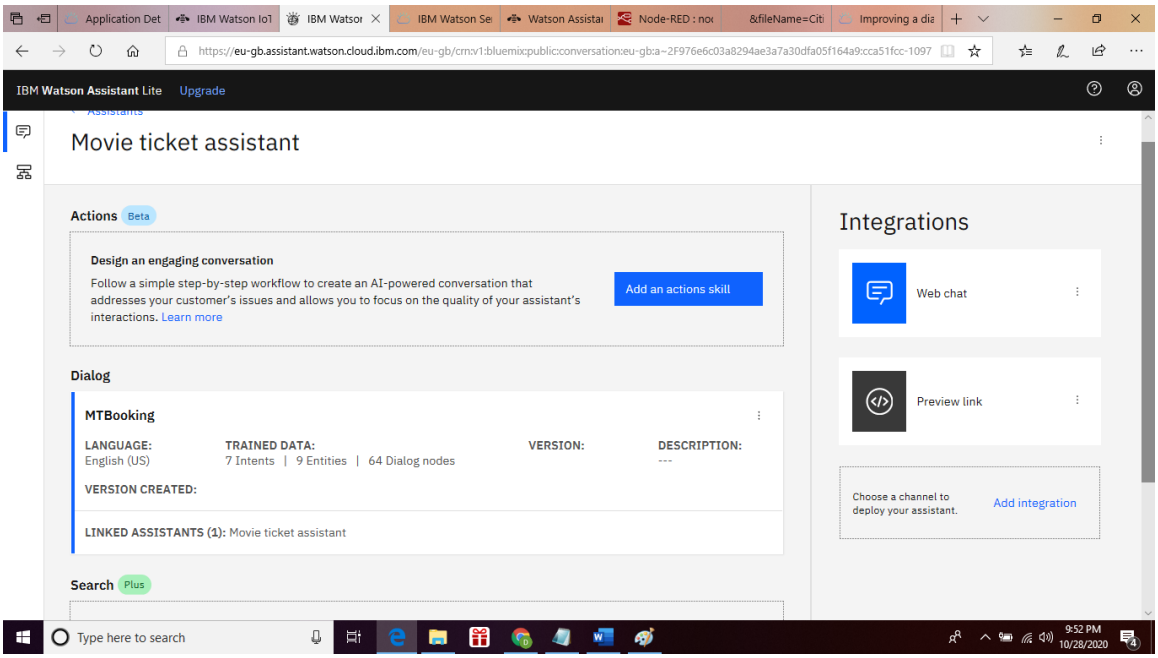

Try it out
Clear
Manage Context
9
#time
@sys-time:20:00:00
Confirm: You have selected The Lie-ENGLISH at Mumbai for 4 seats on 2020-12-31 at 20:00:00.
Click -- "continue/reset"
reset
continue
continue
Irrelevant
@movie reset continue:continue
Enter phone number for OTP
9885238938
Irrelevant
@phone:number
@svs-number:9885238938
Use the up key for most recent
Enter something to test your assistant


Try it out
Clear
Manage Context
9
9885238938
Irrelevant
@phone:number
@svs-number:9885238938
reset
continue
continue
Irrelevant
@movie reset continue:continue
OTP is sent to phone number. Enter the OTP
12AB
#otp
@otp:12AB

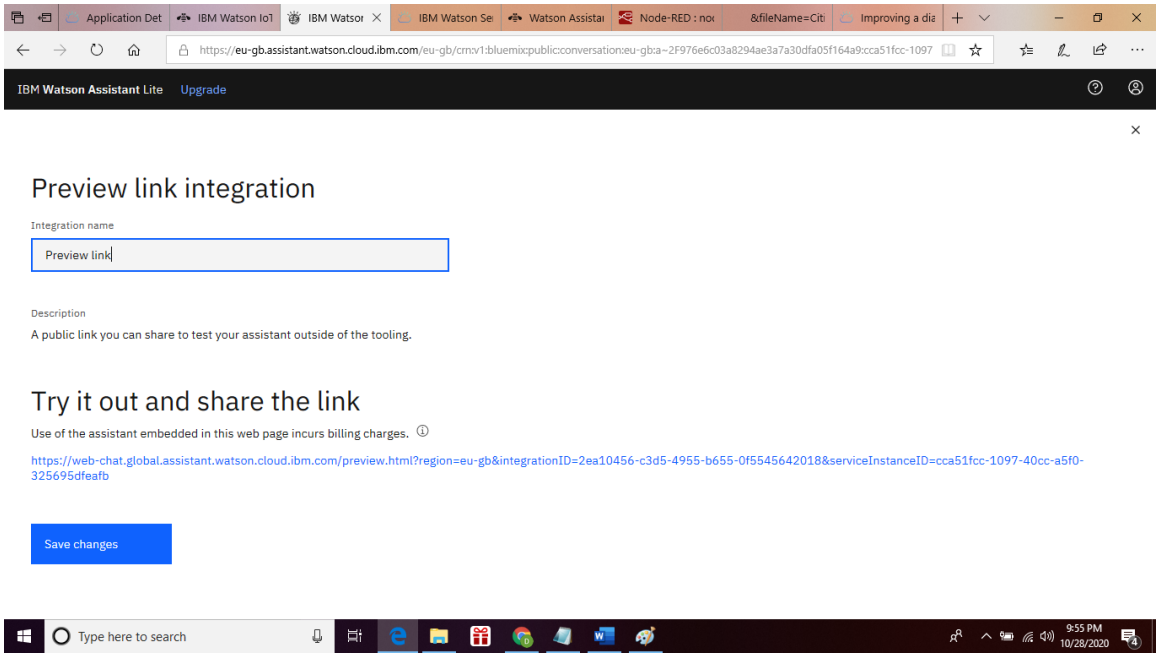

Try it out
Clear
Manage Context
9
Irrelevant
@movie reset continue:continue
OTP is sent to phone number. Enter the OTP
12AB
#otp
@otp:12AB
thank you
Ticket details are sent to your mobile. Complete payment and book the slot. Thank you for using our service.

The Json file is attached as a separate file and put in Github repository.

Movie ticket assistant: - integrations



Preview link:

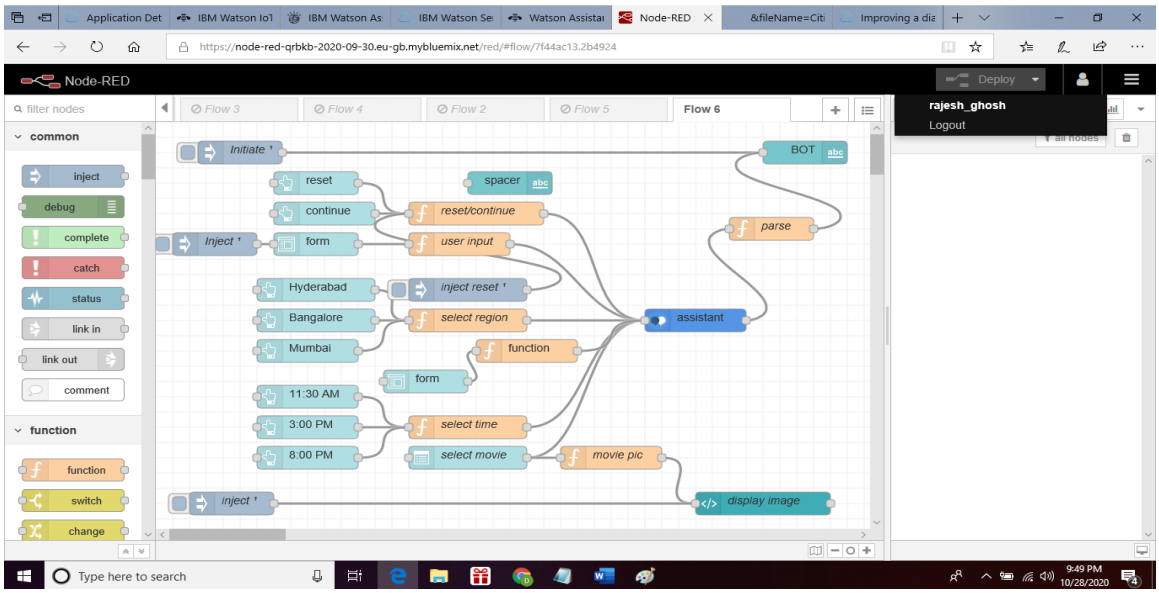


This is preview link:

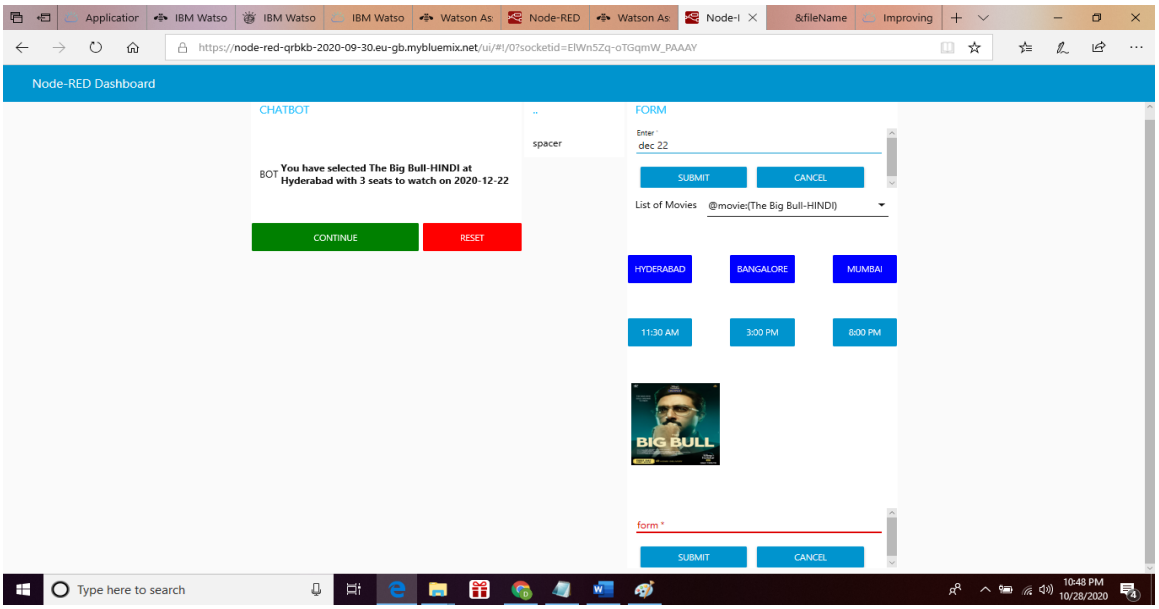
https://web-chat.global.assistant.watson.cloud.ibm.com/preview.html?region=eu-gb&integrationID=2ea10456-c3d5-4955-b655-0f5545642018&serviceInstanceID=cca51fcc-1097-40cc-a5f0-325695dfeafb

Integrating with NODE-RED:

The following is the node flows in node-red.



The following is the node-red dashboard.



RESULT

The chatbot in the current context is a movie ticketing chatbot. The chatbot has successfully demonstrated its ability to book tickets according to customers choice of different parameters in purchasing movie ticket.

ADVANTAGES & DISADVANTAGES

Chatbots initially emerged as a luxury for organizations. Yet, they have now become a necessity for a thriving business. These bots help the firms in keeping their customers satisfied with continuous support. Moreover, they facilitate the staff by providing assistance in managing different tasks, thereby increasing their productivity.

Chatbots are equally beneficial for all large-scale, mid-level, and startup companies. All it takes for the firms to succeed with more sales, increased revenue, and growing customer base, is to build a chatbot that meets their requirements, is easy to maintain, and expandable according to their business needs. The more the firms invest in chatbots, the greater are the chances of their growth and popularity among the customers.

One of the greatest disadvantages of chatbots is that they have been designed to handle first-level questions only. They may not be able to solve complex queries. One needs to train them to converse with customers in the right way. One also need to structure and optimize knowledge base in a bot-friendly way

APPLICATIONS

Over 35% of customer questions can be answered automatically, simply using a business’s FAQ and help center content.

When a chatbot is implemented to assist customers 24/7 during the holiday rush, this can potentially mean a 35% reduction in customer service volume. And if the target market is a younger demographic, it’ll mean they’re having a great experience as well.

But customer service is just a small part of running a business nowadays. Chatbots are often used now for generating leads, facilitating marketing activities that occur beyond the website, helping to move customers along a conversion funnel, and increasing sales through up-selling and cross-selling.

CONCLUSION

Chatbots or smart assistants with artificial intelligence are dramatically changing businesses. There is a wide range of chatbot building platforms that are available for various enterprises, such as e-commerce, retail, banking, leisure, travel, healthcare, and so on.

Chatbots can reach out to a large audience on messaging apps and be more effective than humans. They may develop into a capable information-gathering tool in the near future.

FUTURE SCOPE

Chatbots are fully functioning, semi-autonomous systems that can assist customer service experiences and response time.

But that doesn't mean their future in the enterprise is secure. For chatbots to withstand the rapidly increasing technological shifts and become mainstays in the enterprise, developers need to examine the issues that have popped up with increased implementation.

The future scope of chatbots could include many benefits for enterprises, but experts say they will need to be gently nudged in the right direction for businesses to reap these benefits.