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Project ID: SPS_PRO_99

Project Title : Intelligent Customer Help Desk with Smart Document Understanding

Duration : 19 Days

INTRODUCTION

Overview

The typical customer care chatbot can answer simple questions, such as store locations and hours, directions, and maybe even making appointments. When a question falls outside of the scope of the pre-determined question set, the option is typically to tell the customer the question isn't valid or offer to speak to a real person.

Purpose

Customer service is even more important in the digital age when people have access to almost every kind of product and service on their smartphones at their fingertips. People expect reaching out to services to be as easy as chatting with their friends on WhatsApp and Facebook Messenger. They tweet about their service experience – both good and bad – without giving you a heads up. They can easily switch brands if you cannot provide personalized service. As a company, you need to make sure customers are happy at every touchpoint of the service.

LITERATURE SURVEY

Existing Problem

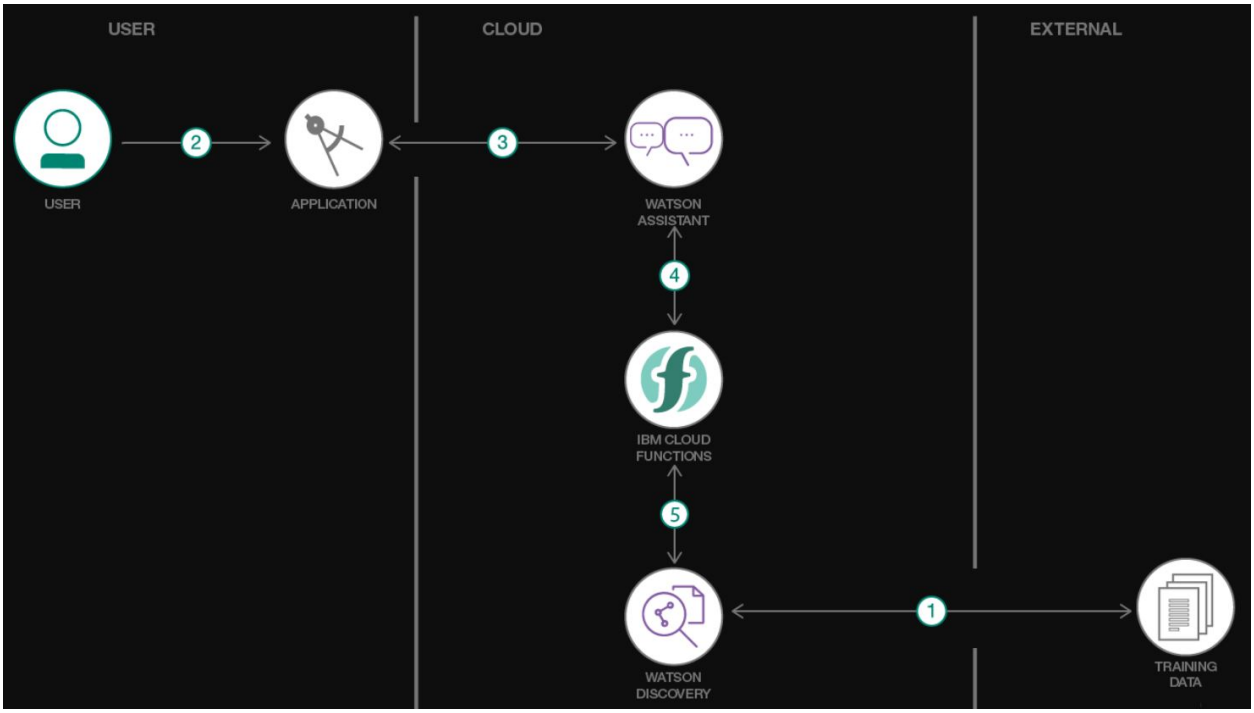
People should be able to find your service wherever they need to, whether it's via social media channels, in-apps messaging, emails, or live chat. Building your service channels is not just about opening an account on every social media out there. It's about solving real problems for your customers through these channels, and keeping your service consistent and intelligent across every interaction. Salesforce's State of the Connected Customer Research shows 68% of consumers say it's absolutely critical or very important for customer service agents to know their service history, so they don't have to spend time explaining it to them. Customers expect agents to read their complaints on Twitter before they ask questions in the service line. To deliver that, you need a robust customer service platform powered with real-time business intelligence.

Proposed Solution

A high-performance customer service team does not just solve people's complaints. It also works hand in hand with marketing and sales to identify customers' pain points. Intelligent customer service empowers you to anticipate customers' needs before people reach out. With smart analytics, every conversation with your customer is a chance to provide targeted marketing messages.Intelligent customer service promises you timely, data-driven insights at all times. It helps to get every level of the team on the same page to uncover trending issues, track progress against KPIs and draft plans for the next phase.

THEORATICAL ANALYSIS

Block Diagram

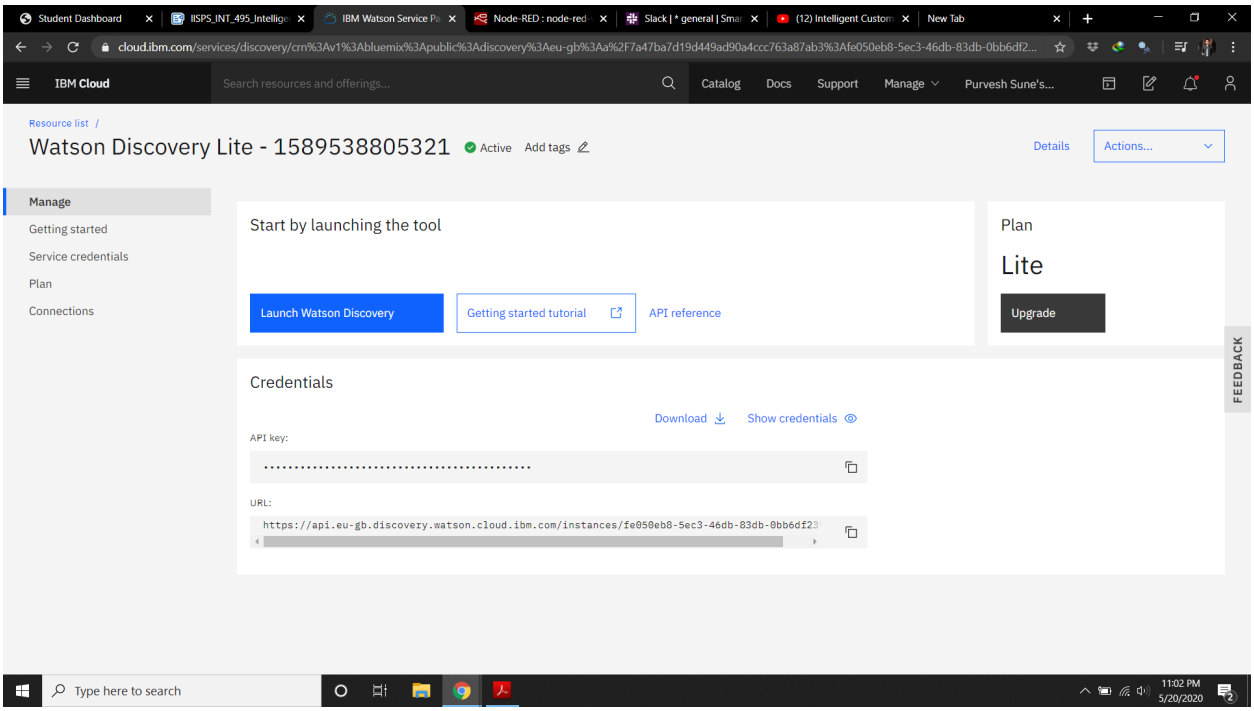


Hardware/Software Designing

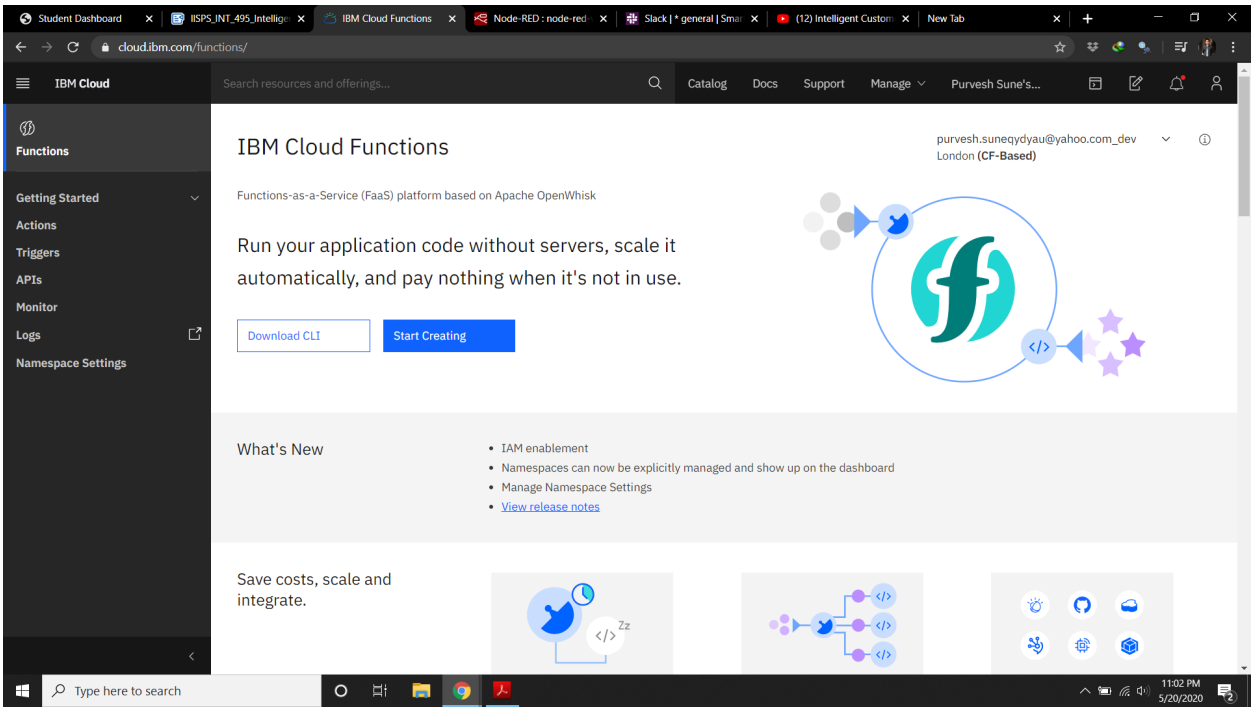
★ Create a customer care dialog skill in Watson Assistant
★ Use Smart Document Understanding to build an enhanced Watson Discovery collection
★ Create an IBM Cloud Functions web action that allows Watson Assistant to post queries to Watson Discovery
★ Build a web application with integration to all these services & deploy the same on IBM Cloud Platform

Experimental Investigations

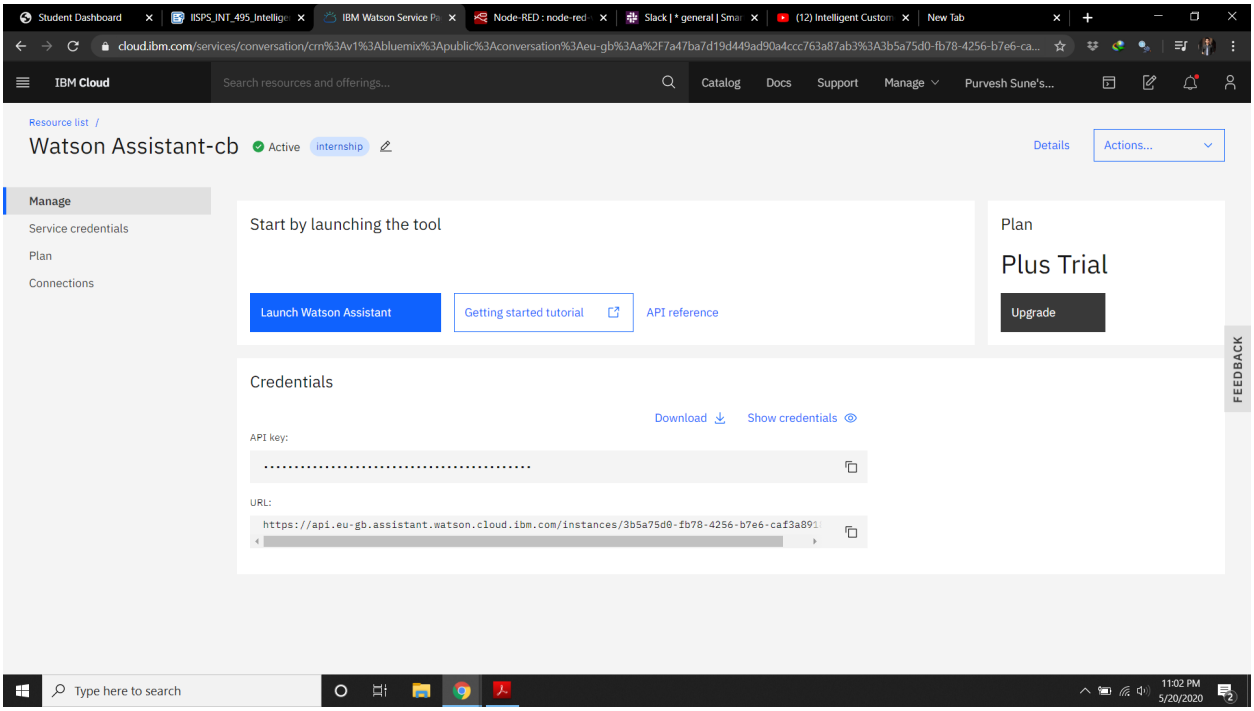
1. Watson Discovery



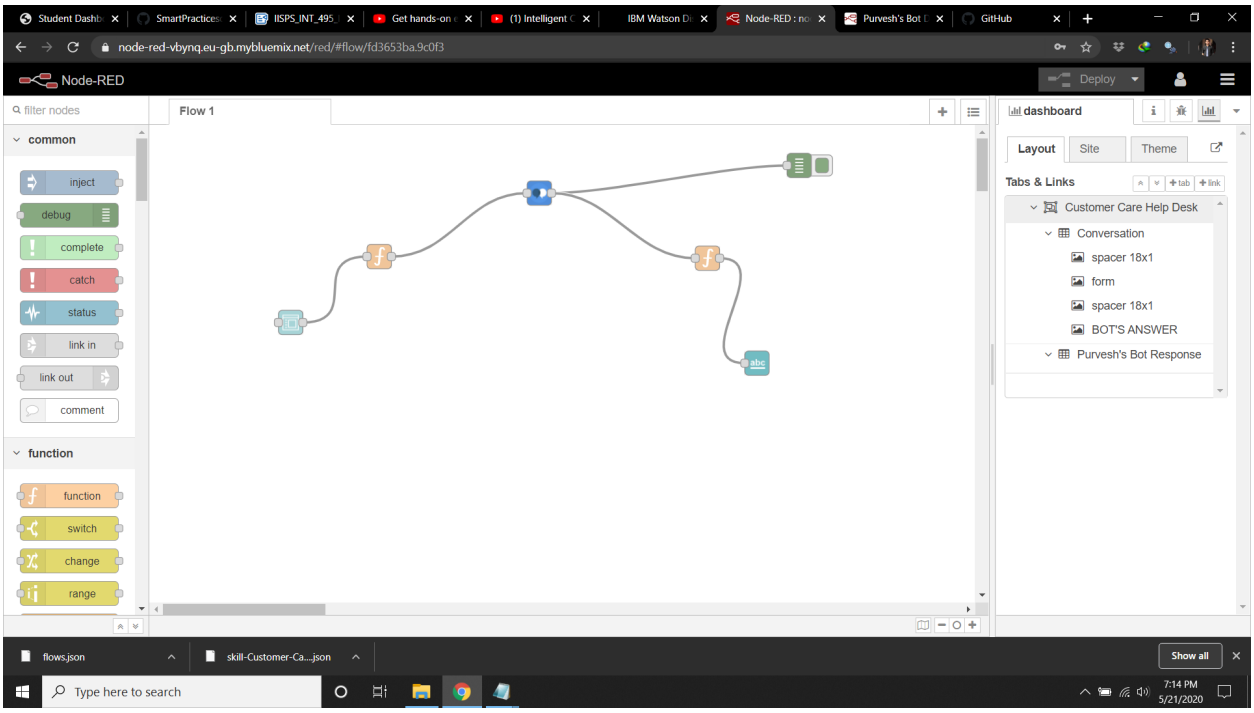
2. IBM Cloud Functions



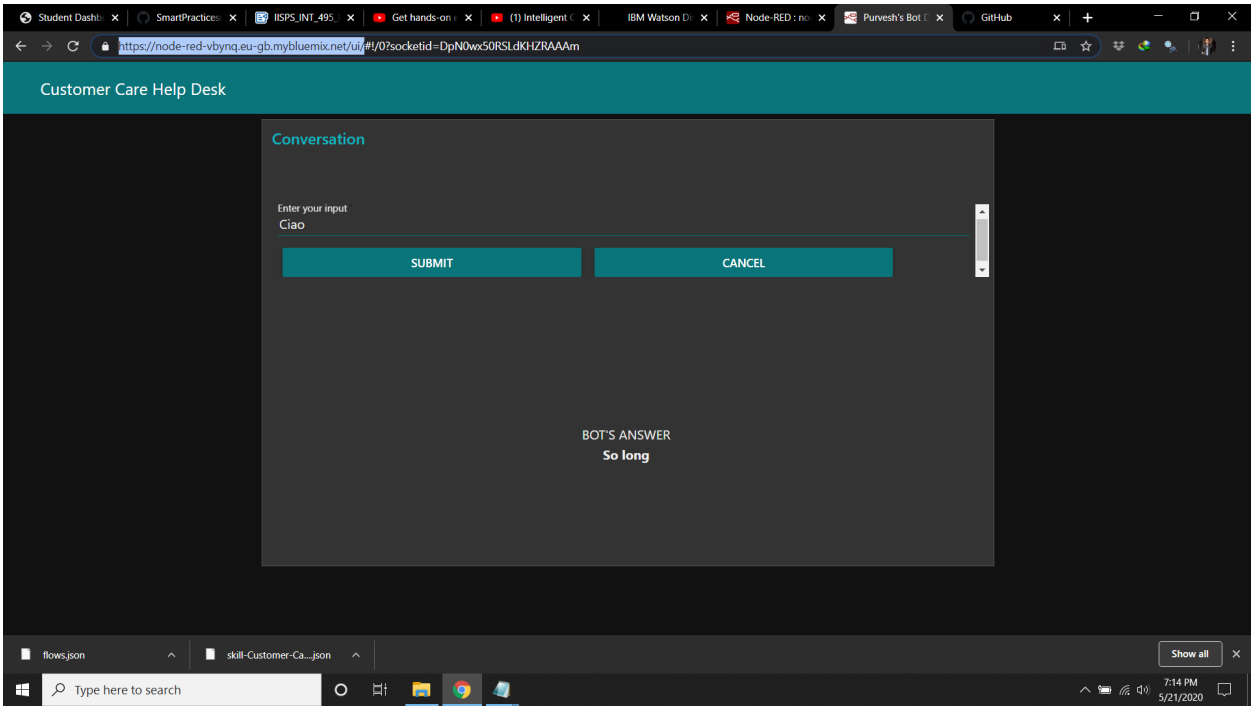
3. Watson Assistant



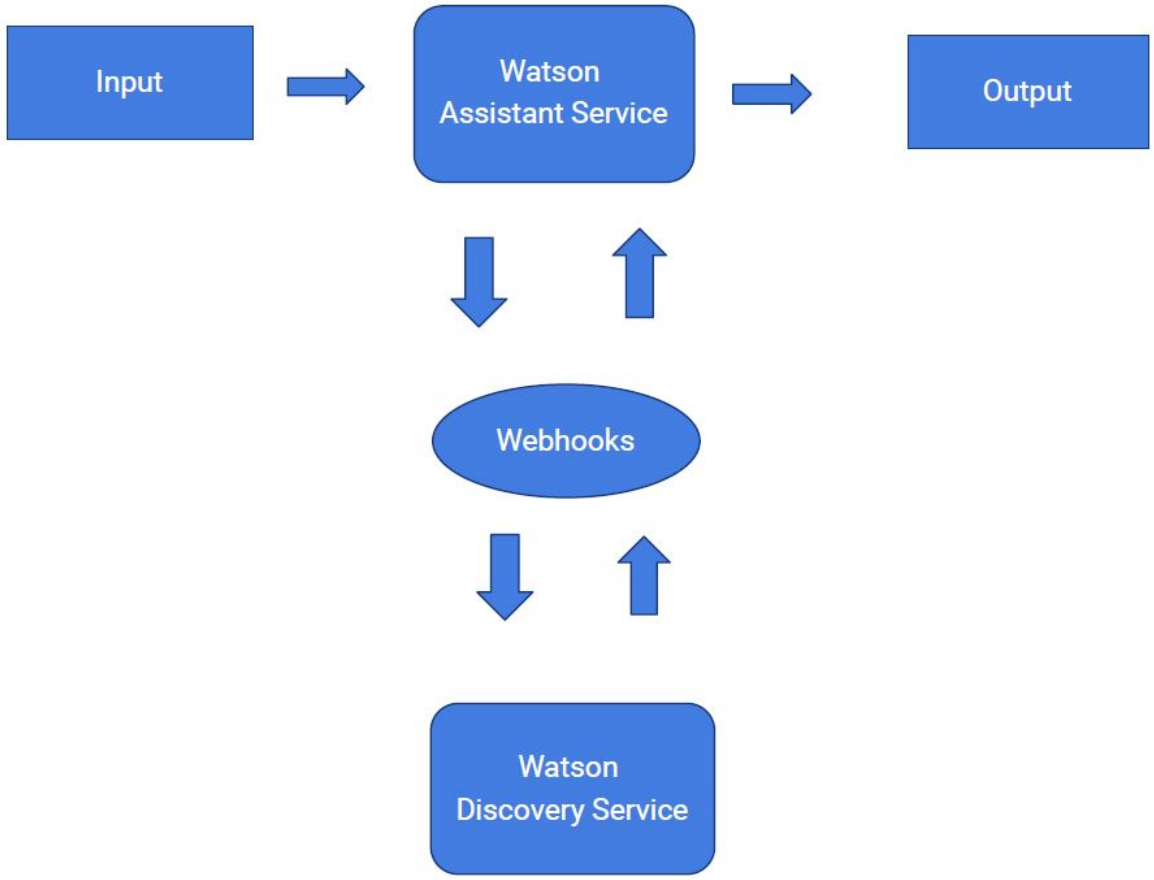
4. Node-RED Flow



5. Customer Care UI



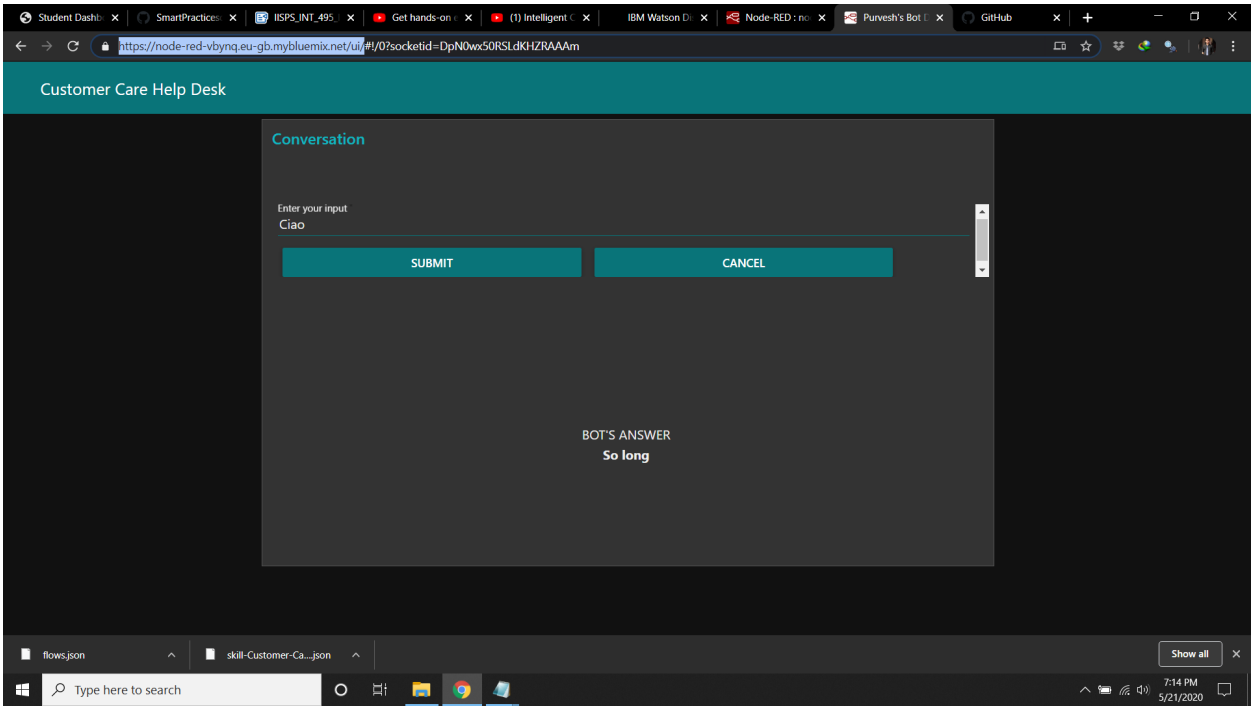
FlowChart



From the flowchart we can see that the input is passed into assistant service. If the "query intent" is determined in the output, it contacts the discovery service through the webhooks. The appropriate output is then processed to the user.

Result

Here are some of the snippets of the final interaction with the Bot named Purvesh's Bot.



The chatbot was successfully made and a prototype of the chatbot was made available on node-red dashboard. The dashboard link and demo video link have been provided below.

Video Demo Link (On Youtube)

Node-RED Dashboard Link

Advantages and Disadvantages

Advantages:

1. Reduced costs: Chatbots eliminate the need for labor duringonline interaction with customers. This is obviously a great advantage for companies that receive multiple queries at once. In addition to saving costs with them, companies can align the chatbot with their objectives, and use them as a means to enhance customer conversion.

2. 24/7 Availability: Unlike humans, once we install a chatbot, it can handle queries at any time of day. Thus, the customer does not have to wait for a commercial of the company to help him. This also allows companies to monitor customer « traffic » duringnon-working hours and contact them later.

3. Learning and updating: AI-based chatbots are able to learn from interactions and update independently. This is one of the main advantages. When you hire a new employee, you have to train them continuously. However, chatbots « form » themselves (with certain limitations, of course).

4. Management of multiple clients: Humans can serve a limited number of customers at the same time. This restriction does not exist for chatbots, and they can manage all the necessary queries simultaneously. This is one of the main advantages of using chatbot, as no customer is left unattended and youare solving different problems at the same time. There are chatbots companies already working on developing voice chatbot services.

Disadvantages:

1. Complex interface: It is often considered that chatbots are complicated and need a lot of time to understand what you want in customer. Sometimes, it can also annoy the client about their slowness, or their difficulty in filtering responses.They don't get you right: Fixed chatbots can get stuck easily. If a query doesn't relate to something you've previously « taught » it, you won't understand it. This can lead to a frustrated customer and the loss of the sale. Other times they do understand you, but they need double (or triple) as many messages as one person,
which spoils the user experience.
2. Bad memory: The chatbots are not able to memorize a conversation already had, which forces the user to write the same thing over and over again. This can be cumbersome for the client and annoying for the effort required. Therefore, it is important to be careful when designing chatbots and make sure that the program is able to understand users' queries and respond accordingly.

Applications

Some applications can be:-

1. Help User: This chatbot will be useful for the user to ask the assistant the queries related to the Product and will give them clear guidance about the Product.If the Assistant doesn’t know about a certain query,it will redirect to the correct person for it.

2. Content delivery: Media Publishers have realized that chatbots are a powerful way to engage with theiraudiences and monitor engagement to gain valuable insights on reader interests. Chat with the CNN and Wall Street Journal Chatbots on Facebook Messenger and receive the latest news directly in Messenger, without having to visit their websites.

3. Companionship:The primary function of the chatbot is to be a virtual companion – To speak with senior people on general topics like the weather, nature, hobbies, movies, music, news, etc. The chatbot asks questions, reacts to the answers, is able to speak on various topics, and share interesting news and facts from Google.

Conclusion

This chatbot will be useful for the user to ask the assistant the queries related to the Product and will give them clear guidance about the Product.If the Assistant doesn’t know about a certain query,it will redirect to the correct person for it.Chatbots are quickly making transformational changes and allowing businesses to thrive through customer interactions. The feedback and survey through chatbots strengthen the position of businesses as they analyze the reason behind different levels of customer approval. Use of conversational AI chatbots only means better engagement and relentless need for customer satisfaction in the near future.

Future Scope

Future Scope of this chatbot can be by adding the following to make it more advance:
A. Smarter Virtual Assistants: Much of what virtual assistants do now are basic skills, such as retrieving data and basic computation. As natural language processing (NLP) continues to mature, virtual assistants will improve their comprehension and response capabilities, allowing for their use to become more widespread and complex. Also, as machine learning progresses, we may see virtual assistants become smarter and begin to learn and predict customer needs.

B. Integration with IoT Devices: Car speakers, smart home devices, and wearables are just a few examples where the virtual assistant is departing from its original hardware and making its way to in-context devices. These integrations ensure that virtual assistants can always be near their human and ready to support any need. It is expected that these integrations will continue at an accelerated pace throughout 2018.

C. Voice-control: Voice recognition can be added with the virtual assistant. Then the customer can control application by using his voice.Soon, we could be joining meetings with a voice command, instead of dialing in the long meeting ID and password.