Project Report

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**Title:** *Intelligent Customer Help Desk With Smart Document Understanding*

**Category**: *Artificial Intelligence*

*Internship at smartinternz.com@2020*

1. **Introduction**
   1. **Project Overview:**

The project is a customer help desk chatbot that helps the customers with simple questions such as store location, how to reach the store, opening and closing hours of the store. However, a typical chatbot can only answer a predetermined set of questions. When it falls beyond the scope of the the questionnaire, it offers to talk to customer care representative.

This project however will help the customer needs help with operating of the device. It will answer general greetings, store location, book an appointment. It does smart document understanding by using IBM Discovery to help with how to operate device.

* 1. **Purpose:**

It is difficult for a store or organization to answer all the queries that are being asked by the customers, some of them being as trivial as the store location or store timings and the answers to them cam be predetermined which do not needs human intervention and can be answered by a mere chatbot. The other set of questions that arise are assistance required while using the device, initial installation etc, these can be answered by smart documentation understanding. If none of the above works then customer can book an appointment to the store which decrease a lot of work on both customer and organization side.

1. **Literature Survey**
   1. **Existing Problem**

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 predetermined question set, the option is typically to tell the customer the question isn’t valid or offer to speak to a real person. Thus making it difficult for the store to handle lot of customer queries and deploy humans in answering the questions.

* 1. **Proposed Solution**

# Steps

* Create required IBM Cloud services- Watson Assistant, Watson Discovery, Node red.
* Configure Watson Discovery for smart document understanding.
* Create IBM Cloud Functions action to create a cloud function that can communicate IBM Watson Discovery queries to Watson assistance.
* Create a Node red flow to connect all the above services together.
* Configure Watson Assistant to answer basic customer queries.
* Create node red flow and configure node to integrate Watson Assistant.
* Build a web application with integration to all these services & deploy the same on IBM Cloud Platform.

# Create IBM Cloud services

Create a student initiative account or lite plan account in IBM Cloud Services.

Create the following three services whic can be found in resources:

* + 1.Watson Discovery
  + 2.Watson Assistant
  + 3.Node Red

# Configure Watson Discovery

After the discovery is created, nevigate to the page and create a new data collection and upload the data. Select a unique name to the manual to be be uploaded .

Next step is to annotate the data. It can be done by selecting required label and grabbing over the required are. a to be annotated. As and when you further proceed in the document, it learns to label the document accurately

# Create IBM Cloud Functions action

Third step is to create a Cloud Function action that will query the collection created in Watson Discovery. The function can be found in the resource list. After clicking on function we will have to click on Action among various other options to create an action.Now, give it a unique name keeping everything else default. Click on create to launch the action. Now change the default code to connects to the Discovery service, makes a query against the collection, then returns the response. Select the Parameters tab and add the following keys- url, environment\_id, collection\_id , iam\_apikey. All of them will be available in the Discovery Service tab. We can now come back to code panel and click on invoke to check proper functioning. We now go to Endpoint panel to generate URL that can be used by Watson Assistant.

# Configure Watson Assistant

Launch the Watson Assistant tool and create a new dialog skill. Select the Use sample skill option as your starting point. This dialog skill contains all of the nodes needed to have a typical call center conversation with a user.

There are three parts - Intent, Entity and Dialog which are needed to answer simple and sophisticated customer care queries.

Intent: An intent represents the purpose of a user's input. You define an intent for each type of user request you want your application to support.

Entity: An entity represents a term or object that is relevant to your intents and that provides a specific context for an intent. You list the possible values for each entity and synonyms that users might enter.

Dialog: A dialog is a branching conversation flow that defines responses to the defined intents and entities. You use the dialog builder in the tool to create conversations with users to provide responses.

The next step is to enable webhook. It can be done by going to the option tab and pasting the URL generated in the previous cloud function.

# Create flow and configure node:

At first go to manage palette and install dashboard. Now, Create the flow with the help of following node:

* Form
* Assistant
* Debug
* Function
* Text

1. **Deploy and run Node Red app**

Deploy the Node Red flow.

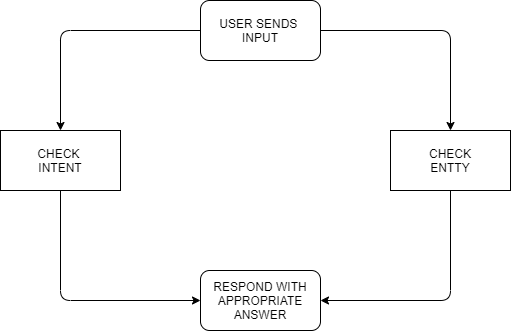
Then copy the link url upto .net/ and paste at anew tab by ui at the end of the url,

1. **Build web dashboard**

Change the height and width, theme and color scheme of the dashboard as required.

**3.Theoretical Analysis**

**3.1 Block Diagram**

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**3.2 Hardware and Software Designing**

**Project Requirements**: Python, IBM Cloud, IBM Watson

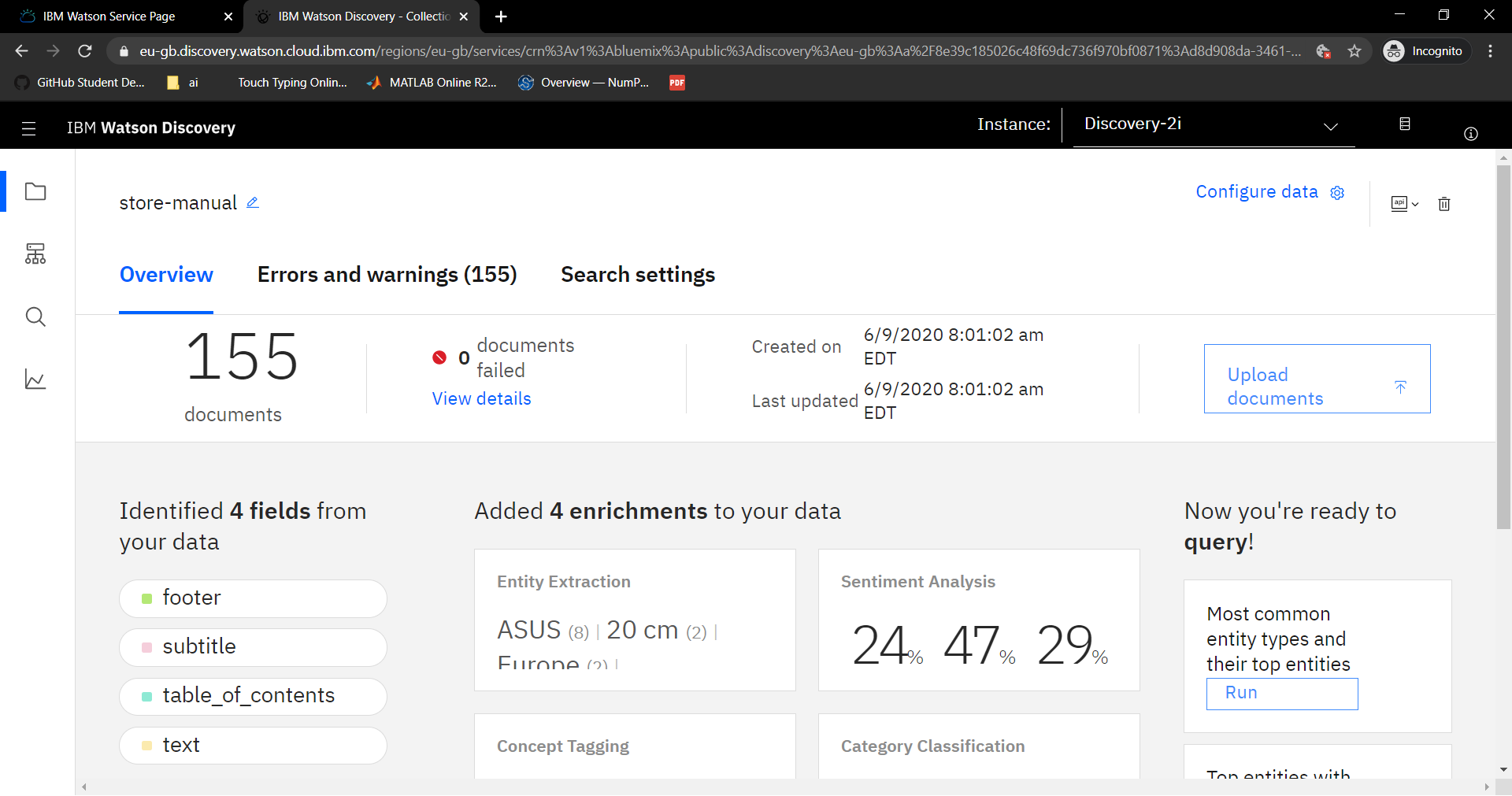
**Functional Requirements**: IBM cloud

**Technical Requirements**: AI, ML, WATSON AI, JSON

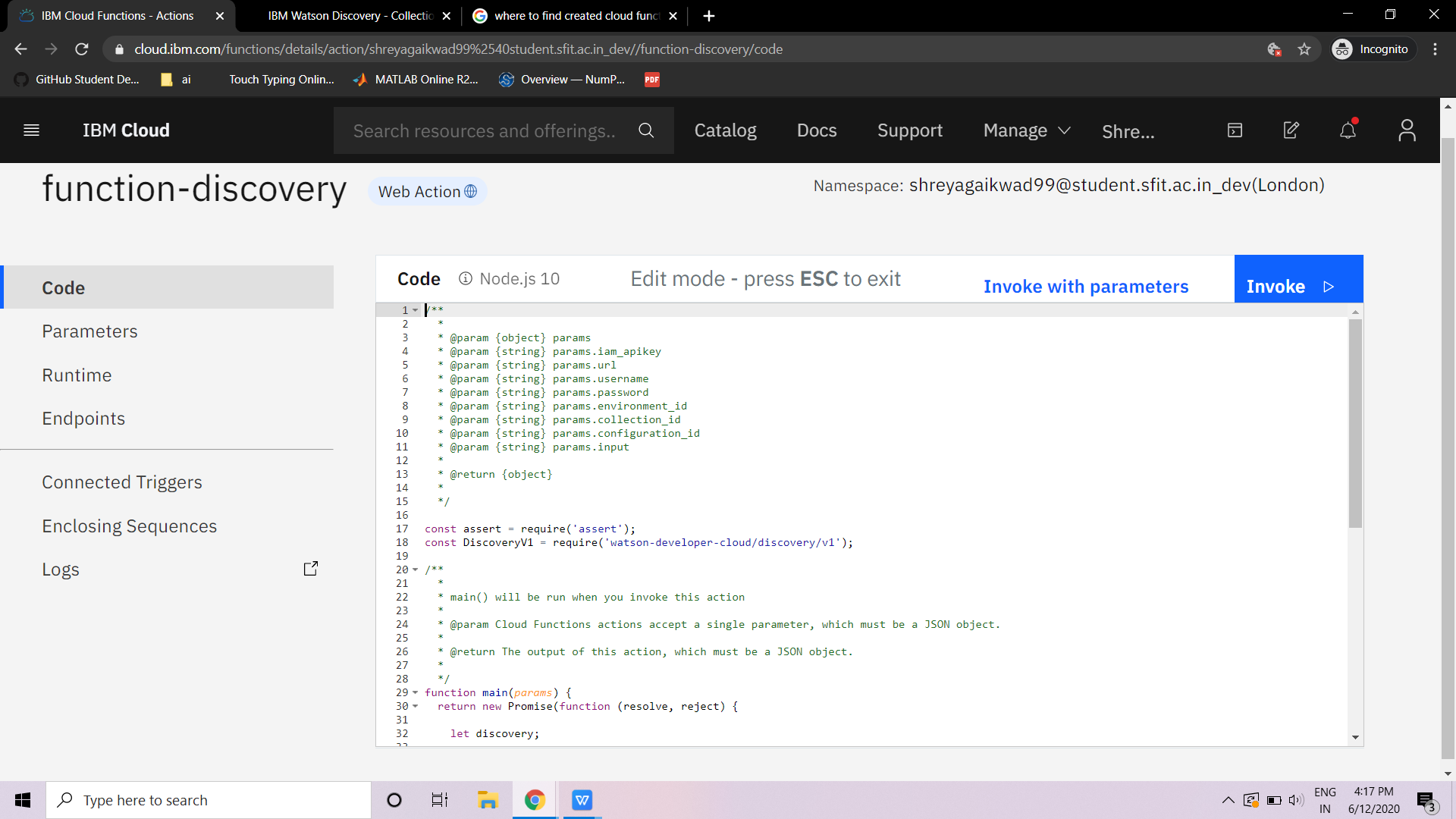
**Software Requirements**: Watson assistant, Watson discovery.

**4.Experimental Investigations**

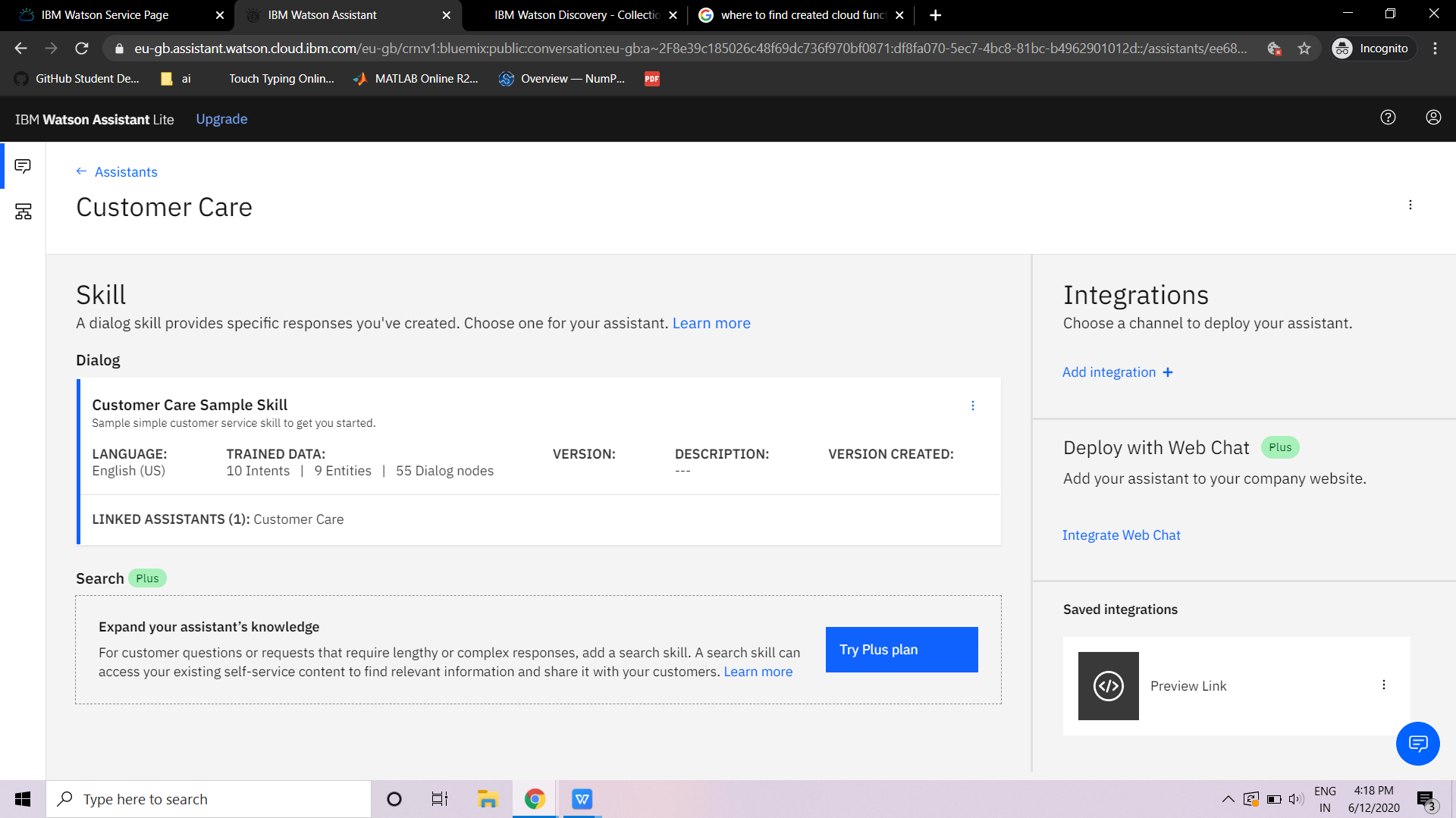
Watson Discovery:



Cloud Function:

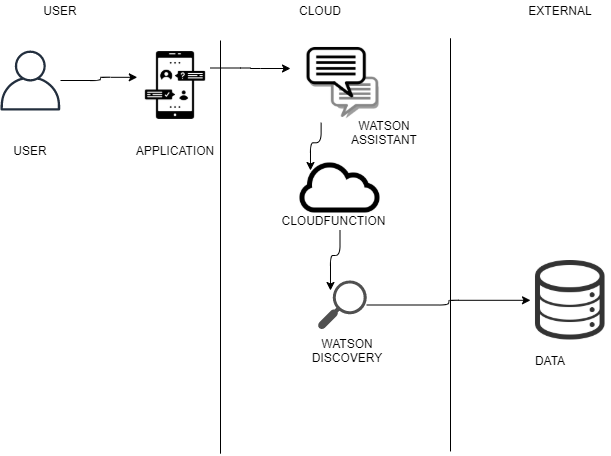


Watson Assistant:



1. **Flowchart**

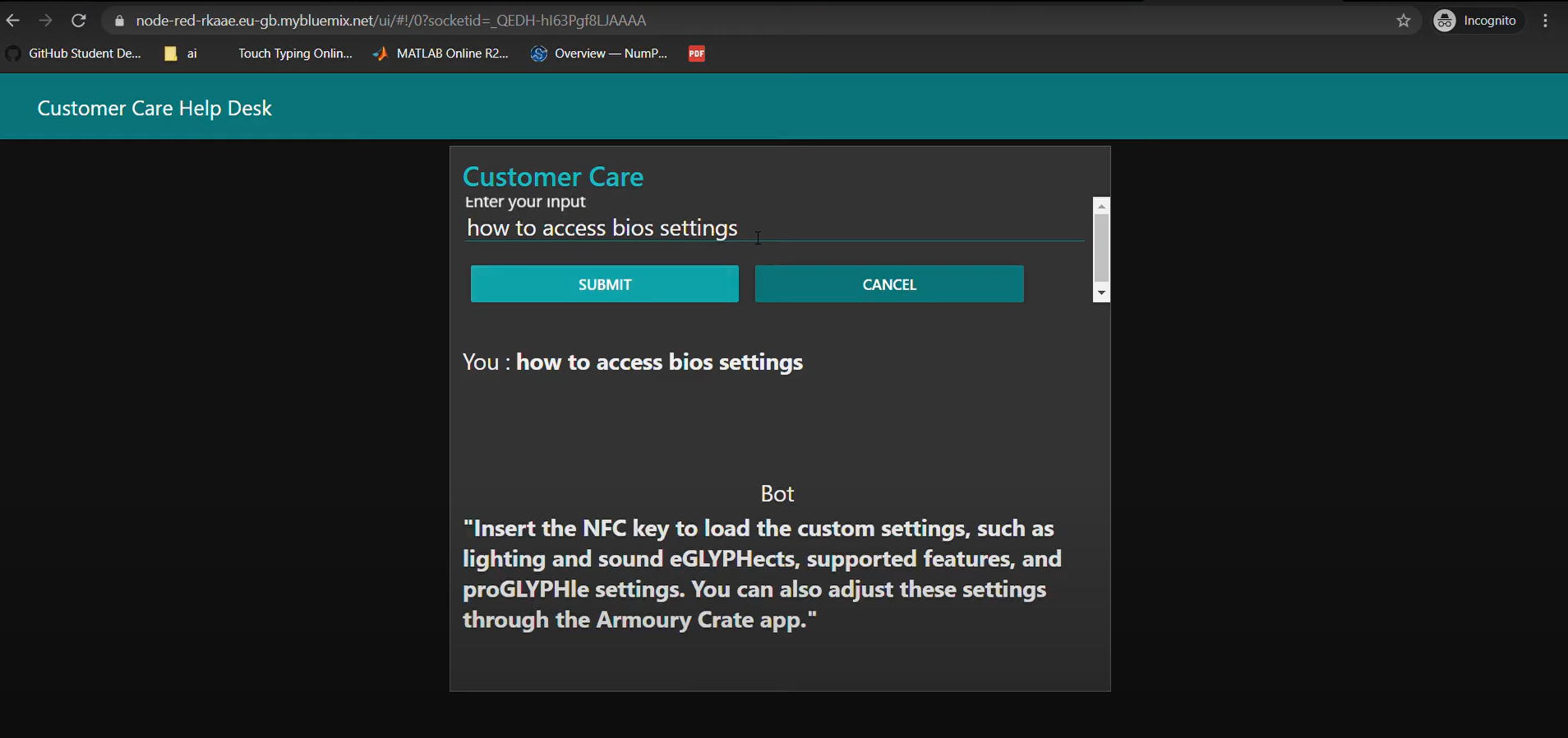
This is the flow chart of the work flow.

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1. The user types an input a question at the front end of the weeb application
2. The conversation between the user and the bac end server is coordinated by the Watson Assistant dialog skill.
3. The user interacts with the backend server via the app UI. The frontend app UI is a chatbot that engages the user in a conversation.
4. When user asks for product information, the query is passed to Watson Discovery by Cloud function.
5. It will retrieve the answer from the training data and return to the customer.

**6.Results**

A customer care help desk chatbot has been successfully built and deployed using Watson Assistant, Watson Discovery and integrated using Node Red Application.



**7.Advantages and Disadvantages**

**Advantages:**

1. Reduced costs: Chatbots eliminate the need for labor during online 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 » during non-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 you are 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.Chatbots can only handle basic Questions: Chatbots are still a basic Artificial Intelligence technology and so they can only answer the basic questions of customers and provide general information that is already available to them. They cannot solve complicated queries or answer out of script questions and companies need to have human customer service employees that can manage these for them. However, this is changing with time and currently, more and more advanced chatbots are entering the market.
3. Chatbots are Difficult to Create: Chatbots are created using Natural Language Processing which is extremely popular for customer support applications. Natural Language Processing is a part of Machine Learning which can be used to interact with the users in textual form and solve their queries. However, this requires complex programming and is not easy for companies. This becomes especially difficult if companies have to create chatbots from scratch and that is why many online platforms help companies to build and manage chatbots easily.
4. Chatbots require Constant Maintenance: Companies cannot just create a chatbot and then leave it hoping that it will correctly answer customer inquiries forever! The company products change with time and more advanced Natural Language Processing capabilities are also developed with time. All of these changes need to be programmed into the chatbot so that it has the most up to date information. In addition to that, chatbots also need to be periodically analyzed so that the most common questions that customers have can be identified and then their answers updated for future customers.

**8.Applications**

Some applications can be: -

1. Customer service chatbots: Almost all companies use chatbots to help their customers with the basic issues they face. These customer service chatbots can help the customers to easily navigate the company websites, answer basic questions and forward the customers to the relevant human customer service agents if their queries are more complex. For example, suppose your Samsung earphones are not working, then you can contact the Samsung customer service chatbot on their site to resolve your problems.

2. E-commerce chatbots: E-commerce companies also use chatbots to help their customer easily complete their transactions and also help them if any problems arise. These chatbots are specially designed to lead the customers from the starting which involves browsing the items on the E-commerce website and ending with purchasing to complete the transaction. If you are buying something on Amazon, the Amazon chatbot can guide you through the whole process of online shopping!

1. **Conclusion**

The chatbot has been successfully created and can be used by users to ask queries related to store location, opening hours. They can also seek help regarding the product and how to operate it. If the Assistant doesn’t know about a certain query, it will redirect to the correct person for it. Thus, a quick and reliable chatbot has been made that can help in addressing a number of customers .Thus reduces human intervention and increases organizational growth. .

1. **Future Scope**

Future Scope of this chatbot can be by adding the following to make it more advance: -  
1] Linguistic and conversational ability can be improved : The ability of the chatbot can be improved by improving the linguistic and conversational ability.

1. It can be integrated with various devices to make them smart.
2. **Bibliography**
3. https://[www.ibm.com/cloud/architecture/tutorials/cognitive\_discovery](http://www.ibm.com/cloud/architecture/tutorials/cognitive_discovery)
4. https://cloud.ibm.com/docs/assistant?topic=assistant-getting-started
5. https://developer.ibm.com/recipes/tutorials/how-to-create-a-watson-chatbot-on-nodered/
6. <http://www.iotgyan.com/learning-resource/integration-of-watson-assistant-to-node-red>
7. https://github.com/IBM/watson-discovery-sdu-with-assistant

Appendix

1. Source Code

Watson Assistant

{"intents":[{"intent":"Cancel","examples":[{"text":"i don't want a table anymore anymore"},{"text":"nevermind"},{"text":"forget it"},{"text":"never mind"},{"text":"cancel that"},{"text":"i changed my mind"},{"text":"cancel the request"}],"description":"Cancel the current request"},{"intent":"Customer\_Care\_Store\_Location","examples":[{"text":"Where is your office?"},{"text":"please suggest route from times square"},{"text":"how can i get to you from grand central"},{"text":"which cross streets are you on"},{"text":"give me directions"},{"text":"what's your location"},{"text":"where are you"},{"text":"what is the address"},{"text":"how do i find you"},{"text":"location please"},{"text":"can you give me directions"},{"text":"where are you located"},{"text":"how do i get to your place"},{"text":"Find store"},{"text":"Where is?"},{"text":"Where are you located?"},{"text":"how do i get to your business"},{"text":"I'd like to go to a store"},{"text":"Go to your company"},{"text":"I need 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How can I help you this morning?"],"selection\_policy":"sequential"}},"parent":"node\_13\_1502484041694","metadata":{},"conditions":"now().after('04:00:00') && now().before('11:59:59')","dialog\_node":"node\_16\_1488295517679"},{"type":"response\_condition","output":{"generic":[{"values":[{"text":"Please try again later"}],"response\_type":"text","selection\_policy":"sequential"}]},"parent":"node\_10\_1591788008021","conditions":"anything\_else","dialog\_node":"response\_9\_1591788241244","previous\_sibling":"response\_4\_1591788238061"},{"type":"response\_condition","output":{"generic":[{"values":[{"text":"\"<?$webhook\_result\_1.passages[0].passage\_text?>\""}],"response\_type":"text","selection\_policy":"sequential"}]},"parent":"node\_10\_1591788008021","conditions":"$webhook\_result\_1","dialog\_node":"response\_4\_1591788238061"},{"type":"response\_condition","output":{"text":{"values":["To get to our business from Grand Central, take the 4,5 or 6 train downtown to Union Square."],"selection\_policy":"sequential"}},"parent":"Directions","metadata":{},"conditions":"@landmark:(grand central)","dialog\_node":"node\_4\_1522439442155","previous\_sibling":"node\_8\_1482459217052"},{"type":"response\_condition","output":{"text":{"values":["To get to our business from the Empire State Building, walk to Herald Square and take the N train to Union Square"],"selection\_policy":"sequential"}},"parent":"Directions","metadata":{},"conditions":"@landmark:(empire state building)","dialog\_node":"node\_7\_1482459200886","previous\_sibling":"node\_3\_1522439390442"},{"type":"response\_condition","output":{"text":{"values":["To get to our business from Times Square, take the N train downtown to Union Square"],"selection\_policy":"sequential"}},"parent":"Directions","metadata":{},"conditions":"@landmark:(times square)","dialog\_node":"node\_8\_1482459217052","previous\_sibling":"node\_7\_1482459200886"},{"type":"standard","title":"Provide location","output":{"text":{"values":["We're located by Union Square on the corner of 13th and Broadway"],"selection\_policy":"sequential"}},"parent":"Directions","metadata":{},"conditions":"true","dialog\_node":"node\_3\_1522439390442"},{"type":"event\_handler","output":{},"parent":"slot\_12\_1522596437268","context":{"specialist":"@specialist"},"metadata":{},"conditions":"@specialist","event\_name":"input","dialog\_node":"handler\_13\_1522596437268","previous\_sibling":"handler\_14\_1522596437268"},{"type":"event\_handler","output":{"text":{"values":["We'll do our best to book you with @specialist"],"selection\_policy":"sequential"}},"parent":"slot\_12\_1522596437268","event\_name":"filled","dialog\_node":"handler\_15\_1522596463593","previous\_sibling":"handler\_13\_1522596437268"},{"type":"event\_handler","output":{},"parent":"slot\_12\_1522596437268","event\_name":"focus","dialog\_node":"handler\_14\_1522596437268"},{"type":"event\_handler","output":{"text":{"values":["Perfect!"]}},"parent":"slot\_8\_1509132875735","metadata":{},"conditions":"@reply:yes","event\_name":"filled","dialog\_node":"handler\_14\_1509133469904","previous\_sibling":"handler\_9\_1509132875735"},{"type":"event\_handler","output":{"text":{"values":["Sorry... let's try again"]}},"parent":"slot\_8\_1509132875735","context":{"date":null,"time":null,"confirm":null},"metadata":{},"conditions":"@reply:no","event\_name":"filled","dialog\_node":"handler\_17\_1509135162089","previous\_sibling":"handler\_14\_1509133469904"},{"type":"event\_handler","output":{},"parent":"slot\_8\_1509132875735","context":{"confirm":"@reply && slot\_in\_focus"},"metadata":{},"conditions":"@reply && slot\_in\_focus","event\_name":"input","dialog\_node":"handler\_9\_1509132875735","previous\_sibling":"handler\_10\_1509132875735"},{"type":"event\_handler","output":{"text":"Let me confirm: You want an appointment for <? $date.reformatDateTime(\"EEEEE\") ?> at <? $time.reformatDateTime(\"h a\") ?>. 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Canceling your request..."]}},"parent":"Reservation using slots","context":{"date":null,"time":null,"phone":null,"confirm":null,"specialist":null,"user\_cancelled":true},"metadata":{},"next\_step":{"behavior":"skip\_all\_slots"},"conditions":"#Cancel","event\_name":"generic","dialog\_node":"handler\_16\_1509133697261","previous\_sibling":"handler\_3\_1501275087289"},{"type":"slot","output":{},"parent":"Reservation using slots","metadata":{"\_customization":{"mcr":true}},"variable":"$date","dialog\_node":"slot\_102\_1498132501942","previous\_sibling":"node\_3\_1519173961259"},{"type":"response\_condition","output":{"text":{"values":["Let me know how else I can help"],"selection\_policy":"sequential"}},"parent":"Reservation using slots","context":{},"metadata":{},"conditions":"$user\_cancelled","dialog\_node":"node\_10\_1509697567474","previous\_sibling":"node\_25\_1522598839584"},{"type":"slot","output":{},"parent":"Reservation using slots","metadata":{},"variable":"$confirm","dialog\_node":"slot\_8\_1509132875735","previous\_sibling":"slot\_12\_1522596437268"},{"type":"event\_handler","output":{"text":{"values":[]}},"parent":"Reservation using slots","disabled":true,"metadata":{},"event\_name":"focus","dialog\_node":"handler\_7\_1509696539866","previous\_sibling":"handler\_16\_1509133697261"},{"type":"slot","output":{},"parent":"Reservation using slots","metadata":{"\_customization":{}},"variable":"$phone","dialog\_node":"slot\_22\_1522444583114","previous\_sibling":"slot\_8\_1509132875735"},{"type":"response\_condition","output":{"text":{"values":["[Use IBM Cloud Functions to connect to to backend systems]"]}},"parent":"Reservation using slots","metadata":{},"conditions":"$user\_needs\_help","dialog\_node":"node\_25\_1522598839584","previous\_sibling":"handler\_7\_1509696539866"},{"type":"response\_condition","output":{"text":{"values":["Let me check availability... [Use IBM Cloud Functions to connect to backend systems]"]}},"parent":"Reservation using slots","context":{},"metadata":{},"conditions":"true","dialog\_node":"node\_3\_1519173961259","previous\_sibling":"node\_10\_1509697567474"},{"type":"slot","output":{},"parent":"Reservation using slots","metadata":{"\_customization":{"mcr":true}},"variable":"$time","dialog\_node":"slot\_105\_1498132552870","previous\_sibling":"slot\_102\_1498132501942"},{"type":"slot","output":{},"parent":"Reservation using slots","metadata":{},"variable":"$specialist","dialog\_node":"slot\_12\_1522596437268","previous\_sibling":"slot\_105\_1498132552870"},{"type":"event\_handler","output":{"text":{"values":["I see you need help making an appointment. Let me transfer you to an agent..."],"selection\_policy":"sequential"}},"parent":"Reservation using slots","context":{"date":null,"time":null,"phone":null,"confirm":null,"specialist":null,"user\_needs\_help":true},"metadata":{},"next\_step":{"behavior":"skip\_all\_slots"},"conditions":"#Help","event\_name":"generic","dialog\_node":"handler\_3\_1501275087289"},{"type":"response\_condition","output":{"text":{"values":["We are open on <? @sys-date.reformatDateTime(\"EEEEE\") ?> from 10am until 8pm"],"selection\_policy":"sequential"}},"parent":"Hours of Operation","context":{},"metadata":{},"conditions":"@sys-date.reformatDateTime(\"EEEEE\") == \"Monday\" || @sys-date.reformatDateTime(\"EEEEE\") == \"Tuesday\" || @sys-date.reformatDateTime(\"EEEEE\") == \"Wednesday\" || @sys-date.reformatDateTime(\"EEEEE\") == \"Thursday\" || @sys-date.reformatDateTime(\"EEEEE\") == \"Friday\"","dialog\_node":"node\_1\_1522387330204","previous\_sibling":"node\_4\_1482425833988"},{"type":"response\_condition","output":{"text":{"values":["Our hours are Monday to Friday 10am to 8pm and Friday and Saturday 11am to 6pm."],"selection\_policy":"sequential"}},"parent":"Hours of Operation","context":{},"metadata":{},"conditions":" true","dialog\_node":"node\_6\_1482426521282","previous\_sibling":"node\_2\_1482424204936"},{"type":"response\_condition","output":{"text":{"values":["Our hours on <? @sys-date.reformatDateTime(\"EEEEE\") ?> are 11am to 6pm."],"selection\_policy":"sequential"}},"parent":"Hours of Operation","context":{},"metadata":{},"conditions":"@sys-date.reformatDateTime(\"EEEEE\") == \"Saturday\" || @sys-date.reformatDateTime(\"EEEEE\") == \"Sunday\"","dialog\_node":"node\_2\_1482424204936","previous\_sibling":"node\_5\_1482426503106"},{"type":"response\_condition","output":{"text":{"values":["We are open on @holiday regular hours"],"selection\_policy":"sequential"}},"parent":"Hours of Operation","context":{},"metadata":{},"conditions":"@holiday","dialog\_node":"node\_5\_1482426503106","previous\_sibling":"node\_1\_1522387330204"},{"type":"response\_condition","output":{"text":{"values":["We are closed on @holiday"],"selection\_policy":"sequential"}},"parent":"Hours of Operation","context":{},"metadata":{},"conditions":"@holiday:christmas || @holiday:thanksgiving || @holiday:(new years)","dialog\_node":"node\_4\_1482425833988"},{"type":"standard","output":{"text":"OK. Let me know how I can help"},"parent":"node\_22\_1467833484410","metadata":{},"conditions":"@reply:no","dialog\_node":"node\_21\_1468350173406","previous\_sibling":"node\_19\_1468350024009"},{"type":"standard","output":{"text":{"values":["OK. Transferring... [Use IBM Cloud Functions to connect to backend systems]"]}},"parent":"node\_22\_1467833484410","metadata":{},"conditions":"@reply:yes","dialog\_node":"node\_19\_1468350024009"},{"type":"event\_handler","output":{"text":{"values":["Thanks"],"selection\_policy":"sequential"}},"parent":"slot\_22\_1522444583114","context":{},"metadata":{},"conditions":"true","event\_name":"filled","dialog\_node":"handler\_22\_1522598191131","previous\_sibling":"handler\_23\_1522444583114"},{"type":"event\_handler","output":{},"parent":"slot\_22\_1522444583114","context":{"phone":"@phone"},"metadata":{},"conditions":"@phone","event\_name":"input","dialog\_node":"handler\_23\_1522444583114","previous\_sibling":"handler\_24\_1522444583114"},{"type":"event\_handler","output":{"text":"I'll just need a phone to hold your reservation"},"parent":"slot\_22\_1522444583114","metadata":{},"event\_name":"focus","dialog\_node":"handler\_24\_1522444583114"},{"type":"event\_handler","output":{},"parent":"slot\_102\_1498132501942","context":{"date":"@sys-date"},"metadata":{},"conditions":"@sys-date","event\_name":"input","dialog\_node":"handler\_103\_1498132501942","previous\_sibling":"handler\_104\_1498132501942"},{"type":"event\_handler","output":{"text":{"values":["Looks like you're trying to make a reservation in the past. Try again."]}},"parent":"slot\_102\_1498132501942","metadata":{},"next\_step":{"behavior":"reprompt"},"conditions":"$date.before(now())","event\_name":"filled","dialog\_node":"handler\_6\_1509695999145","previous\_sibling":"handler\_103\_1498132501942"},{"type":"event\_handler","output":{"text":"What day would you like to come in?"},"parent":"slot\_102\_1498132501942","metadata":{},"event\_name":"focus","dialog\_node":"handler\_104\_1498132501942"},{"type":"event\_handler","output":{"text":{"values":["We only accept appointments between 11am and 5pm"]}},"parent":"slot\_105\_1498132552870","metadata":{},"next\_step":{"behavior":"reprompt"},"conditions":"$time.after('17:30:30') || $time.before('10:59:59')","event\_name":"filled","dialog\_node":"handler\_1\_1509694458589","previous\_sibling":"handler\_106\_1498132552870"},{"type":"event\_handler","output":{},"parent":"slot\_105\_1498132552870","context":{"time":"@sys-time"},"metadata":{},"conditions":"@sys-time","event\_name":"input","dialog\_node":"handler\_106\_1498132552870","previous\_sibling":"handler\_107\_1498132552870"},{"type":"event\_handler","output":{"text":"What time on <? $date.reformatDateTime(\"EEEEE\") ?> do you want to come in?"},"parent":"slot\_105\_1498132552870","metadata":{},"event\_name":"focus","dialog\_node":"handler\_107\_1498132552870"},{"type":"standard","output":{"text":{"values":["So long","See ya","Good bye"],"selection\_policy":"sequential"}},"metadata":{},"conditions":"#Goodbye","digress\_in":"does\_not\_return","dialog\_node":"node\_12\_1468329566917","previous\_sibling":"node\_13\_1502484041694"},{"type":"standard","output":{"text":{"values":["I didn't understand can you try again"],"selection\_policy":"sequential"}},"metadata":{},"conditions":"anything\_else","digress\_in":"returns","dialog\_node":"node\_2\_1467831978407","digress\_out":"allow\_all","previous\_sibling":"node\_10\_1591788008021","disambiguation\_opt\_out":true},{"type":"standard","title":"Ask about product","actions":[{"name":"main\_webhook","type":"webhook","parameters":{"input":"<?input.text?>"},"result\_variable":"webhook\_result\_1"}],"metadata":{"\_customization":{"mcr":true}},"conditions":"#product\_info","dialog\_node":"node\_10\_1591788008021","previous\_sibling":"node\_4\_1570050459690"},{"type":"frame","title":"I want to make an appointment","output":{},"metadata":{"fallback":"leave","\_customization":{"mcr":true}},"conditions":"#Customer\_Care\_Appointments","digress\_in":"does\_not\_return","dialog\_node":"Reservation using slots","digress\_out":"allow\_all","previous\_sibling":"Directions","digress\_out\_slots":"allow\_all"},{"type":"standard","output":{"text":{"values":["You're welcome. Just let me know if you need anything else","No problem. Just let me know if you need anything else","My pleasure. Just let me know if you need anything else"],"selection\_policy":"sequential"}},"metadata":{},"conditions":"#Thanks","digress\_in":"does\_not\_return","dialog\_node":"node\_2\_1468243505617","previous\_sibling":"node\_12\_1468329566917"},{"type":"standard","output":{},"metadata":{},"conditions":"#General\_Greetings","digress\_in":"does\_not\_return","dialog\_node":"node\_13\_1502484041694","previous\_sibling":"Reservation using slots"},{"type":"standard","title":"What are your hours?","output":{},"metadata":{},"next\_step":{"behavior":"jump\_to","selector":"body","dialog\_node":"node\_3\_1522439390442"},"conditions":"#Customer\_Care\_Store\_Hours","digress\_in":"does\_not\_return","dialog\_node":"Hours of Operation","digress\_out":"allow\_all","previous\_sibling":"Opening"},{"type":"standard","title":"Where are you located?","output":{},"metadata":{},"next\_step":{"behavior":"skip\_user\_input"},"conditions":"#Customer\_Care\_Store\_Location","digress\_in":"does\_not\_return","dialog\_node":"Directions","digress\_out":"allow\_all","previous\_sibling":"Hours of Operation"},{"type":"standard","title":"Please transfer me to an agent","output":{"text":{"values":["Would you like me to transfer you to a representative?"],"selection\_policy":"sequential"}},"metadata":{},"conditions":"#General\_Connect\_to\_Agent","digress\_in":"does\_not\_return","dialog\_node":"node\_22\_1467833484410","digress\_out":"allow\_all\_never\_return","previous\_sibling":"node\_2\_1468243505617"},{"type":"standard","title":"What can I do","output":{"generic":[{"values":[{"text":"I can tell you about our store locations and opening hours, or help you set up an appointment."},{"text":"You could also ask me to connect you to an agent."}],"response\_type":"text","selection\_policy":"sequential"}]},"conditions":"#Help","dialog\_node":"node\_4\_1570050459690","previous\_sibling":"node\_22\_1467833484410"},{"type":"standard","title":"Opening","output":{"text":{"values":["Hello, I’m a demo customer care virtual assistant to show you the basics. I can help with directions to my store, hours of operation and booking an in-store appointment"],"selection\_policy":"sequential"}},"context":{"no\_reservation":true},"metadata":{},"conditions":"welcome","dialog\_node":"Opening"}],"counterexamples":[],"system\_settings":{"tooling":{"store\_generic\_responses":true},"off\_topic":{"enabled":true},"disambiguation":{"prompt":"Did you mean:","enabled":true,"randomize":true,"max\_suggestions":5,"suggestion\_text\_policy":"title","none\_of\_the\_above\_prompt":"None of the above."},"system\_entities":{"enabled":true},"spelling\_auto\_correct":true},"learning\_opt\_out":false,"name":"Customer Care Sample Skill","language":"en","description":"Sample simple customer service skill to get you started."}

Node red flow:

[{"id":"ec9b2270.88de1","type":"tab","label":"Flow 1","disabled":false,"info":""},{"id":"8dae4ff7.7c0e7","type":"ui\_form","z":"ec9b2270.88de1","name":"","label":"","group":"7acfc28b.9bc62c","order":1,"width":12,"height":2,"options":[{"label":"Enter your input","value":"text","type":"text","required":true,"rows":null}],"formValue":{"text":""},"payload":"","submit":"submit","cancel":"cancel","topic":"","x":140,"y":240,"wires":[["4daea38a.ad401c"]]},{"id":"4daea38a.ad401c","type":"function","z":"ec9b2270.88de1","name":"","func":"msg.payload=msg.payload.text; \nreturn msg;","outputs":1,"noerr":0,"x":320,"y":160,"wires":[["83a48707.fb1048","916c6959.1494b8"]]},{"id":"9b3ee09b.ceec7","type":"function","z":"ec9b2270.88de1","name":"","func":"msg.payload=msg.payload.output.text[0]\nreturn msg;","outputs":1,"noerr":0,"x":750,"y":200,"wires":[["ba482945.bf03e8"]]},{"id":"83a48707.fb1048","type":"watson-conversation-v1","z":"ec9b2270.88de1","name":"Customer Care","workspaceid":"b456013f-1979-44df-b565-3935dda1fffb","multiuser":false,"context":true,"empty-payload":false,"service-endpoint":"https://api.eu-gb.assistant.watson.cloud.ibm.com/instances/df8fa070-5ec7-4bc8-81bc-b4962901012d","timeout":"","optout-learning":false,"x":560,"y":160,"wires":[["9b3ee09b.ceec7","f11bdd29.5aeb7"]]},{"id":"916c6959.1494b8","type":"ui\_text","z":"ec9b2270.88de1","group":"7acfc28b.9bc62c","order":2,"width":12,"height":2,"name":"","label":"You : ","format":"{{msg.payload}}","layout":"row-left","x":430,"y":320,"wires":[]},{"id":"f11bdd29.5aeb7","type":"debug","z":"ec9b2270.88de1","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"false","x":780,"y":80,"wires":[]},{"id":"ba482945.bf03e8","type":"ui\_text","z":"ec9b2270.88de1","group":"7acfc28b.9bc62c","order":3,"width":12,"height":5,"name":"","label":"Bot","format":"{{msg.payload}}","layout":"col-center","x":900,"y":340,"wires":[]},{"id":"7acfc28b.9bc62c","type":"ui\_group","z":"","name":"Customer Care","tab":"17b4b160.80f1ef","order":1,"disp":true,"width":12,"collapse":false},{"id":"17b4b160.80f1ef","type":"ui\_tab","z":"","name":"Customer Care Help Desk","icon":"dashboard","disabled":false,"hidden":false}]

Cloud Function:

/\*\*

\*

\* @param {object} params

\* @param {string} params.iam\_apikey

\* @param {string} params.url

\* @param {string} params.username

\* @param {string} params.password

\* @param {string} params.environment\_id

\* @param {string} params.collection\_id

\* @param {string} params.configuration\_id

\* @param {string} params.input

\*

\* @return {object}

\*

\*/

const assert = require('assert');

const DiscoveryV1 = require('watson-developer-cloud/discovery/v1');

/\*\*

\*

\* main() will be run when you invoke this action

\*

\* @param Cloud Functions actions accept a single parameter, which must be a JSON object.

\*

\* @return The output of this action, which must be a JSON object.

\*

\*/

function main(params) {

return new Promise(function (resolve, reject) {

let discovery;

if (params.iam\_apikey){

discovery = new DiscoveryV1({

'iam\_apikey': params.iam\_apikey,

'url': params.url,

'version': '2019-03-25'

});

}

else {

discovery = new DiscoveryV1({

'username': params.username,

'password': params.password,

'url': params.url,

'version': '2019-03-25'

});

}

discovery.query({

'environment\_id': params.environment\_id,

'collection\_id': params.collection\_id,

'natural\_language\_query': params.input,

'passages': true,

'count': 3,

'passages\_count': 3

}, function(err, data) {

if (err) {

return reject(err);

}

return resolve(data);

});

});

}