

GuruCool Event

PROJECT REPORT

ON

Restaurant Assistant Chatbot

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ABSTRACT

Customer support is perhaps one of the main aspects of the user experience for online services. However with the rise of natural language processing techniques, the industry is looking at automated chatbot solutions to provide quality services to an ever growing user base.

Proposed system is the restaurant chatbot assistant , who assist the customers of restaurant. Chatbot assistant can help the customer by menu card of restaurant and can give information about items on which discounts are available. It also tell the customer about special items of restaurant. It helps the customer in placing orders and reserving table for specific date and time for specific party size. Chatbot assistant can speak many languages as well so that its easy for customer to communicate with it. Our chatbot assistant provide text to speech and speech to text services. It also keep track of number of order place by customer and table reservation details. It also send text message and email to owner of restaurant when customer place an order or make a table reservation. Our chatbot is integrated with website called [codemenu.in](#) to provide webchat facility. Mobile application is also developed. Using this mobile application customer can assist by Priya Assistant. Weblink user interface is also well developed, as its easy for customer to interact with assistant.

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CHAPTER 1

INTRODUCTION

1.1 Basic Introduction:

An internet bot or bot is a software application that can do automated tasks over the internet. And a chatbot or chatterbot is a bot that can converse with humans. According to CX Network, 53% of companies identify AI as an important tool in creating a “customer-first culture”. Another study found that 56% of businesses say that chatbots are driving disruption in their industry. This means that chatbots are creating powerful changes to industries. They are affecting how customers interact with businesses. They affect how customer service is done. They affect how leads are generated. And they affect how quickly customers can be given the support they need.

Chatbots are growing in popularity every day, and with good reason. They have proven to be a great asset to thriving businesses in the modern world. Great companies can be supported by advanced AI and together become something even greater. This applies to chatbots across all industries, but today we’re going to take a closer look at one sector.

1.2 What is 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.

Why Chatbot is so Important?

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.

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.

How Chatbot Works? :

There are two different tasks at the core of a chatbot:

- 1) User request analysis
- 2) Returning the response

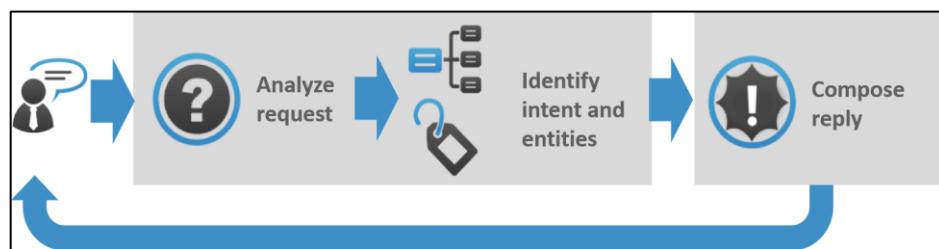


Fig. Working of Chatbot

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.

- 1) User request analysis: 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.

2) 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

CHAPTER 2

LITERATURE SURVEY

2.1 Existing Problem

There are the obvious ones like increased rent, staff retention, and waste. What's less obvious is the importance of an engaged guest. How do you make a guest feel more informed before they arrive at your restaurant? An engaged guest spends more! That is the problem. It's important to engage a guest on whatever platform they prefer to communicate on.

Most small businesses can't afford to have someone constantly responding to questions via text. And even though 95% of businesses have tools like Facebook Messenger enabled, many businesses ignore the importance of immediacy in customer support, resulting in frustrated customers and lost sales. In a world where restaurants must constantly compete for consumers' attention, even a few minutes waiting for a response can result in a customer choosing somewhere else to eat.

2.2 Proposed Solution

Chatbots are the best solution for businesses that want to engage with guests in real-time online but who can't afford to have staff constantly answering incoming inquiries. We need something simple that we can set and forget, so we can get back to making sure guests are having a great experience inside the restaurant. That's why we built Chatbot the way we did.

Chatbot is a tool to help restaurants grow their businesses, save time, make guests happier, and stay at the forefront of how businesses communicate with their customers.

2.2.1 The role of Restaurant Chatbot :

1. Reservations of table :

Using restaurant chatbot technologies, it's possible for customers to make their reservations according to party size, date, time, price.

2. Showing Menu: Restaurant Chatbot can display menu to guide to customer for placing order.

2. Ordering of Food : Restaurant Chatbot can guide the customer through the menu to place their orders even before arriving at the restaurant. Customer can also order the food by specifying items available in menu card.

3. Specialty of Restaurant : Restaurant Chatbot can also display special dishes of restaurant so that customer can prefer to try the specialty of restaurant.

4. Discount Display : Restaurant Chatbot can also display items or dishes on which special discounts are available.

5. Text message received by Owner : After receiving an order of food from customer or by receiving request for reservation of table, owner of the restaurant can receive the text message.

6. E-mail received by Owner : After receiving an order of food from customer or by receiving request for reservation of table, owner of the restaurant can receive an E-mail.

7. Use of Database : Restaurant database is use to keep a record of orders of food/ request of reservation of table.

2.2.2 What they Do?

Chatbots can be integrated with business websites or deployed through apps, they offer an excellent way of sending messages, answering questions and facilitating customer service. Proposed restaurant Chatbot is integrated with website called codemenu.in and also android application is created called Priya Assistant.

CHAPTER 3

THEROTICAL ANALYSIS

3.1 Block Diagram :

Restaurant chatbot diagram depicts complete scenario of features provided by it.

Following are the functions performed by our restaurant Chatbot:

1. Welcome to customer
2. Show Menu
3. Reserve table
4. Display discounts available in restaurant
5. Display Special dishes/ items of restaurant
6. Ordering of food
7. Maintain database to keep count of request from customer

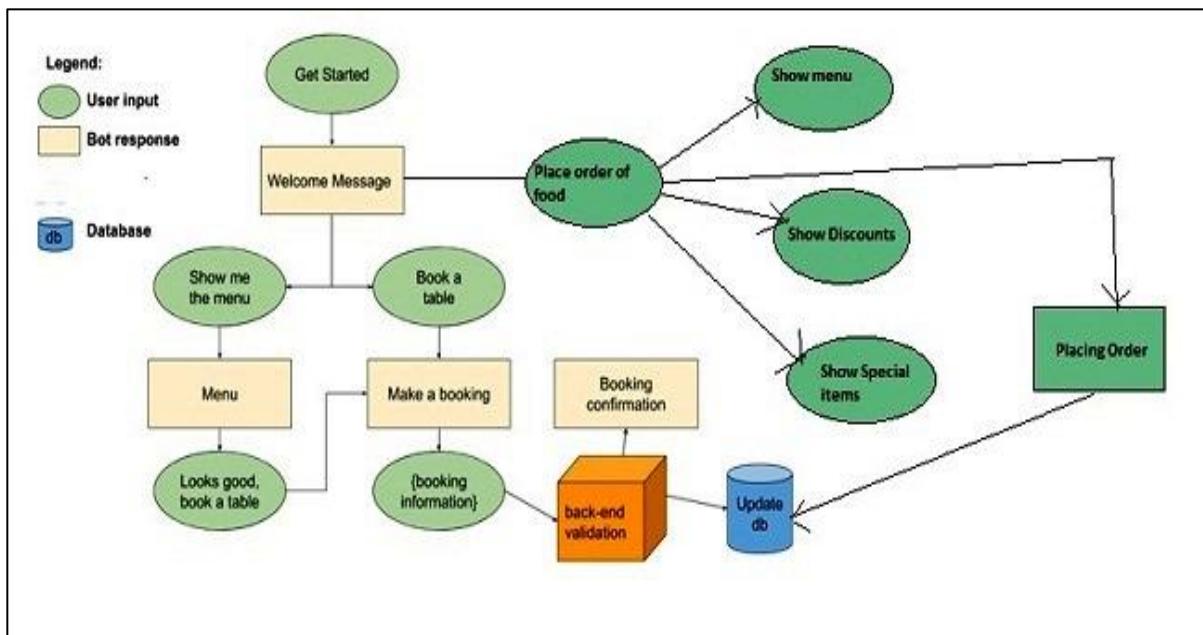


Fig. Block Diagram of Restaurant Chatbot

3.2 Hardware / Software Used:

3.2.1 Hardware Required :

- Intel Pentium-4
- 256MB RAM
- 20GB Hard Disk
- 52X CD-ROM Drive

3.2.1 Software Required :

- IBM Cloud Account
- IBM Services :
 - IBM Watson Assistant
 - Node-Red Application
 - Text-to-speech
 - Speech-to-text
 - Cloudant Db

3.3. Expected Requirement :

- User friendly GUI
- Easy Extensibility
- Faster Accessibility
- Secured Environment

CHAPTER 4

EXPERIMENTAL INVESTIGATION

The direct application of chatbots in the restaurant business can be very impactful as well. Restaurants and fast food giants like Burger King, Pizza Hut, and Dominos have followed suit with their own proprietary chatbots . Soon placing delivery orders over the phone will be obsolete; customers will do this through Facebook, WhatsApp, or other social networking sites as shown in Figure 3. Chatbots will eventually accept payments as well; MasterCard already provides such services through its Masterpass app.

Deploying chatbots can reduce costs for both customers and firms. Customers do not need to call, which reduces their communication expenditures, and companies will no longer need to hire customer service representatives or outsource answering services to a call center facility. The advantages are not limited to the ordering and delivering processes. Other possible chatbot benefits highlights include the allowing customers to perform the following tasks without having to download mobile apps: 1) find and explore restaurant reviews, photos, menus, prices, and available tables; 2) manage restaurant reservations on the go, easily book, change, cancel, or re-book tables; and 3) search and find restaurants according to party size, date, time, preferred cuisine, price, or distance.

CHAPTER 5

IMPLEMENTATION AND FLOWCHART

5.1 IMPLEMENTATION :

Following are the steps used to implement Restaurant Chatbot.

Step-1 : To develop Priya- Restaurant assistant first step is to create IBM cloud account. For free plan, there is facility of creating lite account to access all features of IBM cloud account.

Step-2 : For developing Priya-Restaurant Chatbot assistant, the services need to create in IBM account are as given below:

1. IBM Watson Assistant
2. Node-Red Application
3. Text-to-speech
4. Speech-to-text
5. Cloudant Db

1. IBM Watson Assistant :

In IBM Watson Assistant major components to build chatbot are Intent, Entities &Dialogs. There are four intents made in proposed system each of which will separately take care of each goal of bot.

Intent : Have Watson analyze your chat transcript log data to find the most common and frequently expressed customer needs. Watson can then recommend intents and intent user examples that you can use to train your assistant so it can recognize the same and similar requests in the future.

In our Priya Restaurant assistant, we create four (4) intents. The list of created intents and their purpose are given below:

1. Greeting Intent : It is use for greeting and to welcome to customer.
2. Enquiry Intent : It is use to enquire about menu card, discounts available in restaurant and to know about special dishes of restaurant.
3. Order Intent : It is use for ordering food available in menu card.
4. Book_reservation Intent : It is use to reserve the table at specific date and time and for right size of party.

Priya Restaurant Assistant Chatbot

The screenshot shows the IBM Watson Assistant Lite interface. The left sidebar lists 'My first skill' with sections for 'Intents', 'Entities', 'Dialog', 'Options', 'Analytics', 'Versions', and 'Content Catalog'. The 'Intents' section is active, displaying a table with four rows:

	Description	Modified	Examples
#book_reservation		10 days ago	6
#enquiry		6 days ago	5
#Greetings		3 days ago	6
#order		23 days ago	3

At the bottom, it says 'Showing 1–4 of 4 intents' and '1 of 1 pages'.

Fig. Intents in Priya Restaurant Assistant

Entities : Entities are used for identifying interesting parts of the user's utterance, such as names and dates. Watson Assistant already provides system entities (for date, time, names, etc), and lets you define entities with synonyms and fuzzy matching, as well as defining pattern-based entities.

In our Priya Restaurant assistant, we useentities. The entities created in our Priya-restaurant assistant are greeting, email, item, location, mobile number, name, order, payment, reservations and specials.

The screenshot shows the IBM Watson Assistant Lite interface. The left sidebar lists 'My first skill' with sections for 'Intents', 'Entities', 'System entities', 'Dialog', 'Options', 'Analytics', 'Versions', and 'Content Catalog'. The 'Entities' section is active, displaying a table with ten rows:

	Description	Modified
@email	email	22 days ago
@enquiry	special items, offers, menu	23 days ago
@greetings	Thank You, Good Morning, Good Evening, Good Afternoon	3 days ago
@items	Chicken Family Pack, Supreme Chicken Biryani, Supreme Mutton Biryani, Chilli Ch...	6 days ago
@location	location	6 days ago
@mobilenumber	mobilenumber	3 days ago
@name	name	3 days ago
@order	order	23 days ago
@payment	COD, UPI, Card	22 days ago
@reservation	reservation	10 days ago
@specials	Chicken Biryani, Veg Biryani, Chicken Lollipop, Chicken Reshami Kebab, Qubani ka ...	6 days ago

At the bottom, it says 'Showing 1–10 of 10 entities' and '1 of 1 pages'.

Fig. Entities in Priya Restaurant Assistant

System Entities :

System entities are prebuilt by IBM to recognize references to things like numbers and dates in user input. It just require to turn on these system entities to start using it.

In our Priya Restaurant assistant, we use three (3) system entities. The system entities used in our Priya-restaurant assistant are sys_number, sys_date and sys_time.

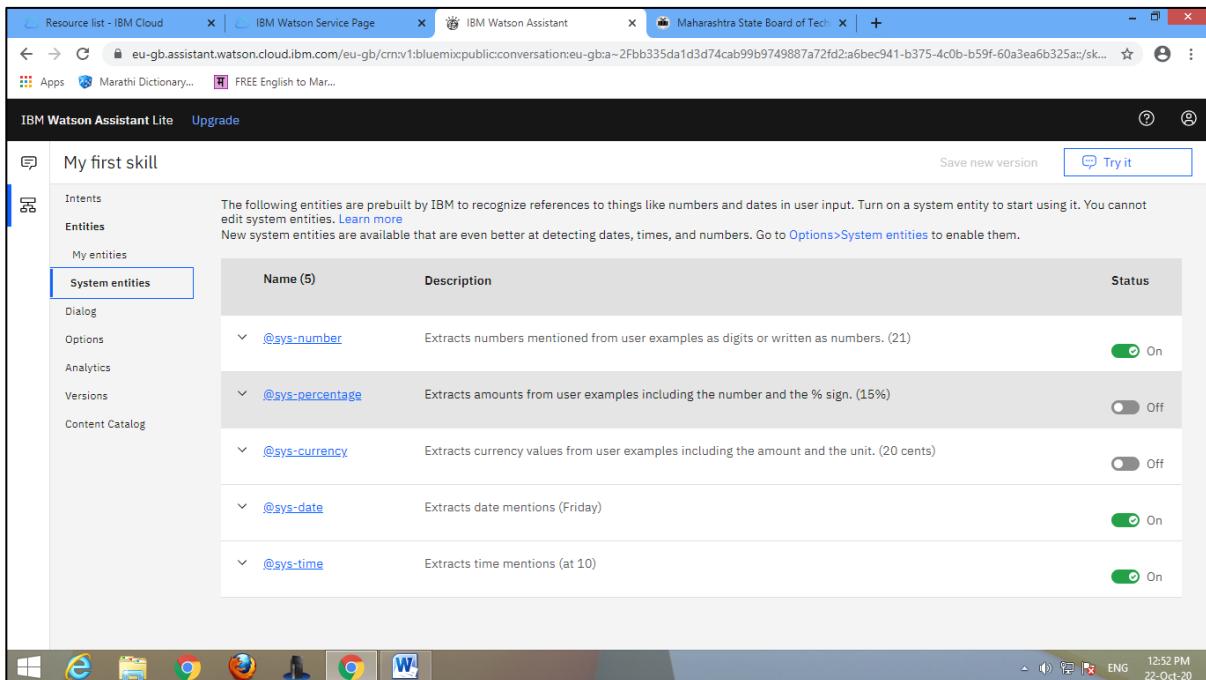
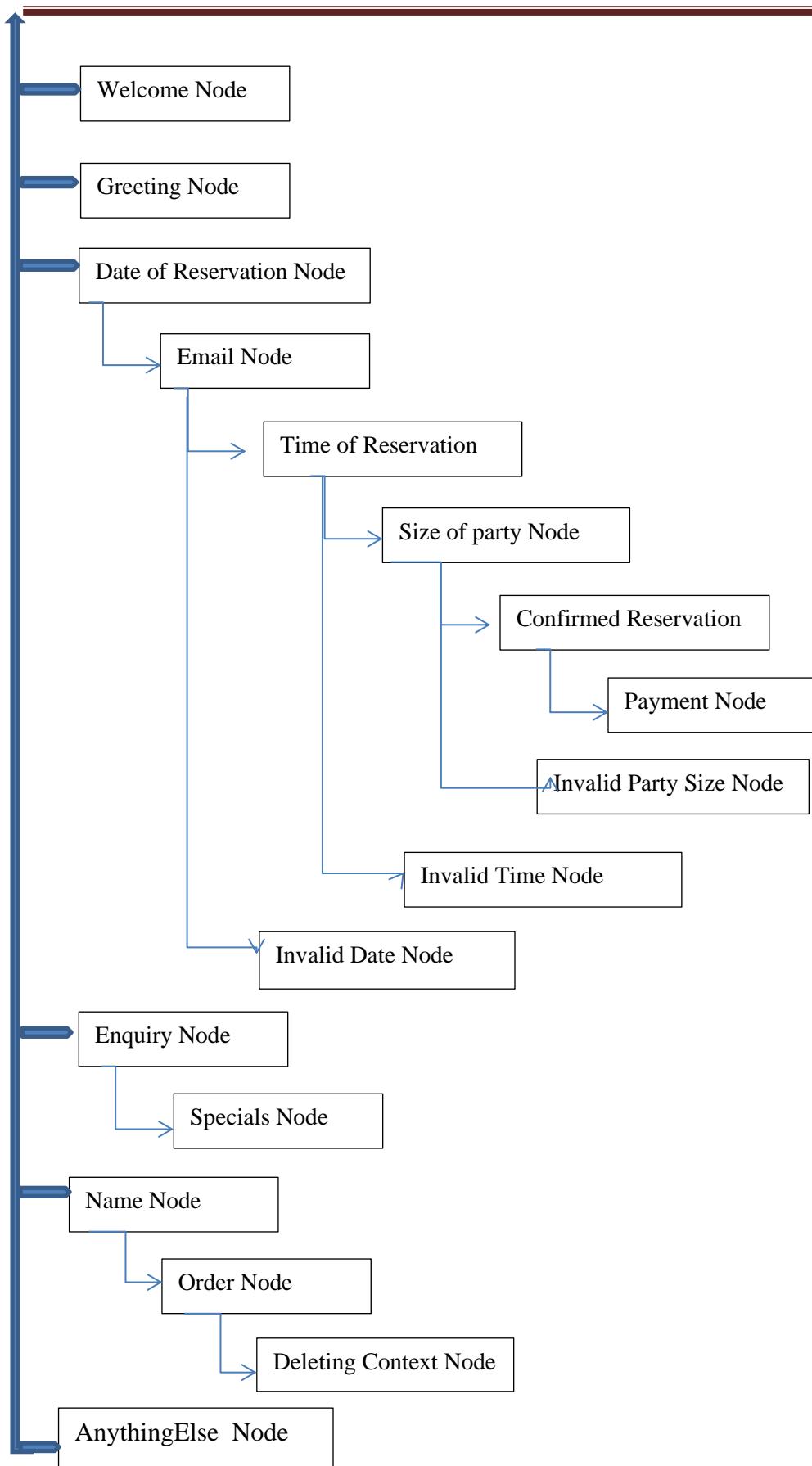


Fig. System Entities in Priya Restaurant Assistant

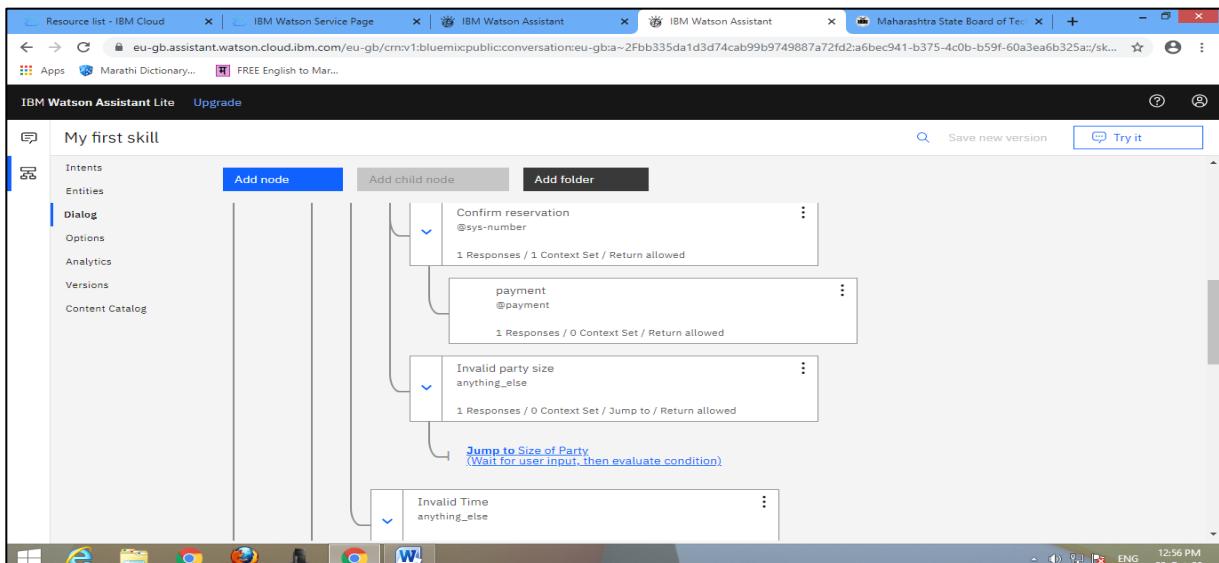
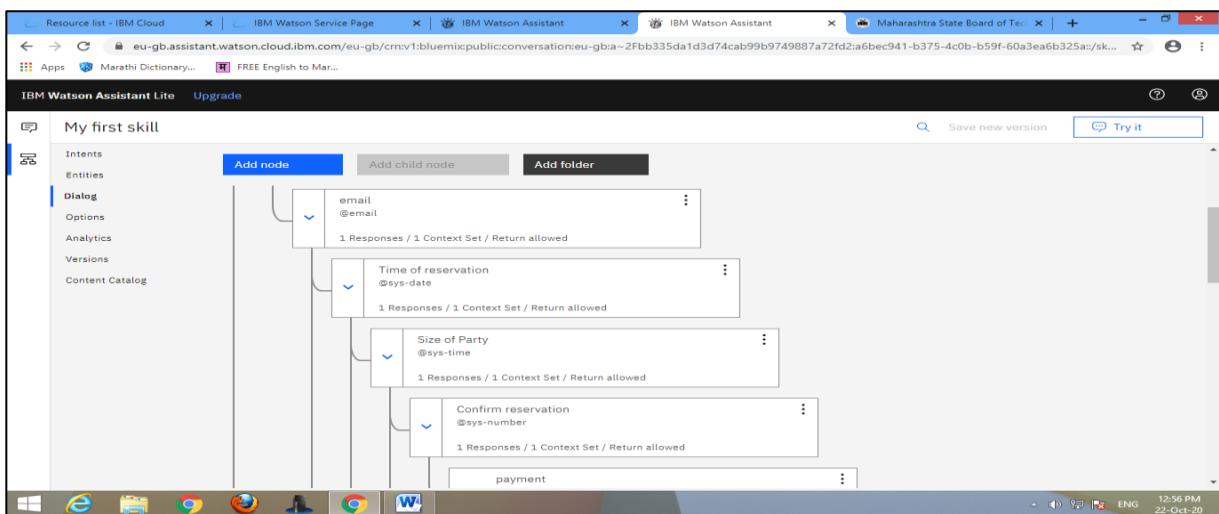
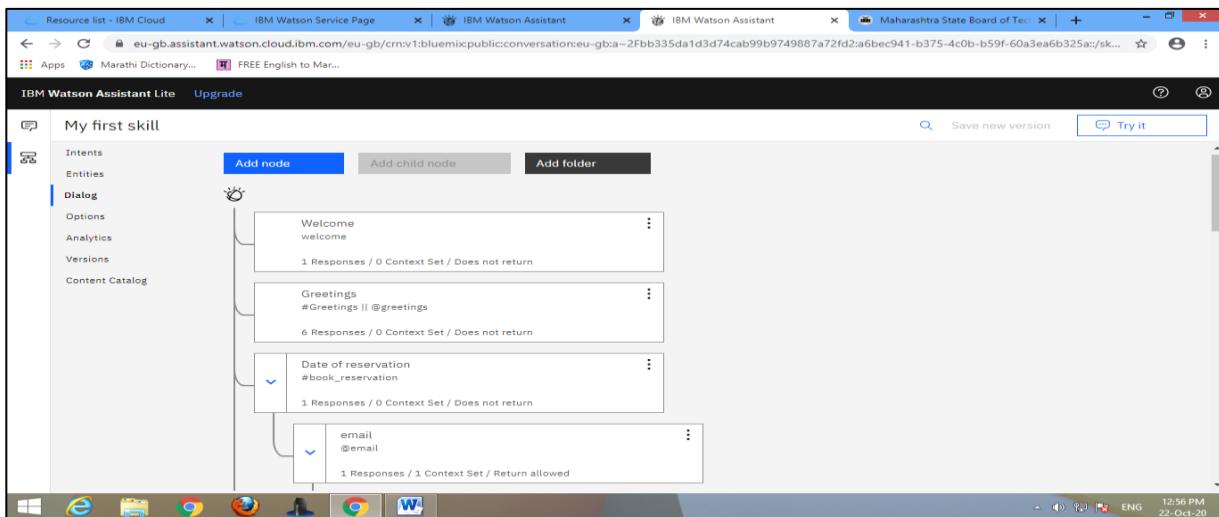
Dialog :

A dialog defines the flow of your conversation in the form of a logic tree. It matches intents (what users say) to responses (what your virtual assistant says back). Each node of the tree has a condition that triggers it, based on user input.

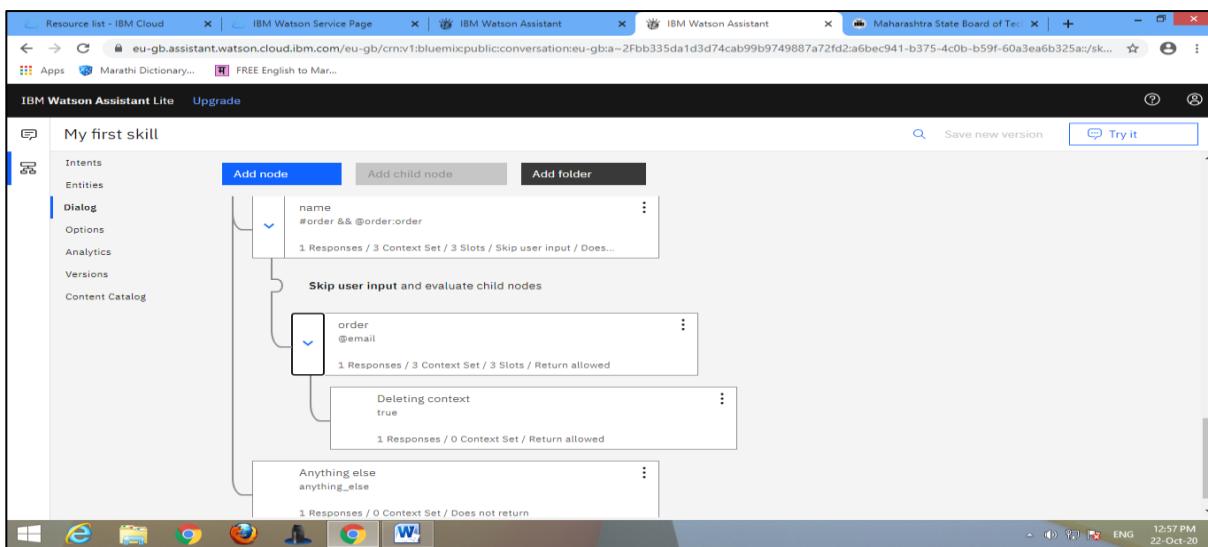
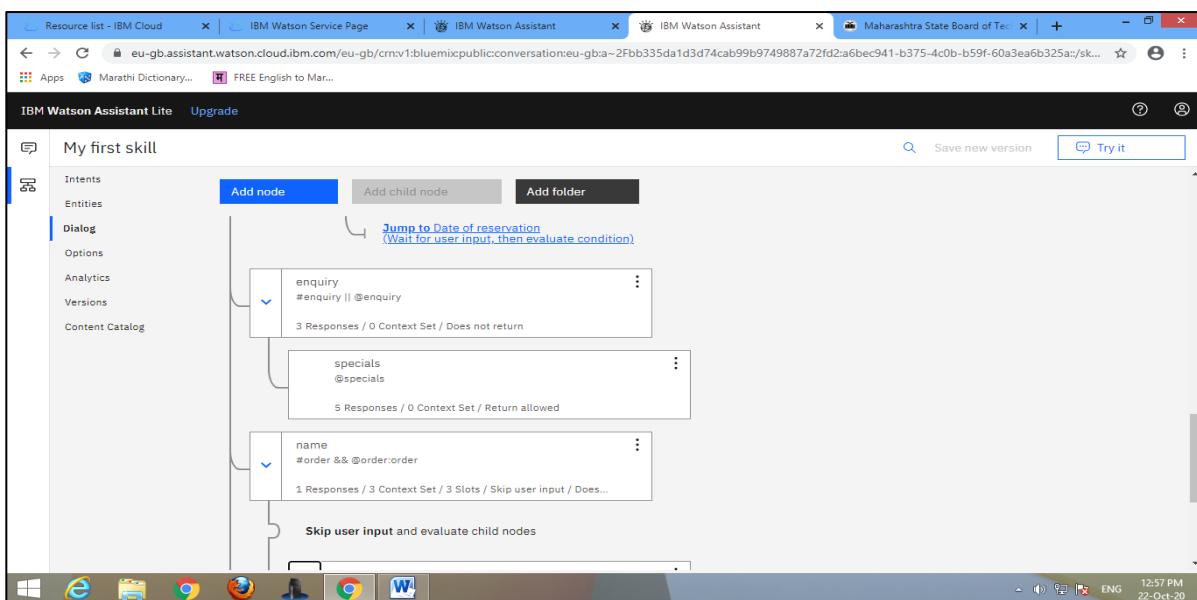
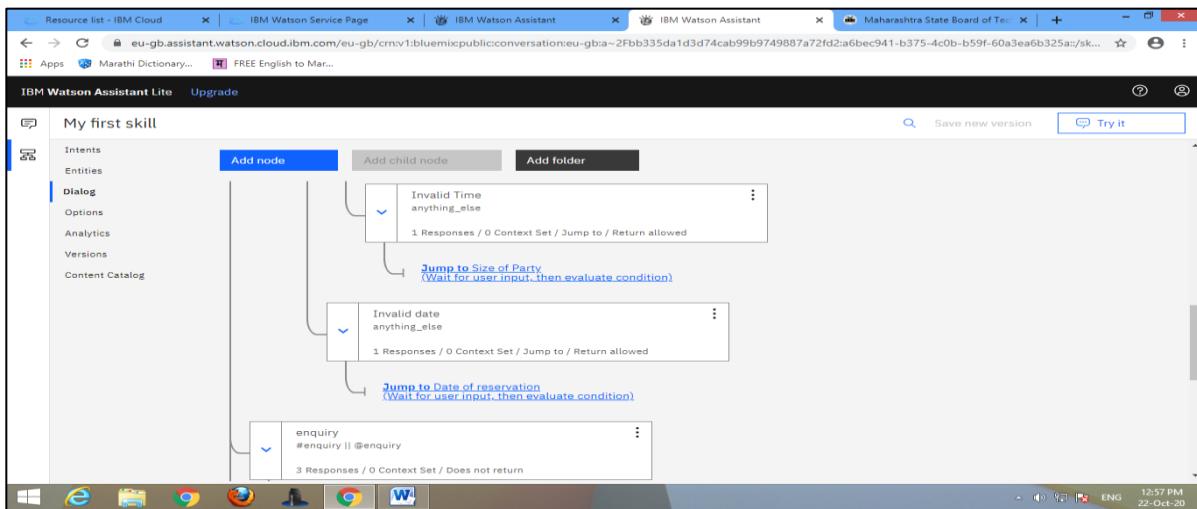
In our Priya Restaurant assistant, we use three (3) system entities. The system entities used in our Priya-restaurant assistant are sys_number, sys_date and sys_time.



Dialogs in Priya Restaurant Assistant :



Priya Restaurant Assistant Chatbot

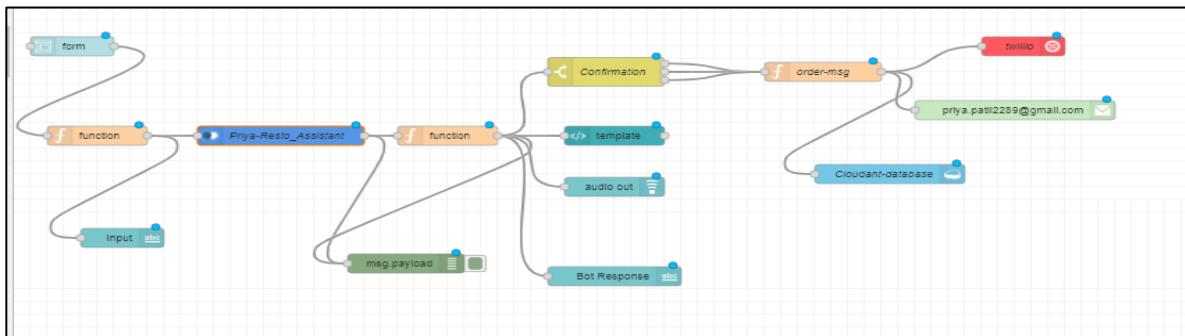


Step-3 : Node-Red Application installed in your IBM account.

2.Node-RED Application : It is used to augment the capabilities of your Watson Assistant chatbots by integrating services such as Watson Translate and Text to Speech, text to speech, cloudant Db, Microphone, mic, use twilio for sending messages and sending email etc. You'll also practice deployment of chatbots to Facebook Messenger etc.

In our Priya Restaurant assistant, we use Nodered for integration of text to speech , speech to text , cloudant Db services . In Nodered we also use following nodes for special purposes.

1. Twilio Node : twilio node is configured for sending text messages on mobile number. Text message is sent to owner of Priya Restaurant when customer place the order or reserve the table. This facility is used to notify to the owner.
2. E-mail Node : Email Node is configured for sending email on email id. Email is sent to owner of Priya Restaurant when customer place the order or reserve the table. It is used to configure twilio node for sending text messages on mobile number.
3. Cloudant Db Node : It is configured to keep track of number of orders are placed by customer in Priya Restaurant. It is also used to keep track of number of reservation of table done by customer.
4. Switch Node : It is configured to trigger to twilio and email node when match is found for payment of customer. Keywords used for matching purpose are COD, Card and UPI.
5. Mic Node : This node is configured for recording message of customer.
6. Audio Node : This node is configured for voice message. It is used to make message of assistant audible to customer.



3.Speech to Text Service :

The Watson Speech to Text service can be used anywhere voice-interactivity is needed. The service is great for mobile experiences, transcribing media files, call centre transcriptions, voice control of embedded systems, or converting sound to text to then make data searchable.

4.Text to Speech Service :

Node-RED node provides a very easy wrapper node that takes a text string as input and produces a binary buffer holding the spoken text audio stream in .wav format.

The selection of language and voice are made through the node's properties editor. To get the Text to Speech service credentials on IBM Cloud automatically filled-in by Node-RED, you should connect the Text to Speech service to the Node-RED application in IBM Cloud.

5.Cloudant Db :

This is a simple flow that gets you started with storing and retrieving documents from a Cloudant database. Cloudant is based on CouchDB NoSQL database. Allows basic access to a Cloudant database to insert, update, delete and search for documents. To insert a new document into the database you have the option to store the entire msg object or just the msg.payload. If the input value is not in JSON format, it will be transformed before being stored. In proposed Priya Restaurant Assistant Chatbot , we use cloudant database to keep a track of orders placed by customer and number of table reserve by customer in our restaurant.

The screenshot shows the Cloudant Database interface. On the left, there is a sidebar with icons for Home, Service Catalog, Applications, and Log Out. The main area has a header with tabs for 'All Documents' (selected), 'Query', 'Permissions', 'Changes', and 'Design Documents'. Below the header is a table with columns: id, key, and value. The table contains several rows of document data. At the bottom, there are buttons for 'Create Document', 'Document ID', 'Options', 'JSON', and a bell icon. The status bar at the bottom right shows 'Showing document 1 - 8' and 'Documents per page: 20'.

id	key	value
33ec2932ced46aa18082f174ee3e5d...	33ec2932ced46aa18082f174ee3e5d...	{"rev": "1-8a99694c6c7138ad9af6c5..."}
5998ac9d5760e031f93a897a98629f6f	5998ac9d5760e031f93a897a98629f6f	{"rev": "1-8a99694c6c7138ad9af6c5..."}
750bd090a38072b812456c8a8d5db...	750bd090a38072b812456c8a8d5db...	{"rev": "1-8a99694c6c7138ad9af6c5..."}
933886112f17891e3360c9102b6ec...	933886112f17891e3360c9102b6ec...	{"rev": "1-8a99694c6c7138ad9af6c5..."}
_design/library	_design/library	{"rev": "1-26ca6ebc009218962911a..."}
nodered/credential	nodered/credential	{"rev": "6-34bfcb98b470fc1b0e96ad..."}
nodered/flow	nodered/flow	{"rev": "135-283fff2765ff59a2dd07f..."}
nodered/settings	nodered/settings	{"rev": "7-fd56c42d3a4d540dea73f..."}

Fig. Cloudant Db in Chatbot

CHAPTER 6

RESULT ANALYSIS

Proposed System is integrated with website, webchat and android application. Results are generated by all these three integrations. Following are the results generated by different integrations of chatbot.

1) Results generated by integration of chatbot with website, codemenu.in.

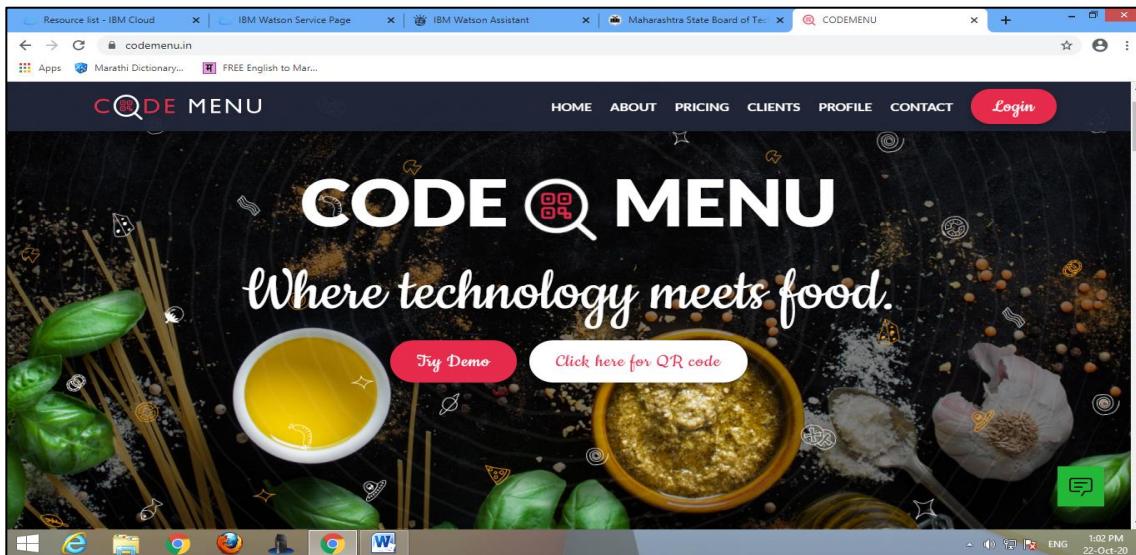
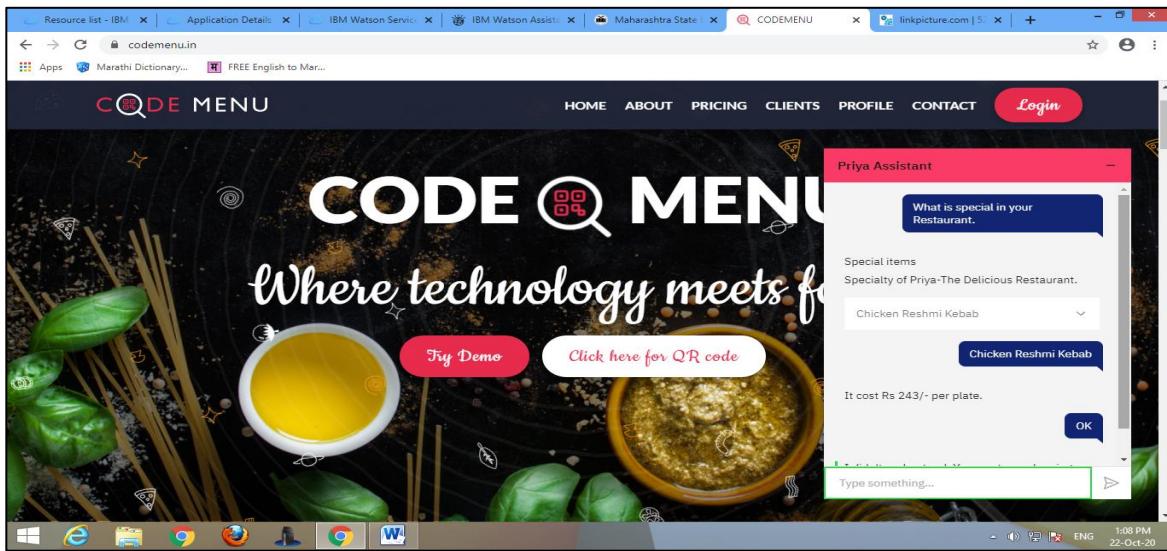
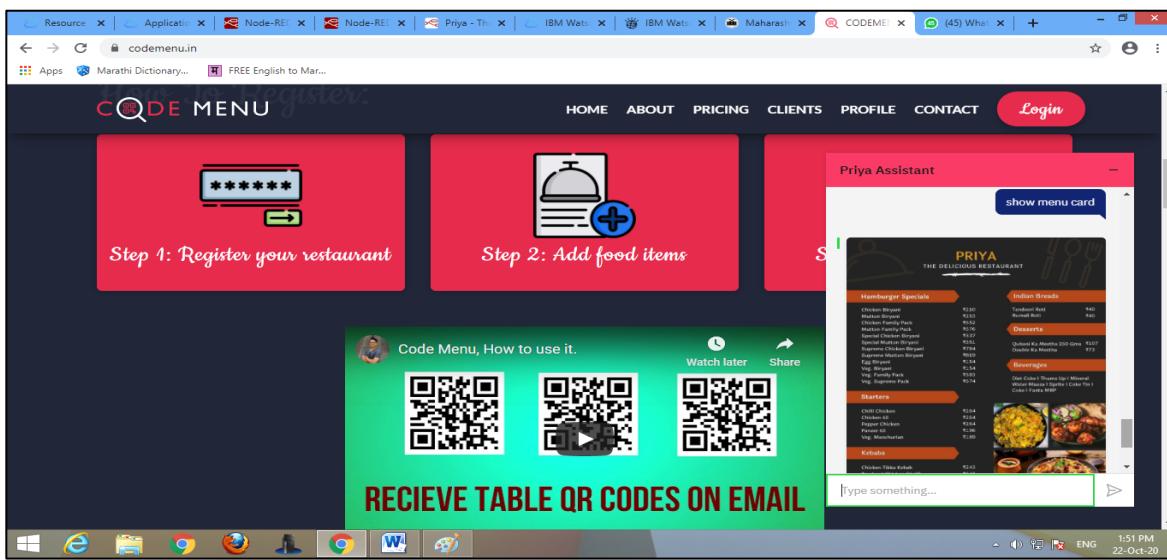
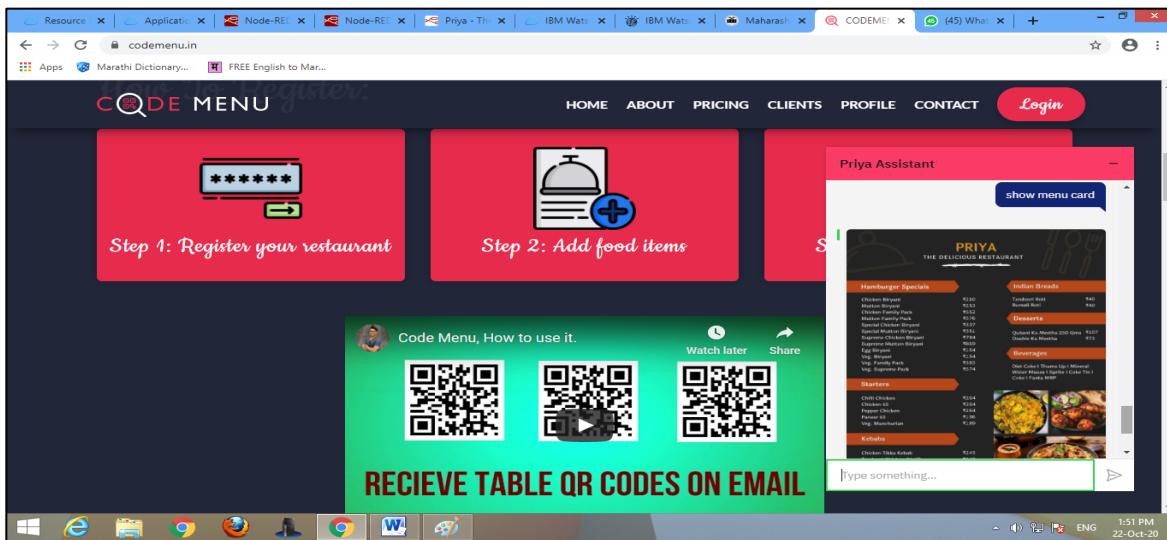


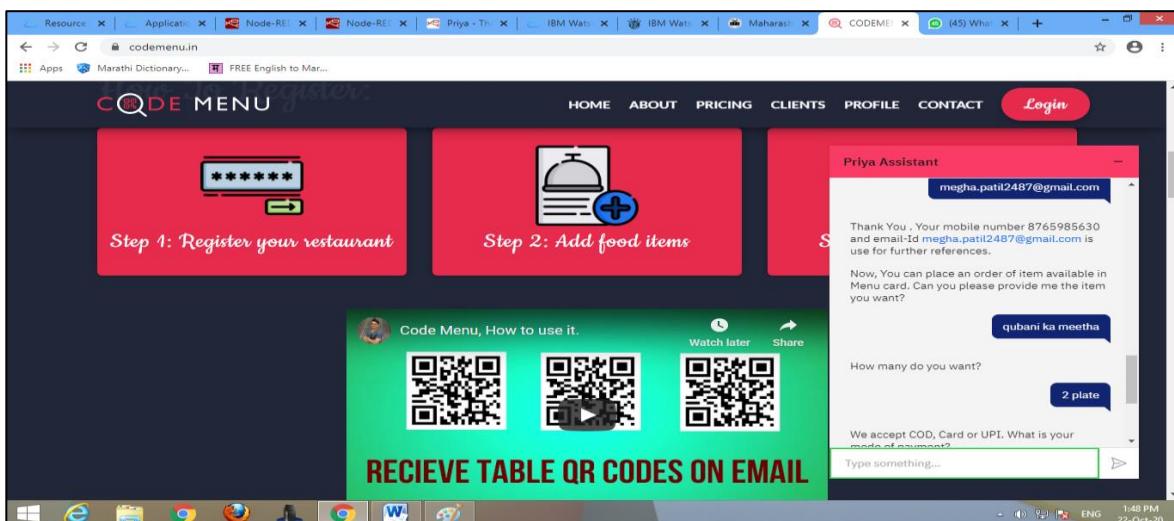
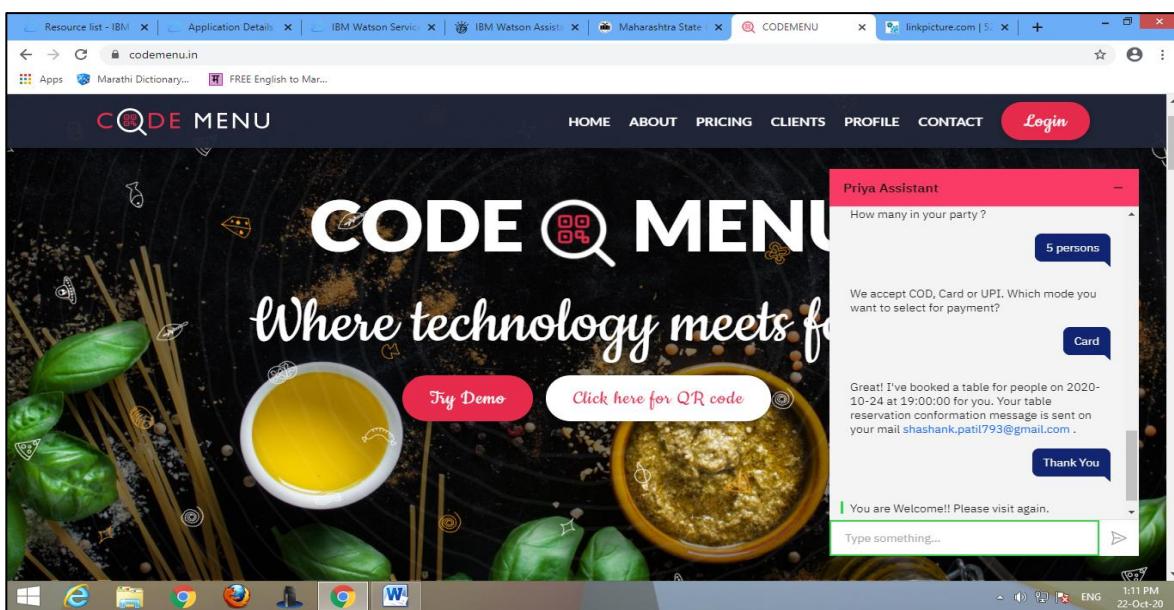
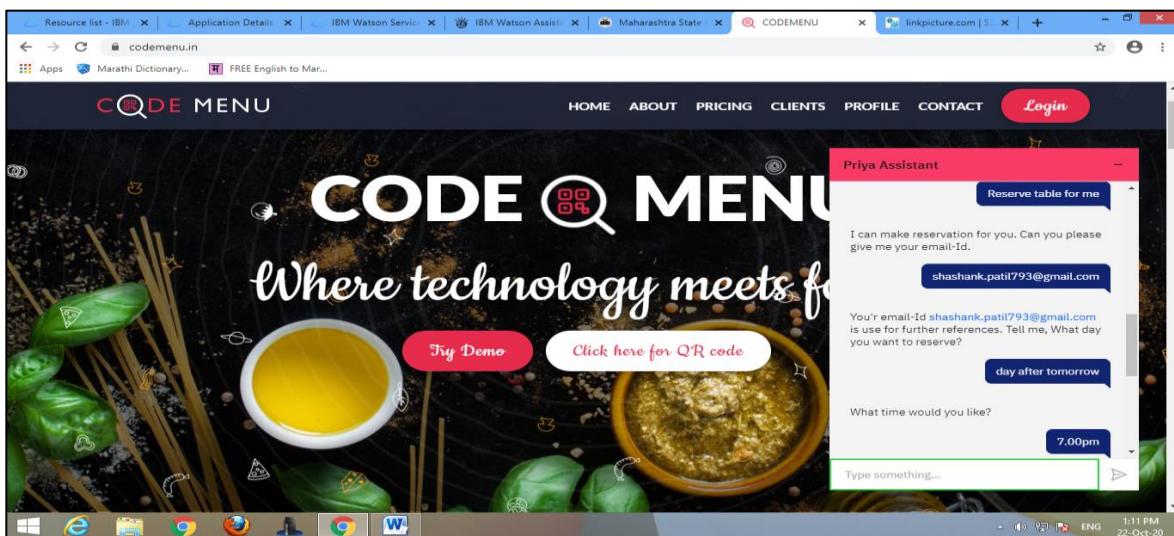
Fig. Shows icon of Chatbot



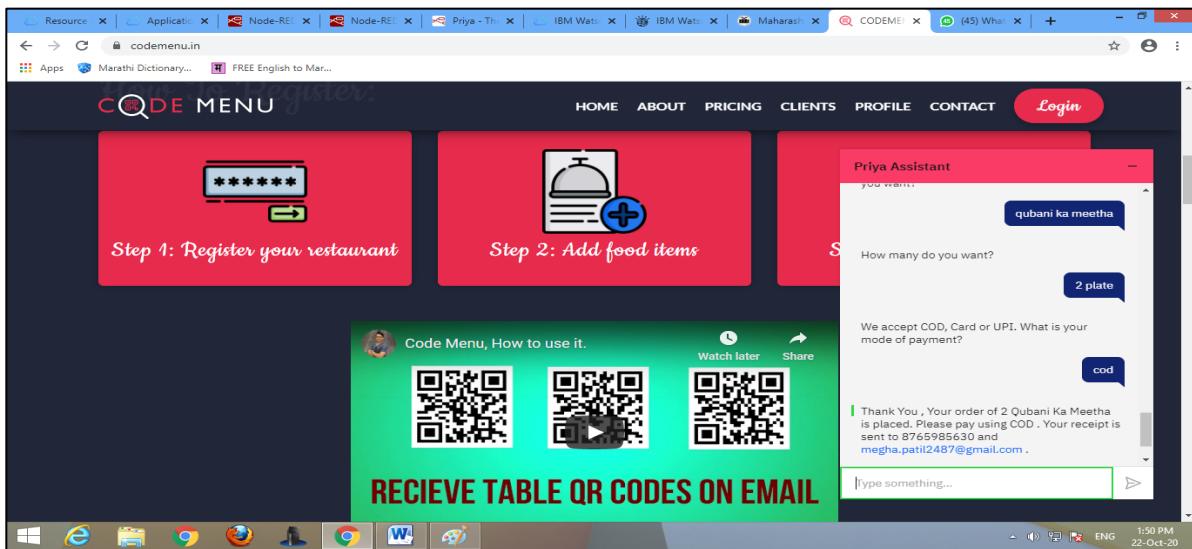
Priya Restaurant Assistant Chatbot



Priya Restaurant Assistant Chatbot



Priya Restaurant Assistant Chatbot



2) Results generated by integration of chatbot with Android Application :

- i) Show Menu :

Screenshot 1: Initial Menu

Welcome To
Priya Restaurant

Screenshot 2: Detailed Menu View

show me menu card

Screenshot 3: Discount Offers

is there any discount

- We have 20% off on veg Biryani.
- We are having 10% discount on Paneer-65.
- We are having 25% discount on Veg Manchurian.
- We are having 20% discount on Chicken Reshma Kebab.
- We are having 30% discount on Chicken Family Pack.

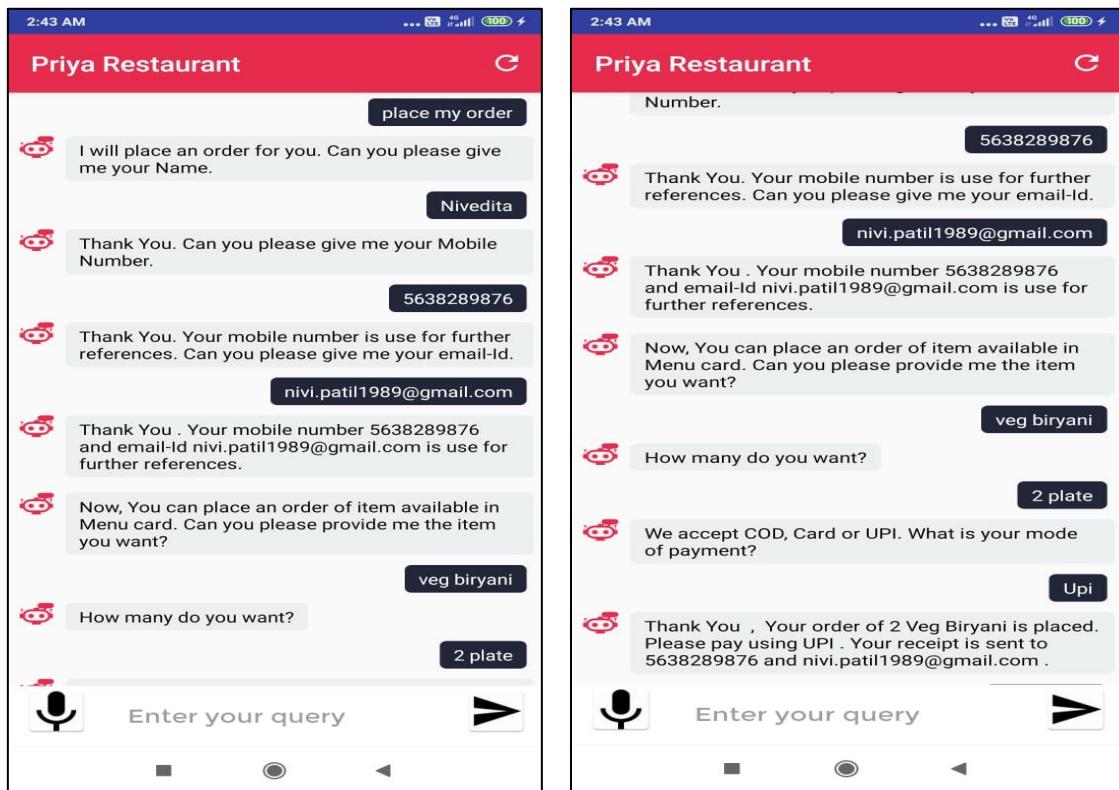
Screenshot 4: Special Items

special items of ur restaurant

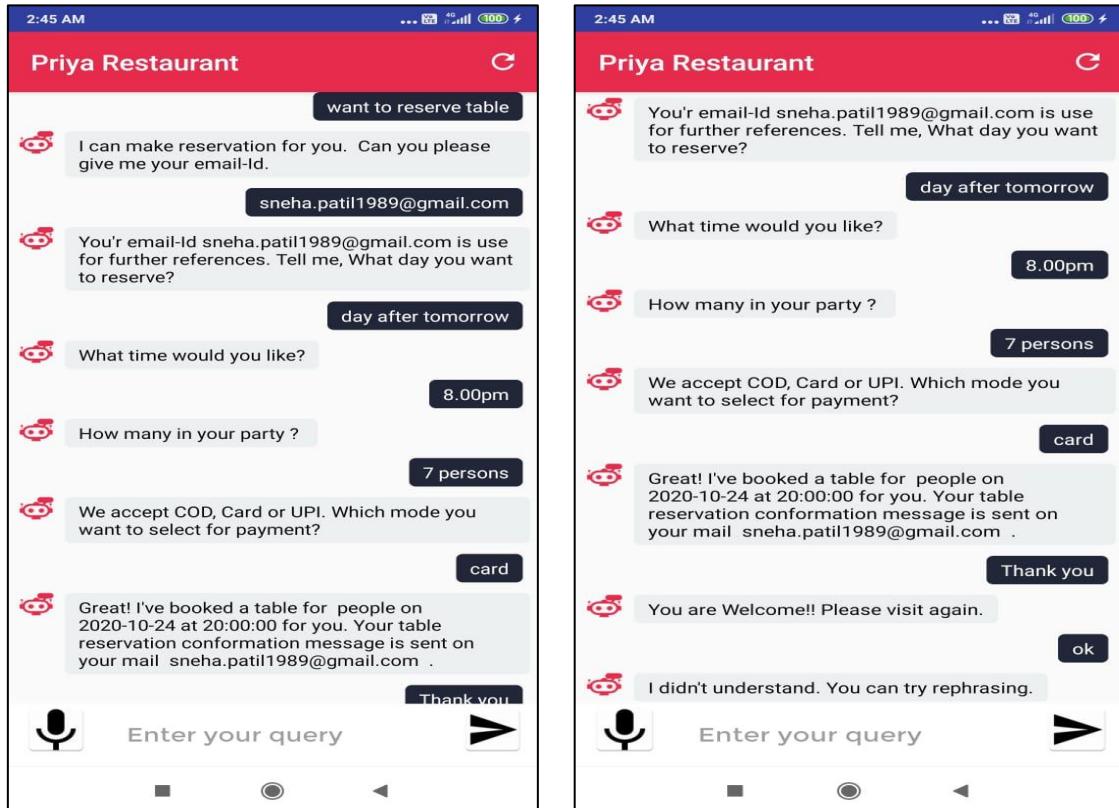
Enter your query

Special items
Chicken Biryani
Veg Biryani
Chicken Lollipop
Chicken Reshma Kebab
Qubani ka Meetha

i) Request to place order :

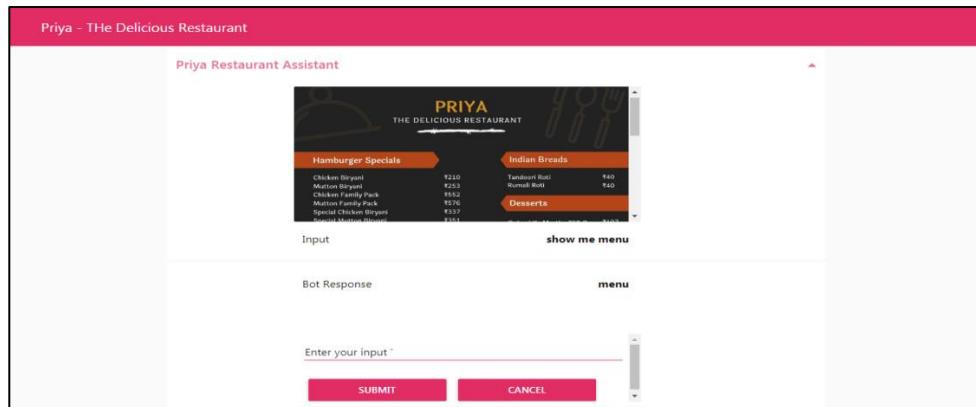


ii) Request to Reserve table :

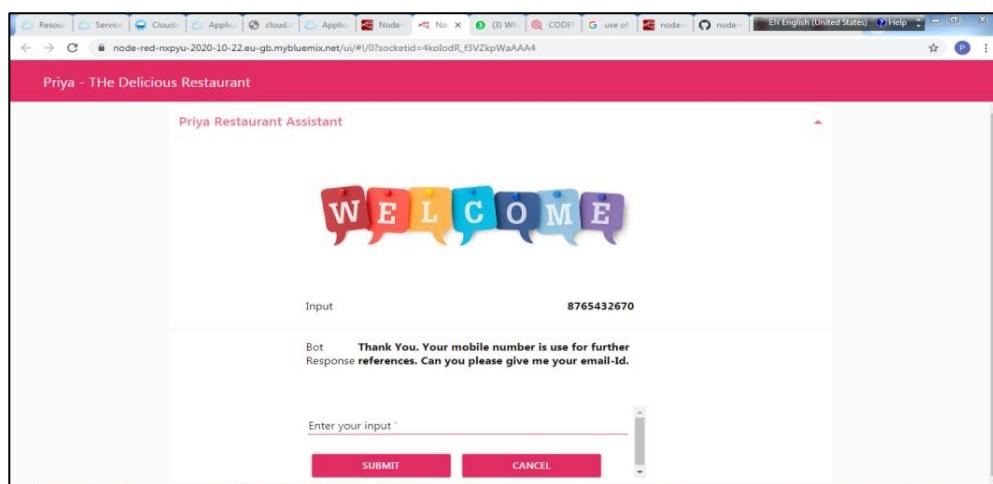
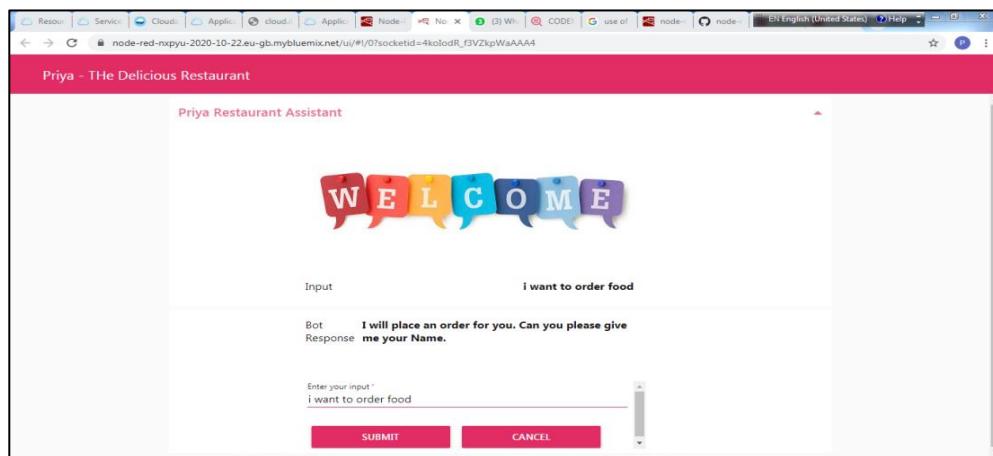


ii) Results generated by integration of Chatbot with Webchat :

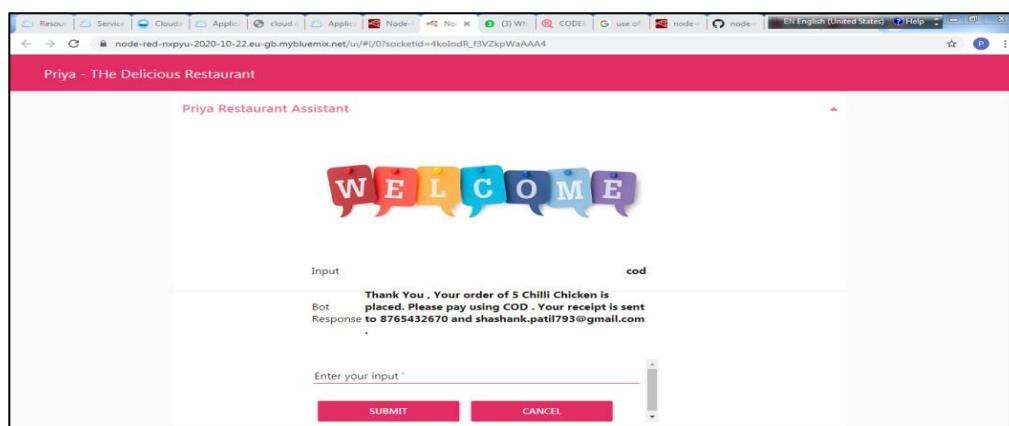
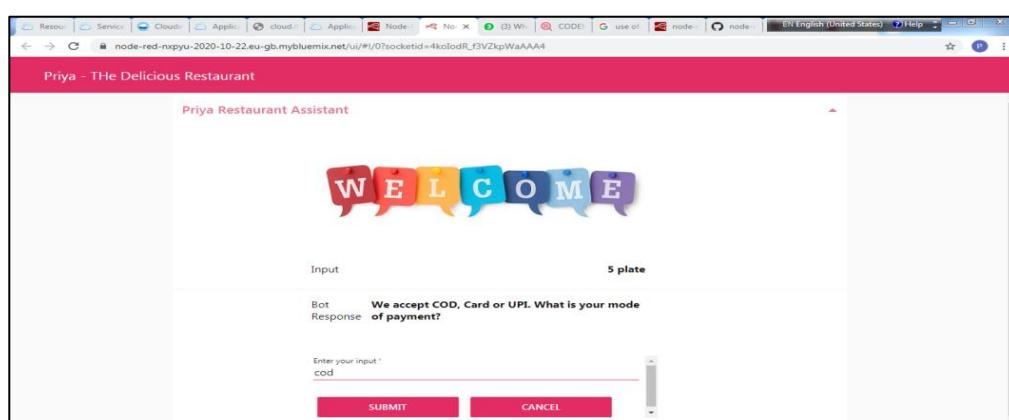
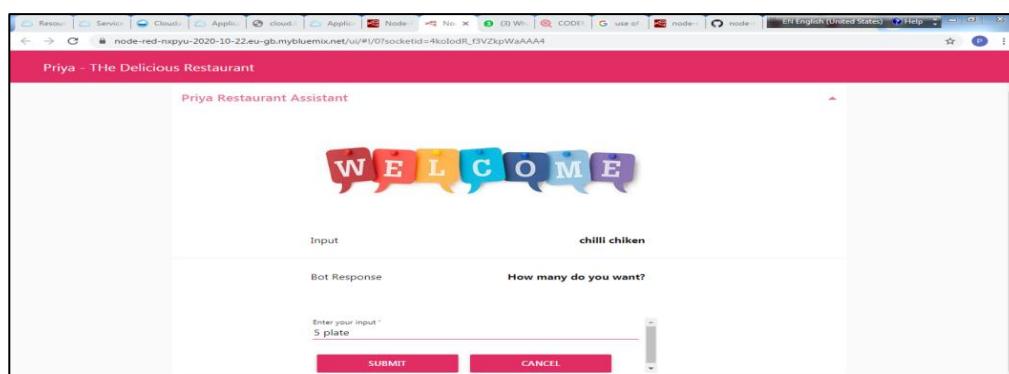
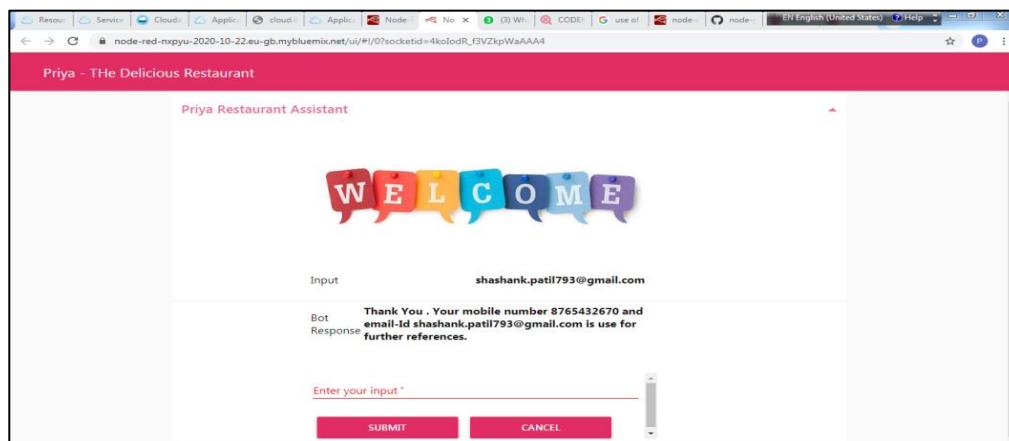
i) Show Menu :



ii) Request to place order :



Priya Restaurant Assistant Chatbot



iii) Table reservation request :

Priya - THe Delicious Restaurant

Priya Restaurant Assistant

WELCOME

Input **reserve table for me**

Bot **I can make reservation for you. Can you please give me your email-Id.**

Response **Enter your input***

Enter your input* **reserve table for me**

SUBMIT **CANCEL**

Priya - THe Delicious Restaurant

Priya Restaurant Assistant

WELCOME

Input **patil.priya2289@gmail.com**

Bot **You're email-Id patil.priya2289@gmail.com is use for further references. Tell me, What day you want to reserve?**

Response **Enter your input***

Enter your input* **28 oct 2020**

SUBMIT **CANCEL**

Priya - THe Delicious Restaurant

Priya Restaurant Assistant

WELCOME

Input **28 oct 2020**

Bot Response **What time would you like?**

Response **Enter your input***

Enter your input* **8.00pm**

SUBMIT **CANCEL**

Priya - THe Delicious Restaurant

Priya Restaurant Assistant

WELCOME

Input **8.00pm**

Bot Response **How many in your party ?**

Response **Enter your input***

Enter your input* **10 person**

SUBMIT **CANCEL**

Priya Restaurant Assistant Chatbot

The screenshots show a sequence of interactions with a Node.js-based chatbot:

- Screenshot 1:** Bot asks for payment mode (COD, Card, UPI) with a placeholder "Enter your input: card".
- Screenshot 2:** Bot confirms booking a table for 10 people on 2020-10-28 at 20:00:00, sending a confirmation message to patil.priya2289@gmail.com.
- Screenshot 3:** Bot again confirms the booking details and sends a "thank you" message.
- Screenshot 4:** Bot responds with "You are Welcome!! Please visit again." after receiving a response.

- iv) Notification received by owner of the restaurant : When customer uses Chatbot to order the food from restaurant or reserve the table in restaurant at specific date and time for specific party size, owner of the restaurant can receive the notification by text message and email. Some example screenshots of results are given below.

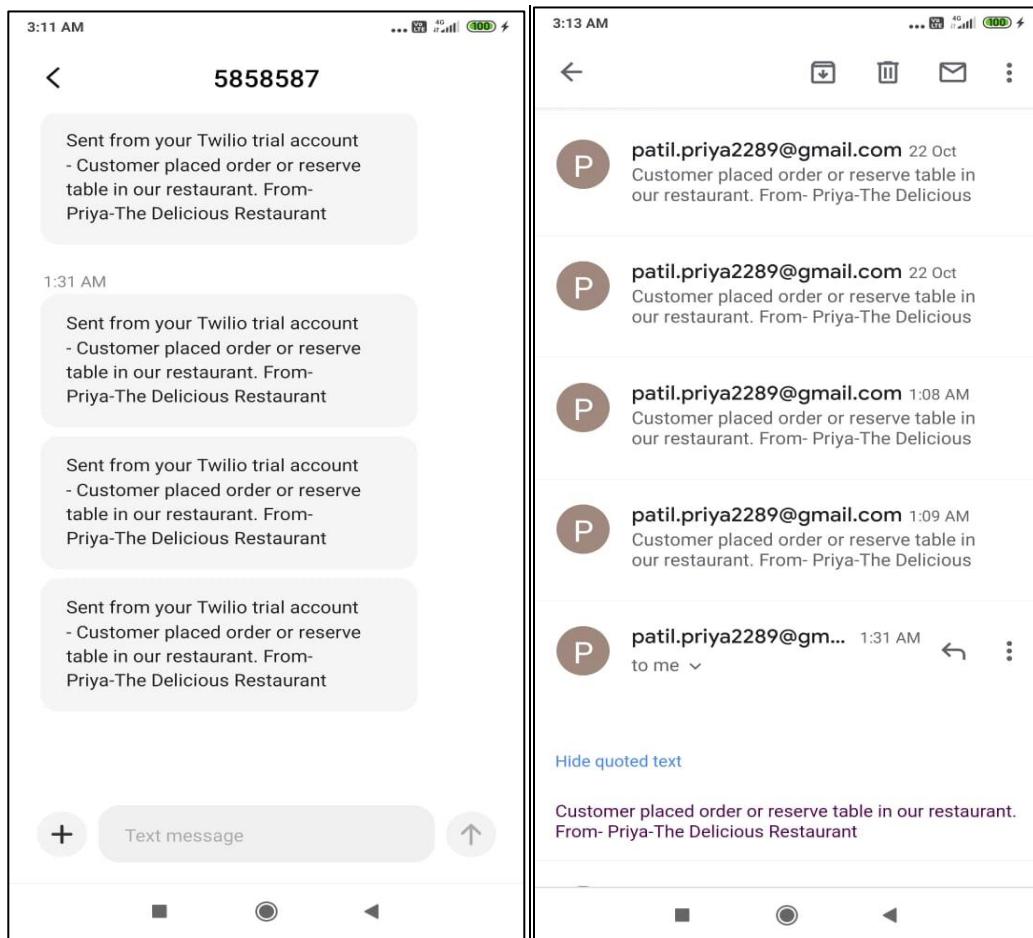


Fig Screenshot of Text messages

Fig. Screenshot of Email

CHAPTER 7

ADVATAGES AND DISADVANTAGES

5.1 ADVANTAGES :

1. 24*7 Availability :

With chatbots at their disposal, restaurants do not require to keep a 24/7 dedicated executive to service the customers. Chatbots have answers to all the standard and frequently asked questions. They can act as perfect round-the-clock assistants, engaging customers in a far better and faster way. Customers don't need to make frustrating phone calls and wait for someone to respond. Chatbots can attend to multiple customers at a time!

2. Overcomes Human Limitations :

In the restaurant business, customer service is of paramount business. Whether it is ordering food or booking tables, customers expect the restaurant staff to give them timely responses. While the customer care service staff can be the best people to answer their queries, they do have limitations.

Chatbots can overcome such human limitations. They can take over the basic and mundane customer service tasks. Taking an order, providing with address, timings, menu or accepting payments are some examples.

3. Saves Time and Effort :

Customer who want to reserve table in restaurant need not require to visit to place of restaurant. They can reserve table by getting information from chatbot and can reserve table.

4. Help to Choice Quickly : Chatbots help the customer to narrow down his choice quickly. Instead of asking the user to select options, the Chatbot shows the user various categories to make it more interactive and targeted

5. Better User Experience

Restaurant Chatbots can help answer frequently asked questions of the customers like ‘show me menu card?’ or take customized instructions like ‘Please reserve table.’ This gives the customers overall comfort and freedom to order as per their convenience.

6. Chatbots essentially change the way we order : what is most notable is the fact that this makes the entire ordering process much easier and something that is more likely to be repeated by the customers. The entire thing happens like if you are talking to someone. Not like you are just pushing some buttons to get something done.

7. More Enjoyable Process : What makes this process extraordinary is that the chatbot makes ordering a more enjoyable process. The chatbots which are based on machine learning don’t just stop at receiving orders. These bots also keep the conversation interesting by sharing trivia, asking questions, cracking occasional jokes and the chatbot keeps the conversation as you would expect when you are texting a friend on a messenger.

8. How convenient would it be to use a service just by sending a message: Yes, it would be very nice. Chatbots are built inside the apps that you are already using. So, there is no pain of learning to use it. If you are using a messaging app then you don’t have to switch to a different one to order food. You do it from your messaging app by simply sending a text to your favorite restaurant and rest is handled by the chatbot employed by the restaurant.

9. The business potential: It is an upcoming technology and early adopters have an unfair advantage to reap maximum profits. This huge business potential that is offered by the bots will redefine running costs. Possibilities of improvements from machine learning could push the business further. As voice search gains more preference, the ability to use chatbot to process this information would be a great advantage.

10. A complete and scalable package: A chatbot is essentially a computer program which has information about various aspects of your business. A bot can act as a virtual agent which can be used as a one-stop solution for development, sales, and support. It gives you the option to scale your business pretty easily. It can be easily modified according to your requirements.

5.2 DISADVATAGES :

- It takes away the joy of exploring your restaurant's menu. In a normal scenario when someone reaches your restaurant's menu from a website or a mobile app. They reach the landing page, go to the menu, take their time to read through the menu, see the item images, read the descriptions, check what others have to say about your restaurant. A lot of these small things work together to complete the purchase. This makes the entire process a very different kind of experience.
- And during this process, as the customers fumble and stumble they find different items on the menu. They might end up ordering these completely new items instead of what they actually wanted to purchase.
- It's something like the experience of visiting a supermarket where you find so many products on the shelves that you didn't think were even there.
- A virtual shopping experience may be a great thing but not everyone is up for a virtual shopping experience. There will be people who like do things a bit differently and you have to be careful and include them in the process.

5.3 APPLICATIONS :

- Manage reservations & take orders.
- Promote Deals & Offers.
- Food Recommendations.
- Connect With Your Customers Better.
- Follow Up On Feedback.
- Easier Delivery & Takeaway.
- POS system on chat.
- Loyalty Program.

CONCLUSION

Chatbots are still an emerging trend in the restaurant industry, but they are the future of customer experience. While they may not completely replace humans, they will offer natural and sophisticated human interactions to enhance the customer experience.

There is a huge opportunity for chatbots in restaurants when it comes to enhancing customer engagement and thereby opening the doors to a broader hyper connected demographic. Additionally, future studies could explore consumer-level factors influencing chatbots adoption. For instance, a study that profiles customers' demographics such as age, income, status, lifestyle and education could offer some insights. Similarly, future studies could also explore if consumers are able to make any sense between the features of a mobile application and the capabilities of a chatbot. Finally, mobile applications run on mobile devices (smartphones and tablets).

FUTURE SCOPE

- We can use database for collecting mobile number and email address of customer. It is use to send notification about special offer on festivals.
- Order tracking system
- Feedback and rating facility

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Links:

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- [2] <https://www.nodred.org>
- [3] <https://youtu.be/rokLM4ZsMJQ>
- [3] www.Steves-Internet-Guide.com

APPENDIX

A.Source Code :

Flow Created in Nod-Red Application i.e. Json File is given below:

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[{"id":"c5e19556.5b7488","type":"tab","label":"Flow
2","disabled":false,"info":""}, {"id":"ecb9cf36.0b50a","type":"function","z":"c5e19556.5b7488","name":
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_type=="image"){\n    msg.url = msg.payload.output.generic[0].source\n    msg.payload =
msg.payload.output.generic[0].title\n}else{\n    msg.url="https://ili.io/3M7HNf.jpg"\n    msg.payload
= msg.payload.output.text[0];\n}\nreturn
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