

INTRODUCTION

1.1 Overview

Today, because of social distancing and other issues it can be risky for some people to shop for essential items in person. This project helps with this issue by giving people an online option to shop for essentials.

1.2 Purpose

With the help of Watson assistant, a chatbot is built which are having the following capabilities:

- I. Give the list of items in the Store.
- II. It shows the prices of vegetables.
- III. It displays the offers or discounts to the customers.
- IV. The bot is able to take details like name, contact number, email address, and the items to place the order.

LITERATURE SURVEY

2.1 Existing Problem

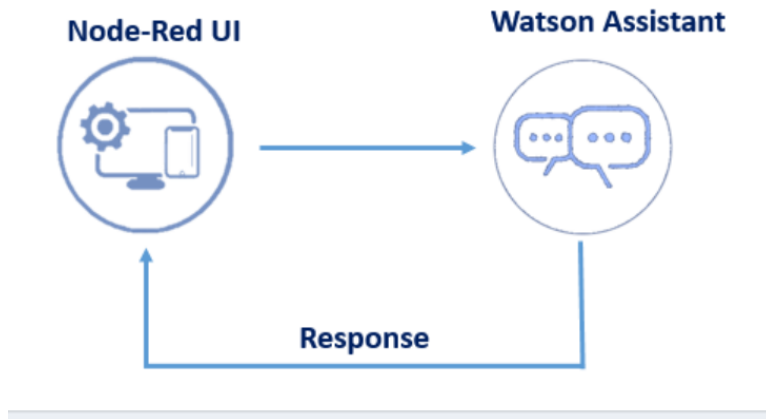
The Covid 19 pandemic has made Social Distancing a way of life. It is essential to minimise physical contact with strangers to control the spread of the disease. However, there are some situations where people are forced to go out – one of them being to shop for essentials. It is imperative that this problem be resolved to control the spread of the disease.

2.2 Proposed Solution

I am making a Glossary Store Chatbot which can show the price list, lists of products, offers or discount and take details of the customer. Customer can pay the bill amount using Cash on delivery (COD), UPI or by using card. Customer can buy products online with the help of this chatbot. I am using Watson Assistant platform to make this chatbot then I have interfaced this chatbot with Node-red application for customer interaction.

THEORITICAL ANALYSIS

3.1 Block Diagram



3.2 Hardware/Software Designing

- I. **IBM Watson Assistant:** Watson Assistant is IBM's AI product that is used to build, train, and deploy conversational interactions into any application, device or channel.
- II. **Node-RED:** It is a flow-based development tool for visual programming developed by IBM for wiring together hardware devices, APIs and online services as part of the Internet of Things. Node-RED provides a web browser-based flow editor, which can be used to create JavaScript functions.

PROCESS FLOW

1. Create account on IBM cloud and smartinternz using institutional ID.
2. Using Watson Assistant services from IBM cloud, the bot implementation has been done which includes following:
 - i. Intents which are the user input. It includes #enquiry, #greetings and #order.
 - ii. Entities which are keyword extracted from intent. In my project I have implemented following entities: @email, @enquiry, @greetings, @items, @mobile and @order
 - iii. Dialog: Which is conversation by bot to user input. It has been implemented using various nodes as well as various child node.
3. This chat bot is integrated with Node-Red to create user interface.

Results

A. Watson Assistant Results:

Test link:

<https://web-chat.global.assistant.watson.cloud.ibm.com/preview.html?region=eu-gb&integrationID=8f56bf69-3806-499a-9e78-caa624582ed8&serviceInstanceID=712402c7-7f84-4253-b00d-166fc100099b>

1: Name and mail ID Input:

The screenshot shows the IBM Watson Assistant interface. On the left, the 'My first skill' dialog flow is visible, with nodes for 'Greetings', 'enquiry', 'order', and 'Anything else'. The 'enquiry' node is highlighted. On the right, the 'Try it out' chat preview shows a bot message: 'Hello, I am a Glossary store Bot capable of showing price list, find offers, place orders. How may I help you? Can You please provide your name and mail ID ?'. Below the message is a text input field containing 'is manoj and my mail ID is manoj@gmail.com'.

2: Mobile Number input:

The screenshot shows the IBM Watson Assistant interface. On the left, the 'My first skill' dialog flow is visible, with nodes for 'Greetings', 'enquiry', 'order', and 'Anything else'. The 'enquiry' node is highlighted. On the right, the 'Try it out' chat preview shows a bot message: 'My name is manoj and my mail ID is manoj@gmail.com'. Below the message is a dropdown menu with 'Irrelevant' selected. Below the dropdown is a text input field containing '@email:email'. Below the input field is a bot message: 'Thank You for given your mail ID. Your mail ID manoj@gmail.com will be used for further reference. Please enter your mobile number'. Below the message is a text input field containing '8082243082'.

3: List of Items:

The screenshot shows the IBM Watson Assistant Lite interface. The main workspace displays a skill named "My first skill" with a tree structure of nodes. The nodes are:

- Greetings**: #Greetings || @greetings, 4 Responses / 0 Context Set / Does not return
- enquiry**: #enquiry || @enquiry, 4 Responses / 0 Context Set / Returns
- order**: #order && @order, 1 Responses / 4 Context Set / 4 Slots / Skip user input / Retu...
- Anything else**

The right panel shows a "Try it out" section with a "Family Wish List" table. The table has columns: Commodity, Unit, Last Saturday, and This Saturday. The data is as follows:

Commodity	Unit	Last Saturday	This Saturday
Potato (red)	Kg	Rs 38	Rs 45
Potato (white)	Kg	Rs 33	Rs 35
Tomato	Kg	Rs 45	Rs 55
Cowpea	Kg	Rs 65	Rs 95
Cauliflower (local)	Kg	Rs 75	Rs 85
Painted gourd	Kg	Rs 75	Rs 75
Pomegranate	Kg	Rs 215	Rs 215
Pineapple	1 piece	Rs 135	Rs 145
Mango	Kg	Rs 145	Rs 145

4: Price list of the Vegetables:

The screenshot shows the IBM Watson Assistant Lite interface. The main workspace displays the same skill "My first skill" with the same tree structure of nodes. The right panel shows a "Try it out" section with a "Price list" table. The table has columns: Commodity, Unit, Last Saturday, and This Saturday. The data is as follows:

Commodity	Unit	Last Saturday	This Saturday
Potato (red)	Kg	Rs 38	Rs 45
Potato (white)	Kg	Rs 33	Rs 35
Tomato	Kg	Rs 45	Rs 55
Cowpea	Kg	Rs 65	Rs 95
Cauliflower (local)	Kg	Rs 75	Rs 85
Painted gourd	Kg	Rs 75	Rs 75
Pomegranate	Kg	Rs 215	Rs 215
Pineapple	1 piece	Rs 135	Rs 145
Mango	Kg	Rs 145	Rs 145

5: Offers available:

The screenshot shows the IBM Watson Assistant Lite interface. The main workspace displays a skill named "My first skill" with a tree structure of nodes. The nodes are:

- Greetings**: #Greetings || @greetings, 4 Responses / 0 Context Set / Does not return
- enquiry**: #enquiry || @enquiry, 4 Responses / 0 Context Set / Returns
- order**: #order && @order, 1 Responses / 4 Context Set / 4 Slots / Skip user input / Retu...
- Anything else**

The right panel, titled "Try it out", shows the context **@enquiry:offers** and two sample responses:

- We are having 10% discount on all non-leafy vegetables
- We are having 15% discount on all leafy vegetables

Below the responses is a text input field with the placeholder "Enter something to test your assistant".

6: Special Vegetables:

The screenshot shows the IBM Watson Assistant Lite interface. The main workspace displays a skill named "My first skill" with a tree structure of nodes. The nodes are:

- Greetings**: #Greetings || @greetings, 4 Responses / 0 Context Set / Does not return
- enquiry**: #enquiry || @enquiry, 4 Responses / 0 Context Set / Returns
- order**: #order && @order, 1 Responses / 4 Context Set / 4 Slots / Skip user input / Retu...
- Anything else**

The right panel, titled "Try it out", shows the context **@enquiry:Special vegetables** and a list of special vegetables:

- Special Vegetables
 - Broccoli
 - Mushroom
 - Chinese Cabbage

Below the list is a text input field with the placeholder "Enter something to test your assistant".

7: Broccoli Input response:

The screenshot displays the IBM Watson Assistant interface. On the left, the 'My first skill' dialog flow is visible, with the 'enquiry' node selected. The 'enquiry' node has the following configuration:
- Intent: #enquiry || @enquiry
- Responses: 4 Responses / 0 Context Set / Returns
On the right, the 'Try it out' window shows the input 'Broccoli'. The response is 'Irrelevant'. The context variables are:
- @items:Broccoli
- @specials:Broccoli
The response text is 'Its cost 50 Rupees per KG'.

8: Mushroom Input response:

The screenshot displays the IBM Watson Assistant interface. On the left, the 'My first skill' dialog flow is visible, with the 'enquiry' node selected. The 'enquiry' node has the following configuration:
- Intent: #enquiry || @enquiry
- Responses: 4 Responses / 0 Context Set / Returns
On the right, the 'Try it out' window shows the input 'Mushroom'. The response is 'Irrelevant'. The context variables are:
- @specials:Mushroom
- @items:Mushroom
The response text is 'Its cost 200 Rupees per KG'.

9: Chinese Cabbage Input response:

The screenshot shows the IBM Watson Assistant Lite interface. On the left, the 'Dialog' tab is selected, and the 'enquiry' node is highlighted. The node details show: `#enquiry || @enquiry` and '4 Responses / 0 Context Set / Returns'. On the right, the 'Try it out' panel shows the input 'Chinese Cabbage' and the response: `@specials:Chinese Cabbage` and `@items:Chinese Cabbage`. Below the response, it says 'Its cost 100 Rupees per KG'.

10: Order responses:

The screenshot shows the IBM Watson Assistant Lite interface. On the left, the 'Dialog' tab is selected, and the 'order' node is highlighted. The node details show: `#order && @order` and '1 Responses / 4 Context Set / 4 Slots / Skip user input / Retu...'. On the right, the 'Try it out' panel shows the input 'order' and the response: `#order` and `@order:order`. Below the response, it says 'Can you provide me items which you want'.

The screenshot shows the IBM Watson Assistant Lite interface. On the left, the 'Dialog' tab is selected, and the 'enquiry' node is highlighted. The node details show: `#enquiry || @enquiry` and '4 Responses / 0 Context Set / Returns'. On the right, the 'Try it out' panel shows the input 'order' and the response: `#order` and `@order:order`. Below the response, it says 'Can you provide me items which you want'. The input field at the bottom contains the text 'Potatd'.

IBM Watson Assistant Lite Upgrade

Learning center ?

My first skill

Intents

Entities

Dialog

Options

Analytics

Versions

Content Catalog

Add node Add child node Add folder

Greetings
#Greetings || @greetings
4 Responses / 0 Context Set / Does not return

enquiry
#enquiry || @enquiry
4 Responses / 0 Context Set / Returns

order
#order && @order
1 Responses / 4 Context Set / 4 Slots / Skip user input / Retu...

Anything else
anything else

Try it out Clear Manage Context 4

Can you provide me items which you want

Potato

Irrelevant

@items:Potato

How many do you want ?

2

BE Teams.docx

Type here to search

12:52 28-10-2020

IBM Watson Assistant Lite Upgrade

Learning center ?

My first skill

Intents

Entities

Dialog

Options

Analytics

Versions

Content Catalog

Add node Add child node Add folder

Greetings
#Greetings || @greetings
4 Responses / 0 Context Set / Does not return

enquiry
#enquiry || @enquiry
4 Responses / 0 Context Set / Returns

order
#order && @order
1 Responses / 4 Context Set / 4 Slots / Skip user input / Retu...

Anything else
anything else

Try it out Clear Manage Context 5

How many do you want ?

2

Irrelevant

@sys-number:2

We accept COD, Card, UPI. What is your mode of payment ?

Card

IBM Watson Assistant Lite Upgrade

Learning center ?

My first skill

Intents

Entities

Dialog

Options

Analytics

Versions

Content Catalog

Add node Add child node Add folder

Greetings
#Greetings || @greetings
4 Responses / 0 Context Set / Does not return

enquiry
#enquiry || @enquiry
4 Responses / 0 Context Set / Returns

order
#order && @order
1 Responses / 4 Context Set / 4 Slots / Skip user input / Retu...

Anything else
anything else

Try it out Clear Manage Context 1

@payment:Card

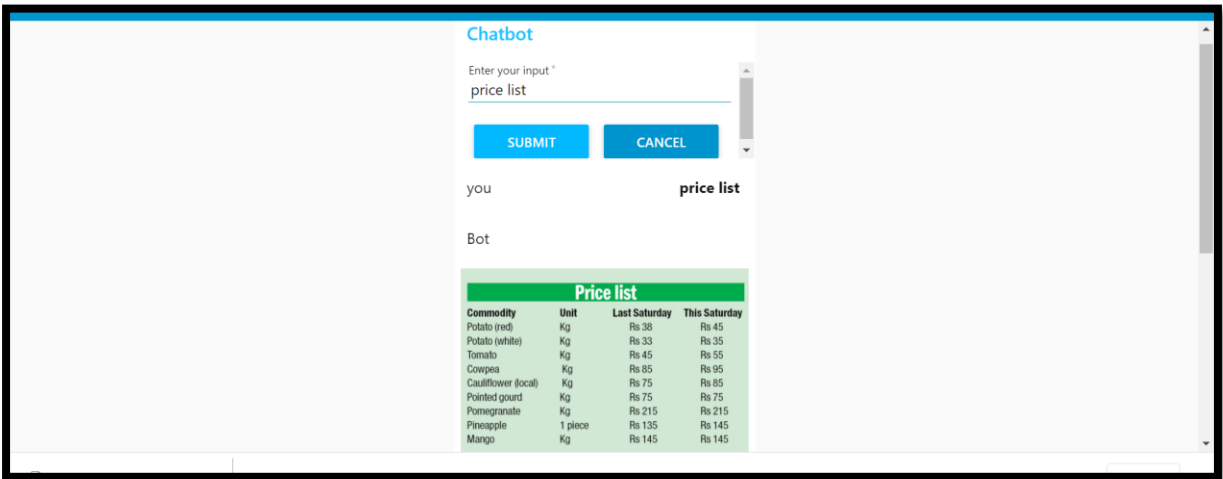
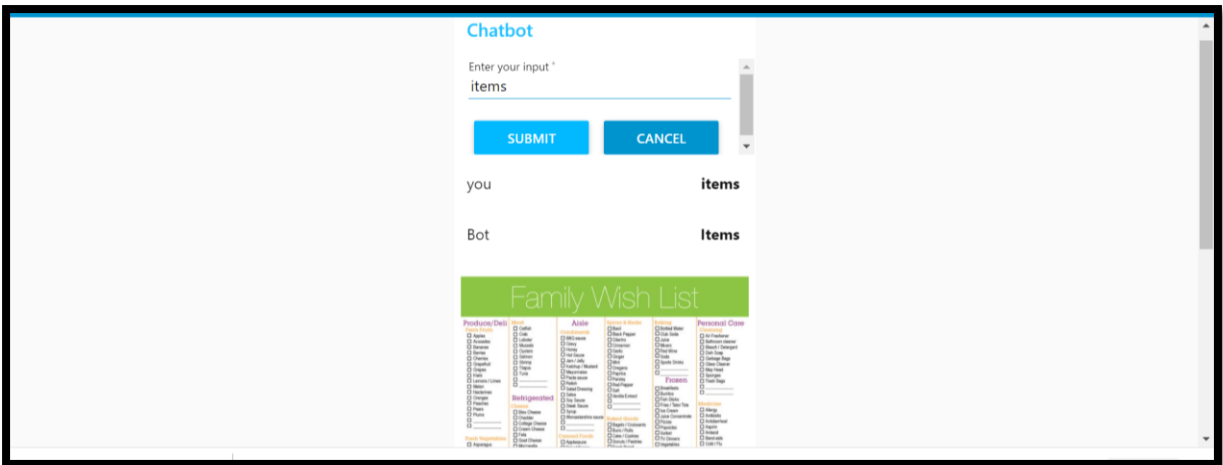
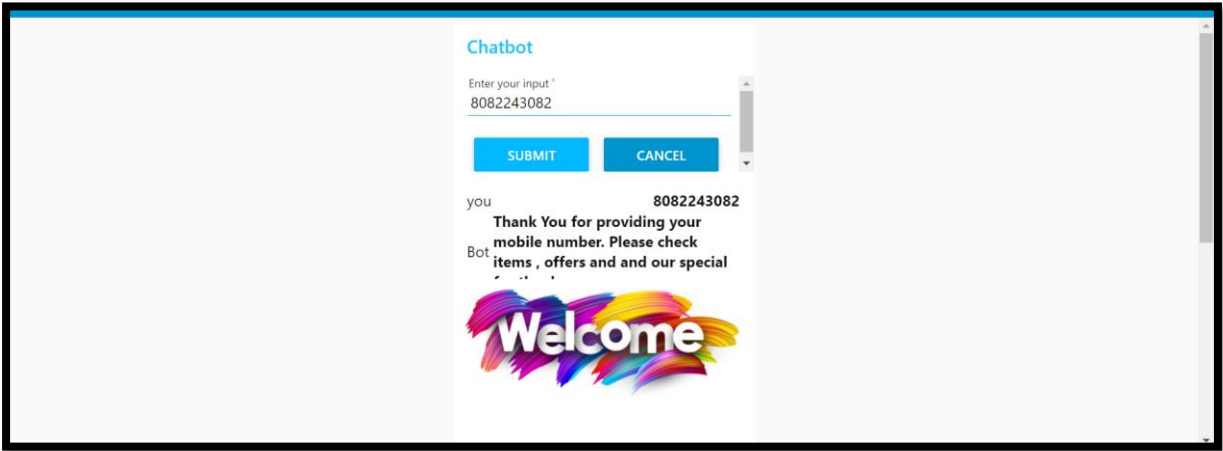
Thank You , Your order of 2 kg Potato is placed. Please pay using Card .We will send details of the bill to your email ID manoj@gmail.com and mobile number 8082243082

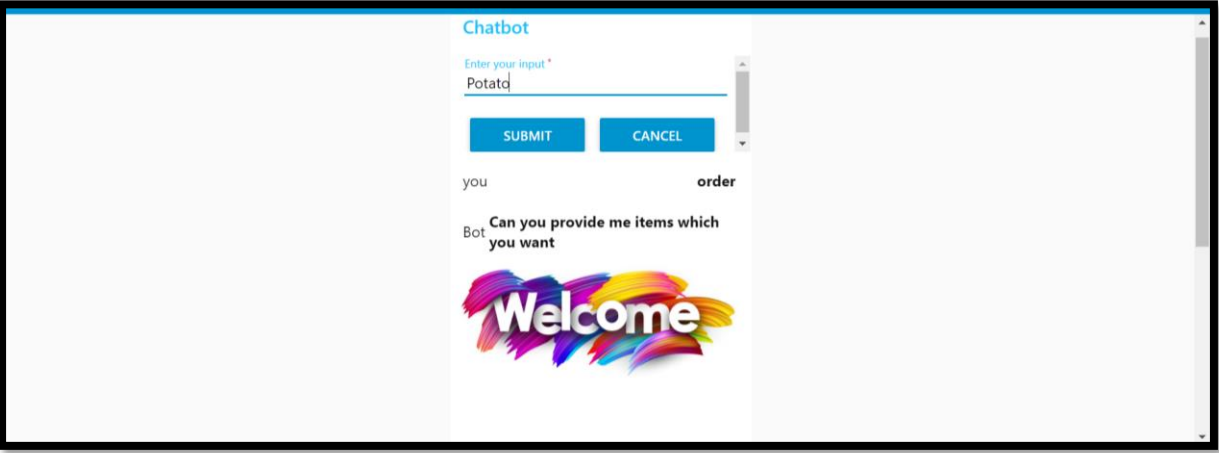
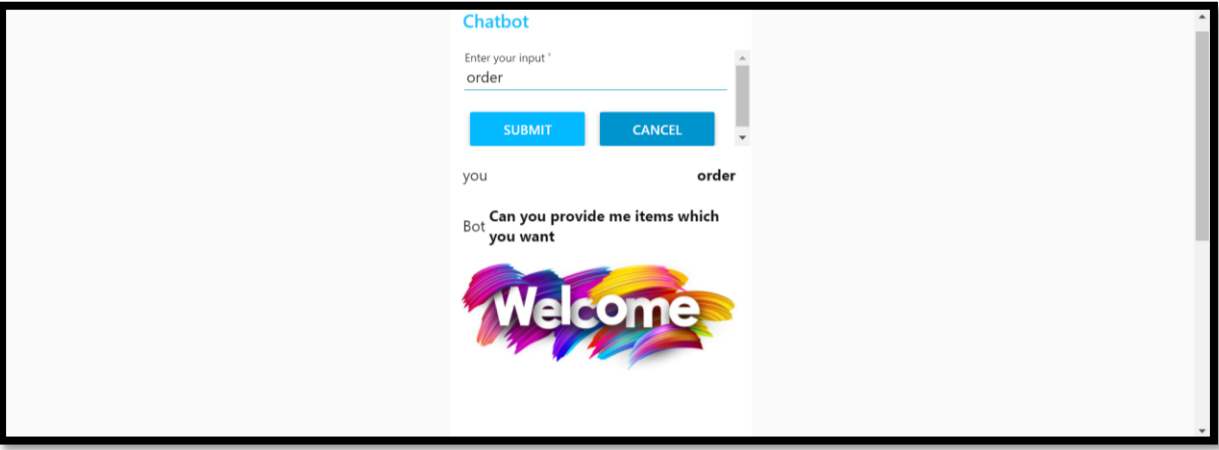
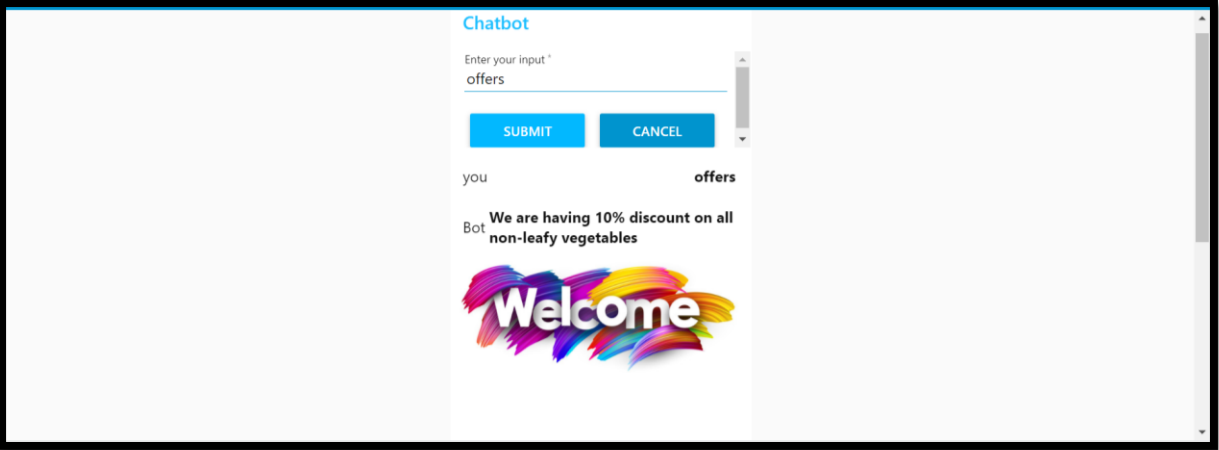
Hello, I am a Glossary store Bot capable of showing price list, find offers, place orders. How may I help you? Can You please provide your name and mail ID ?

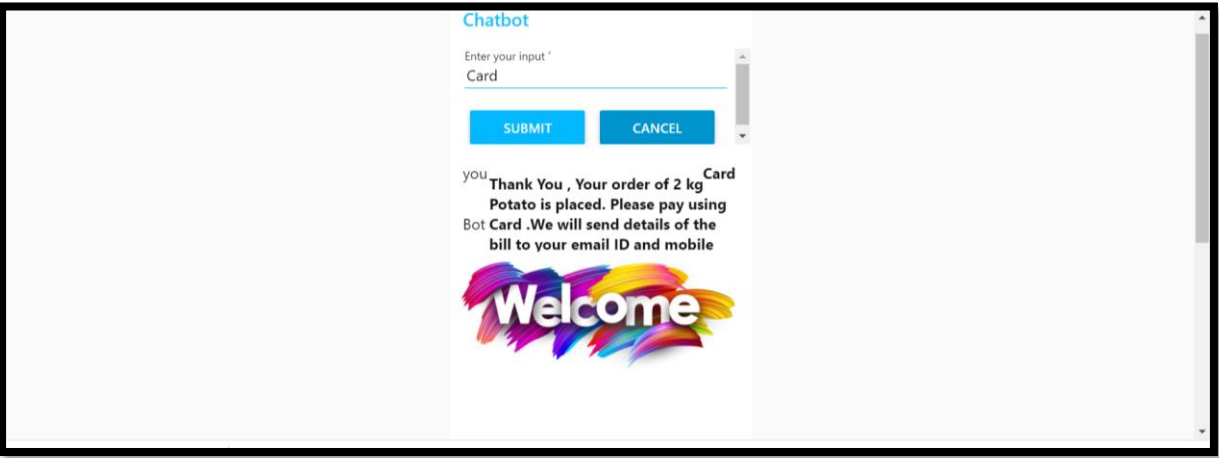
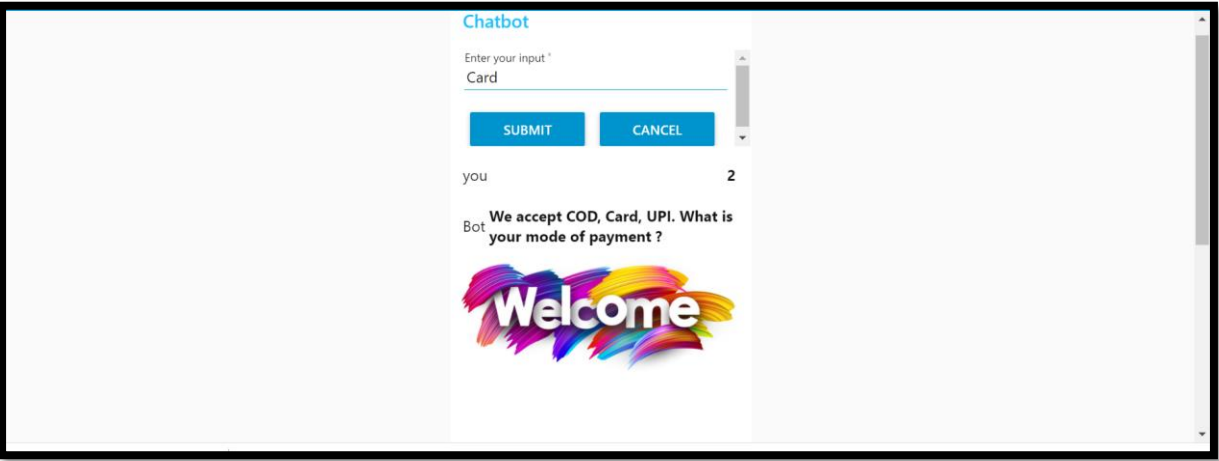
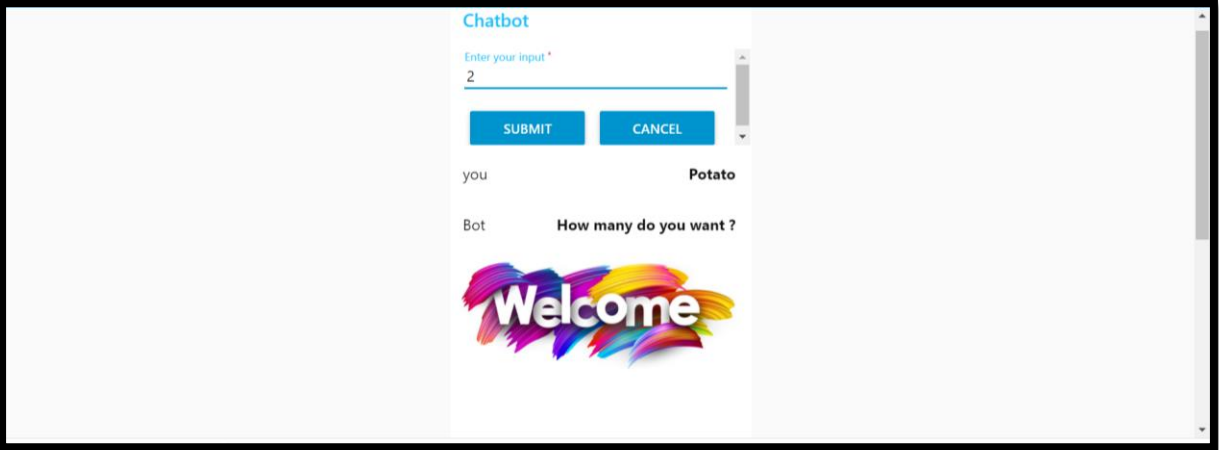
Use the up key for most recent

Enter something to test your assistant

B. Node-Red Results:







ADVANTAGES

- This system ensures minimum physical contact and hence ensures control in spread of the pandemic.
- It offers the convenience of shopping from Home

DISADVANTAGES

- It is necessary that the person should have same understanding of how to work online and with Apps.
- Security is still an issue and people need to be very careful with regards to cyber frauds

APPLICATIONS

Many online portals now use a chat bot to converse with customers/clients. This saves on investing human resources for this activity. Only when the bot is unable to satisfactorily answer the queries the customer may be directed to the Human Interface.

CONCLUSION

The Chatbot for shopping of essentials has been successfully built using Watson Assistant and Node Red.

FUTURE SCOPE

Chatbots are the way online interactions with various shopping portals will happen in the future. Many Banks and Service websites are already using chatbots. With an advancement in ML and AI we can expect chat bots to be fully integrated with many portals.

BIBLIOGRAPHY

Web Resources

- <https://www.youtube.com/watch?v=4G2qMhhAg0c>
- <https://www.youtube.com/watch?v=tUBJZfnxeTw&t=14516s>
- <https://www.youtube.com/watch?v=mWZLuHpcZRY&t=9934s>
- <https://www.youtube.com/watch?v=zVfp8FayCo0&t=7951s>
- <https://www.youtube.com/watch?v=txfjhGXn7Us&t=794s>
- <https://www.youtube.com/watch?v=1tbFiCpJs0k&t=18s>