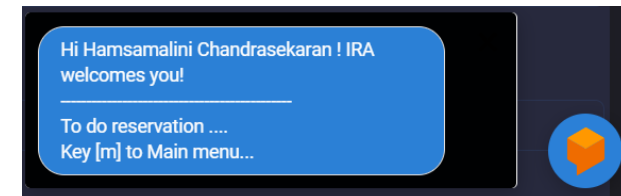


IRA ChatBot

IRA ChatBot

Objective

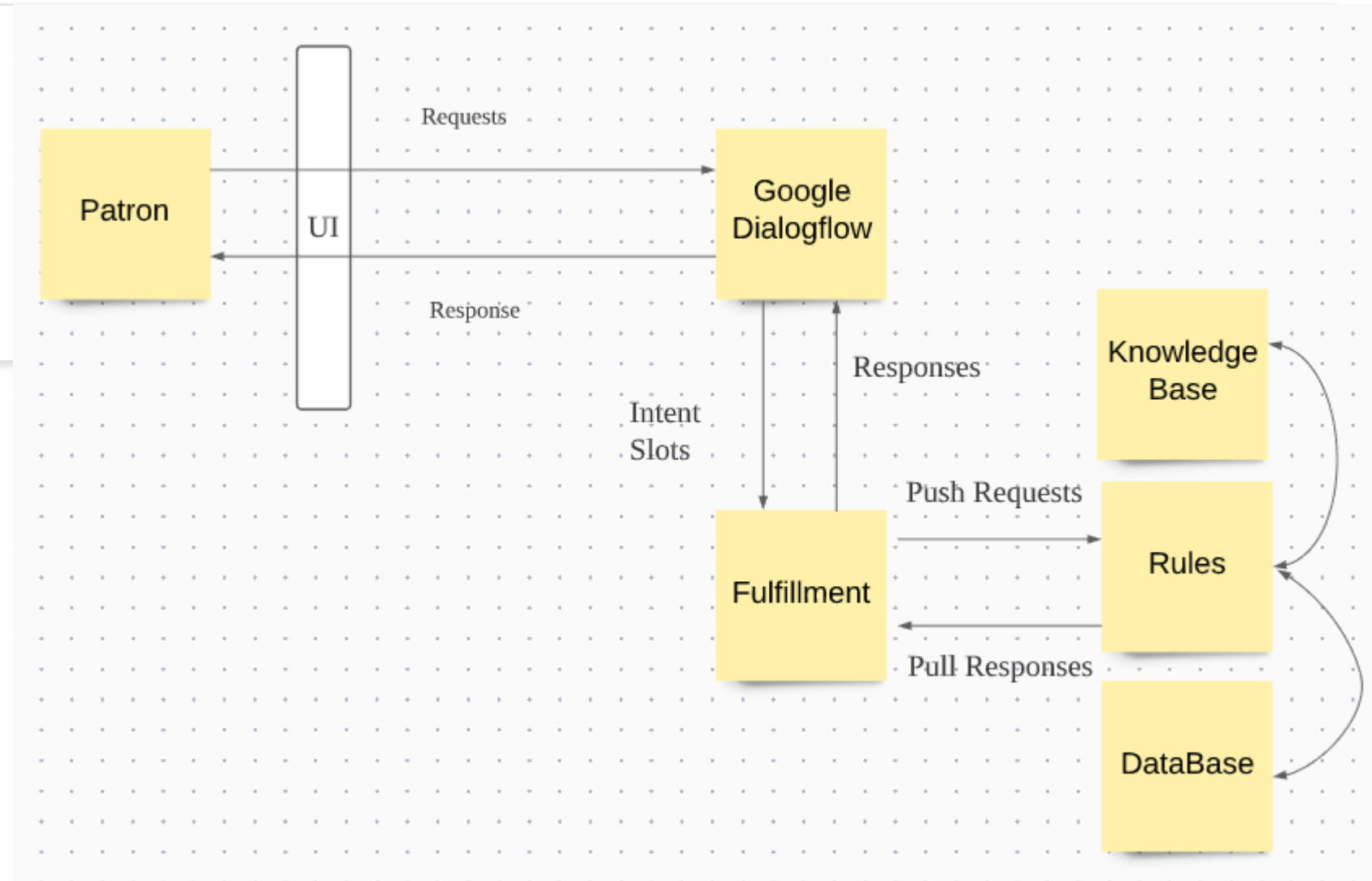
- Enable real-time interaction with Patron for reservation activities to any establishment(Clinic, Restaurant, Shopping malls, Training Institute etc)
- ChatBot applies the intelligence using the Rules to
 - Book ,
 - Change ,
 - Cancel reservation
- The ChatBot of type Dialogflow Messenger is constructed using Google Dialogflow.
- For each activity an intent is created. Altogether there are 13 intents created to solve the purpose
- Dynamic response is generated by enabling fulfilment through webhook.
- With Webhook, the Dialogflow makes use of Django api to interact with Rules engine and processes the response to Patrons
- The Rich response are rendered using
 - dialogflow_v2beta1 api
 - custom response



IRA ChatBot

Architecture

- The patron communicates to Dialogflow placing request & receiving request.
- The requests are processed through dialogflow fulfillment. For each request, relevant intents are invoked, and the requests are processed dynamically through fulfillment.
- The fulfillment process the requests based on the rules, knowledge from knowledge base and data from database.



IRA ChatBot: Follow up with Rules

Features

- Agent Training is done to invoke the relevant intents
- Tokenization challenges are met
- Case normalization are done

Which date (e.g. Dec 10)?

book for friday

NewStarbuck @ Bugis 1 says : You have requested for a reservation on Friday 13 November 2020 from 16:00 for 2 people.

Key [c] to confirm
Key [m] to Main menu

show my status of my reservations

Your upcoming reservation status...

Establishment: TS Wong Clinic
No. of Person(s) :3
Time in :20/11/11 at 15:20
Status :on-hold

Establishment: NewStarbuck
No. of Person(s) :4
Time in :20/11/09 at 14:50
Status :confirmed

Establishment: NewStarbuck
No. of Person(s) :4
Time in :20/11/30 at 09:00
Status :confirmed

Which date (e.g. Dec 10)?

Saturday

What time to begin (e.g. 3 pm) ?

4PM

How many seats do you want to book ?

3


Your expected time Out? (e.g. 4.20 pm . Key 0 if unkown)

8 pm

A-look Spec @ Woodland Avenue2 says : You have requested for a reservation on Saturday 7 November 2020 from 16:00 to 20:00 for 3 people....
Key [c] to confirm
Key [m] to Main menu



ISS IRS PROJECT TEAM

•  DASHBOARD MAPS USER PROFILE PAST HISTORY SUPPORT

Upcoming Reservation

| NO | RESERVATION ID | TIME | SHOP | ADDRESS | CONTACT | QTY | MODIFY | CANCEL | STATUS |
|----|----------------|------|------|---------|---------|-----|--------|--------|--------|
|----|----------------|------|------|---------|---------|-----|--------|--------|--------|

New Reservation

Session Id : (System Generate)

45167802781

Establishments:

-- select an option --

Location : (System Generate Once you have selected establishment)

Opening Hours : (System Generate Once you have selected establishment)

1: Monday, 2: Tuesday, 3: Wednesday, 4: Thursday, 5: Friday, 6: Saturday, 7: Sunday

Hi Hamsamalini Chandrasekaran ! IRA
welcomes you!To do reservation
Key [m] to Main menu...

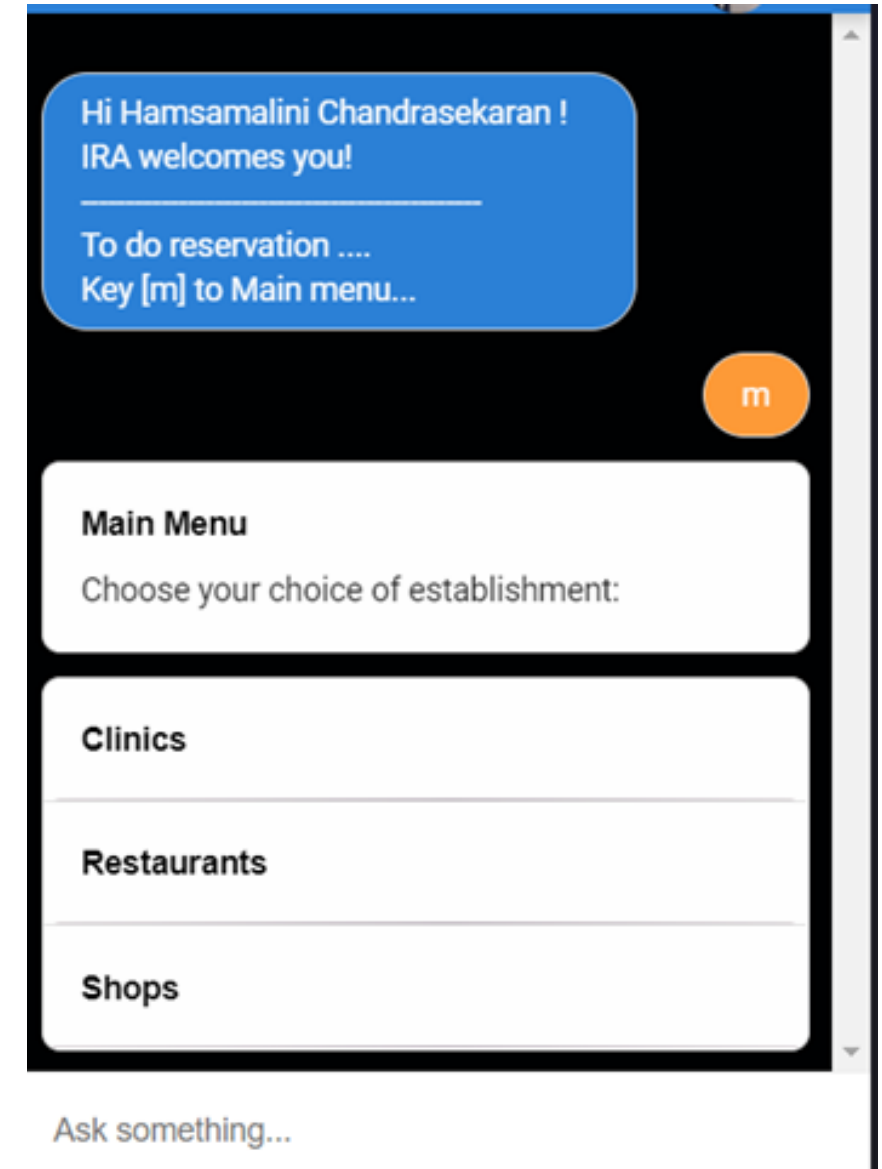
IRA ChatBot

- Patron signs in the app as a fresher. The bot welcomes the patron.
- Key 'm' or 'M' to the main menu which lists the establishment list.

IRA ChatBot

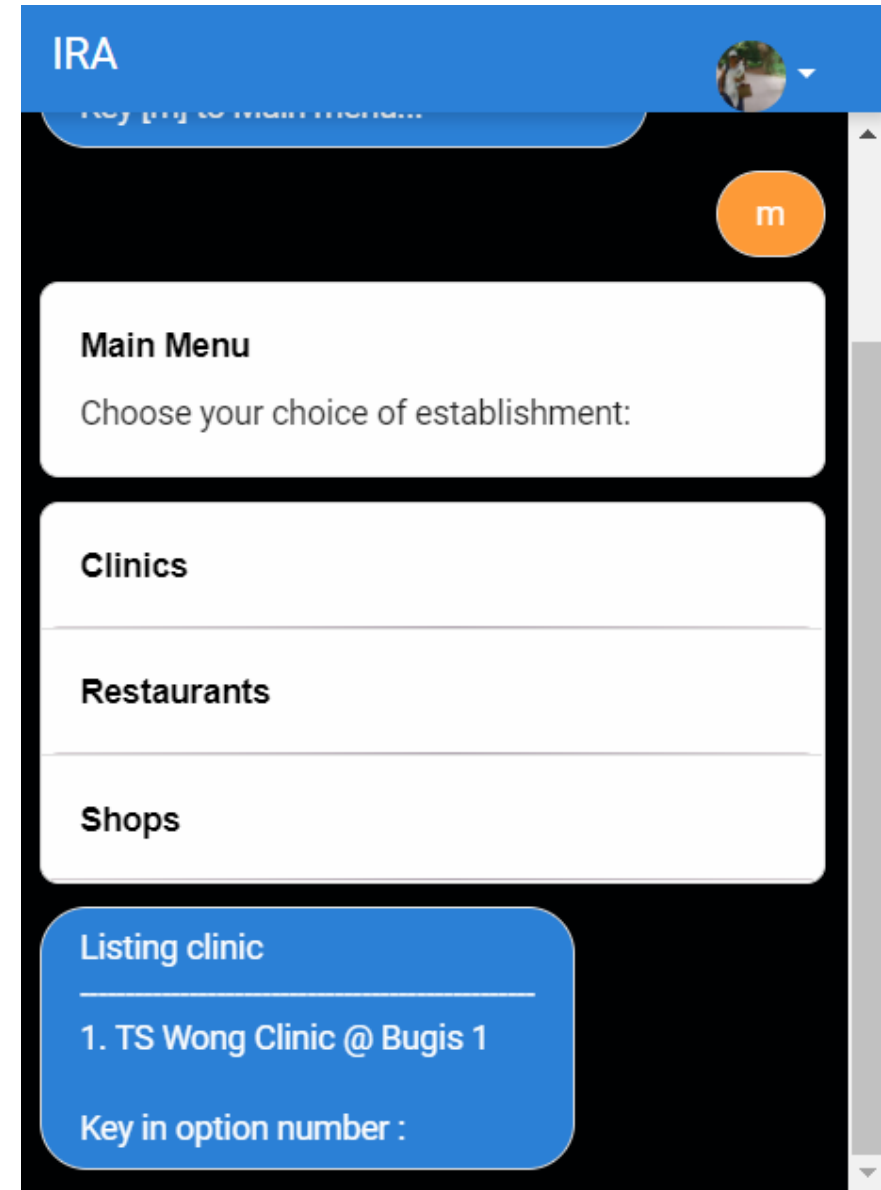
Establishment List

- Select your choice of establishment.



IRA ChatBot

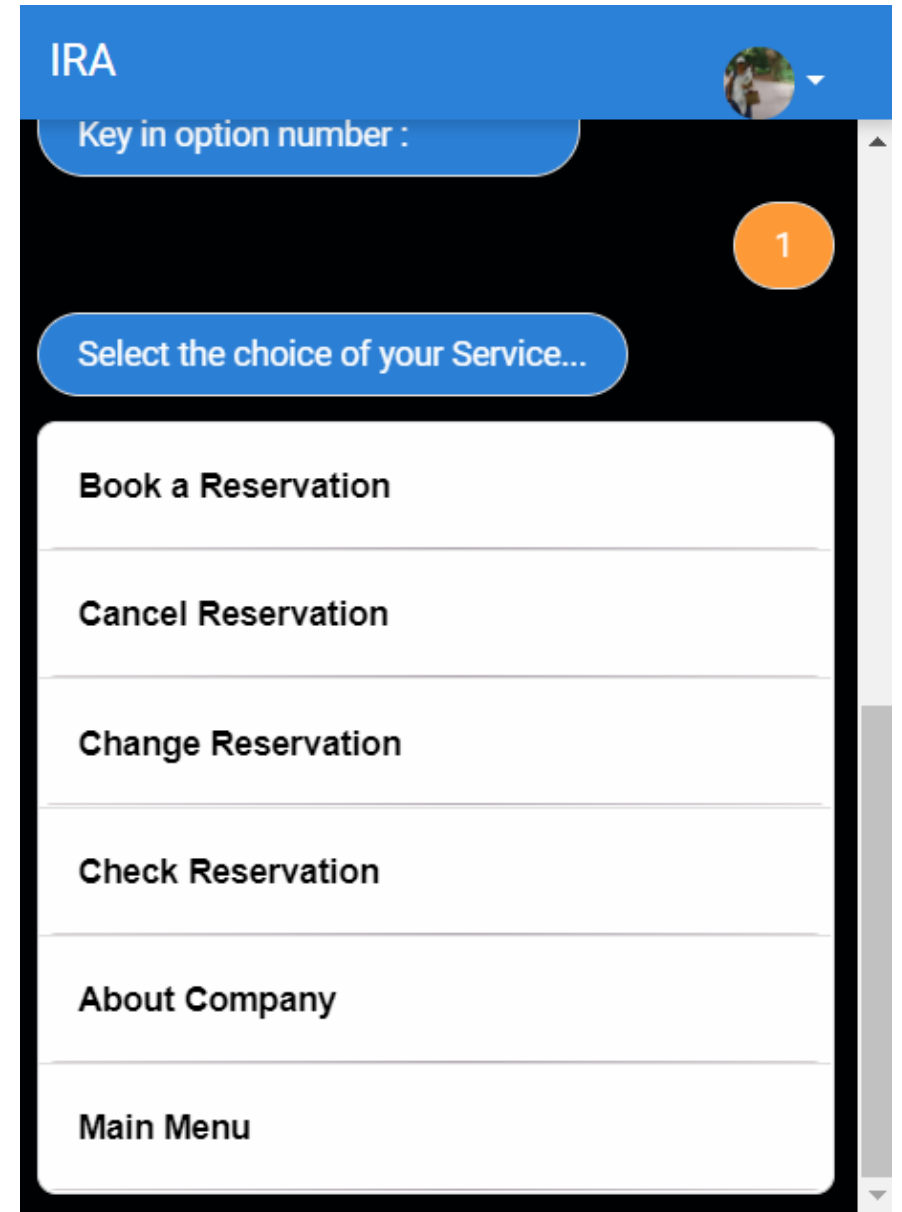
- Choose Clinics



Ask something...

IRA ChatBot

- Option 1 entered.
- Bot Services pops up



The screenshot displays the IRA ChatBot interface. At the top, a blue header bar contains the text "IRA" and a circular profile picture of a person. Below the header, a blue input field contains the text "Key in option number :". To the right of this field is an orange circle with the number "1". Below the input field is a blue button with the text "Select the choice of your Service...". Below the button is a white list of services, each in a separate row with a horizontal separator line. The services listed are: "Book a Reservation", "Cancel Reservation", "Change Reservation", "Check Reservation", "About Company", and "Main Menu".

Ask something...

IRA ChatBot

- Select Book Reservation
- This option expects collecting details from the Patron on Date, timeStart, no of seats, and timeOut. If the Patron is not aware of timeOut, he/she can key in '0' or else key in the time in the specified format.
- The agent is trained with variable inputs by the patron to fill the slots for date, and time.
- For e.g,
 - **What time to begin?** Can receive 3.50 for 3.50 am/3.50am, 3pm or 3 pm
 - **What date?** Can receive – 12 Nov/ Nov 12/ Thursday

The screenshot displays the IRA ChatBot interface. At the top, there is a blue header with the text 'IRA' and a small circular profile picture of a person. Below the header is a white box labeled 'Main Menu'. The chat area has a black background with blue bubbles for user questions and orange bubbles for bot responses. The conversation starts with the question 'Which date (e.g. Dec 10)?', followed by the response '12 Nov'. The next question is 'What time to begin (e.g. 3 pm) ?', with the response '3.20 pm'. The third question is 'How many seats do you want to book ?', with the response '2'. The final question is 'Your expected time Out? (e.g. 4.20 pm . Key 0 if unkown)', with the response '0'. At the bottom of the chat area is a text input field with the placeholder text 'Ask something...'. A vertical scrollbar is visible on the right side of the chat area.

IRA

Main Menu

Which date (e.g. Dec 10)?

12 Nov

What time to begin (e.g. 3 pm) ?

3.20 pm

How many seats do you want to book ?

2

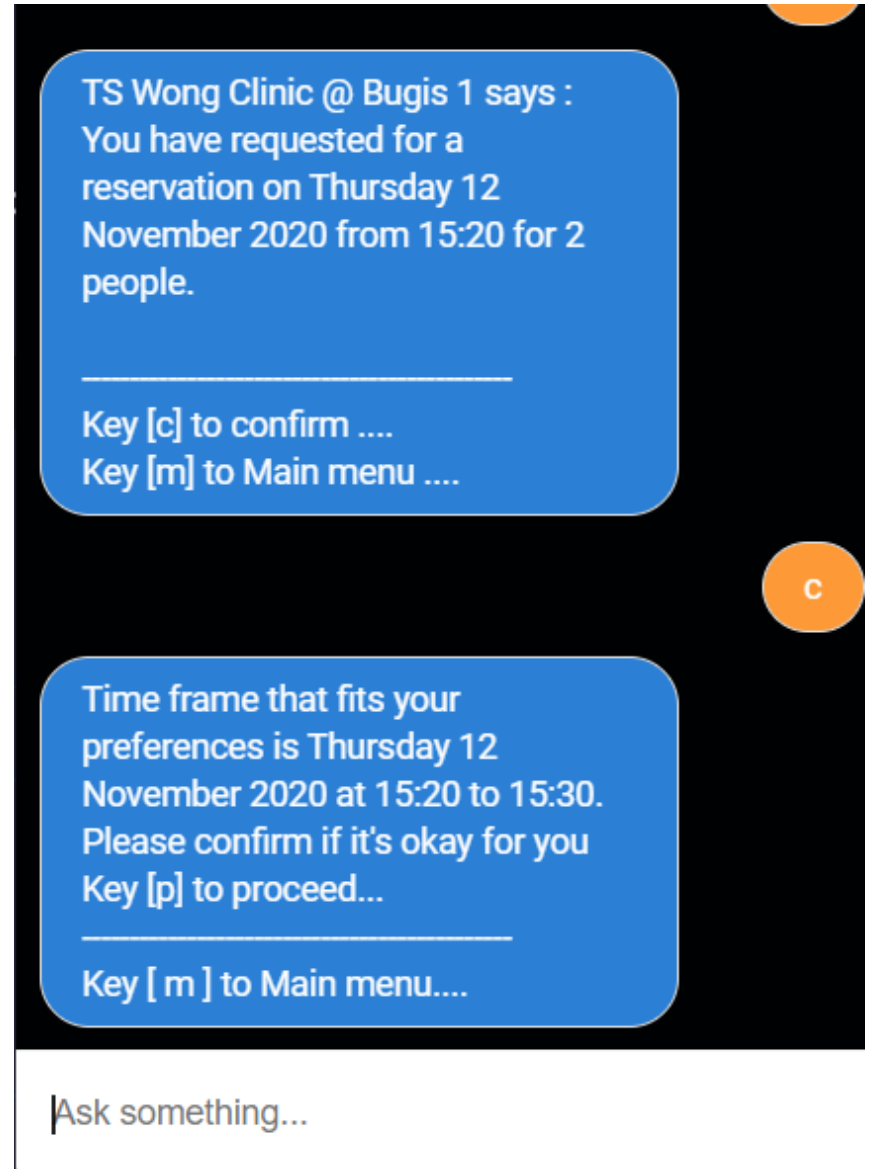
Your expected time Out? (e.g. 4.20 pm . Key 0 if unkown)

0

Ask something...

IRA ChatBot

- On receiving the details , the bot expects a confirmation from the patron. Key 'c' to confirm.



IRA ChatBot

- The bot expects an input 'p' to proceed with the given time frame. If not satisfied, the Patron can key in 'm' to the main menu
- On keying 'p', the bot returns the response as:
- The Patron will have to check if his reservation is confirmed after 7 pm on the day of reservation

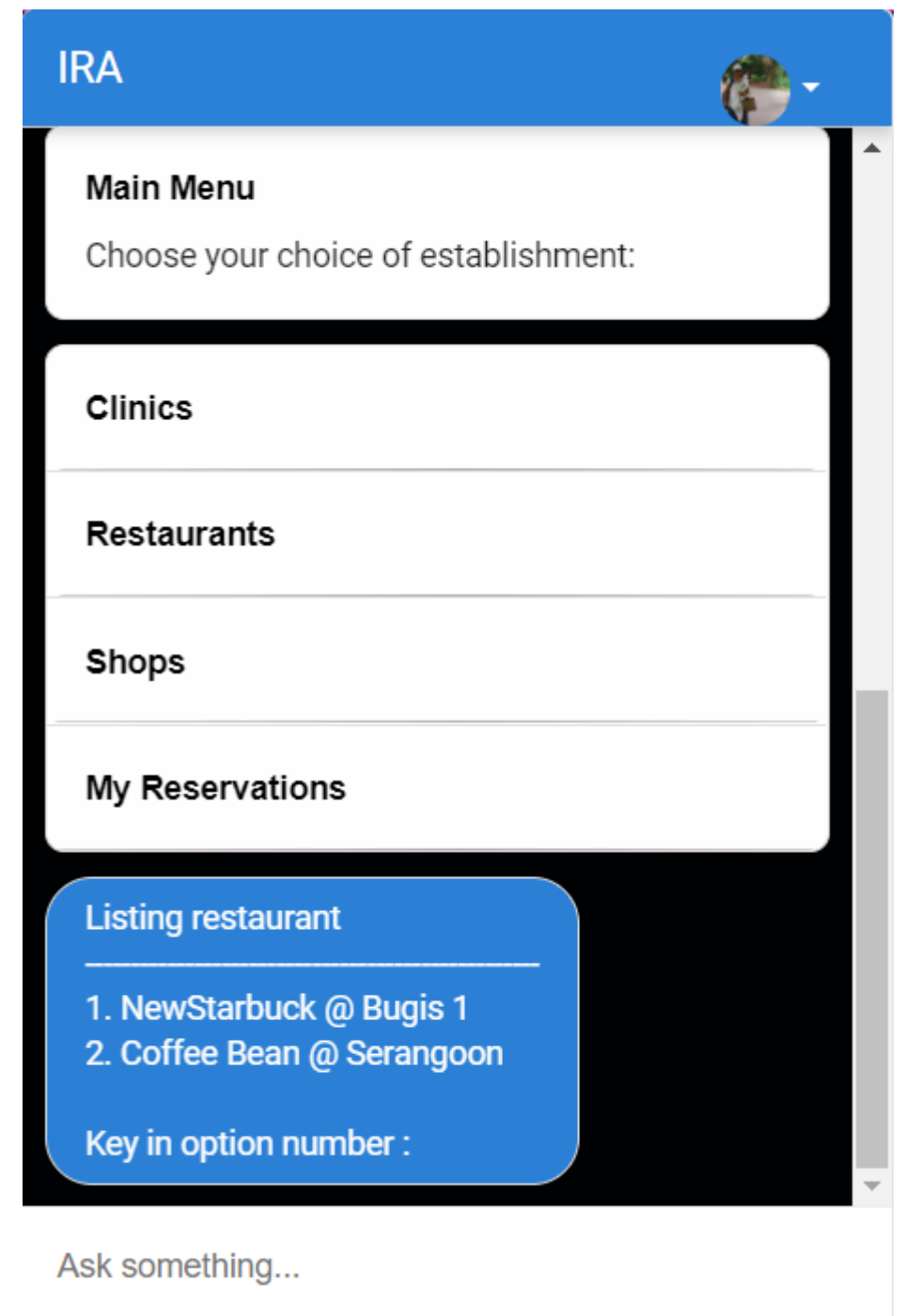
Your request for 2 person(s) on
Thursday 12 November 2020 at
15:20 to 15:30 is now on-hold.
Please status check after cufoff
time 19:00

Key [m] to Main menu....

|Ask something...

IRA ChatBot

- Book Reservation with a Restaurant



IRA ChatBot

- On selecting Book Reservation and feed the inputs to Bot's prompts.
- The bot provides a suggestion list. Selecting the option from suggestion list, the bot **confirms** reservation

Which date (e.g. Dec 10)?

nov 19

What time to begin (e.g. 3 pm) ?

2.23 pm

How many seats do you want to book ?

3

Your expected time Out? (e.g. 4.20 pm . Key 0 if unkown)

4.30 pm

Coffee Bean @ Serangoon says :
You have requested for a reservation on Thursday 19 November 2020 from 14:23 to 16:30 for 3 people....
Key [c] to confirm
Key [m] to Main menu

c

IRA

Coffee Bean @ Serangoon does not have the requested slots.
Instead lists suggestions:

1. Thursday 19 November 2020 at 14:21
2. Thursday 19 November 2020 at 14:18
3. Thursday 19 November 2020 at 14:24
4. Wednesday 18 November 2020 at 14:21
5. Thursday 12 November 2020 at 14:21

Key in your option (e.g. 2):

Key [m] to Main menu...

c

Reservation for 3 on Thursday 19 November 2020 at 14:24 has been confirmed

Key [m] to return to Main menu...

3

ISS IRS PROJECT TEAM

DASHBOARD

MAPS

USER PROFILE

PAST HISTORY

SUPPORT

Upcoming Reservation

| NO | RESERVATION ID | TIME | SHOP | ADDRESS | CONTACT | QTY | MODIFY | CANCEL | STATUS |
|----|----------------|----------------|----------------|-----------|----------|-----|--------|--------|--------|
| 1 | 42805739 | 20/11/12_15:20 | TS Wong Clinic | Bugis 1 | 93112233 | 2 | | | |
| 2 | 42805739 | 20/11/19_14:24 | Coffee Bean | Serangoon | 65930328 | 3 | | | |
| 3 | 42805739 | 20/11/17_12:57 | Coffee Bean | Serangoon | 65930328 | 3 | | | |

New Reservation

Session Id : (System Generate)

22022055290

Establishments:

Hi Hamsamalini Chandrasekaran ! IRA welcomes you!
Your upcoming reservation status...

Establishment: TS Wong Clinic
No. of Person(s) :2
Time in :20/11/12 at 15:20
Status :on-hold

Establishment: Coffee Bean
No. of Person(s) :3
Time in :20/11/19 at 14:24
Status :confirmed

Establishment: Coffee Bean
No. of Person(s) :3
Time in :20/11/17 at 12:57
Status :confirmed

Key [m] to Main menu...

IRA ChatBot

- Log out by Patron and Log in again
- If Patron logs out and logs in, the bot welcomes the Patron with upcoming reservations as

IRA ChatBot

- Book a reservation for tomorrow

IRA

Main Menu
Choose your choice of establishment:

Clinics

Restaurants

Shops

My Reservations

Listing restaurant

1. NewStarbuck @ Bugis 1
2. Coffee Bean @ Serangoon

Key in option number :

Ask something...

Select the choice of your Service...

Book a Reservation

Cancel Reservation

Change Reservation

Check Reservation

About Company

Main Menu

Which date (e.g. Dec 10)?

tomorrow

What time to begin (e.g. 3 pm) ?

5 pm

How many seats do you want to book ?

5

Your expected time Out? (e.g. 4.20 pm . Key 0 if unkown)

0

A-look Spec @ Woodland Avenue2 says : You have requested for a reservation on Sunday 8 November 2020 from 17:00 for 5 people.

Key [c] to confirm
Key [m] to Main menu

c

Please make reservation 3 day(s) in advance

Key [m] to Main menu...

IRA ChatBot

- Change Reservation

IRA

Main Menu

Choose your choice of establishment:

Clinics

Restaurants

Shops

My Reservations

Listing restaurant

1. NewStarbuck @ Bugis 1
2. Coffee Bean @ Serangoon

Key in option number :

Ask something...

IRA

Change Reservation

Check Reservation

About Company

Main Menu

Your upcoming reservation slot(s):

1. Tuesday 17 November 2020 at 12:57
2. Thursday 19 November 2020 at 14:24

Key your choice (e.g. 1)

Key [m] to Main menu...

2

2

Select the choice of your Service...

Book a Reservation

Cancel Reservation

Change Reservation

Check Reservation

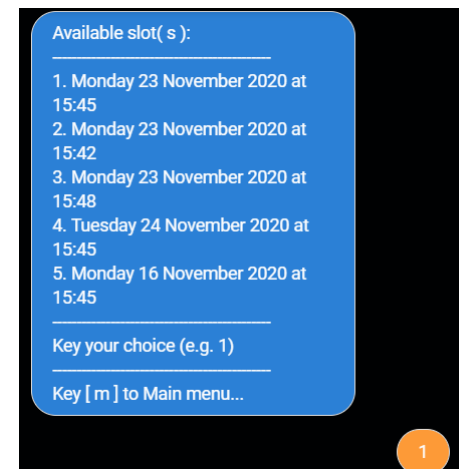
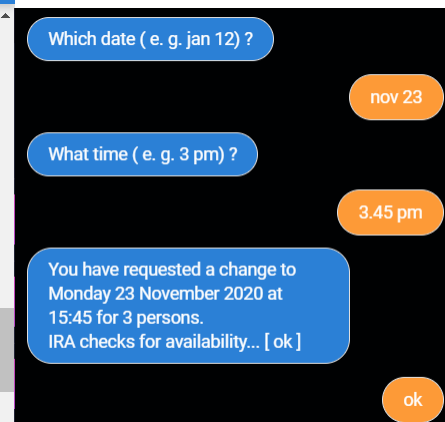
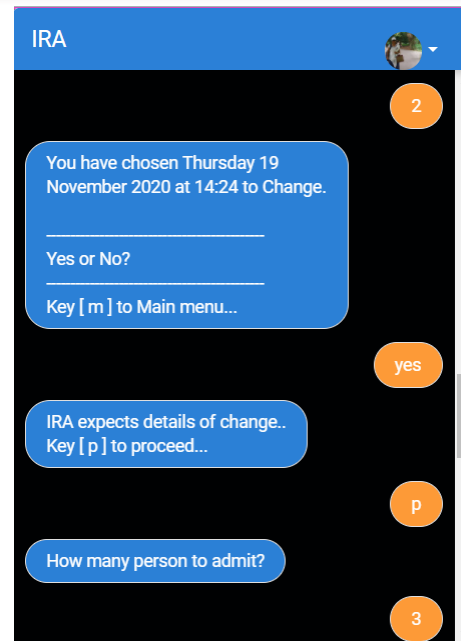
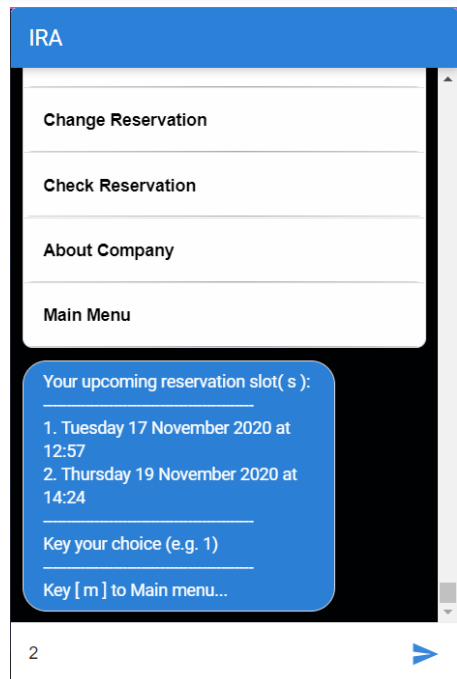
About Company

Main Menu

Ask something...

IRA ChatBot

- Select Change Reservation. The bot lists the upcoming reservation slots. The Patron selects the slot to change.
- On selecting the option from suggestion list, the bot responds **confirmation** as ,



IRA ChatBot

- Cancel Reservation

IRA

Main Menu

Choose your choice of establishment:

Clinics

Restaurants

Shops

My Reservations

Listing restaurant

1. NewStarbuck @ Bugis 1

2. Coffee Bean @ Serangoon

Key in option number :

Ask something...

Select the choice of your Service...

Book a Reservation

Cancel Reservation

Change Reservation

Check Reservation

About Company

Main Menu

Your upcoming reservation slot(s):

1. Monday 23 November 2020 at 15:45

2. Tuesday 17 November 2020 at 12:57

Key your choice (e.g. 1)

Key [m] to Main menu...

Reservation is cancelled SUCCESSFULLY!

Key [m] to proceed to Main menu...

1

YES

You have chosen Monday 23 November 2020 at 15:45 to Cancel.

Yes or No?

Key [m] to Main menu...

IRA ChatBot

Check Reservations with Clinics

IRA

Main Menu

Choose your choice of establishment:

Clinics

Restaurants

Shops

My Reservations

Listing clinic

1. TS Wong Clinic @ Bugis 1

Key in option number :

1

Select the choice of your Service...

Book a Reservation

Cancel Reservation

Change Reservation

Check Reservation

About Company

Main Menu

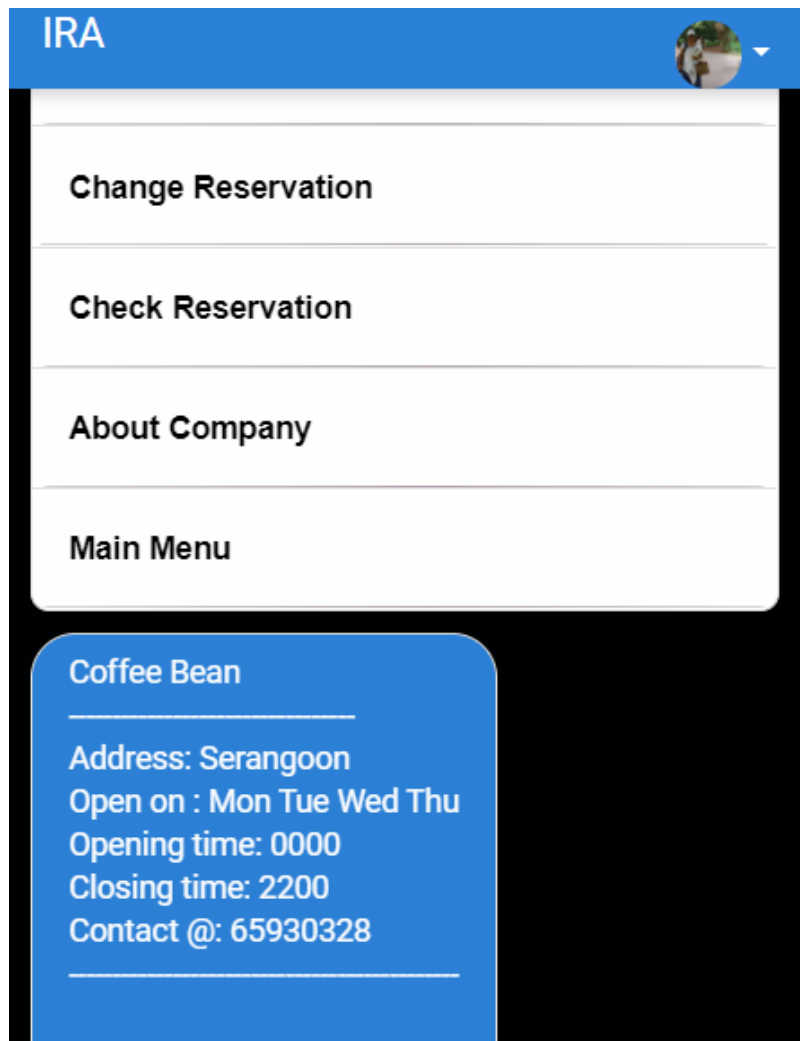
You have these reservation(s):
(1) Thursday 19 November 2020 at 11:20 to 12:10 for 3 person(s) is on-hold
(2) Thursday 12 November 2020 at 15:20 to 15:30 for 2 person(s) is on-hold

Key [m] for Main menu...



IRA ChatBot

About Company



IRA ChatBot: Follow up with Rules

- Booking a slot on a closed day is identified by Bot
- Bot identifies error when timeout is less than time start
- Bot identifies booking a slot on a longer plan
- Bot identifies when number of seats are beyond limit

NewStarbuck @ Bugis 1 says : You have requested for a reservation on Saturday 21 November 2020 from 15:20 for 3 people.

Key [c] to confirm
Key [m] to Main menu

I am afraid we are not open on that day

Key [m] to Main menu...

A-look Spec @ Woodland Avenue2 says : You have requested for a reservation on Tuesday 24 November 2020 from 15:00 to 13:00 for 4 people....
Key [c] to confirm
Key [m] to Main menu

Exit time should not be earlier than entry time

Key [m] to Main menu...

NewStarbuck @ Bugis 1 says : You have requested for a reservation on Thursday 31 December 2020 from 16:00 for 55 people.

Key [c] to confirm
Key [m] to Main menu

Your request is outside bookable window

Key [m] to Main menu...

TS Wong Clinic @ Bugis 1 says : You have requested for a reservation on Wednesday 25 November 2020 from 13:00 for 45 people.

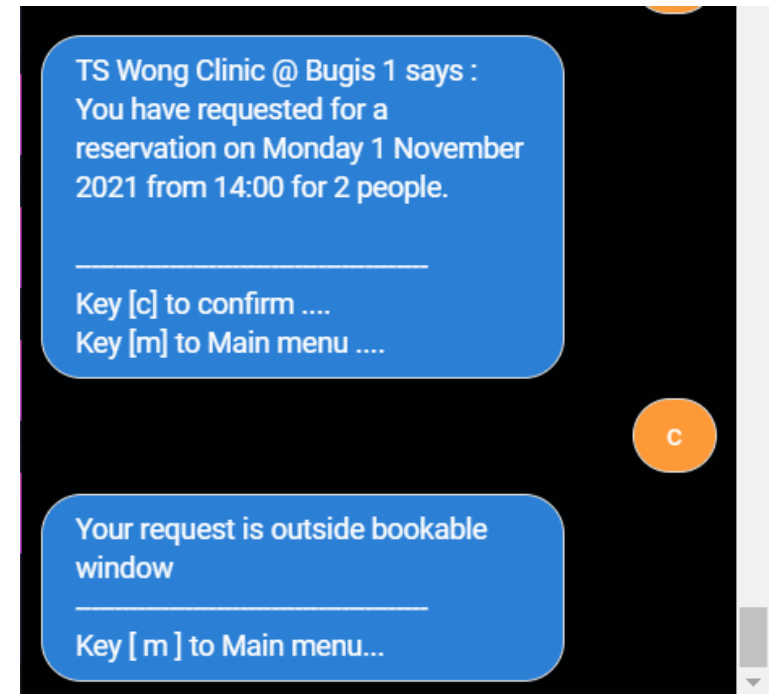
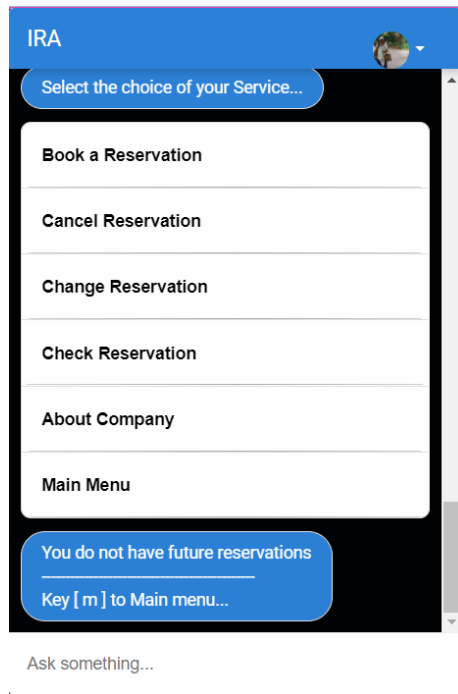
Key [c] to confirm
Key [m] to Main menu

I am afraid our full capacity has been reached

Key [m] to Main menu...

IRA ChatBot: Follow up with Rules

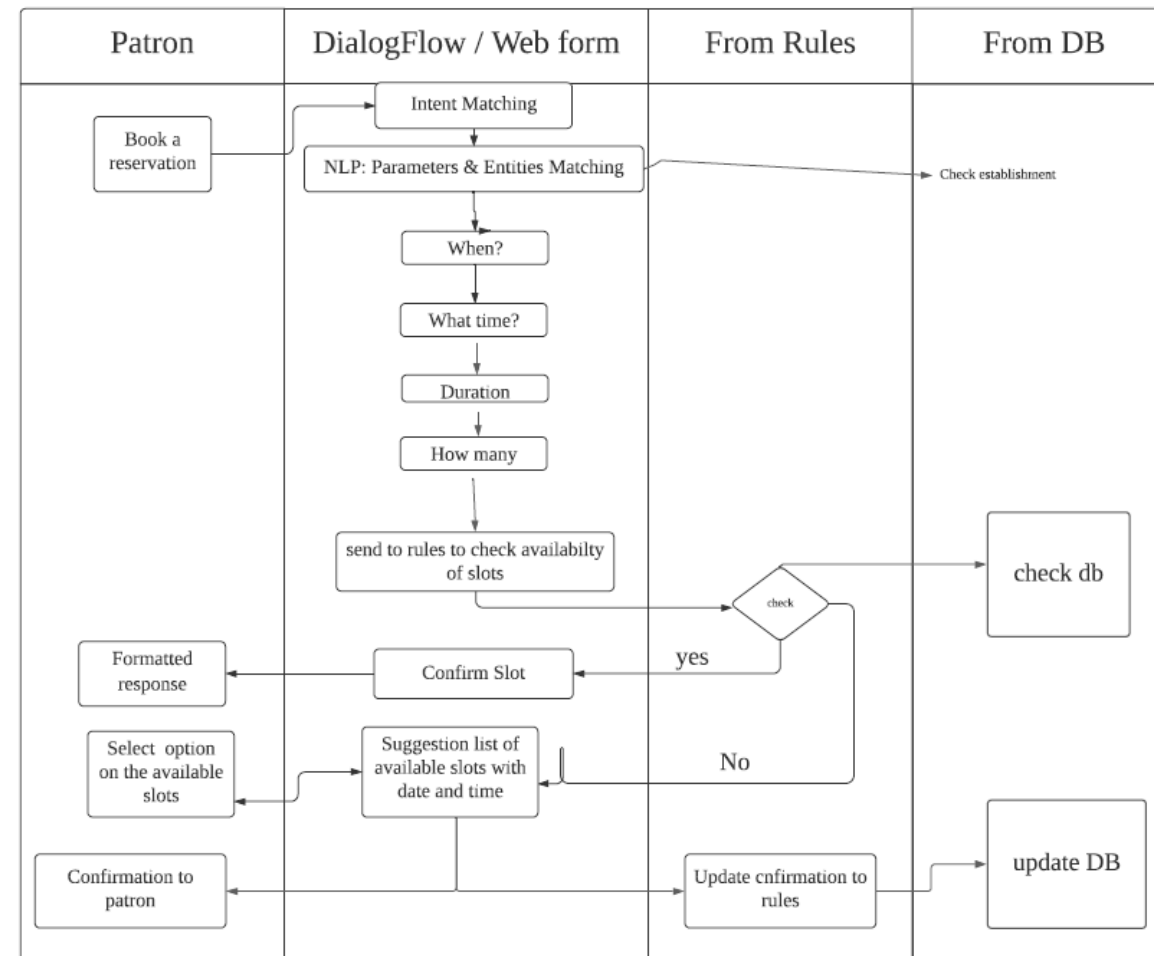
- When Cancel/change reservation is selected before booking any slots
- Booking a reservation for past date

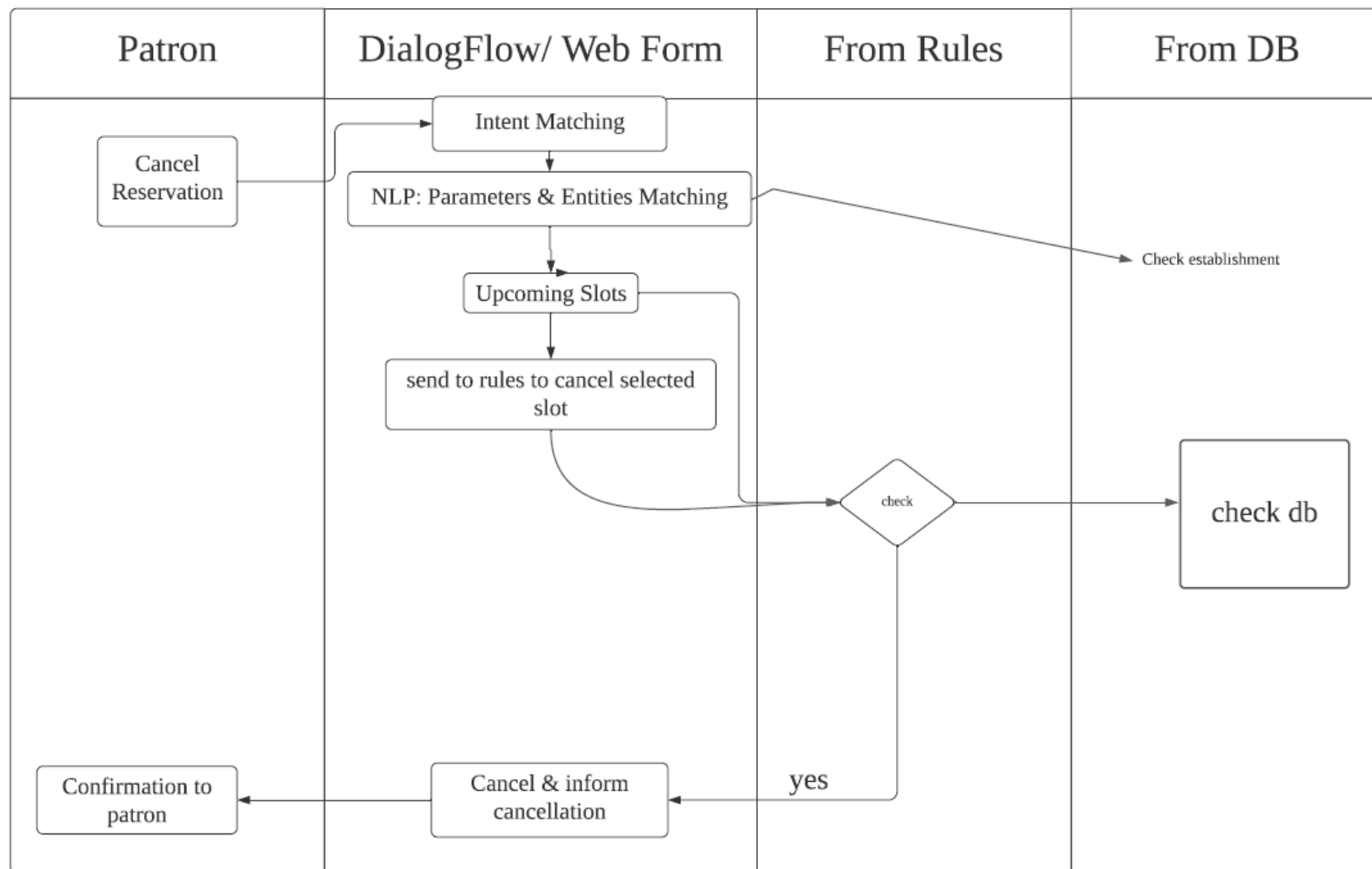


Appendices

Reservation Activity Workflow

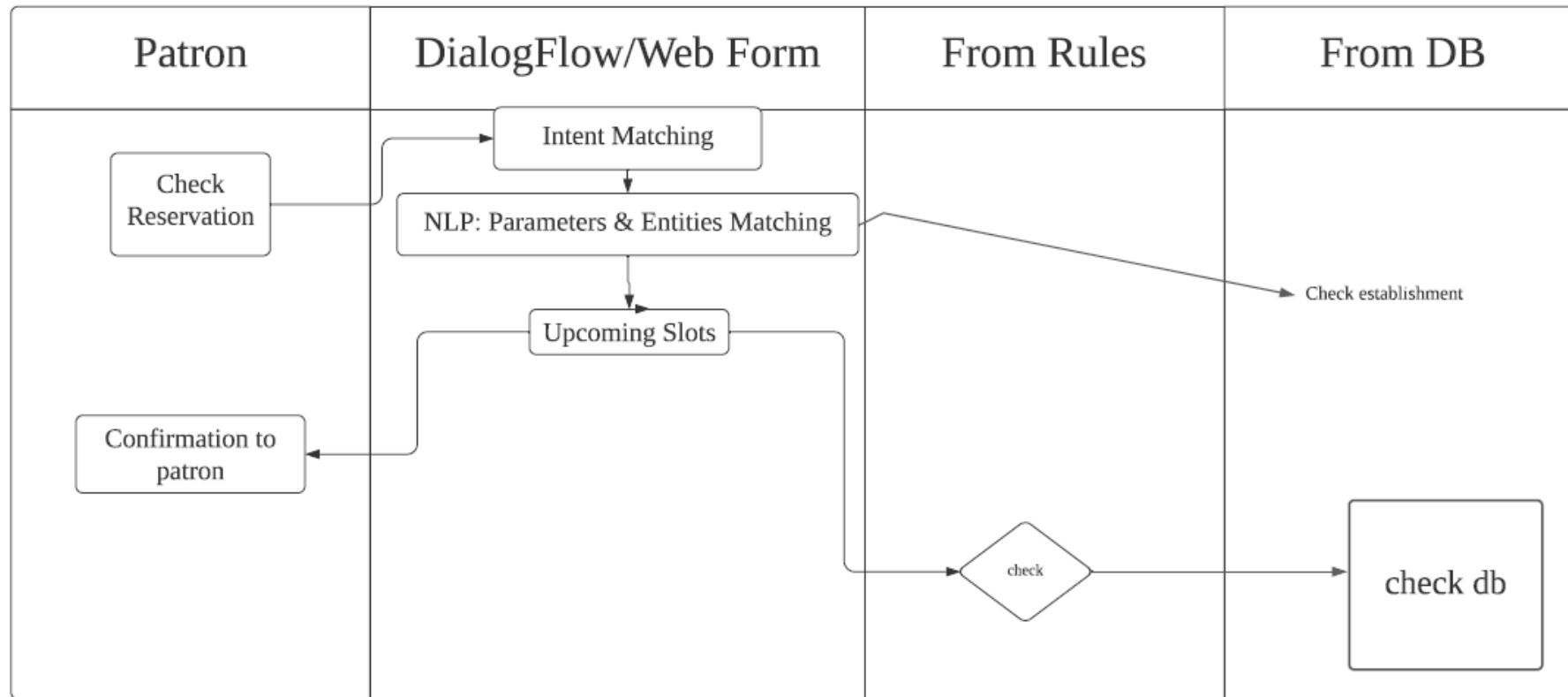
Book a Reservation

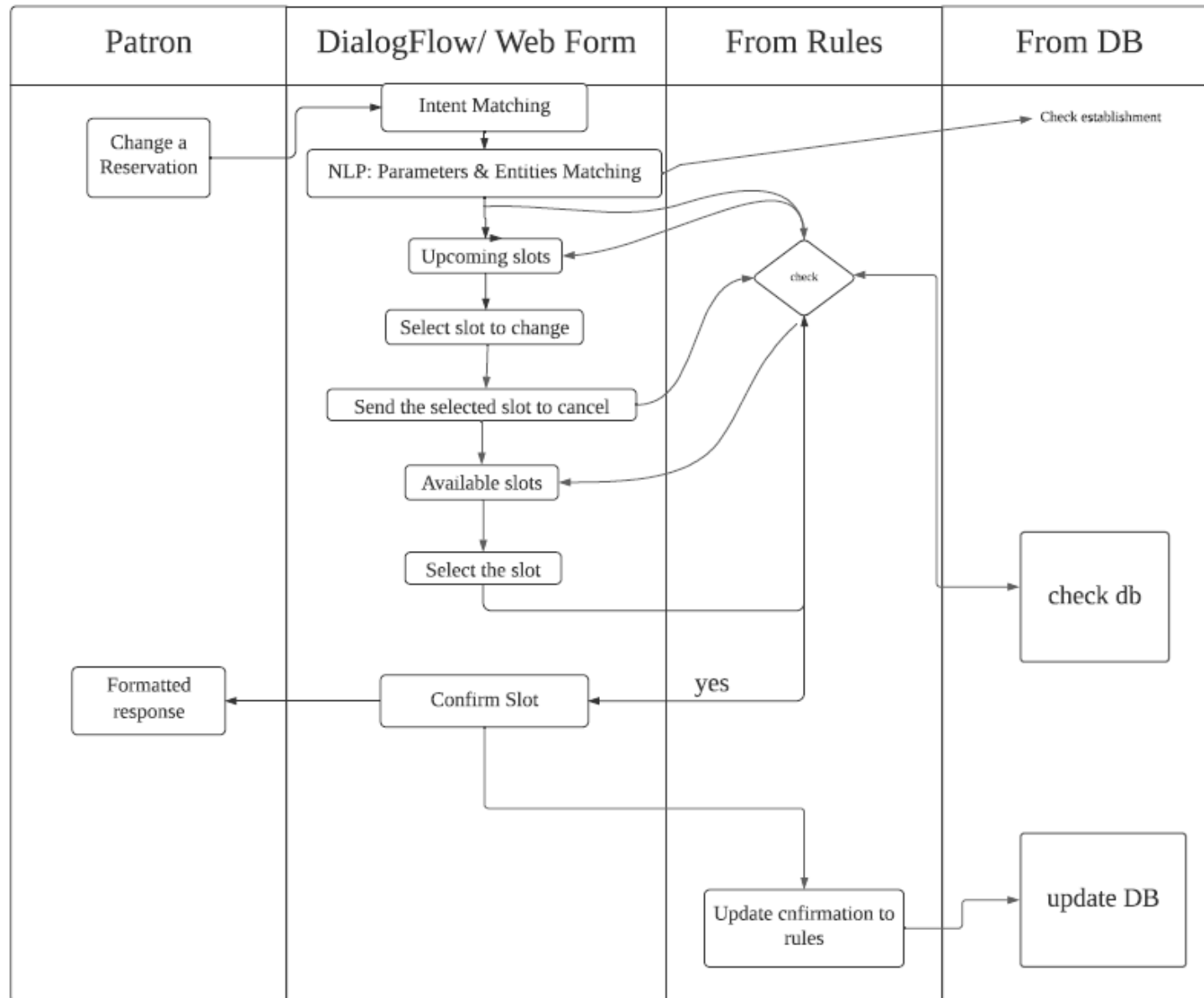




Cancel Reservation

Check Reservation





Change Reservation