



CSCI 5410

Serverless Data Processing (Summer 2023)

MASTER OF APPLIED COMPUTER
SCIENCE

Assignment-2 (Part C): Amazon Lex Chatbot

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Chatbot Creation using AWS Lex service:

Step-1: Create new chat bot in AWZ lex.

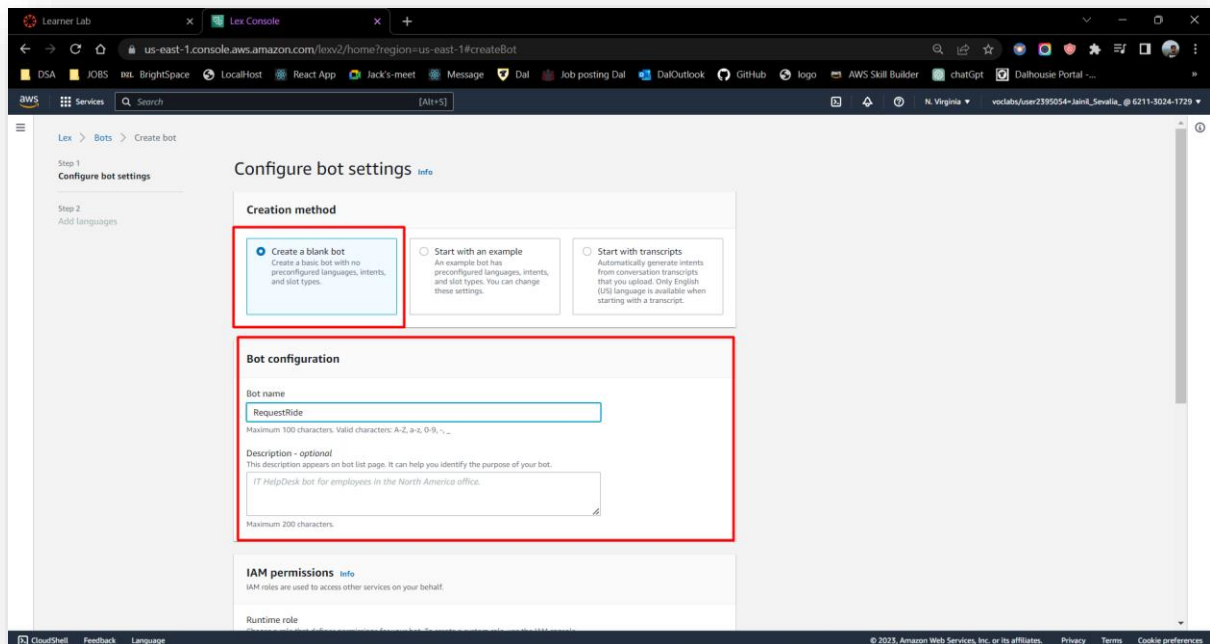


Figure 1 : Configuring new chatbot.

- Allocate IAM role or create new one.

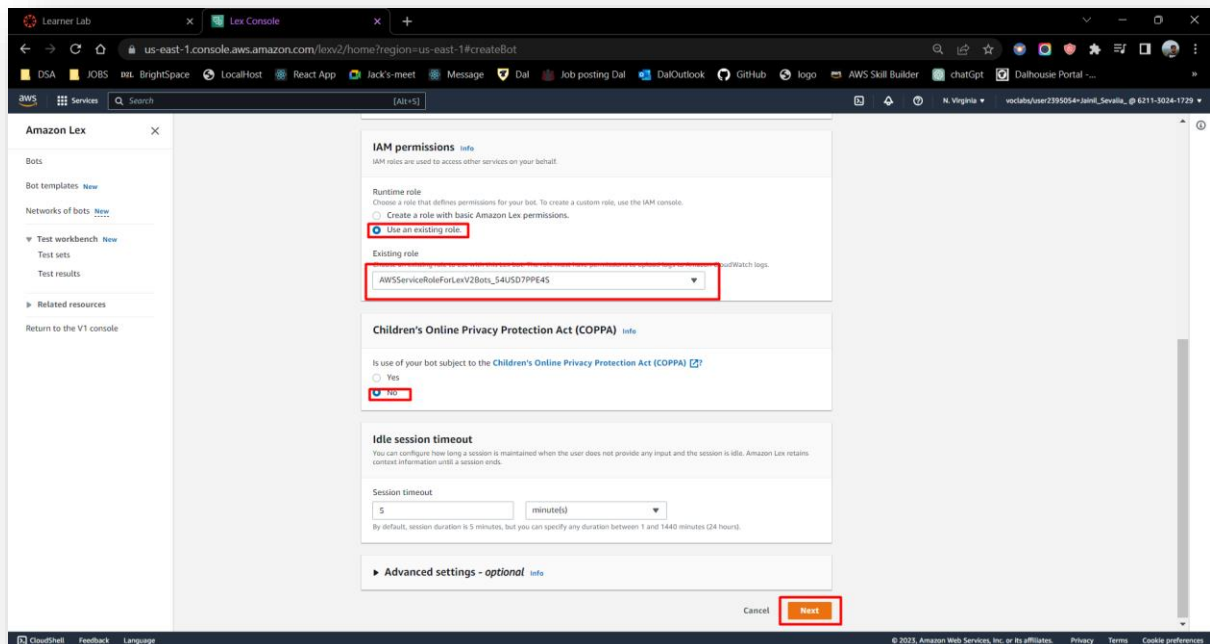


Figure 2 : Allocate IAM role to chatbot.

- Add language to bot. In my case, default settings are align with my requirements.

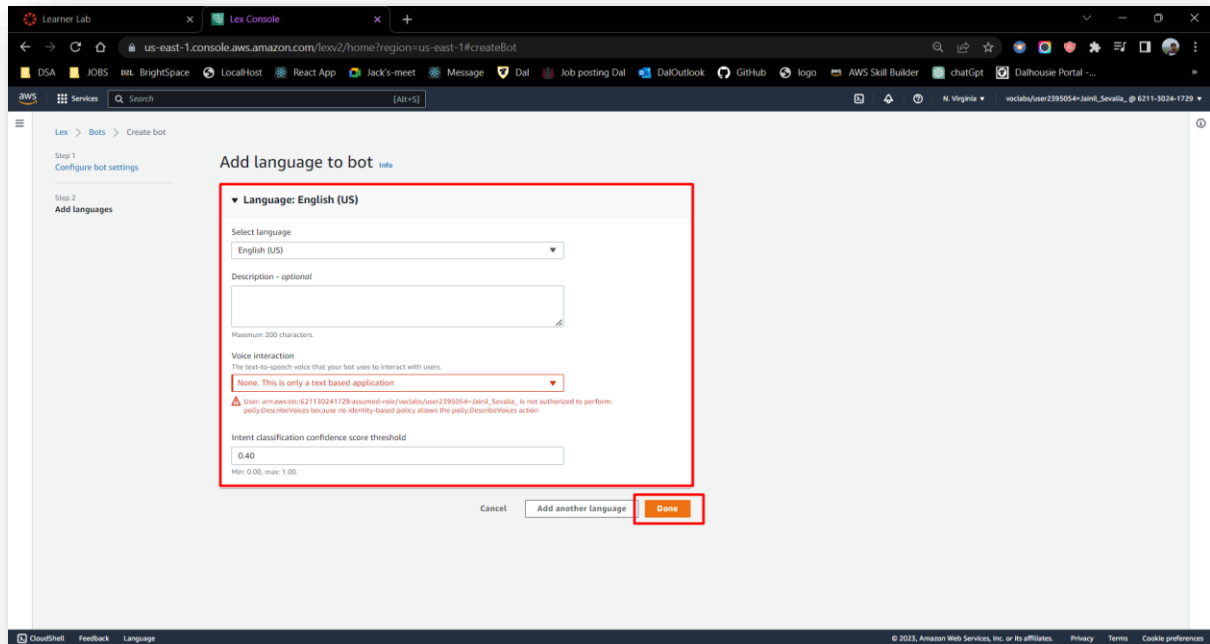


Figure 3 : Add language to chatbot.

Step – 2 : Create custom slots for intents. For RequestRide chat bot I created 2 custom slots.

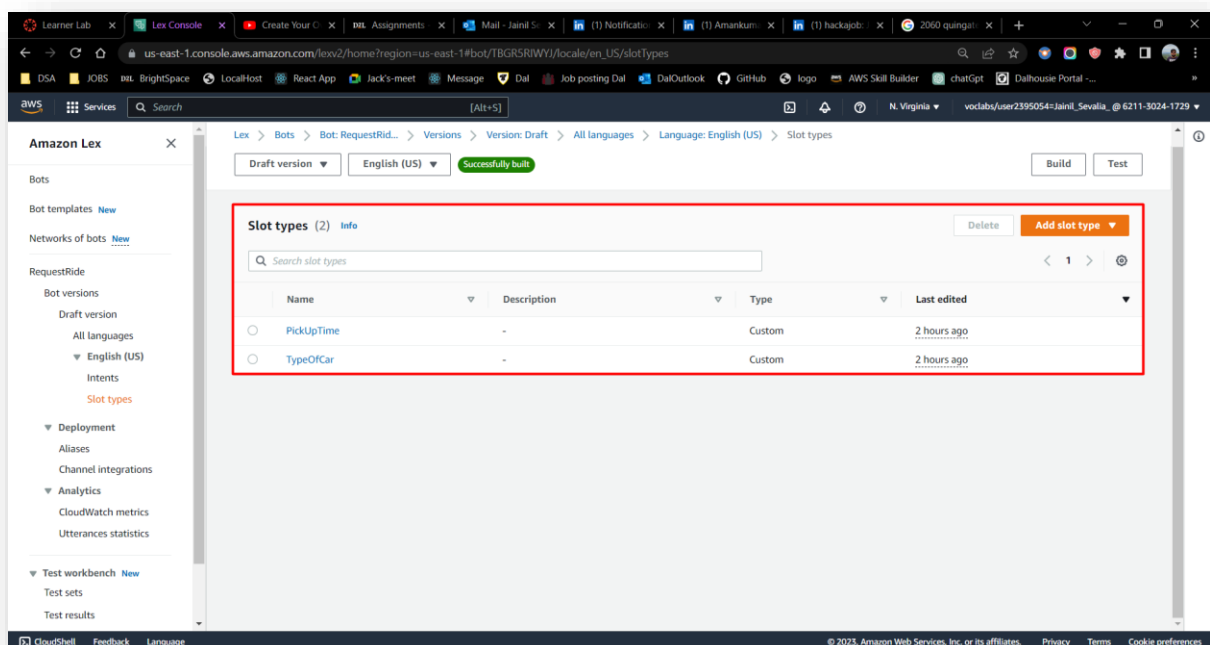


Figure 4 : List of Custom slots.

- Slot: Type of car.

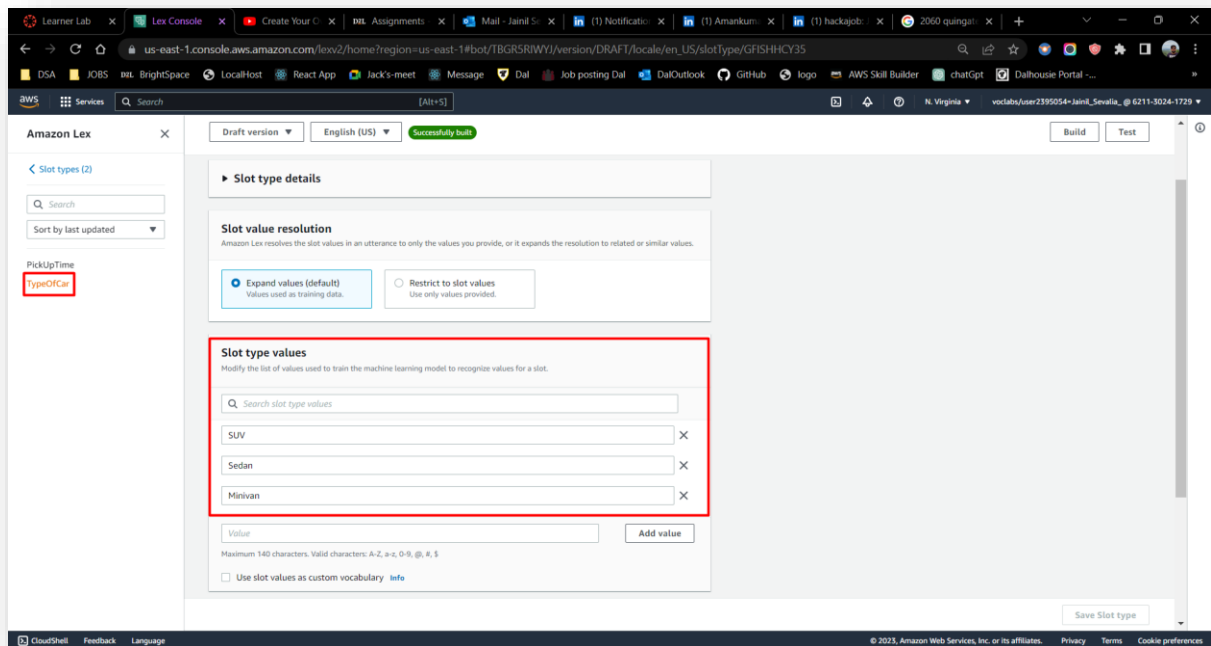


Figure 5 : Type of car custom slot created.

- Slot: Pick up time.

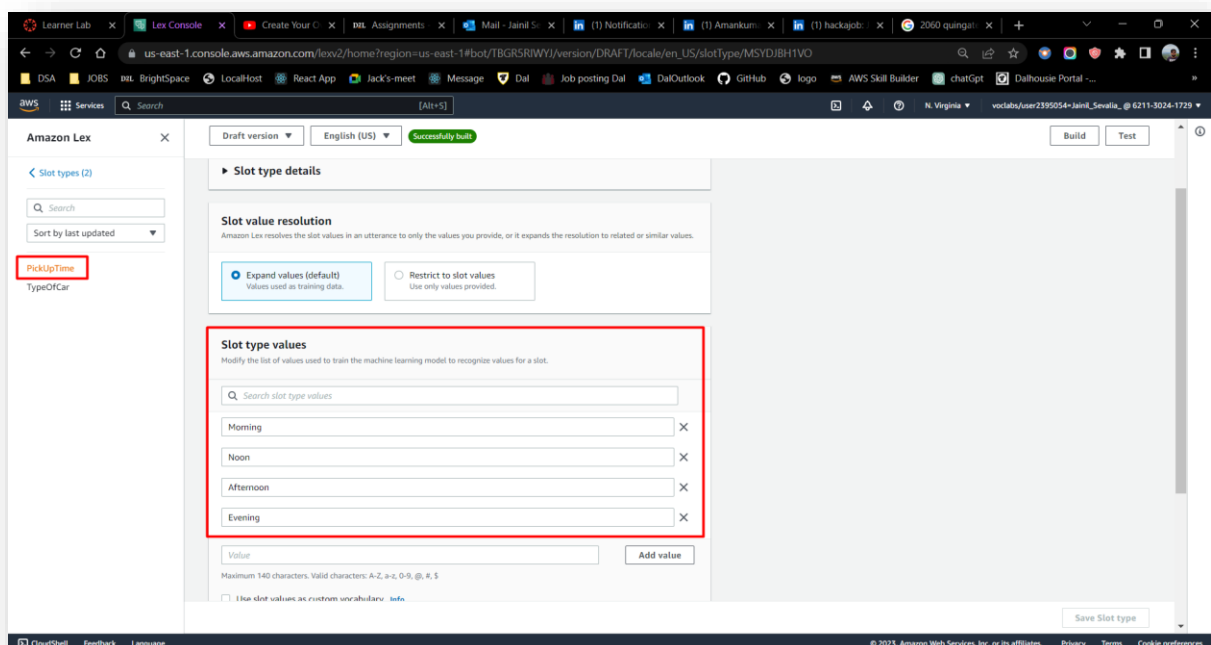


Figure 6 : Custom slot for Pick Up time.

Step -3 : Create 2 different intents for each mode for cab booking. (Taxi and Self-Drive).

Intent for Taxi:

Amazon Lex console showing the 'Intent details' for a 'Taxi' intent. The 'Intent name' is 'Taxi'. The 'Description - optional' is 'It helps to book Taxi(Cab)'. The 'ID' is PZFVZAW3XD. The 'Contexts - optional' section shows 'Input contexts' and 'Output contexts' both set to 'Choose contexts'. The 'Draft version' is 'English (US)' and the status is 'Successfully built'.

Figure 7: Taxi intent details.

- Sample utterances for Taxi intent.

Amazon Lex console showing the 'Sample utterances' for the 'Taxi' intent. The 'Sample utterances (3)' section is highlighted with a red box. It contains three sample utterances: 'Hi, I want to book a taxi.', 'Need a Cab', and 'book Taxi for me'. The 'Add utterance' button is visible at the bottom right of the list.

Figure 8 : Sample utterances for Taxi intent.

- Added slot types in below given order.
 - Custom slot for choosing type of car.
 - Default slot type(Amazon Number) for choosing number of cars for booking.
 - Default slot type(Amazon Alphanumeric) for address to pick up.

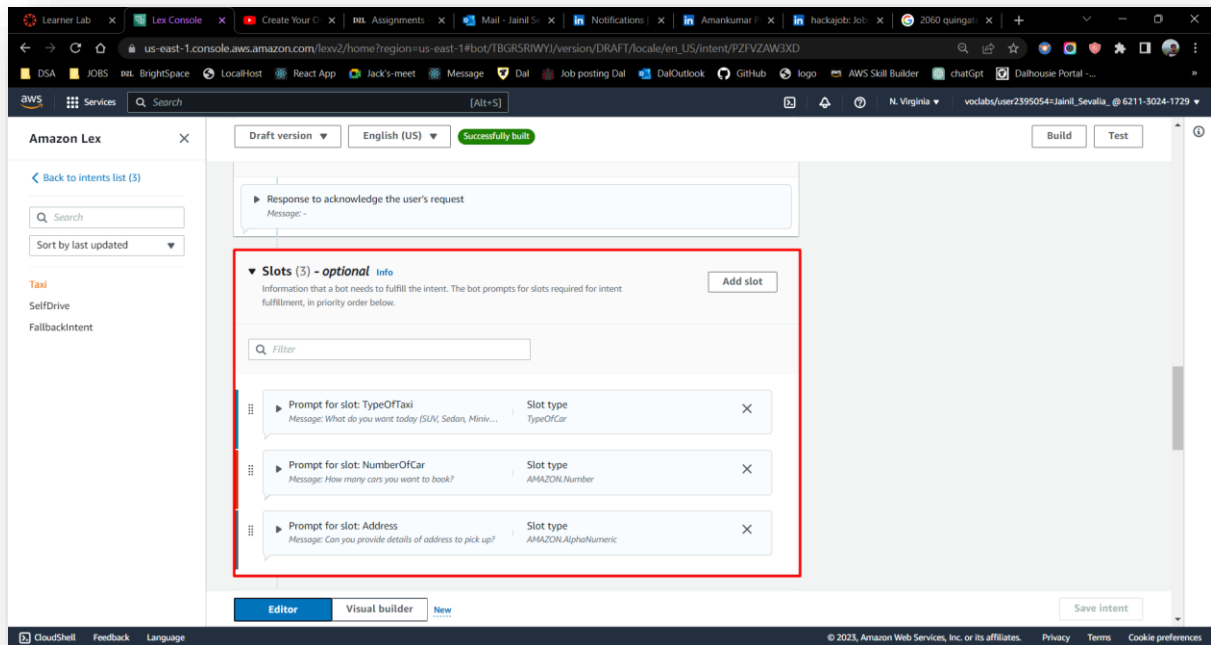


Figure 9 : Added slots in Taxi intent.

- Added Confirmation of booking.

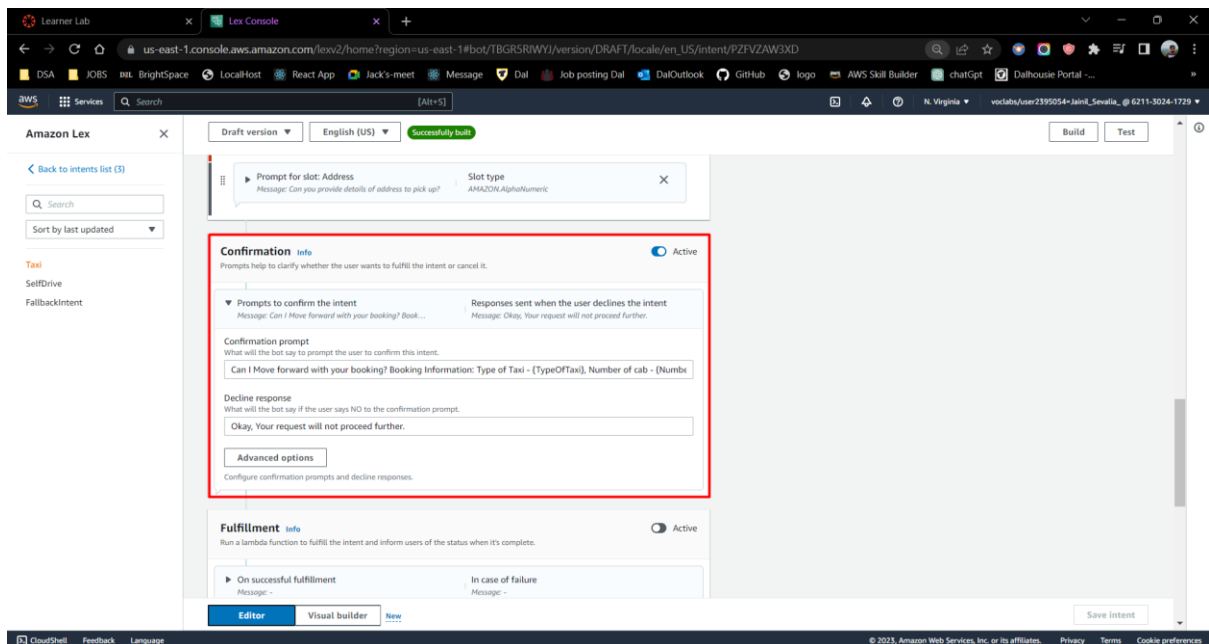


Figure 10 : Confirmation of booking for taxi intent.

- Added fulfilment for Taxi intent.

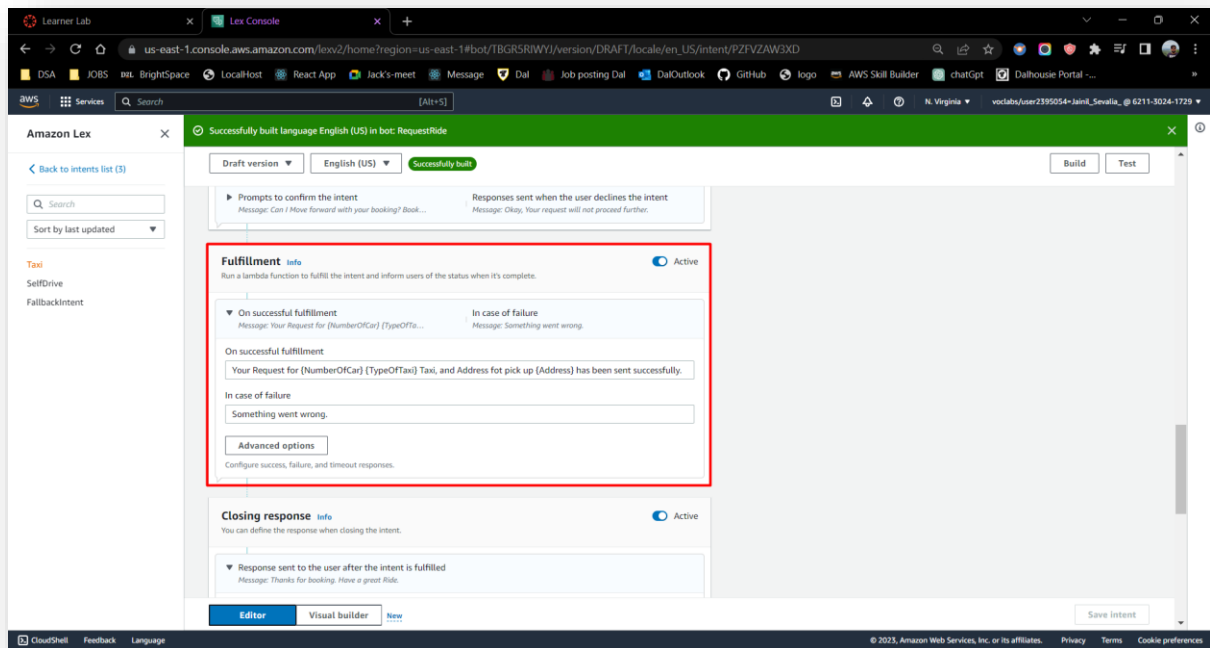


Figure 11 : Fulfilment for Taxi intent.

- Added closing response for Taxi intent.

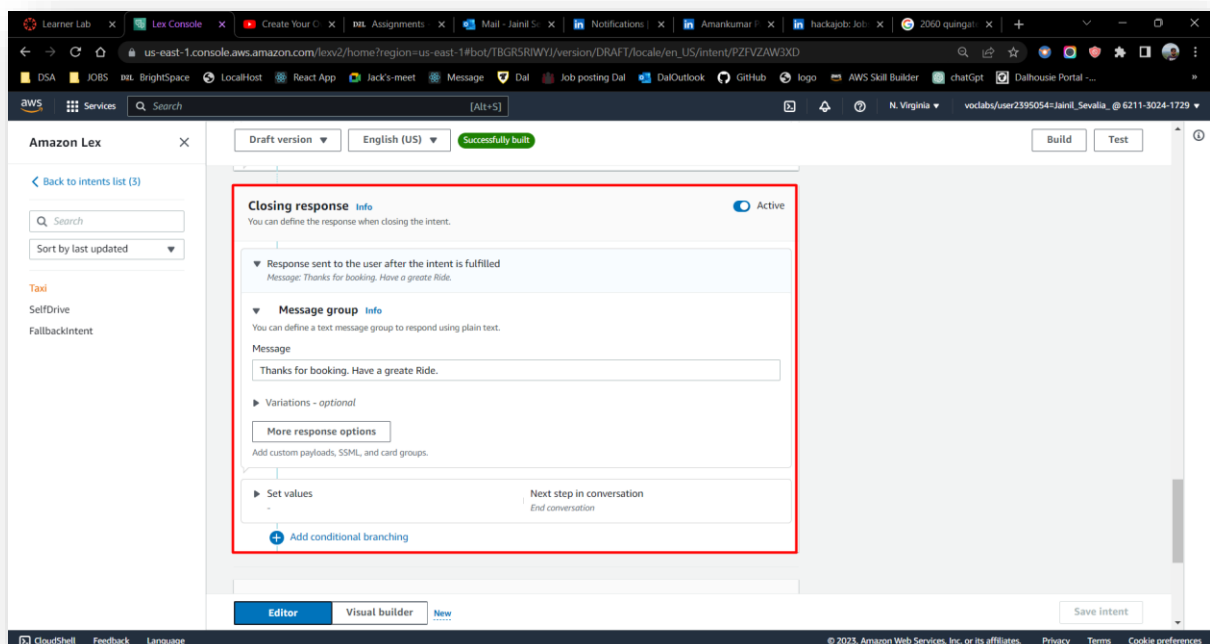


Figure 12 : Closing response for Taxi intent.

- **Intent for Self-Drive mode of cab booking.**

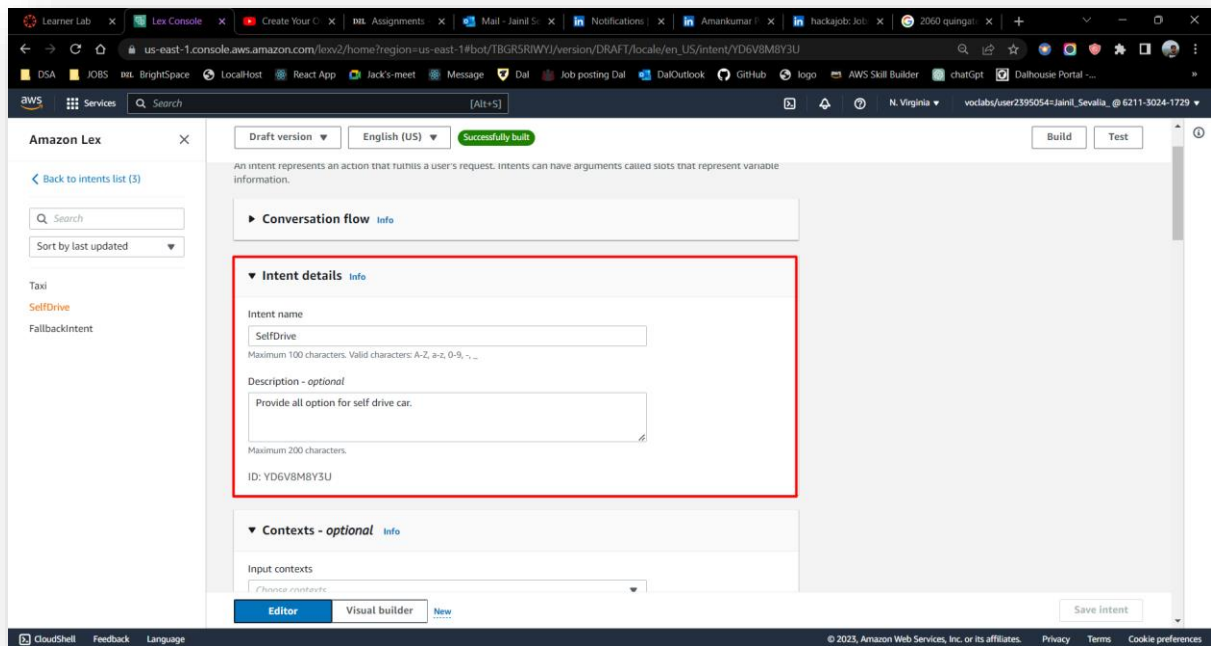


Figure 13 : Self-Drive intent details.

- **Sample utterances for Self-Drive intent.**

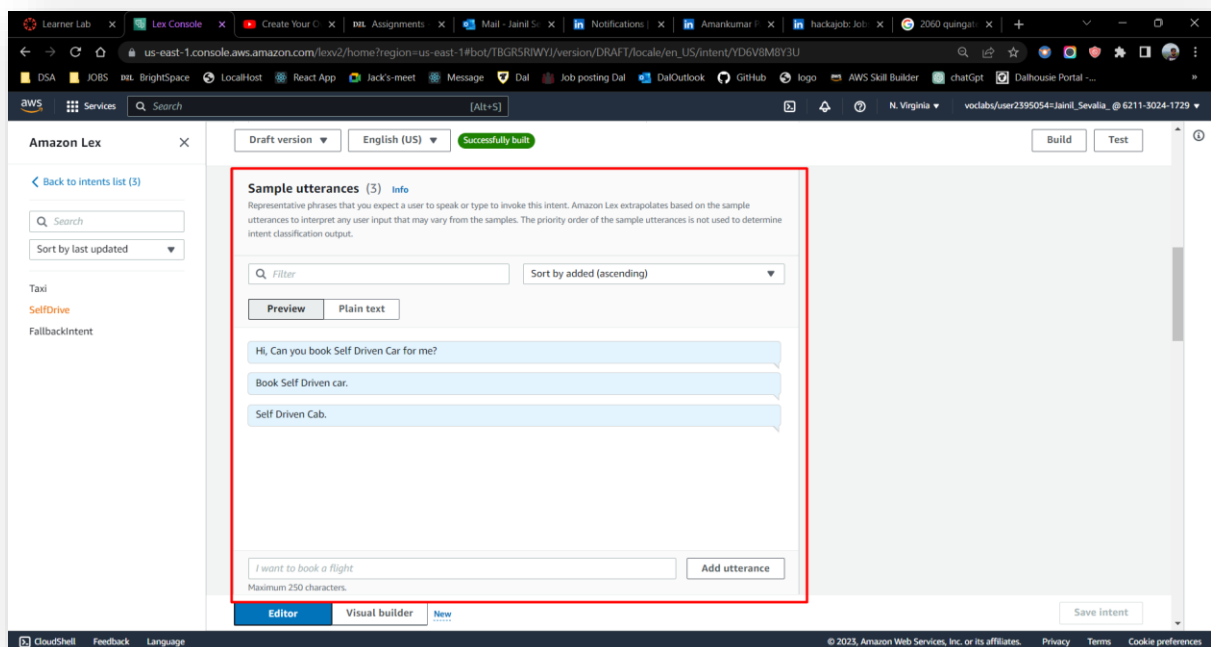


Figure 14 : Sample utterances for Self-Drive intent.

- Added slot types in below given order.
 - Custom slot for choosing type of car.
 - Default slot type(Amazon Number) for choosing number of cars for booking.
 - Custom slot type(PickUpTime) for time to pick up car from location.

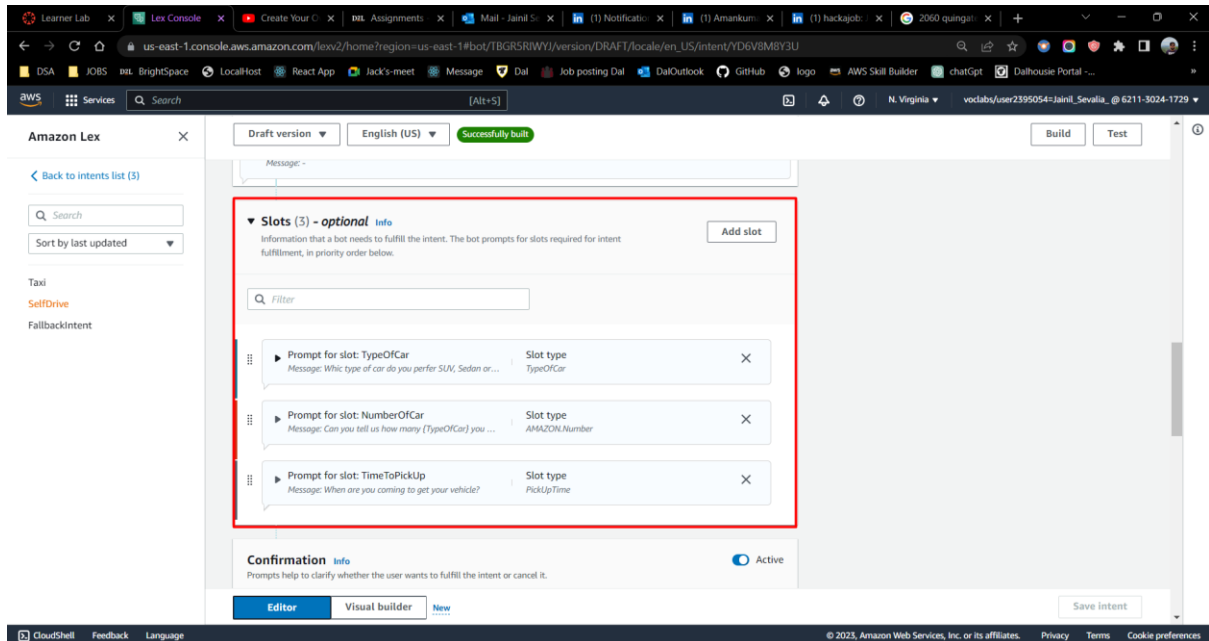


Figure 15 : Slots added in Self-Drive Intent.

- Added Confirmation response in Self-Drive intent.

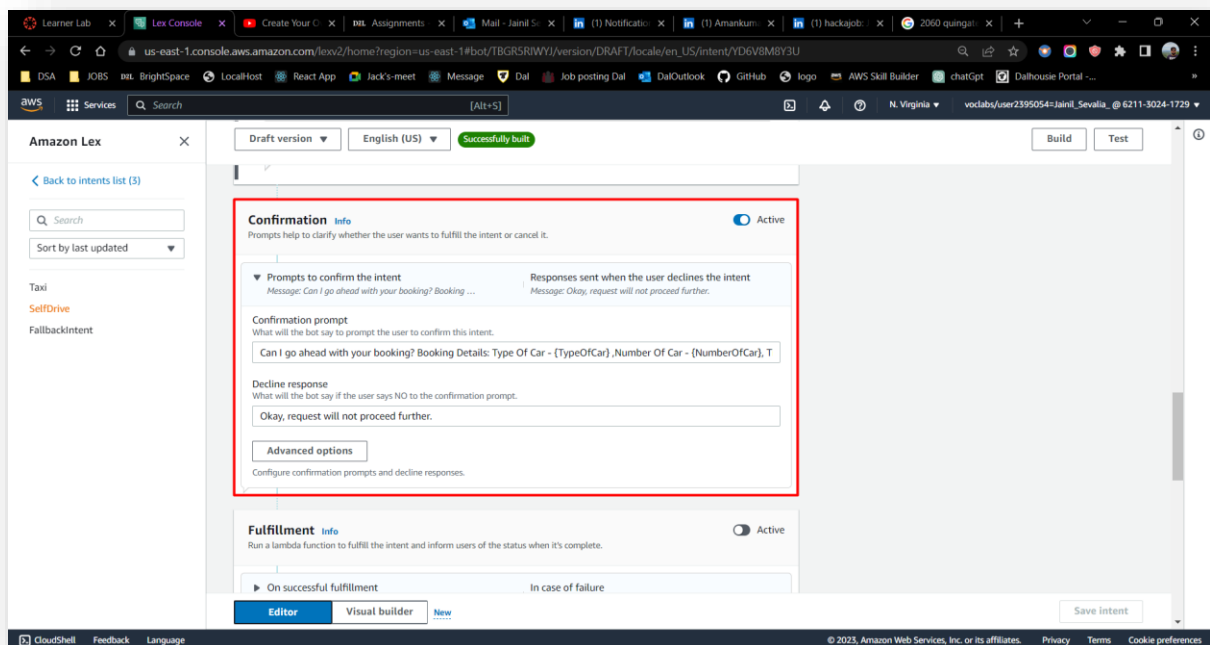


Figure 16 : Confirmation responses for Self-Drive intent.

- Add Fulfilment for Self-Drive intent.

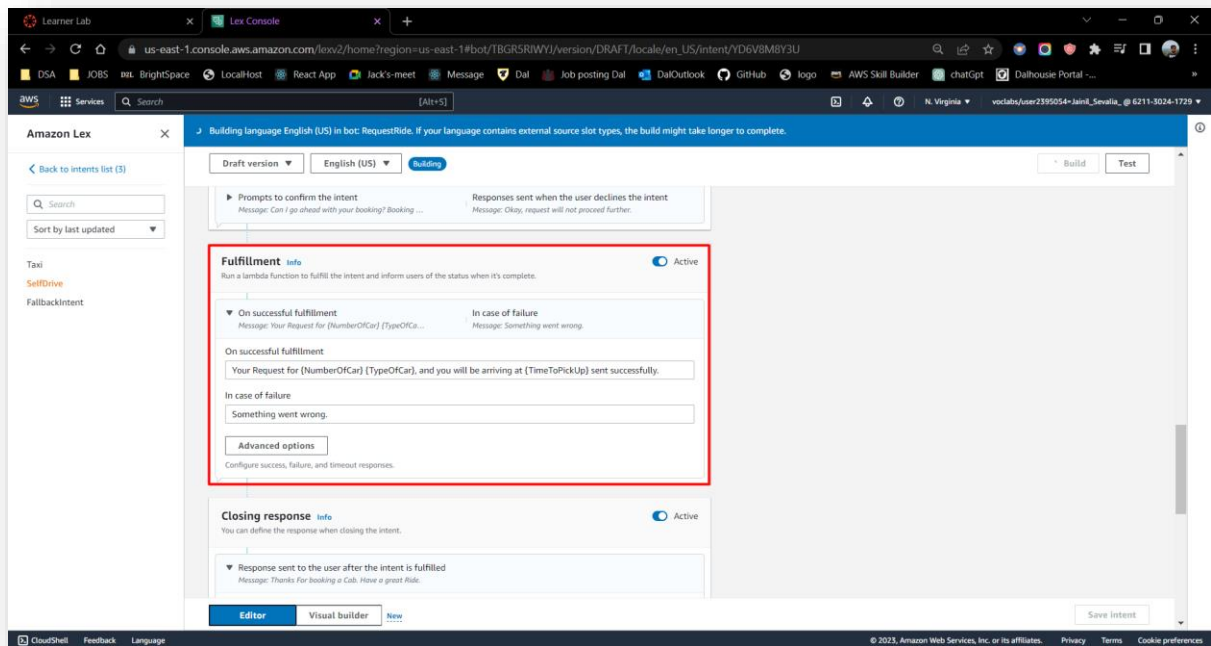


Figure 17 : Fulfilment for Self-Drive intent.

- Closing responses for Self-Drive intent.

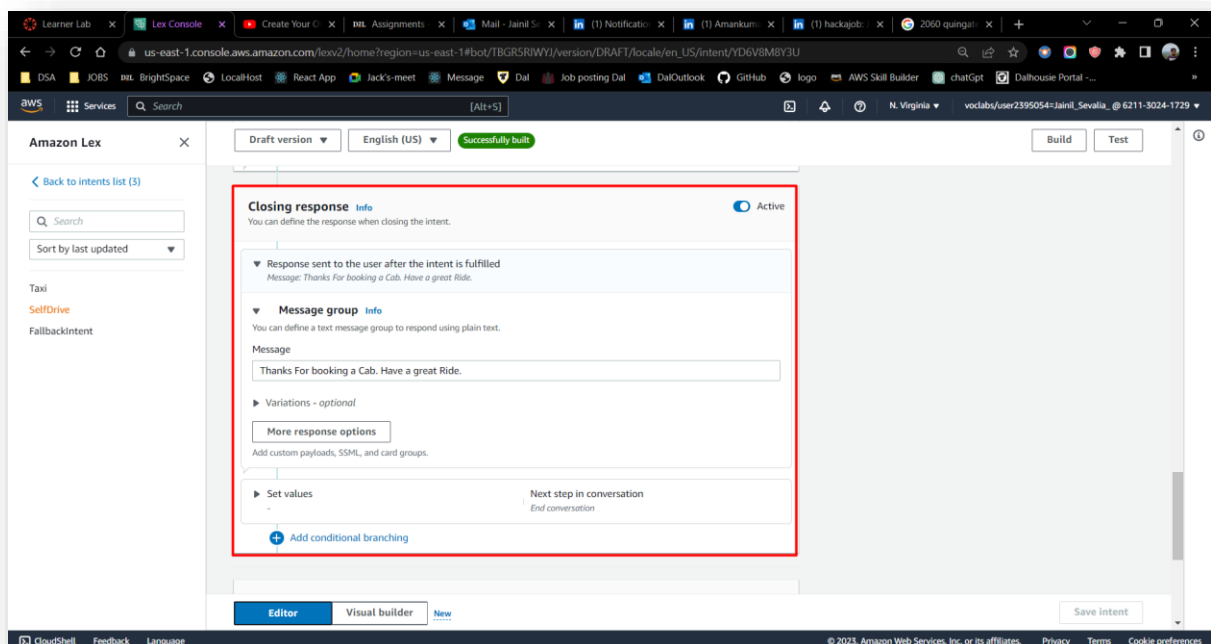


Figure 18 : Closing responses for self-Drive intent.

Step-4: Build chatbot and Test chatbot.

- Testing chatbot for booking of taxi.

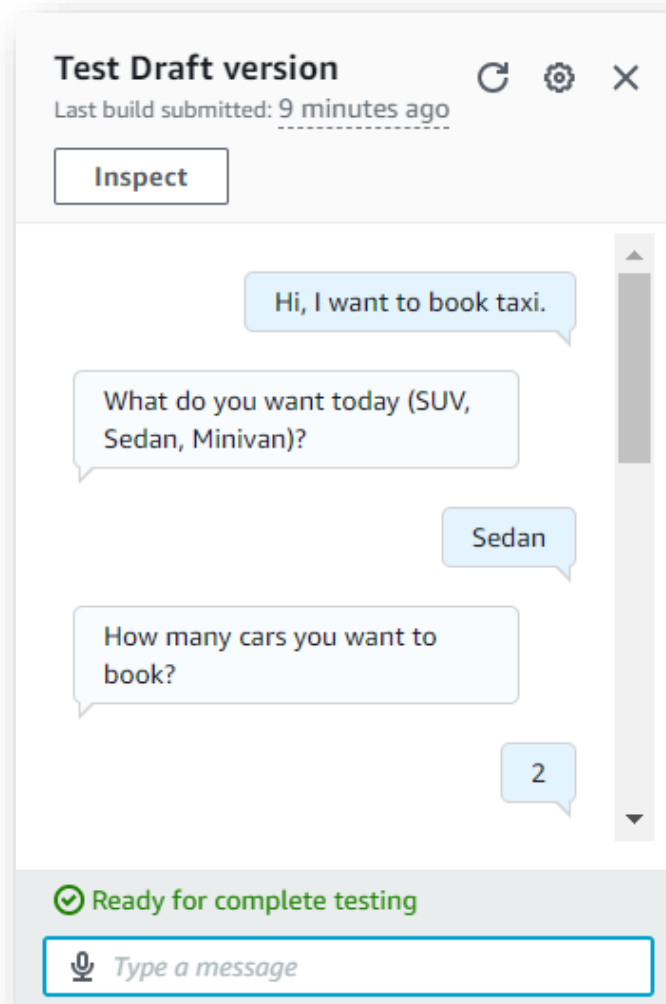


Figure 19 : Testing Chatbot for Taxi booking(1).

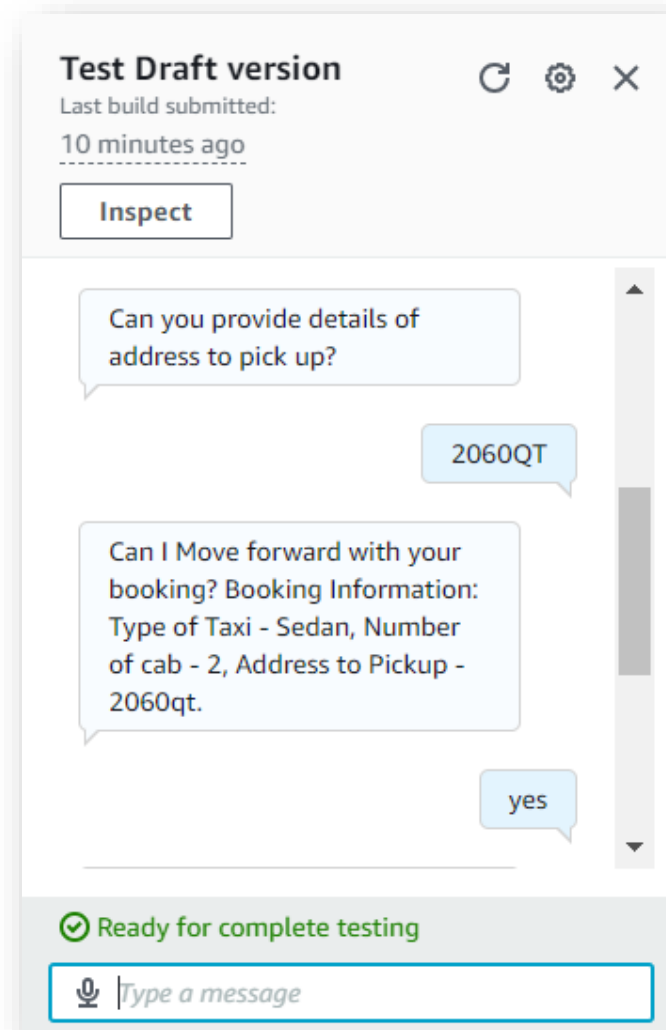


Figure 20 : Testing Chatbot for Taxi booking(2).

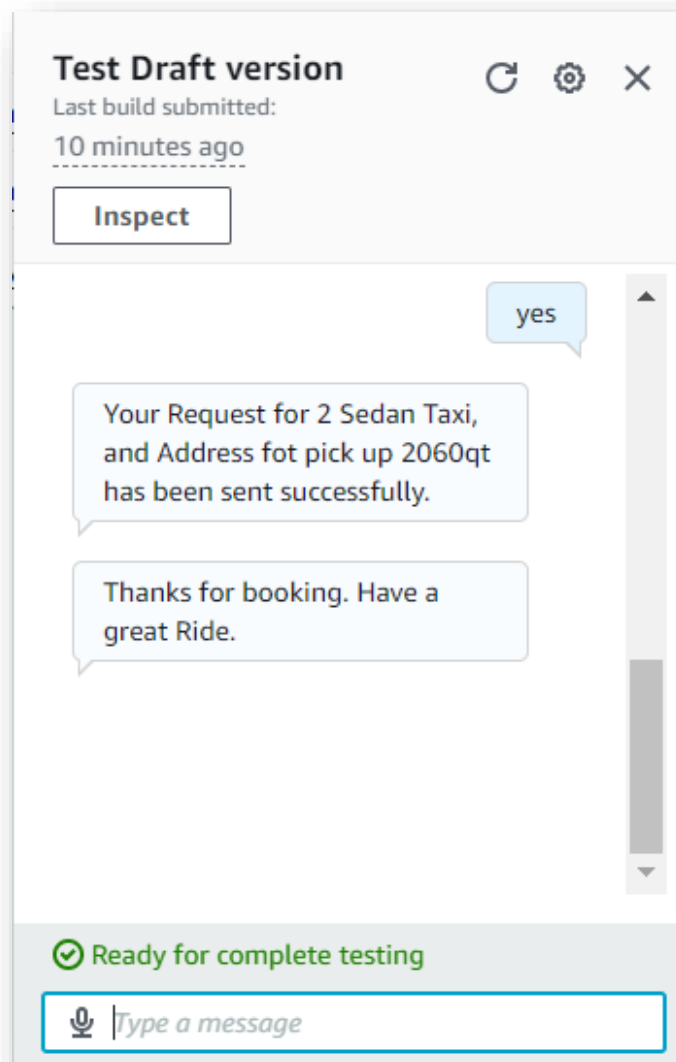


Figure 21 : Testing Chatbot for Taxi booking(3).

- Cancelling Request for Taxi.

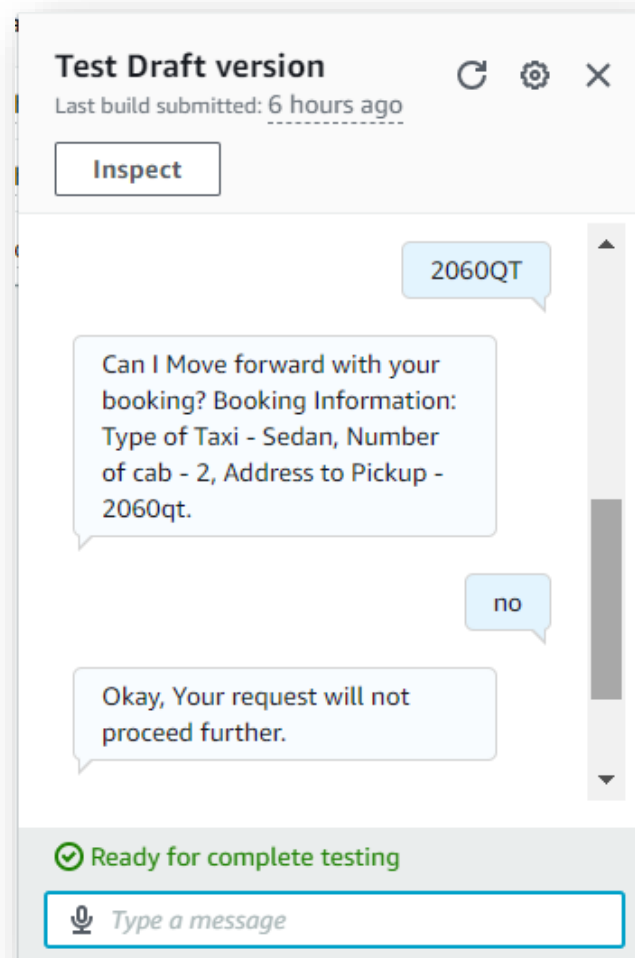


Figure 22 : Cancelling Request for Taxi.

- Testing chatbot for booking of Self-Drive Car.

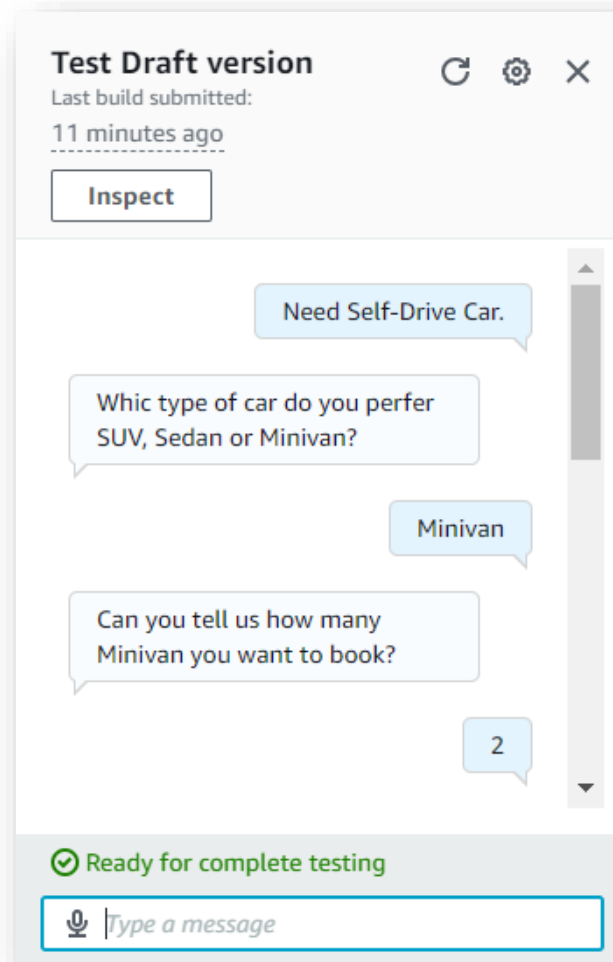


Figure 23 : Testing Chatbot for Seft-Drive Cari booking(1).

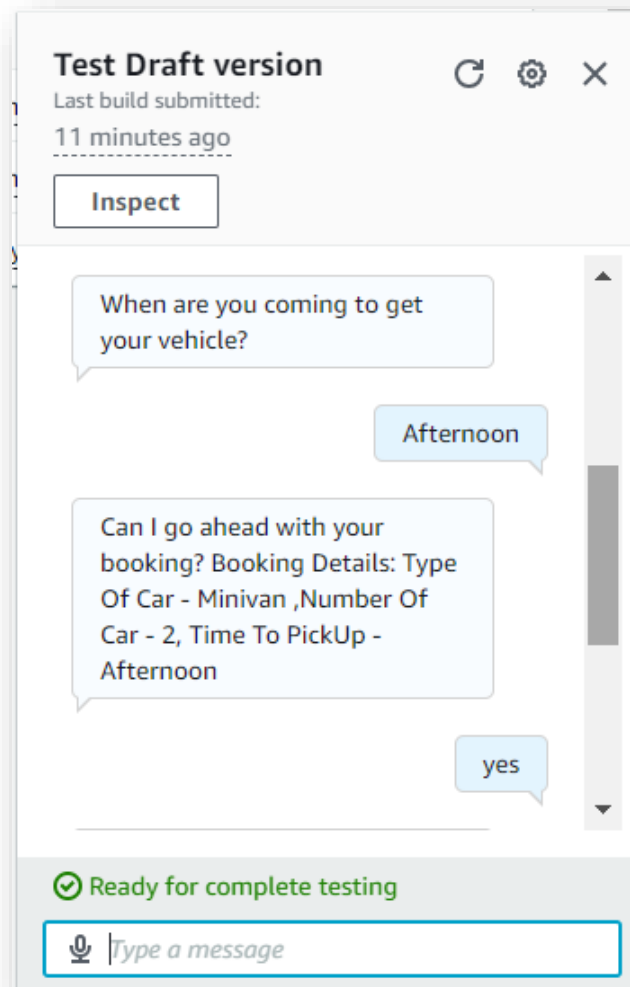


Figure 24 : Testing Chatbot for Self-Drive Car booking(2).

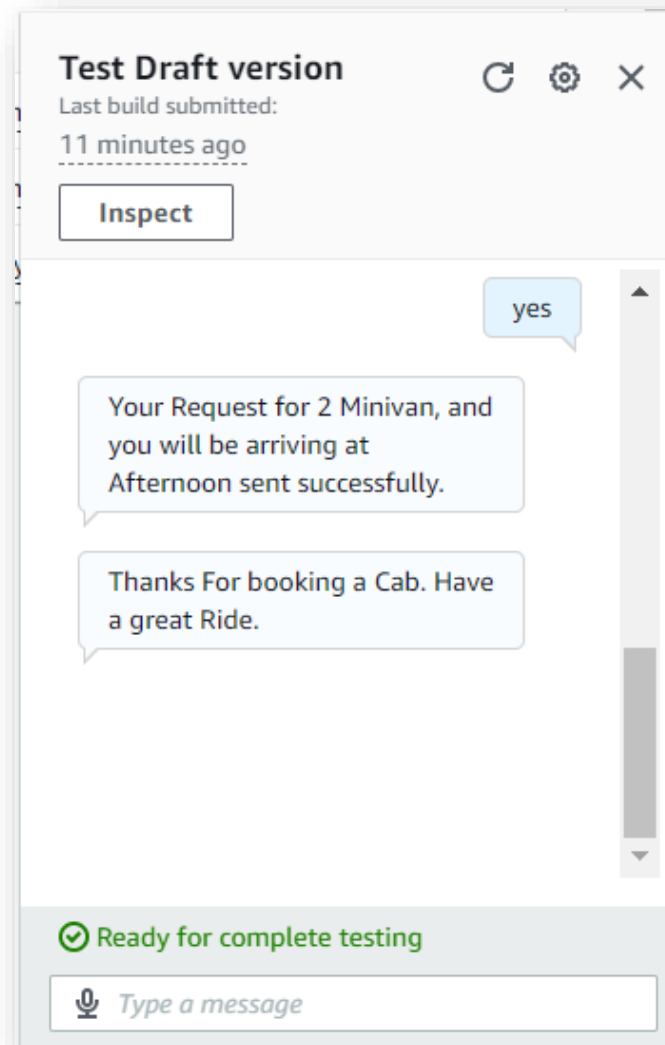


Figure 25 : Testing Chatbot for Self-Drive Car booking(3).

- Cancelling Request for Self-Drive Car.

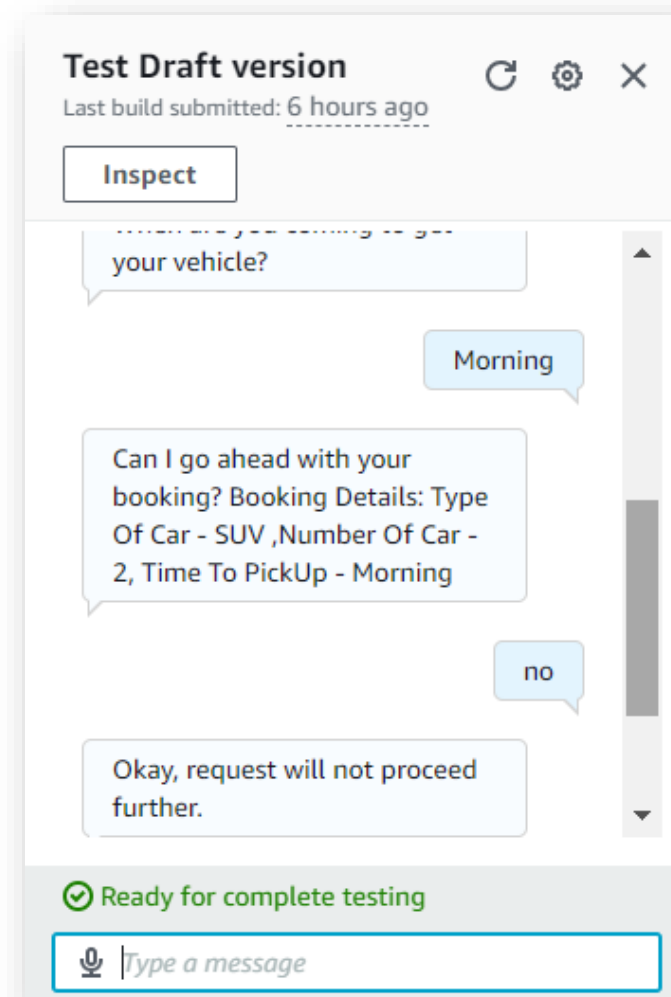


Figure 26 : Cancelling Request for Self-Drive Car.

Summary:

First, I created a new chatbot with the name "RequestRide" and allocated an existing IAM role for the chatbot. This IAM role allows the chatbot to access the necessary resources and perform its functions [1].

Next, I created custom slots for the chatbot. These slots are used to capture specific information from the user. In this case, I created two custom slots: "TypeOfCar" and "PickUpTime" [1]. The "TypeOfCar" slot allows the user to specify the type of car they want to book, with options such as SUV, Sedan, or Minivan. The "PickUpTime" slot captures the desired pickup time, with options like morning, noon, afternoon, or evening.

After setting up the custom slots, I proceeded to create two intents. The first intent is for booking a taxi, where I defined all the necessary steps [1]. These steps include providing intent details, sample utterances (the phrases users can use to trigger the intent), specifying the slots required for this intent, setting up confirmation prompts to verify user input, defining fulfillment actions to process the booking, and providing a closing response to conclude the conversation.

The second intent is for self-driving cars, and I followed the same steps as before to define its details, sample utterances, slots, confirmation, fulfillment, and closing response.

Once the chatbot was set up, I tested it successfully to ensure it was functioning as expected. The chatbot is now ready to assist users in booking taxis or self-driving cars, based on their preferences and requirements.

Reference :

- [1] "Exercise 1: Create a bot from an example - amazon lex". [Online]. Available: <https://docs.aws.amazon.com/lexv2/latest/dg/exercise-1.html> [Accessed Jul. 2, 2023].