CSCI 5410

Assignment 2 – Part B

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GitLab URL: https://git.cs.dal.ca/benny/csci5410_B00899629_Benny_Tharigopala

AWS Lex Chatbot

AWS Lex - Chatbot Creation & Configuration

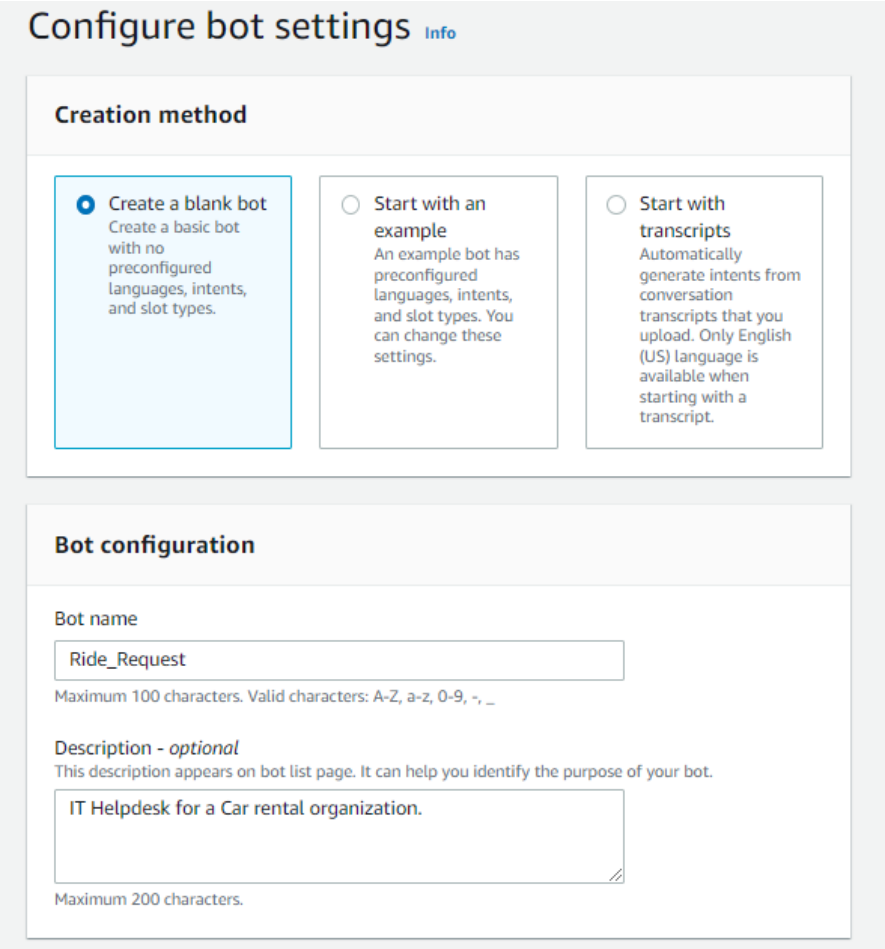


Figure 1: Configuring the Bot

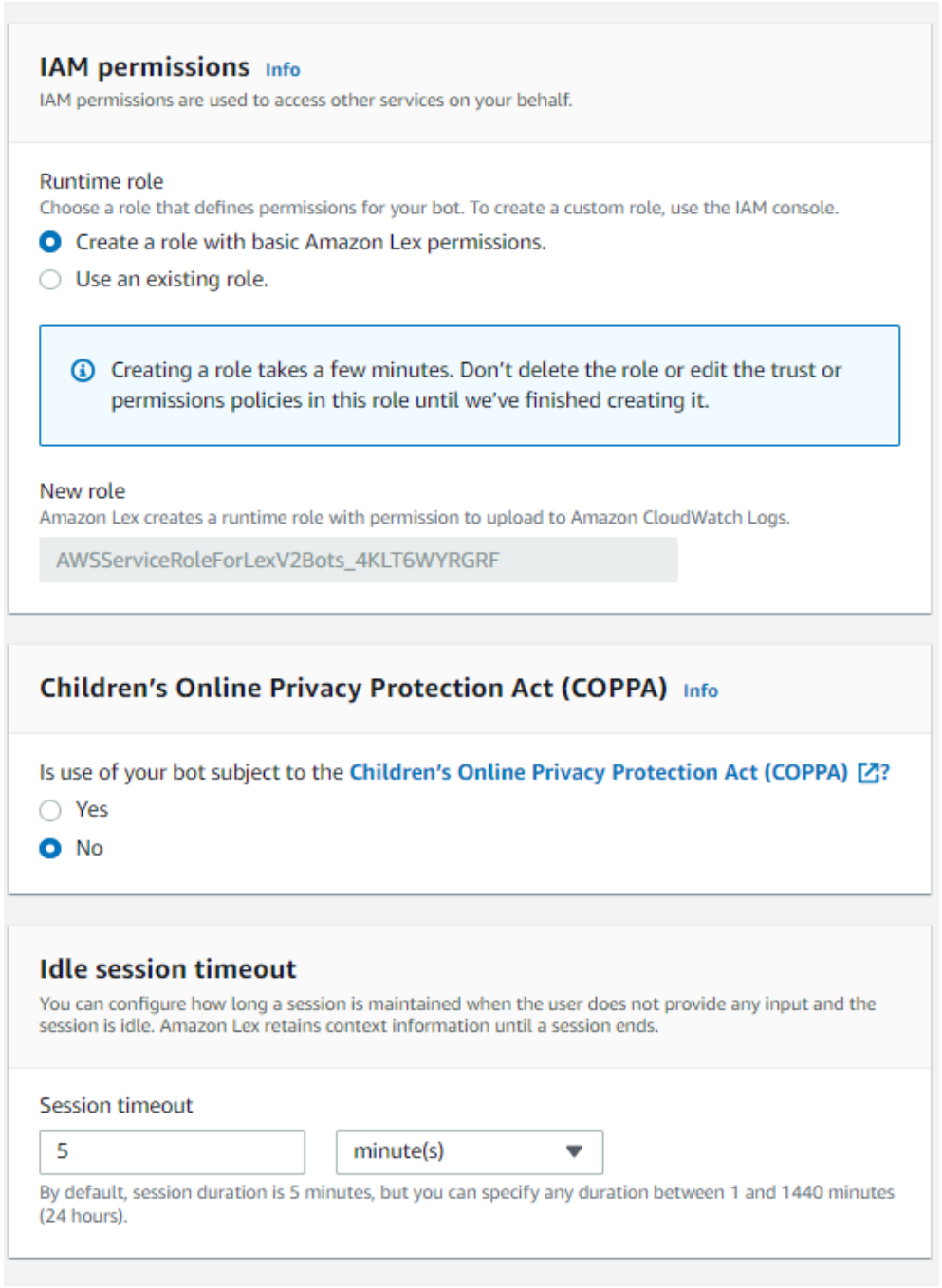


Figure 2: Configuring Permissions and Privacy Settings

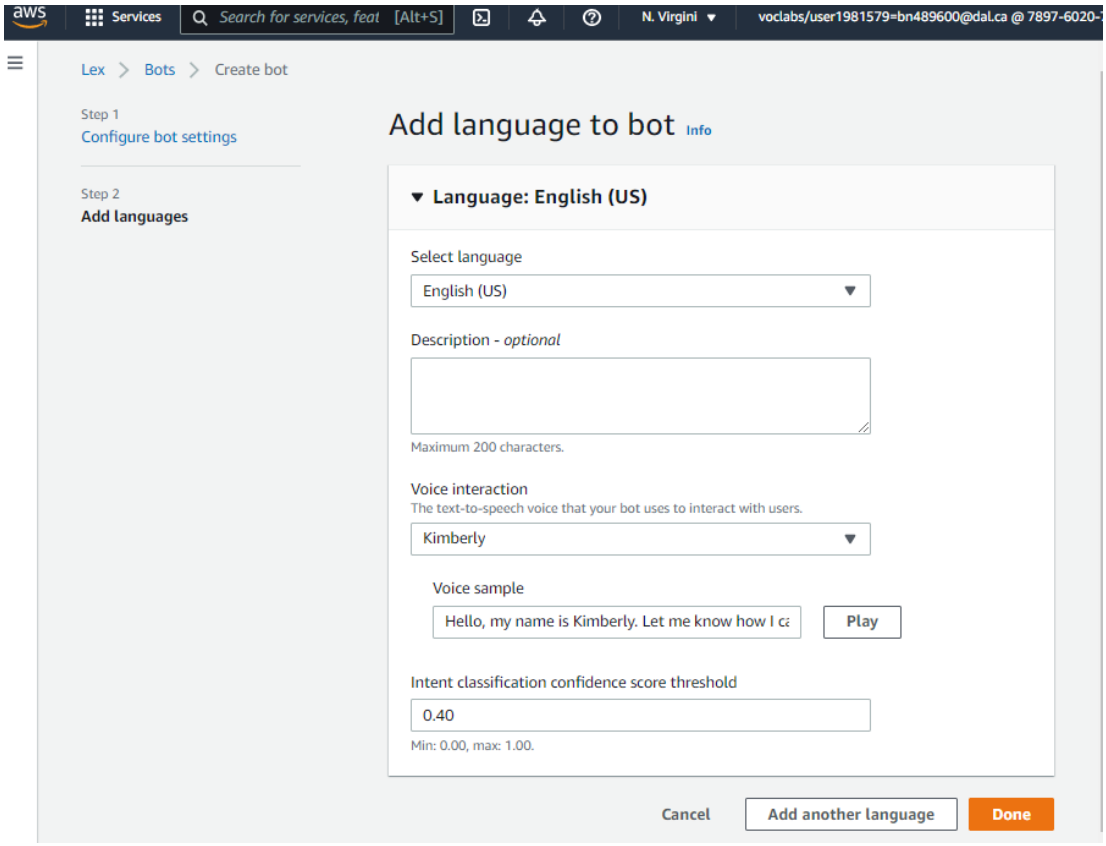


Figure 3: Configuring Language, Voice and confidence score

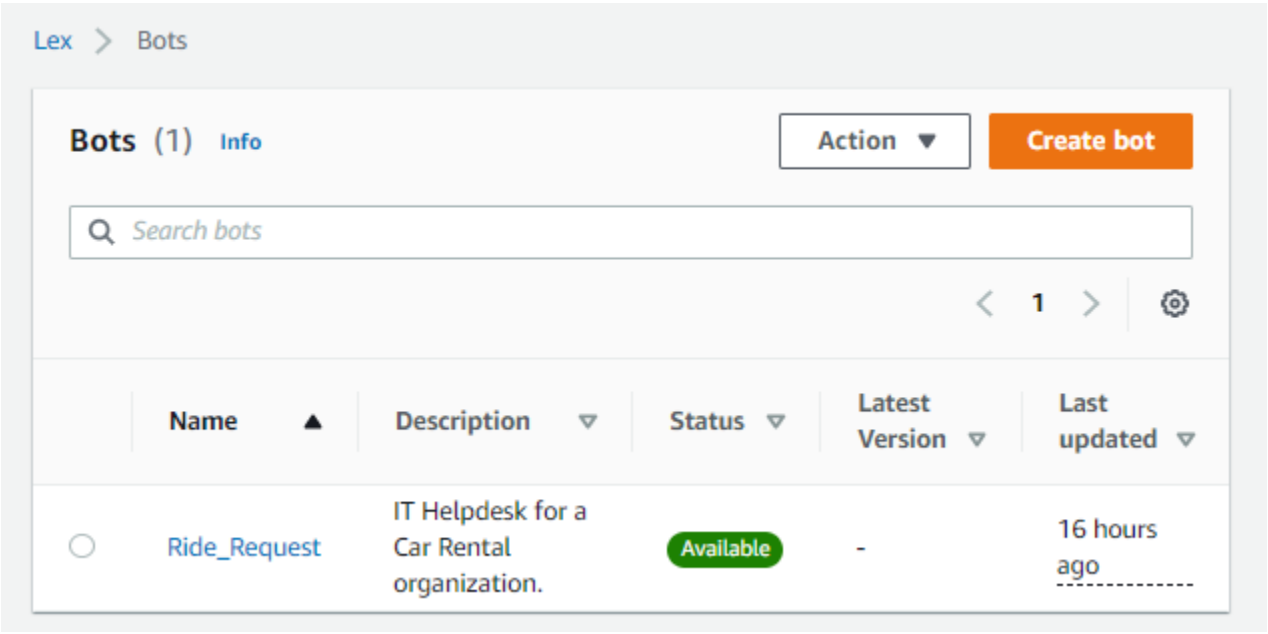


Figure 4: AWS Lex Bot Console

Slot type: RideCategory

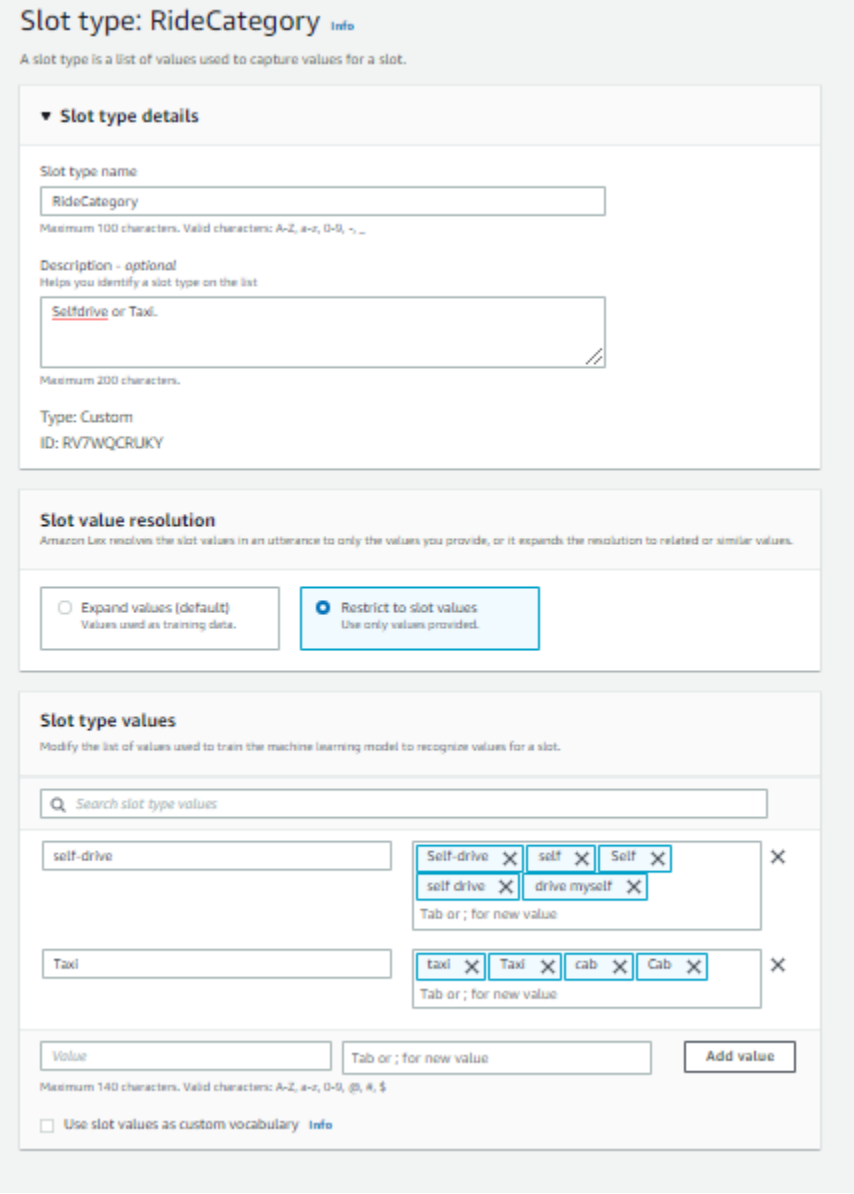


Figure 5: Creating a new slot for Ride Category (Self-drive / Taxi)

Slot type: TypeOfVehicles

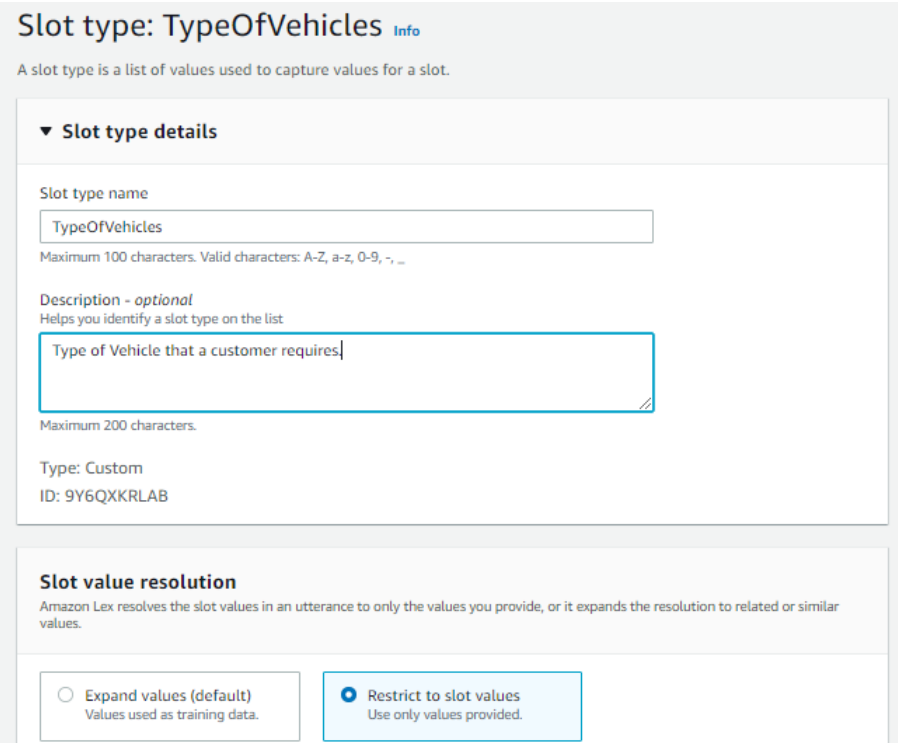


Figure 6: Creating a new slot for Vehicle Type (SUV / Sedan / Minivan)

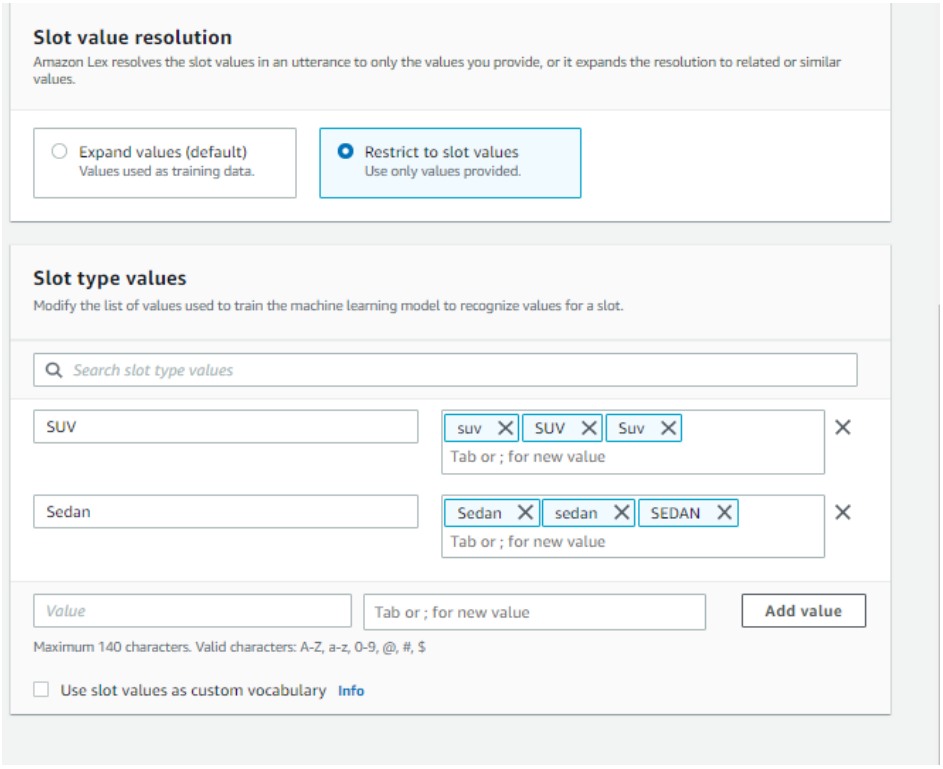


Figure 7: Slot Type Values for Vehicle Type

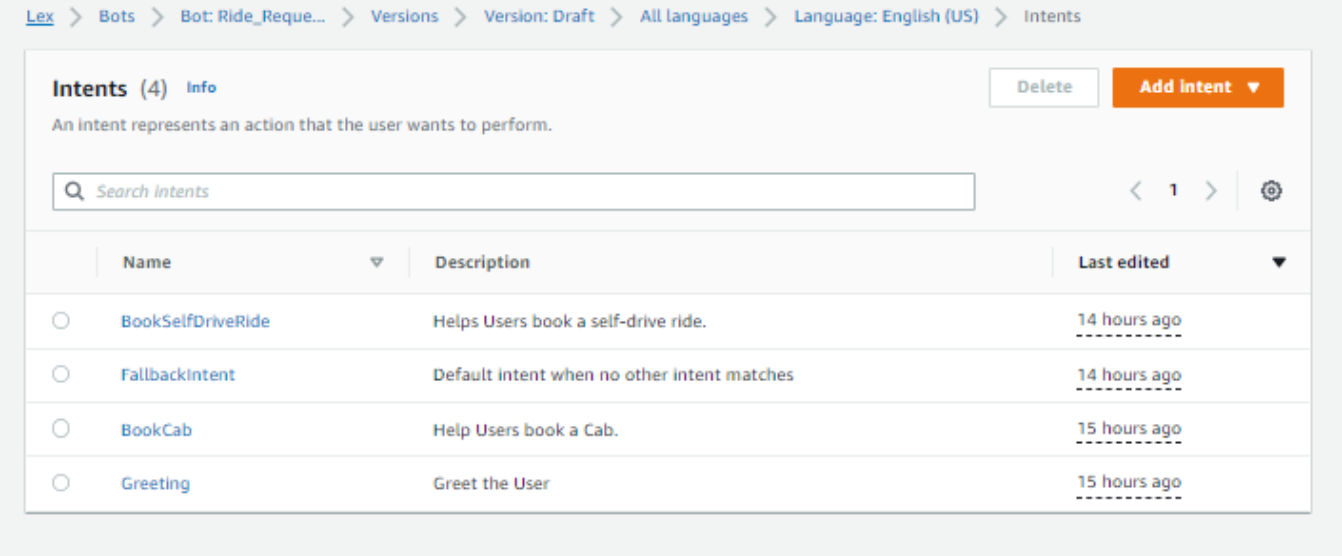


Figure 8: List of Intents for the Bot

Intent: Greeting

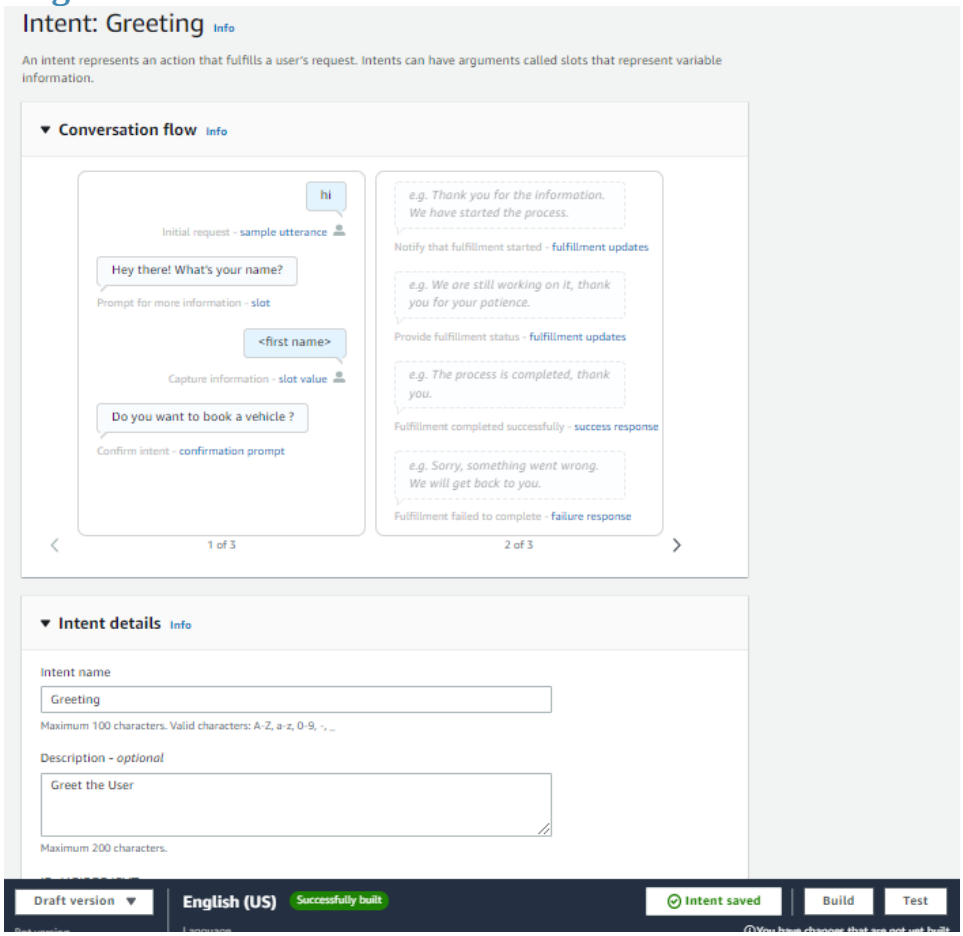


Figure 9: Conversation Flow for the Greeting Intent

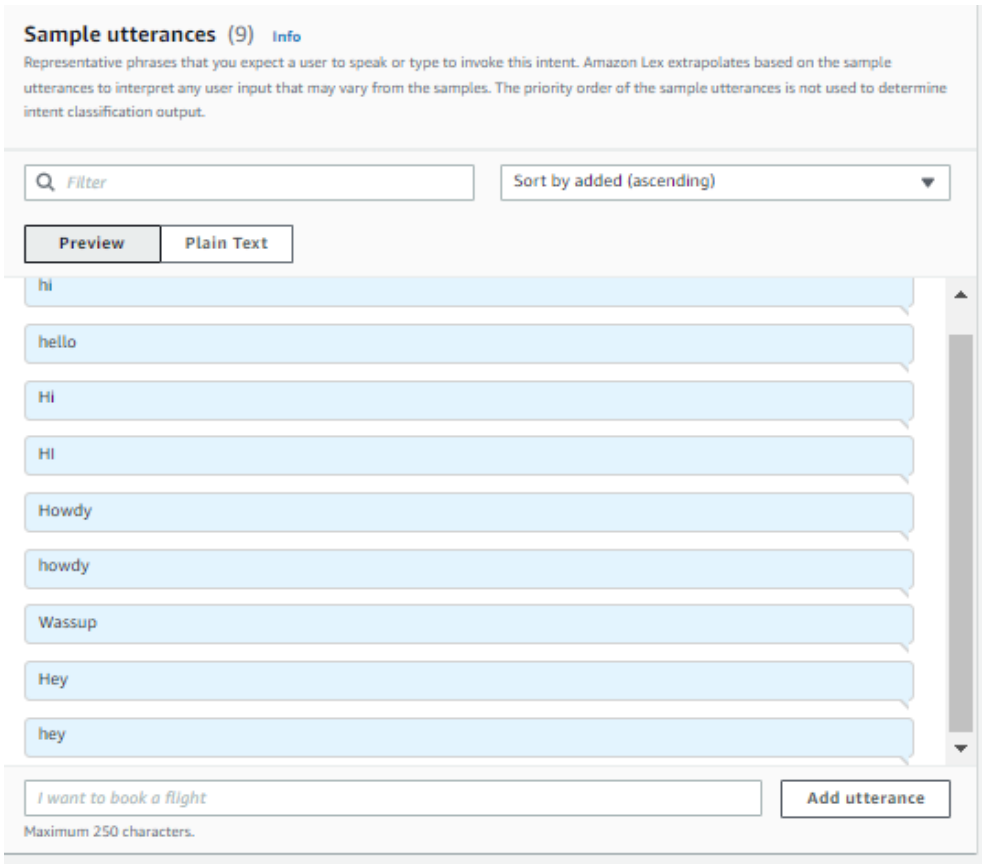


Figure 10: Utterances for the Greeting Intent

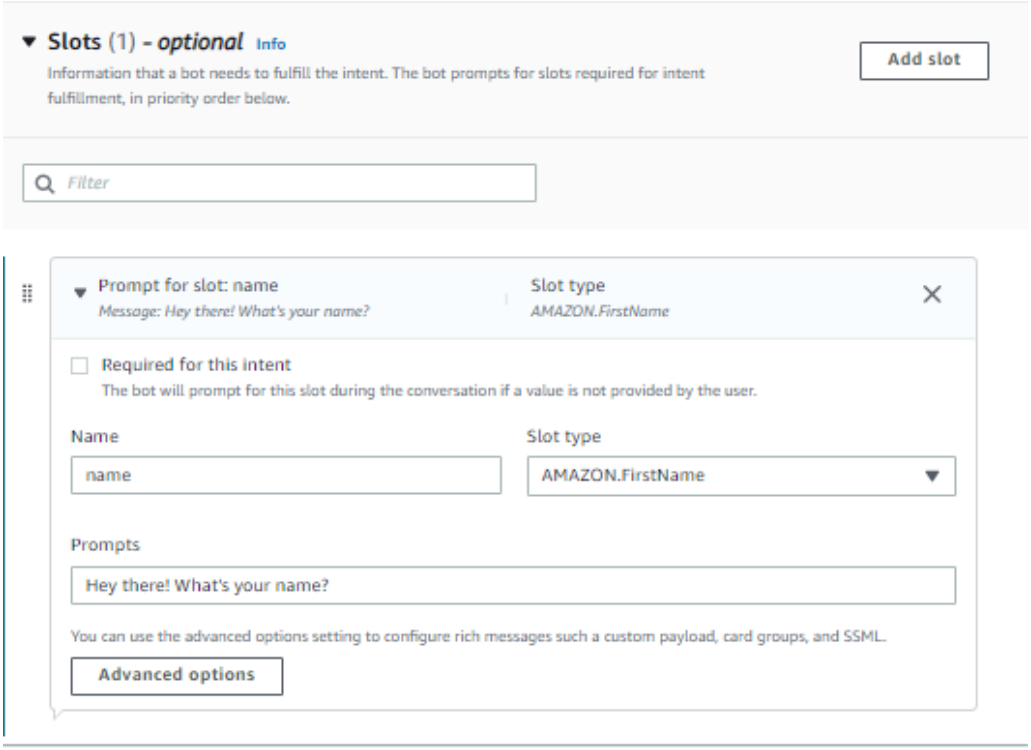


Figure 11: Slot setup and organization for the Greeting Intent

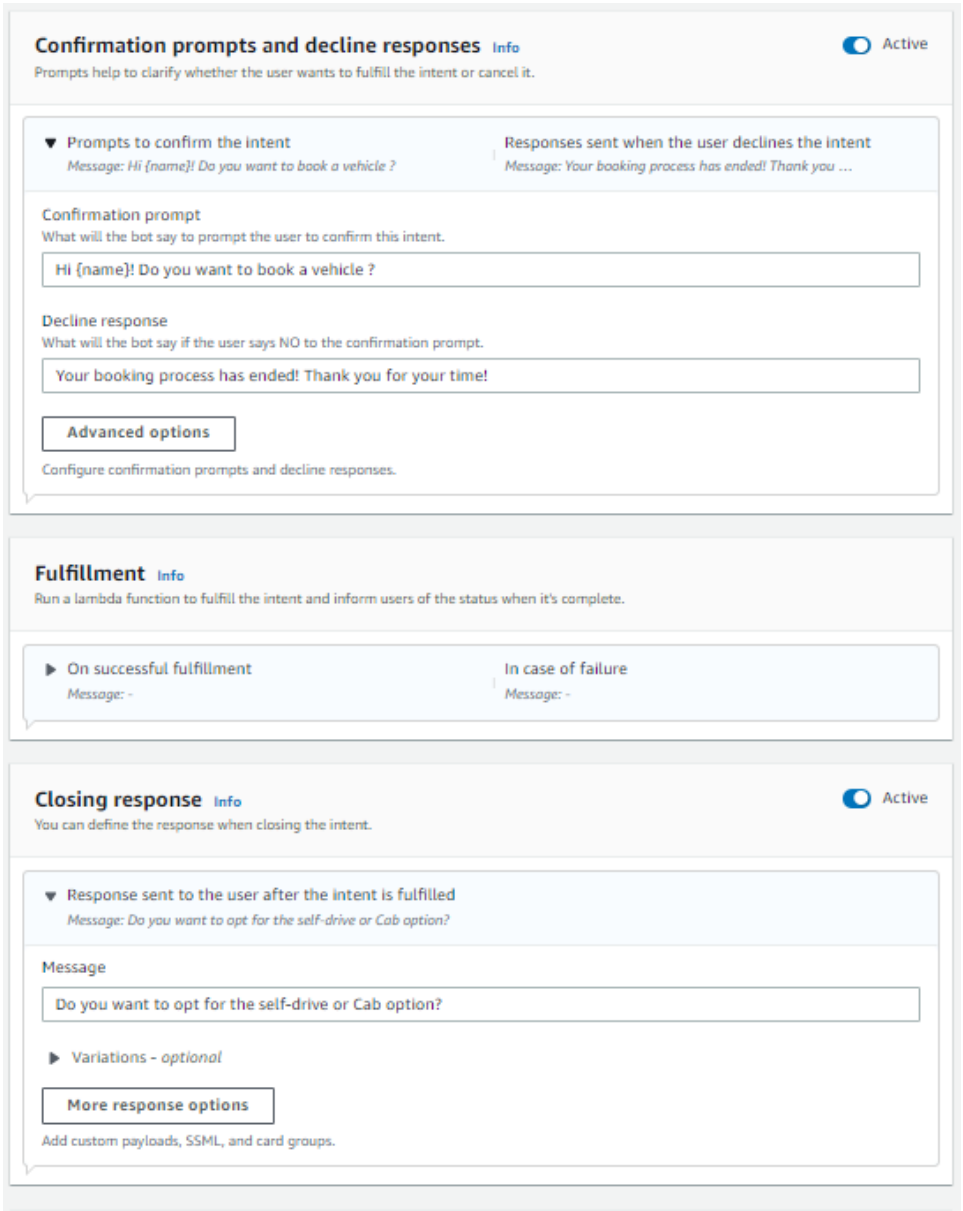


Figure 12: Confirmation Prompt & Closing Response for the Greeting Intent

Intent: BookSelfDriveRide

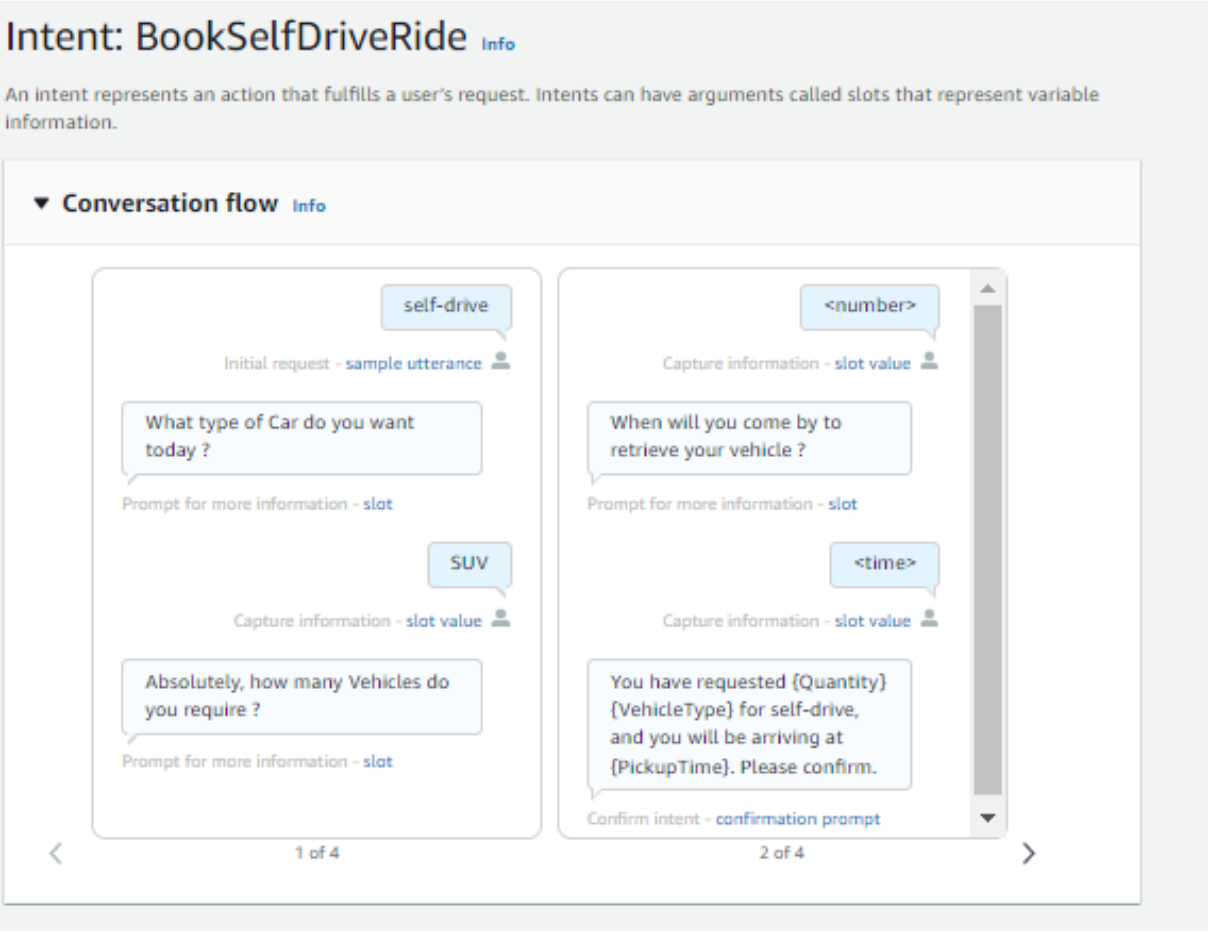


Figure 13: Conversation Flow for the Intent - "Book a vehicle for Self-Drive"

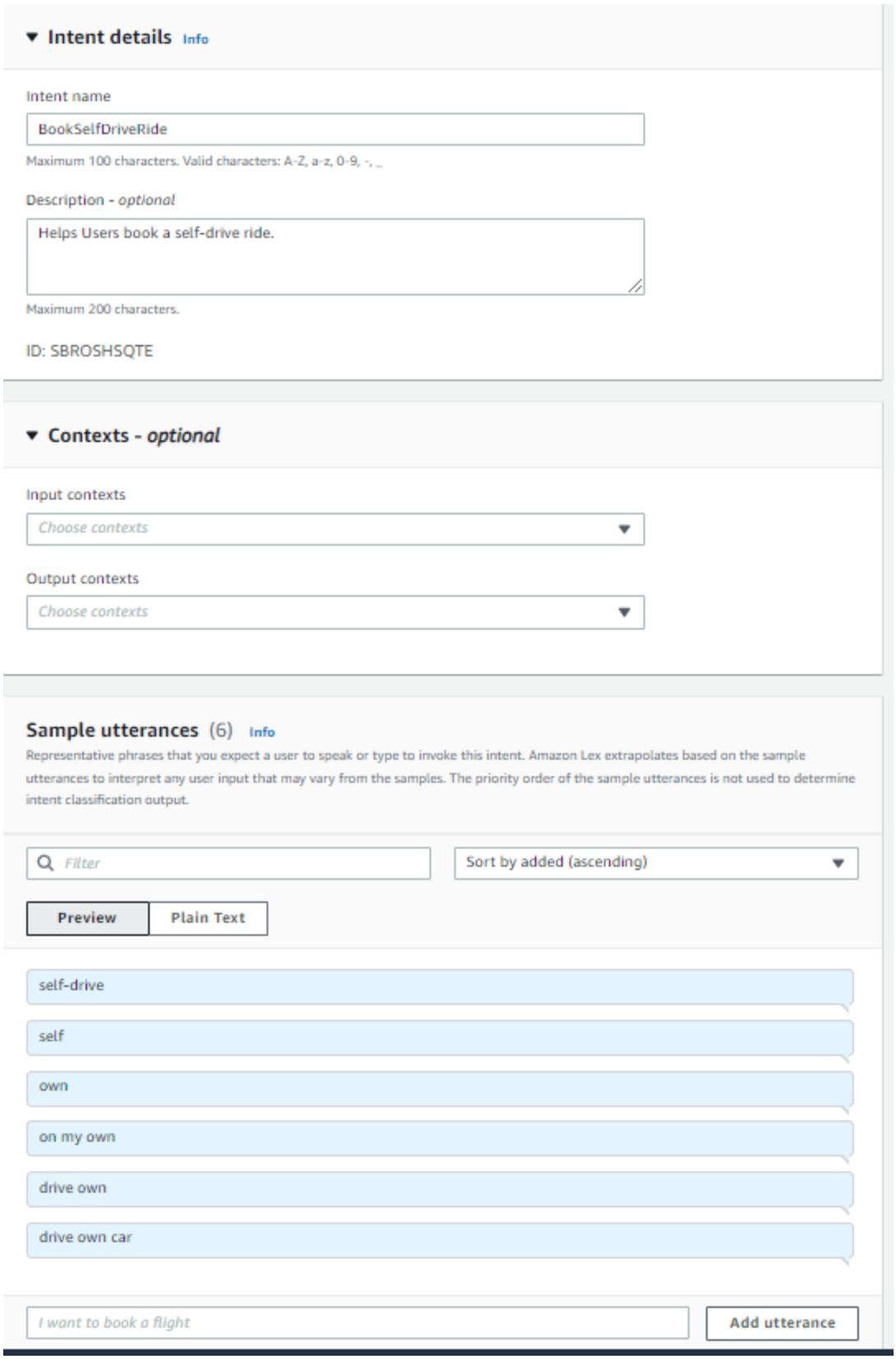


Figure 14: Utterances for the Intent - "Book a vehicle for Self-Drive"

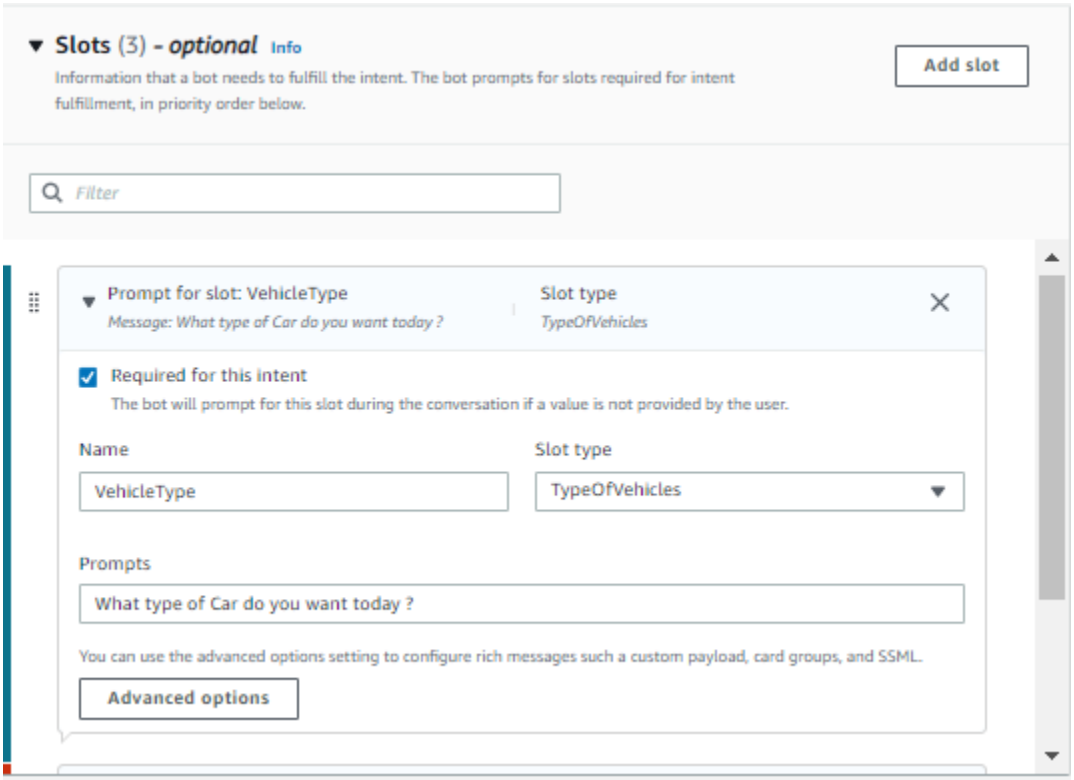


Figure 15: Vehicle Type Slot for the Intent - "Book a vehicle for Self-Drive"

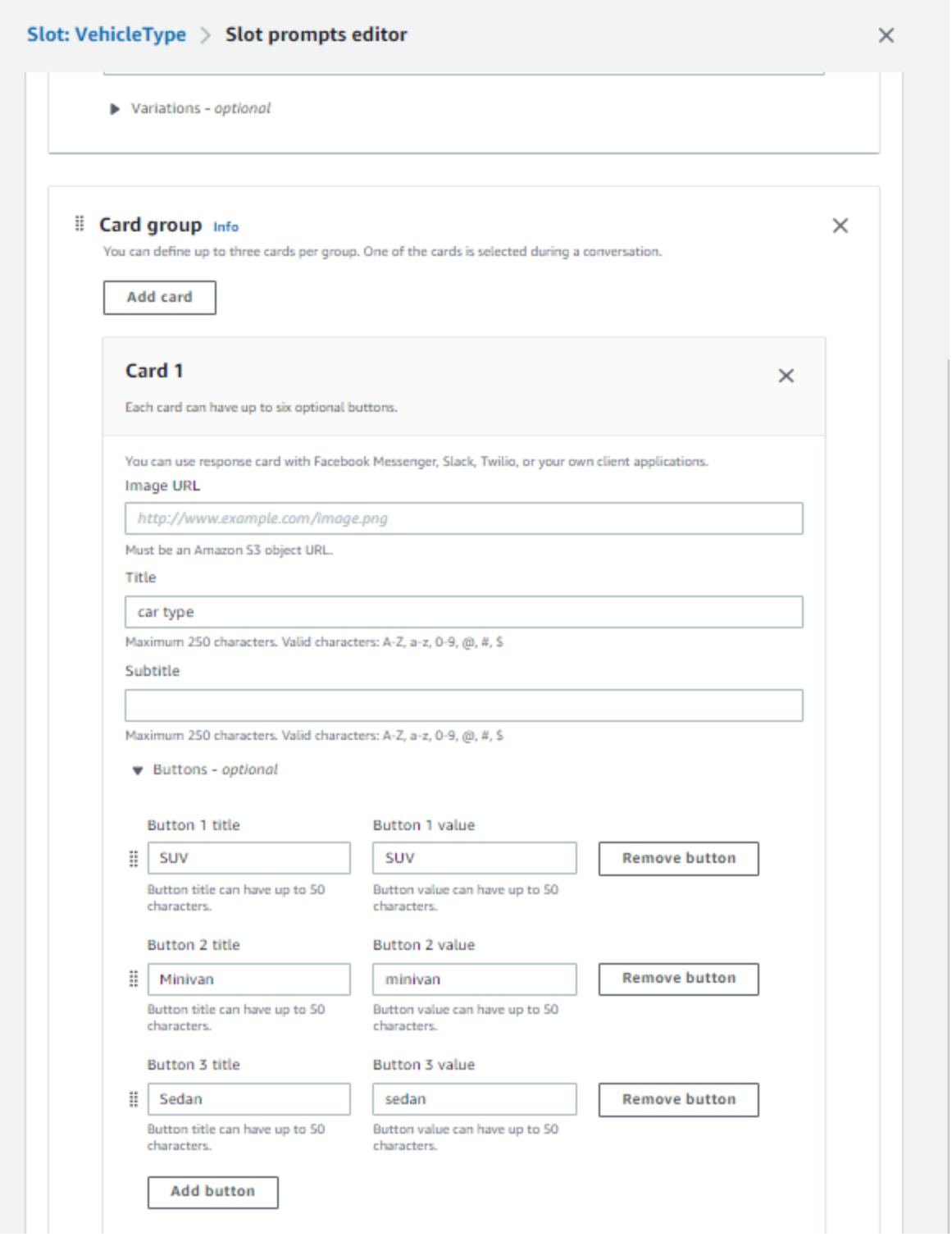


Figure 16: Adding a Card Group to restrict values to 3 types of Vehicles in the Vehicle Type slot

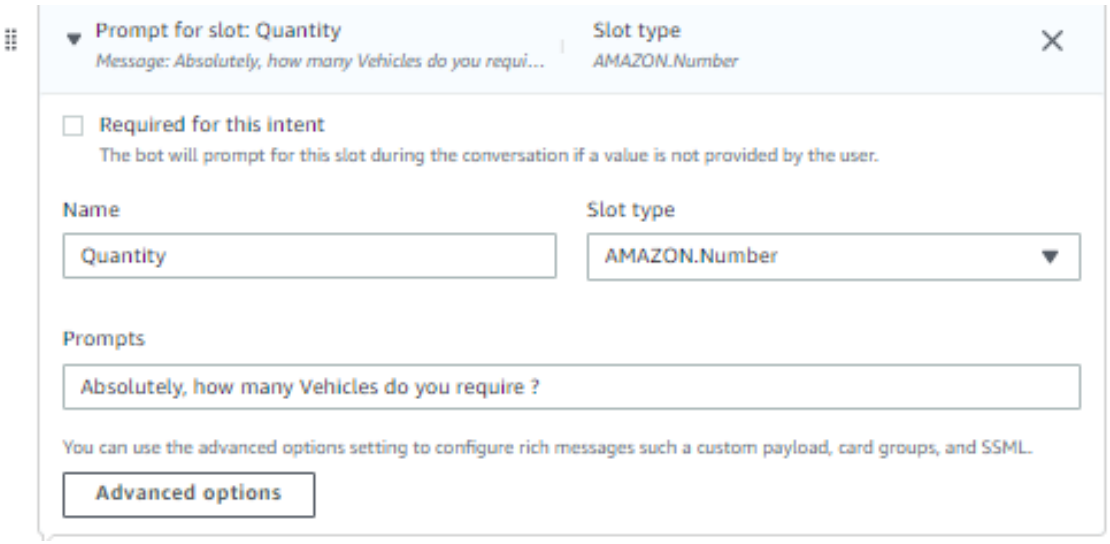


Figure 17: Quantity Slot for the Intent - "Book a vehicle for Self-Drive"

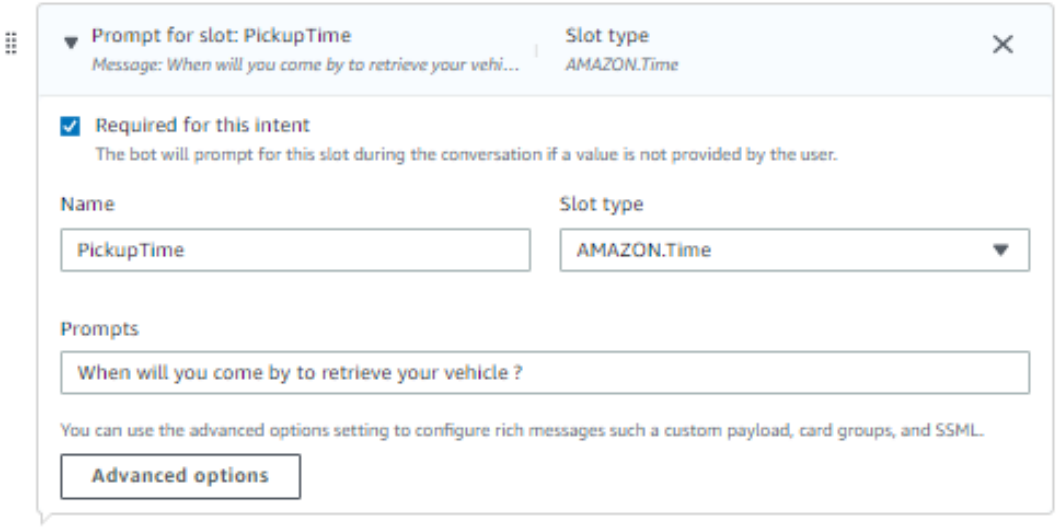


Figure 18: Pickup Time Slot for the Intent - "Book a vehicle for Self-Drive"

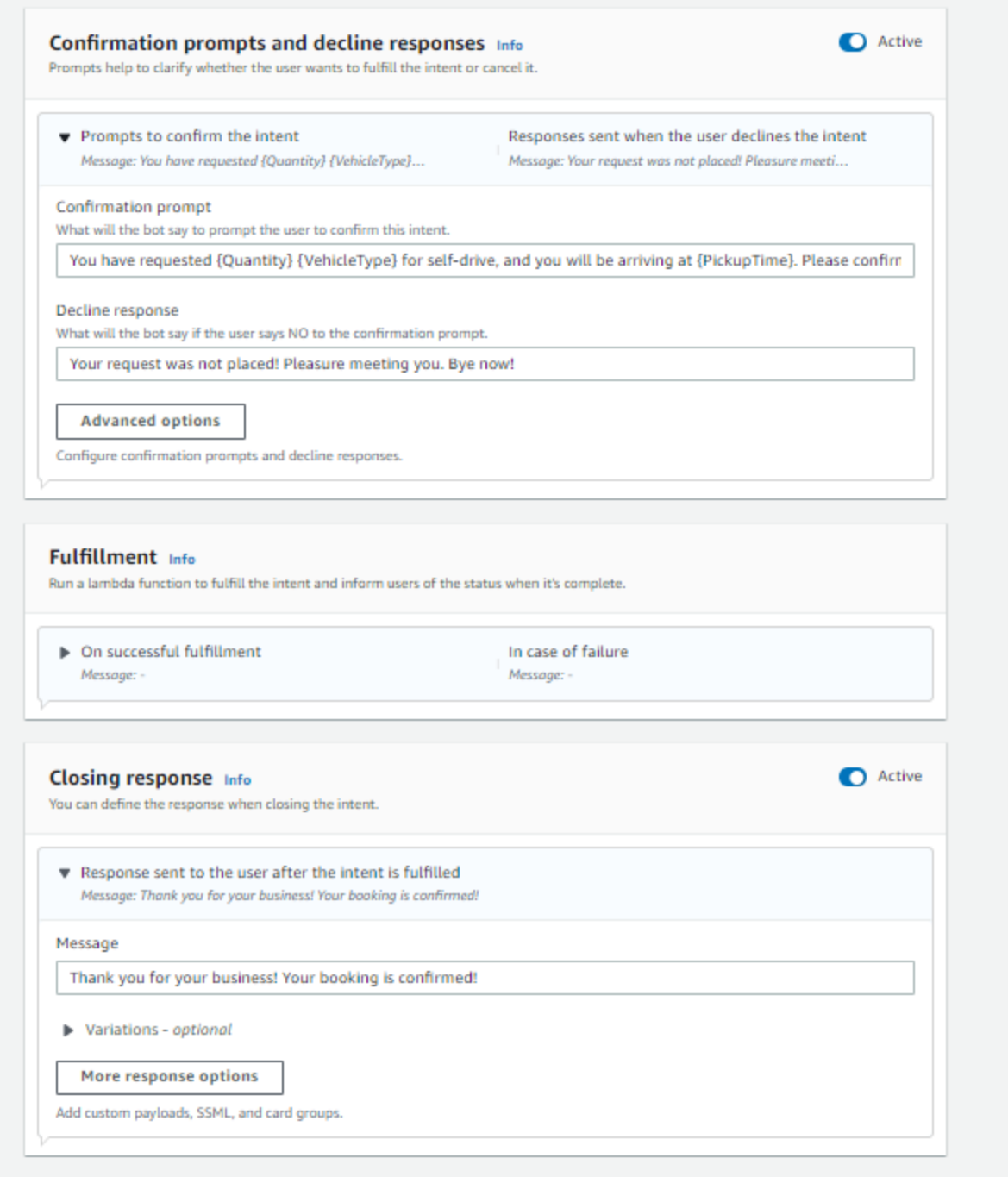


Figure 19: Confirmation Prompt & Closing Response for the Intent - "Book a vehicle for Self-Drive"

Intent: BookCab

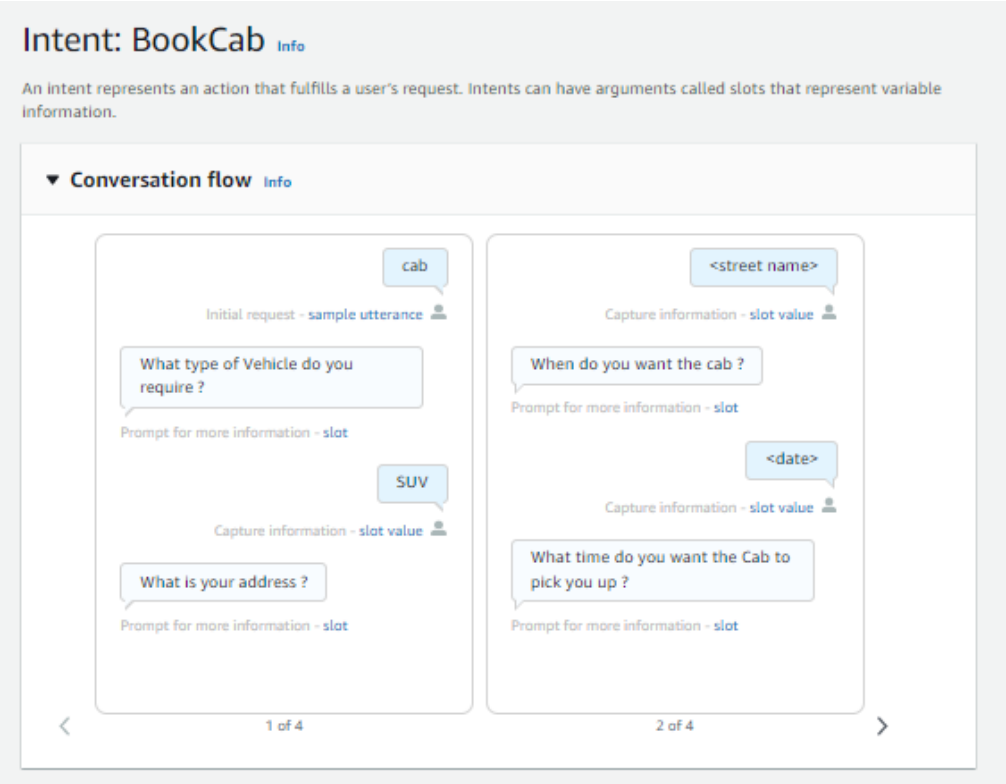


Figure 20: Conversation Flow for the Intent - "Book a Cab"

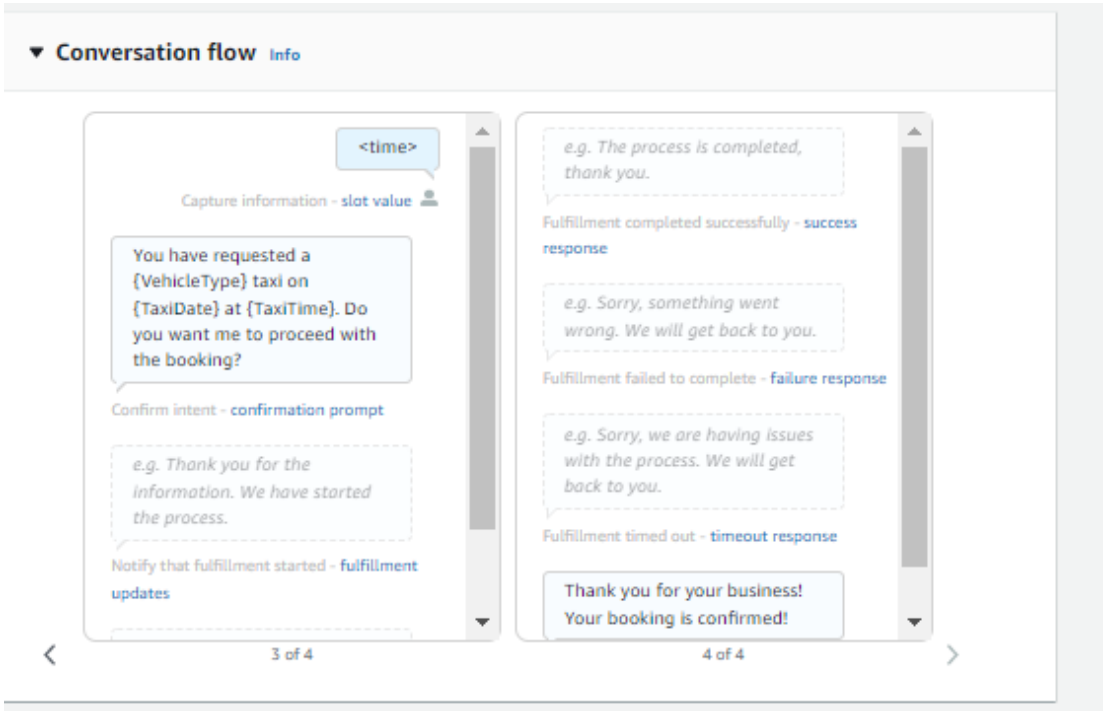


Figure 21: Conversation Flow for the Intent - "Book a Cab" (Continued)

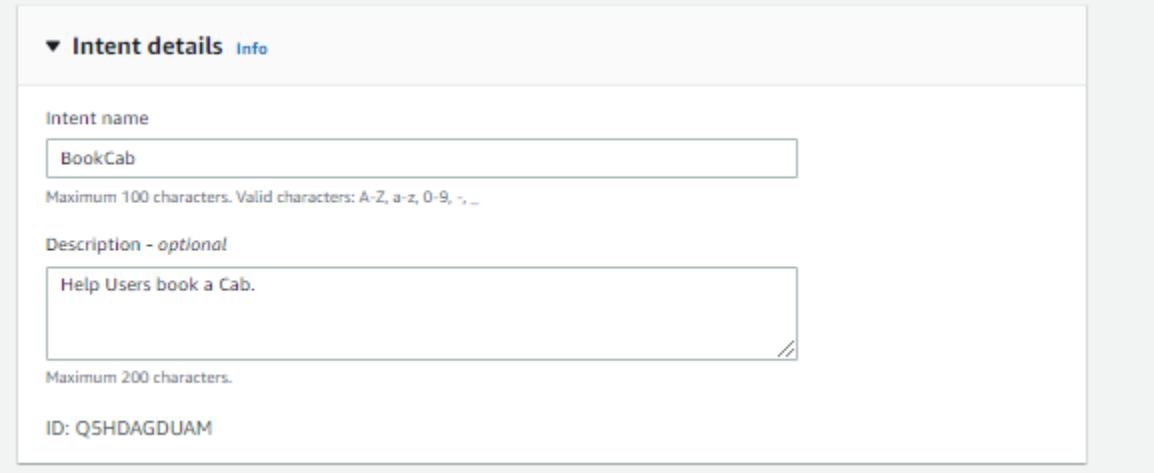


Figure 22: Intent Details

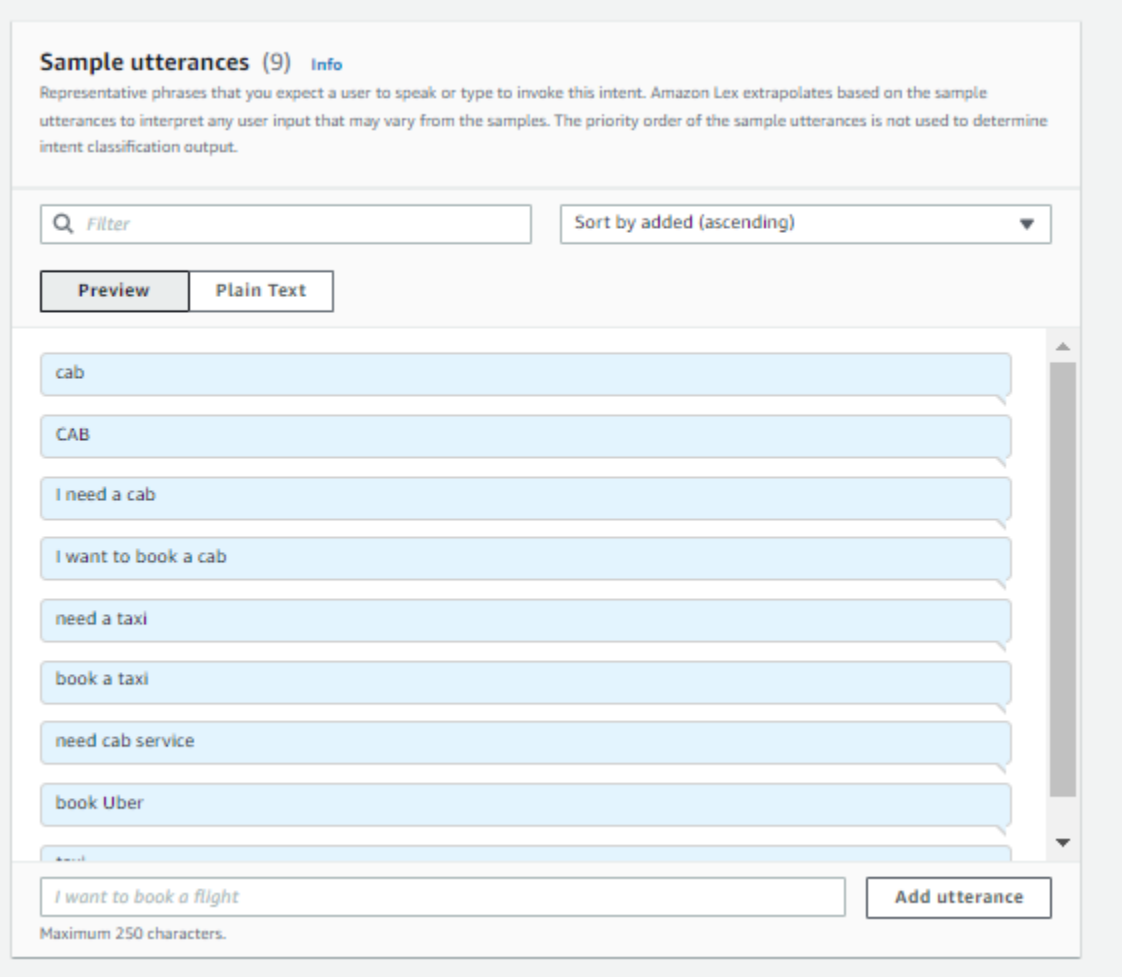


Figure 23: Utterances for the Intent - "Book a Cab"

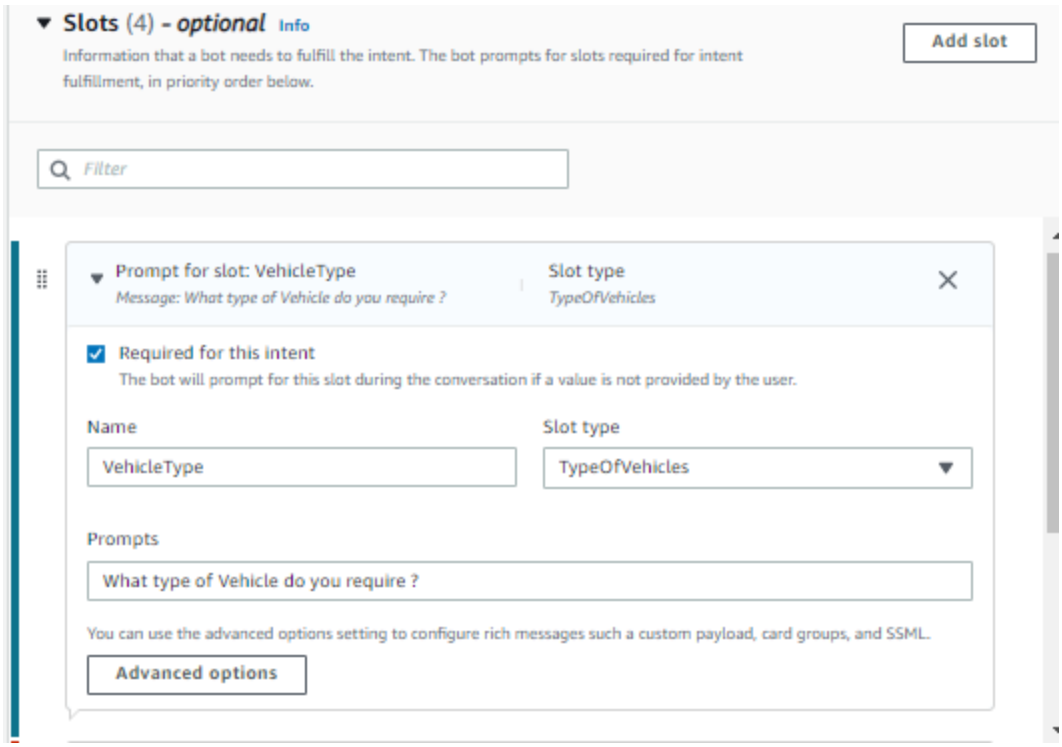


Figure 24: Vehicle Type slot for the Intent - "Book a Cab"

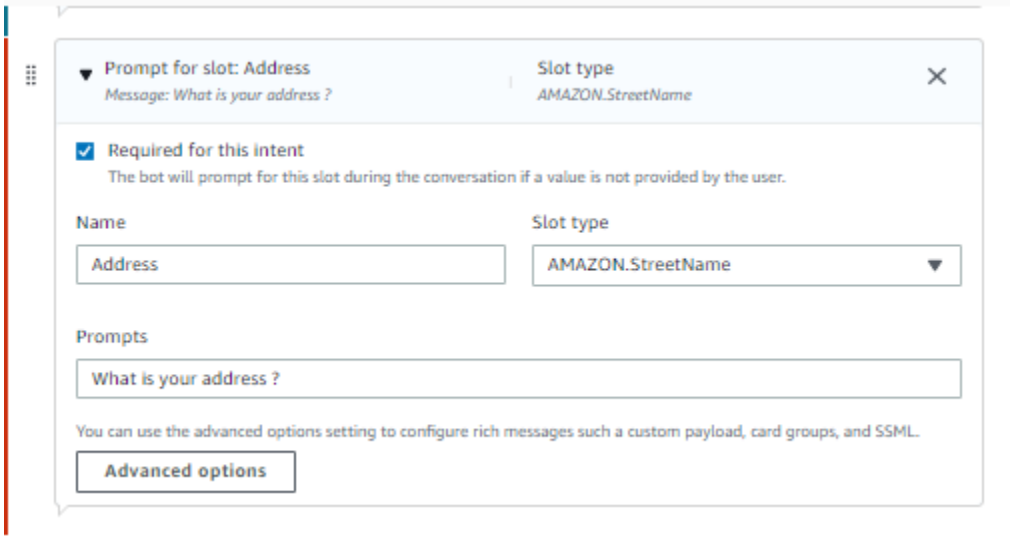


Figure 25: Address slot for the Intent - "Book a Cab"

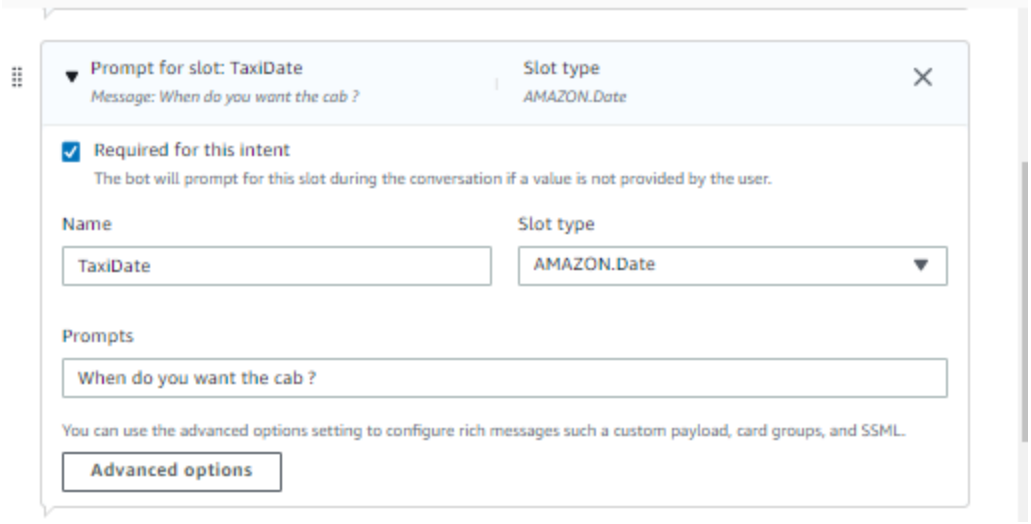


Figure 26: Pickup Date slot for the Intent - "Book a Cab"

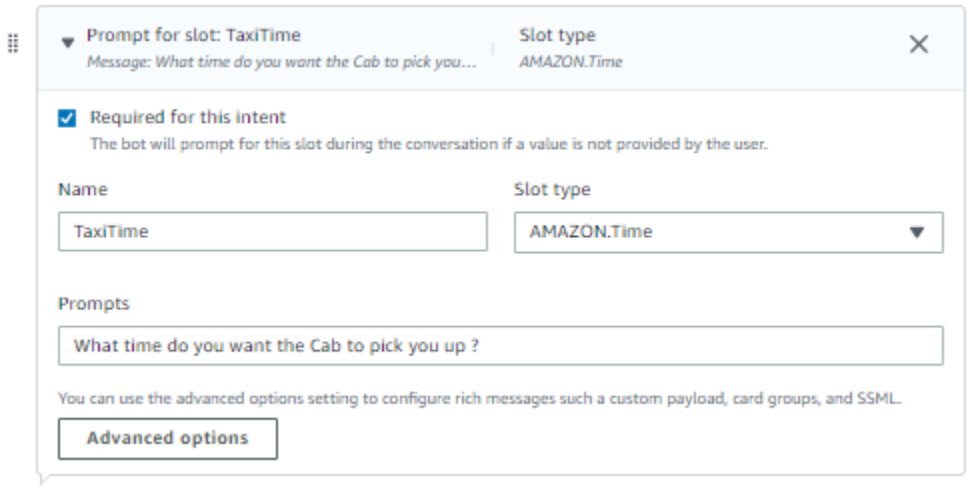


Figure 27: Pickup Time slot for the Intent - "Book a Cab"

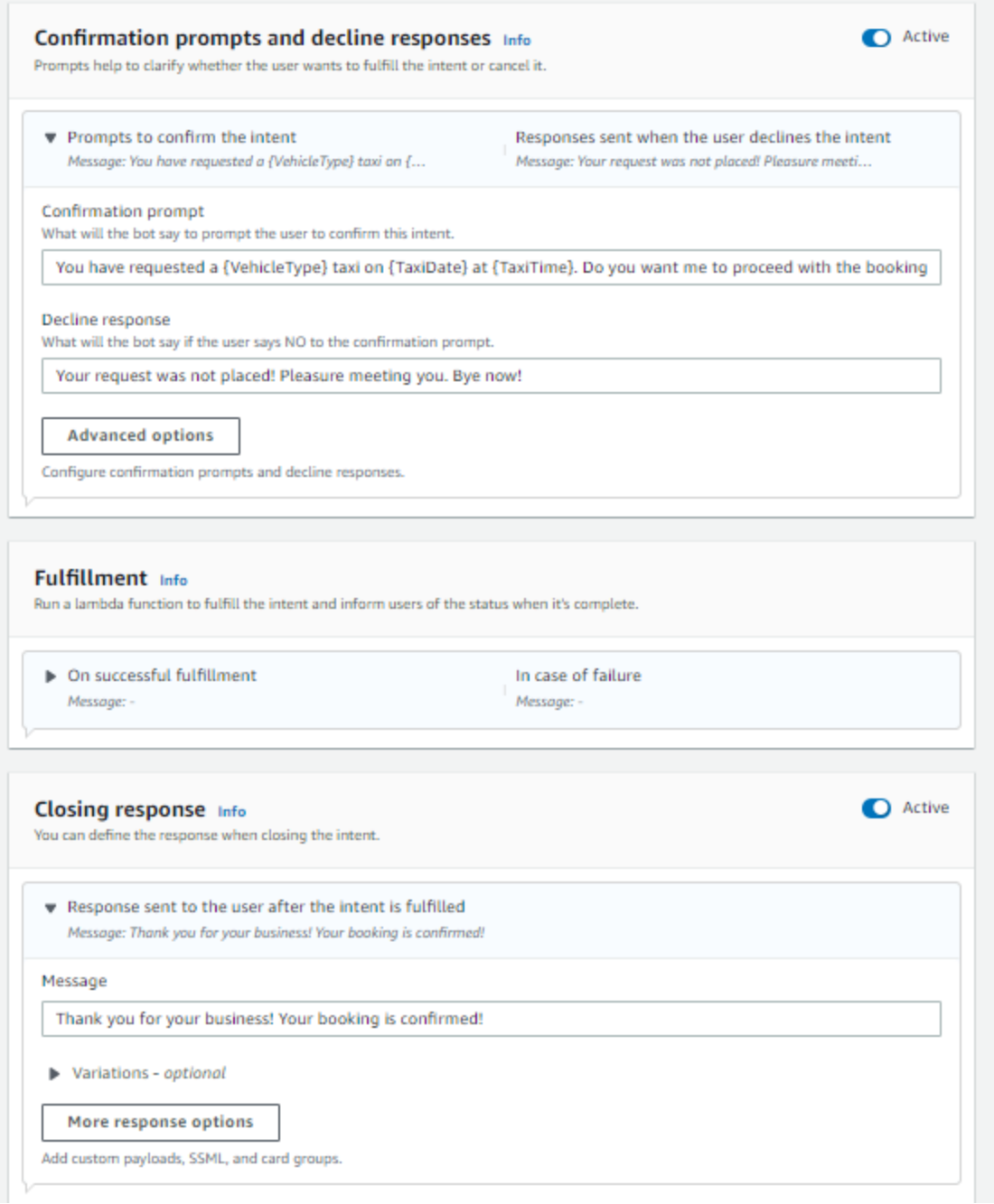


Figure 28: Confirmation Prompt & Closing Response for the Intent - "Book a Cab"

Intent: FallbackIntent

This is a default Intent the Lex generates when the bot doesn't recognize the user input as an intent after the configured number of tries for clarification when the conversation is started [3].

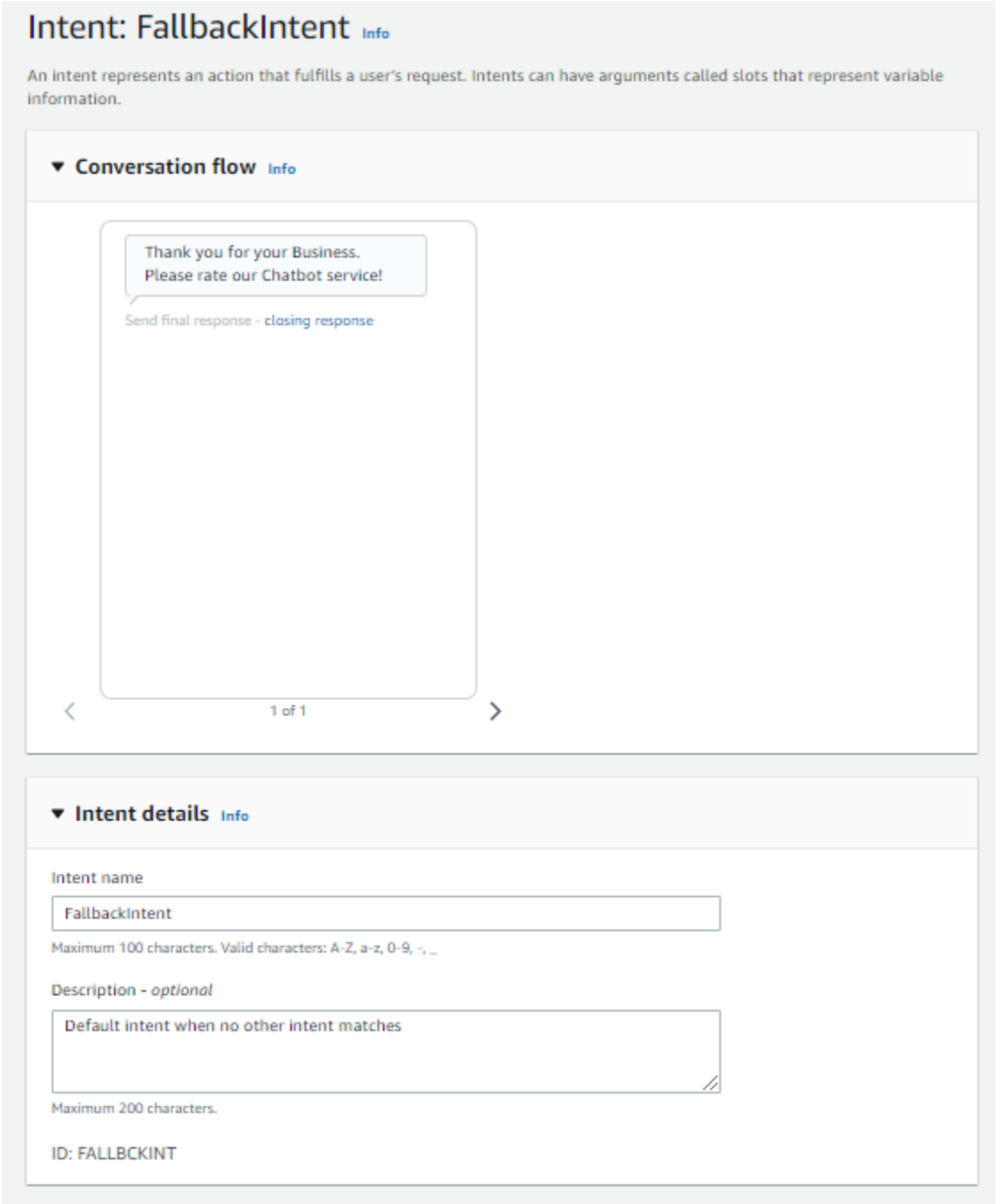


Figure 29: Conversation Flow for the Intent - "Fallback"

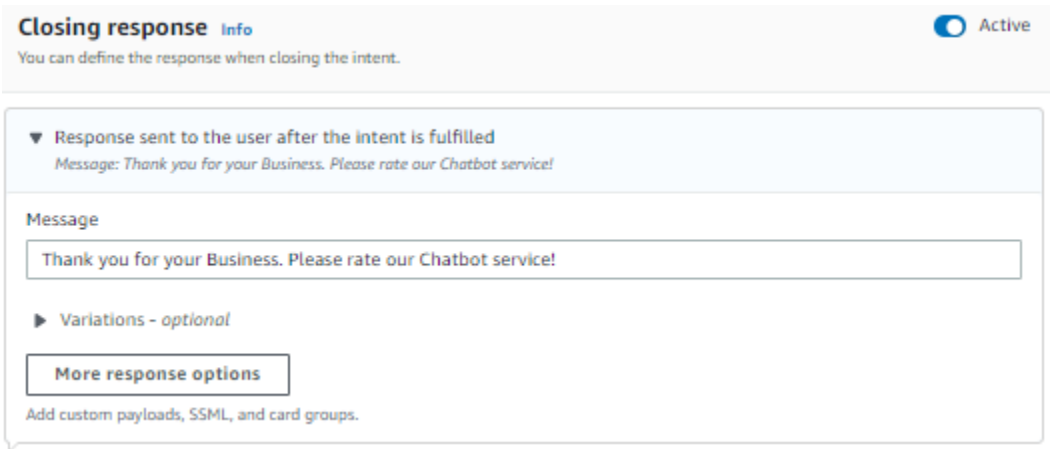


Figure 30: Closing Response for the Intent - "Fallback"

Chatbot Functional Tests:

Self-drive:

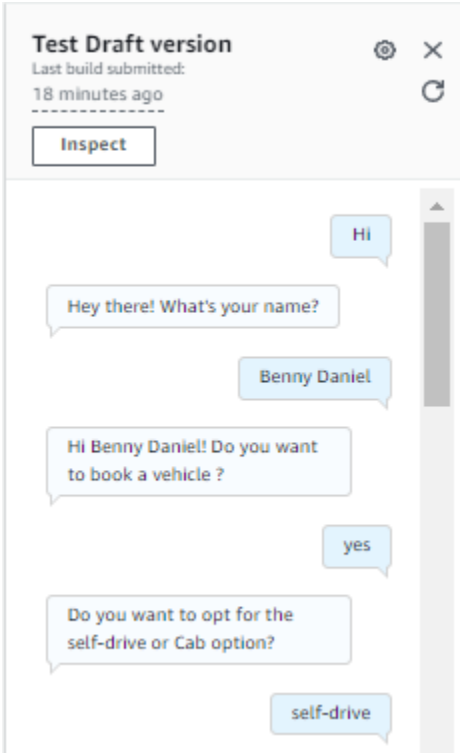


Figure 31: Requesting a vehicle for self-drive

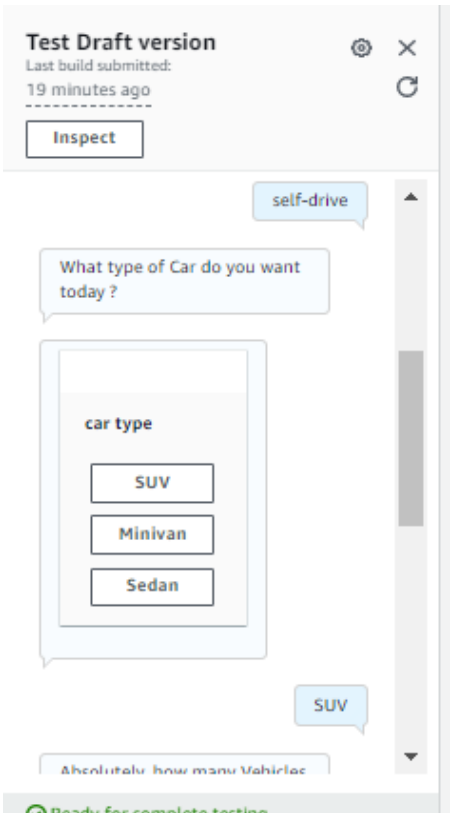


Figure 32: Selecting Car Type

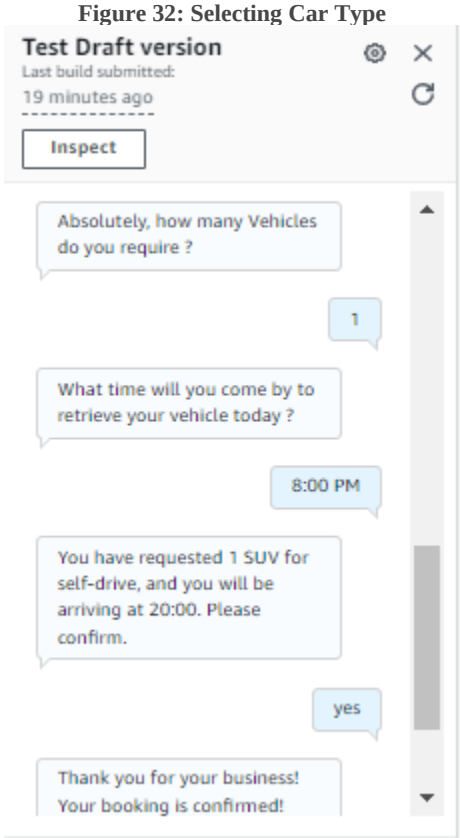


Figure 33: Inputs for number of Vehicles and pickup time followed by a Confirmation prompt and closingg response

Cab:

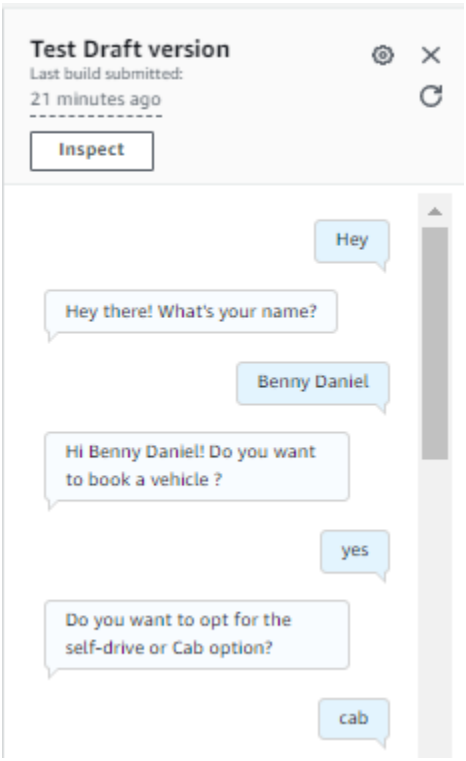


Figure 34: Requesting a Cab

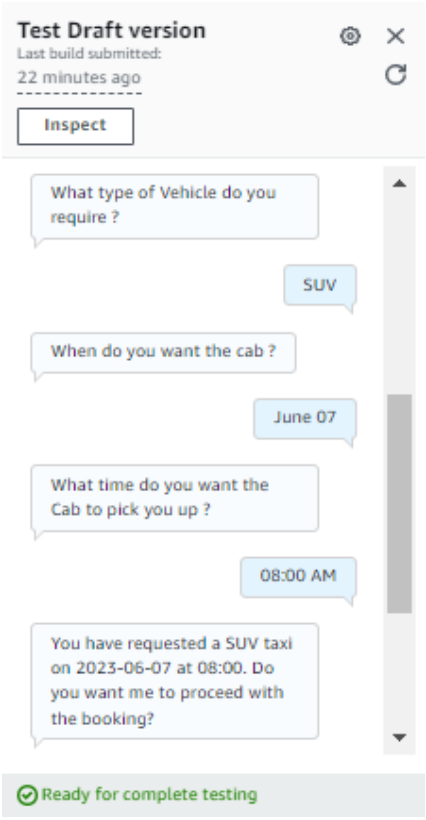


Figure 35Vehicle Type and Pick up Date & Time:

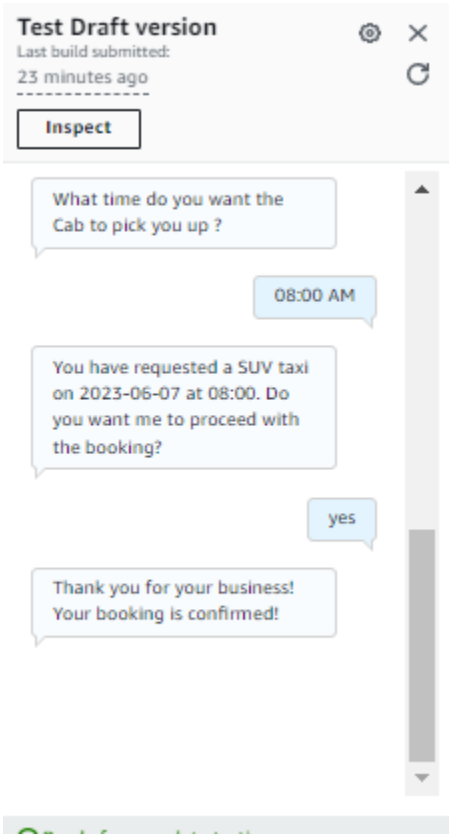
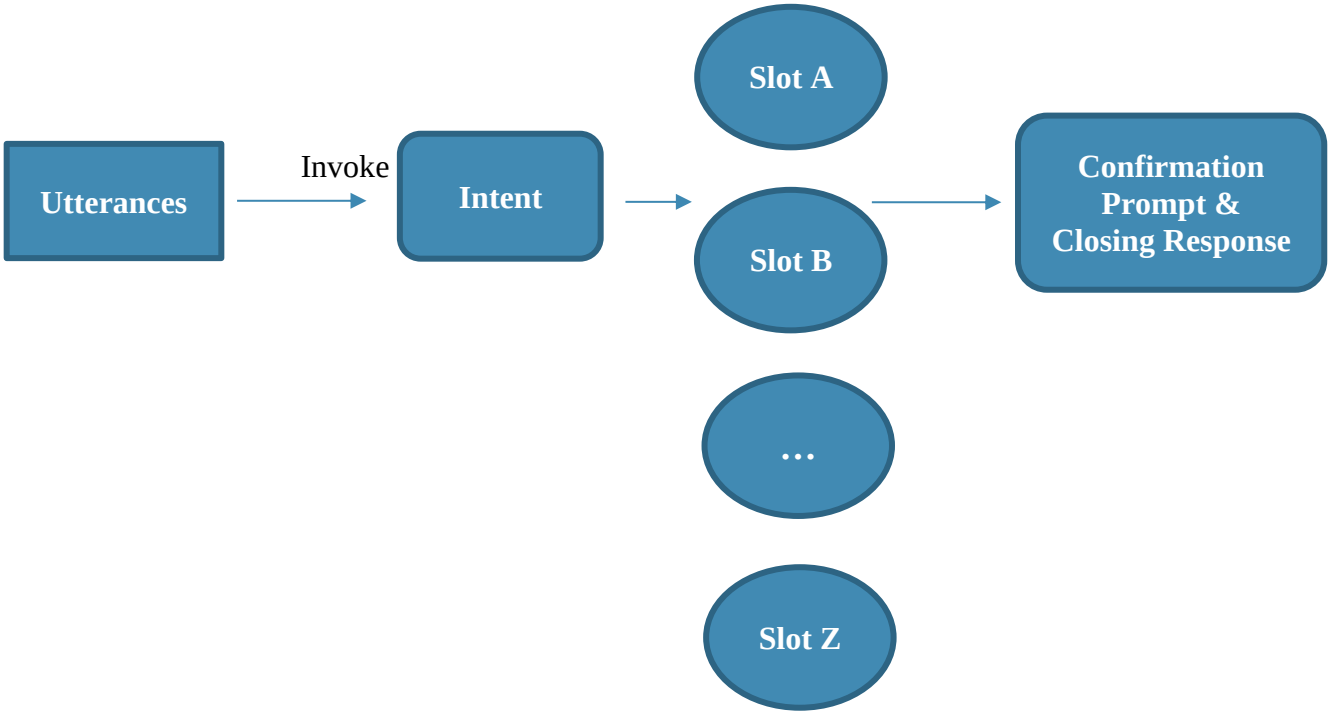


Figure 36: Confirmation Prompt & Closing Response

Description of Operations:

Amazon Web Services' Lex Chatbot is a versatile tool that can automate service request conversations and responses through Natural Language Understanding (NLU), which are otherwise, manually handled. It is simple, intuitive, employs deep learning technologies and can be seamlessly deployed with any type of application [1]. Amazon Lex V2 bots can communicate in more than one language. Lex chatbots operate based on Utterances, Intents and Slots. An intent represents a task that the User desires to be executed, for instance "Call Home [2]". Each **intent** in Lex has a name and a description associated with it an intent is invoked by an **utterance**. Utterances are words that are stored while configuring the intent, in order to initiate the conversation flow relevant to the intent.

An intent consists of a conversation flow which is a template for how a typical conversation between a bot and a user would look like for a specific intent. An intent requires parameters to be processed. These parameters are called **Slots**. Slot values are configured in such a way that, when the bot prompts the User for specific slot values, the user must provide values for all **required** slots to navigate through the conversation flow. Confirmation prompts exist, to handle alternate courses wherein Users "decline" or respond with a "No" to a prompt and display a corresponding 'Exit Message". Closing responses indicate the typical message to be displayed upon successful fulfillment of an Intent.



Citations

[1] "Amazon Lex – Build Conversation Bots." *Amazon Web Services, Inc.*, 2019, aws.amazon.com/lex/.

[2] "What Is Amazon Lex V2? - Amazon Lex." *Docs.aws.amazon.com*, 2 Sept. 2018, docs.aws.amazon.com/lexv2/latest/dg/what-is.html. Accessed 6 June 2022.

[3] "AMAZON.FallbackIntent - Amazon Lex." *Docs.aws.amazon.com*, 15 May 2014, docs.aws.amazon.com/lex/latest/dg/built-in-intent-fallback.html. Accessed 4 June 2022.