PIZZA ORDERING CHATBOT USING AMAZON LEX

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CCL MINI PROJECT PRESENTATION

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ABSTRACT

- The majority of monotonous jobs that were formerly performed by humans are now replaced by AI. Every firm is aiming to replace the least skilled labour with AI robots that can do comparable tasks more efficiently, especially when it comes to chatbots.

- A chatbot is a computer software that mimics human interaction by using voice instructions, text dialogues, or both. Chatbots are being employed to address consumer concerns or problems in food delivery app businesses such as Zomato and Swiggy.

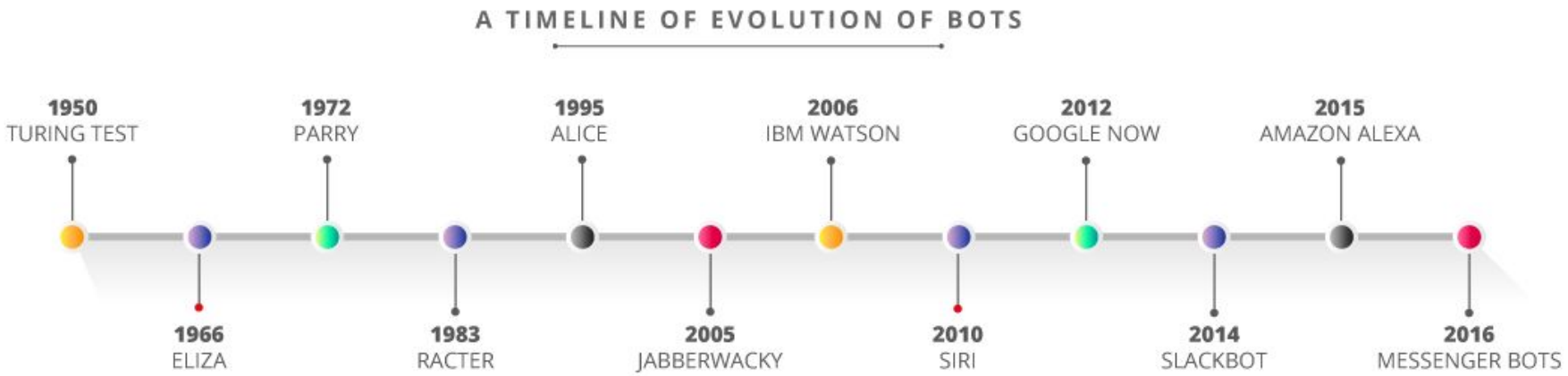
- New tools are available now to create and deploy chatbots; Amazon Lex by Amazon Web Services is one of them. This project focuses on creating a Pizza Ordering Chatbot using Amazon Lex to help the user order pizza, where the user can select the type of pizza, the crust, the appetizers.

AGENDA

1. What is a Chatbot?
2. What is Amazon Lex?
3. How Lex Works?
4. Core Concepts & Terminologies
5. Pizza Ordering Chatbot Demo
6. References

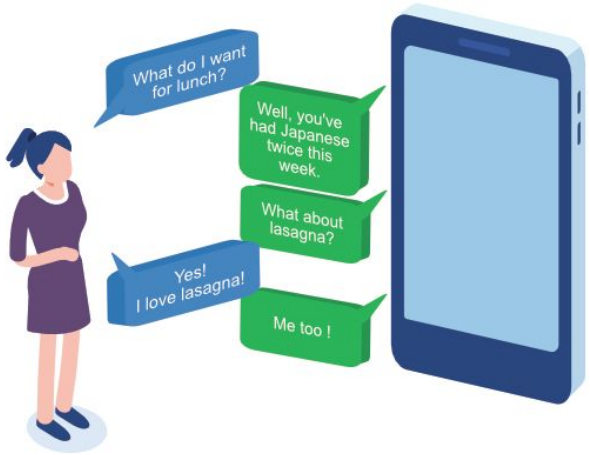
What is a Chatbot?

A chatbot is a computer program which conducts a conversation in ***natural language via text or speech***, understand the intent of the user and sends a response based on business rules and data of the organization.



- **Chatbot Applications:** Online Shopping, Book Tickets, News Reports, Order Food, Etc.

Advent of Conversational Interactions



1st Generation:

Punch card and memory registration

2nd Generation:

Pointers & Sliders

3rd Generation:

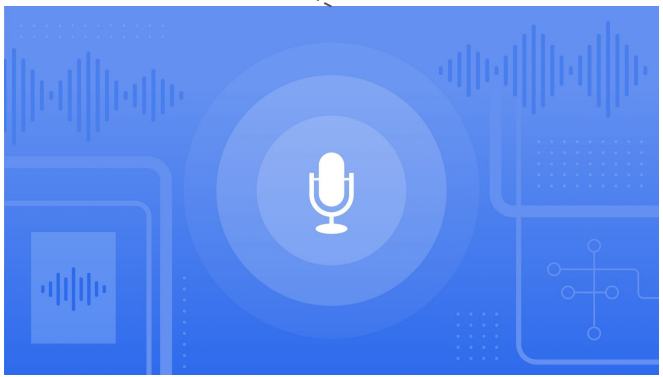
Conversational Interface

Amazon Lex

Amazon Lex is a service for building conversational interfaces into any application using voice and text.

NLP

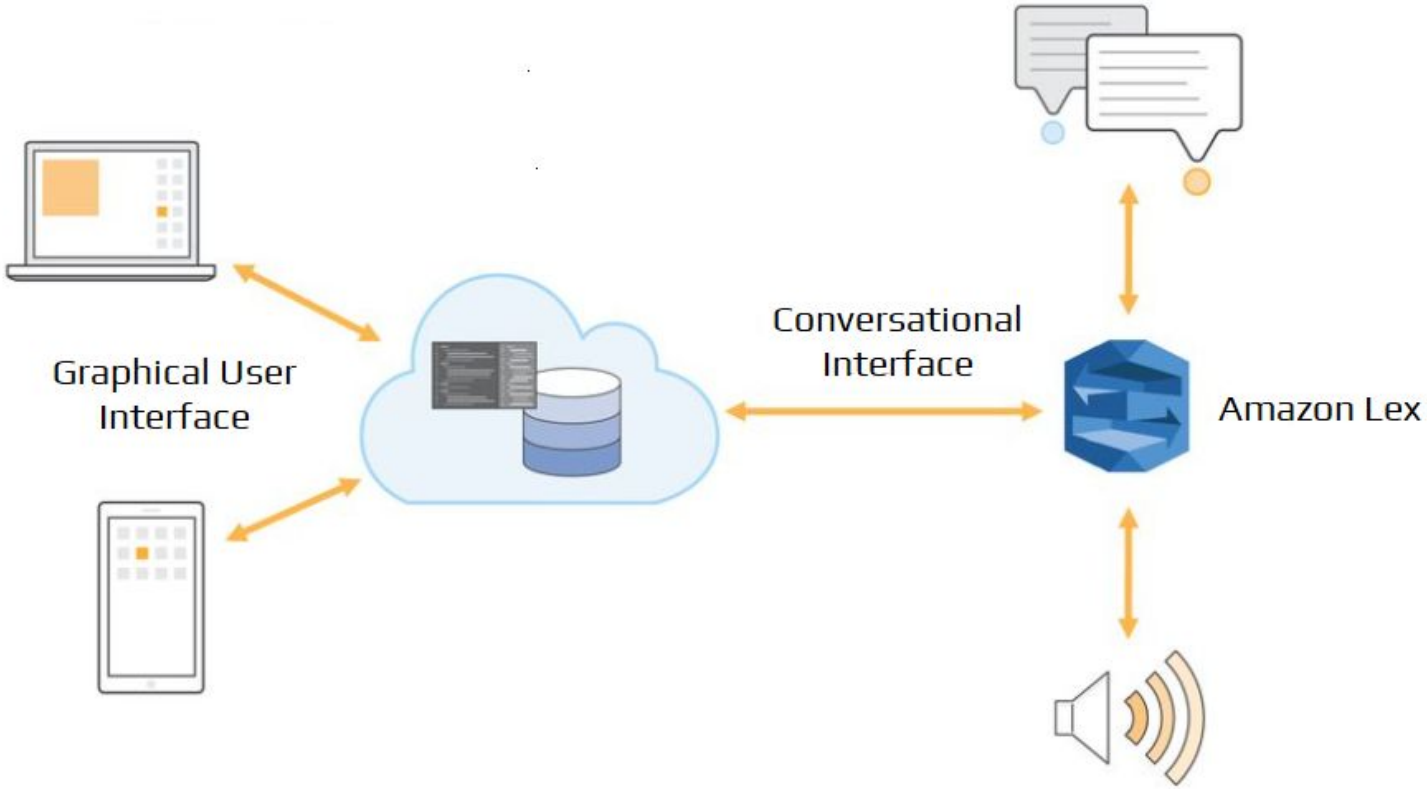
Natural Language Processing



ASR

Automatic Speech Recognition

The Need For Amazon Lex



Amazon Lex

- Amazon Lex is a powerful conversation framework that allows developers to integrate conversational experiences by embedding voice and text interfaces into new and existing applications.
- It is the behind-the-scenes service that powers Alexa.
- Amazon Lex is a service for building these conversational user interfaces.

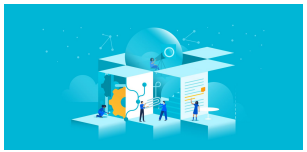
Features of Amazon Lex

- Text & Speech language understanding: Powered by the same technology as Alexa

- Deployment to chat services

- Designed for developers: Efficient and intuitive tools to build and scale automatically

- Versioning and alias support



- Enterprise SaaS Connectors: Connect to enterprise systems

Benefits of Amazon Lex

- Offers an easy to use console & predefined bots.
- Employs advanced deep learning functionalities.
- Provides seamless deploying & Scaling.
- Offers built-in integration with AWS platform.
- Cost effective platform to create bots.

Amazon Lex - Use Case

(To get banking information through an Amazon Lex chatbot.)

Customer contacts bank for account balance

Customer is provide with account balance

AMAZON LEX

Lex understands user's request

AWS Lambda

AWS Lambda requests & retrieves account info

- Amazon DynamoDB
- Amazon SNS
- Amazon SES
- Other AWS Services

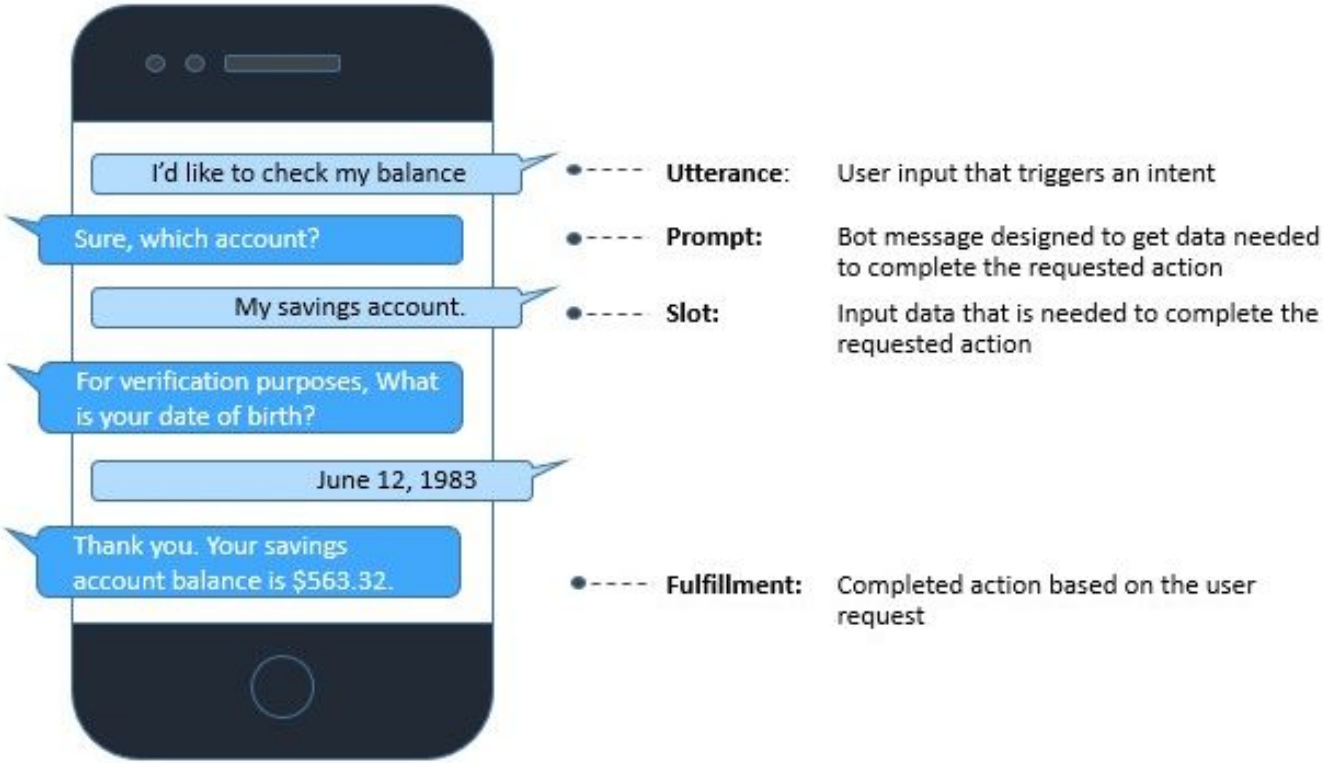
Amazon Polly

Lex responds to user in speech, 'Saving account or current account balance?'

Logs are stored & events are kept track of

Amazon Lex - Use Case

(To get banking information through an Amazon Lex chatbot.)



Amazon Polly

- Amazon Polly is a service that converts text into natural speech, allowing developers to create applications that talk back to users with a custom voice and build speech-enabled applications and products using Text-to-Speech (TTS) service.

- Amazon Polly is offered with over a dozen languages in both male and female voices to help target global audiences.

Amazon Lex - Use Cases

1. **Informational Bots:** Chatbots for everyday consumer requests.

   Examples: NEWS updates, Weather information, Game scores, etc.

2. **Application Bots:** Build powerful interfaces to mobile applications.

   Examples: Book tickets, order food, Manage bank accounts, etc.

3. **Enterprise Productivity Bots:** Streamline enterprise work activities and improve efficiencies.

   Examples: Check sales numbers, Marketing performance, Inventory status, etc.

4. **Internet Of Things (IOT) Bots:** Enable conversational interfaces for device interactions.

   Examples: Wearables, Appliances, etc.

How Amazon Lex Operates?

Chatbot receives user input. It can reply with answers, perform actions or ask more input.

Chatbot triggers AWS Lambda. Lambda function performs necessary action by integrating with other AWS services.

Steps to follow while working with Amazon Lex

1. Create a chatbot & configure it with intents, slots & utterances.

2. Test the bot on text window slide provided by Lex Console.

3. Publish a version and create an alias.

4. Deploy the bot on suitable platform.

Core Concepts & Terminologies

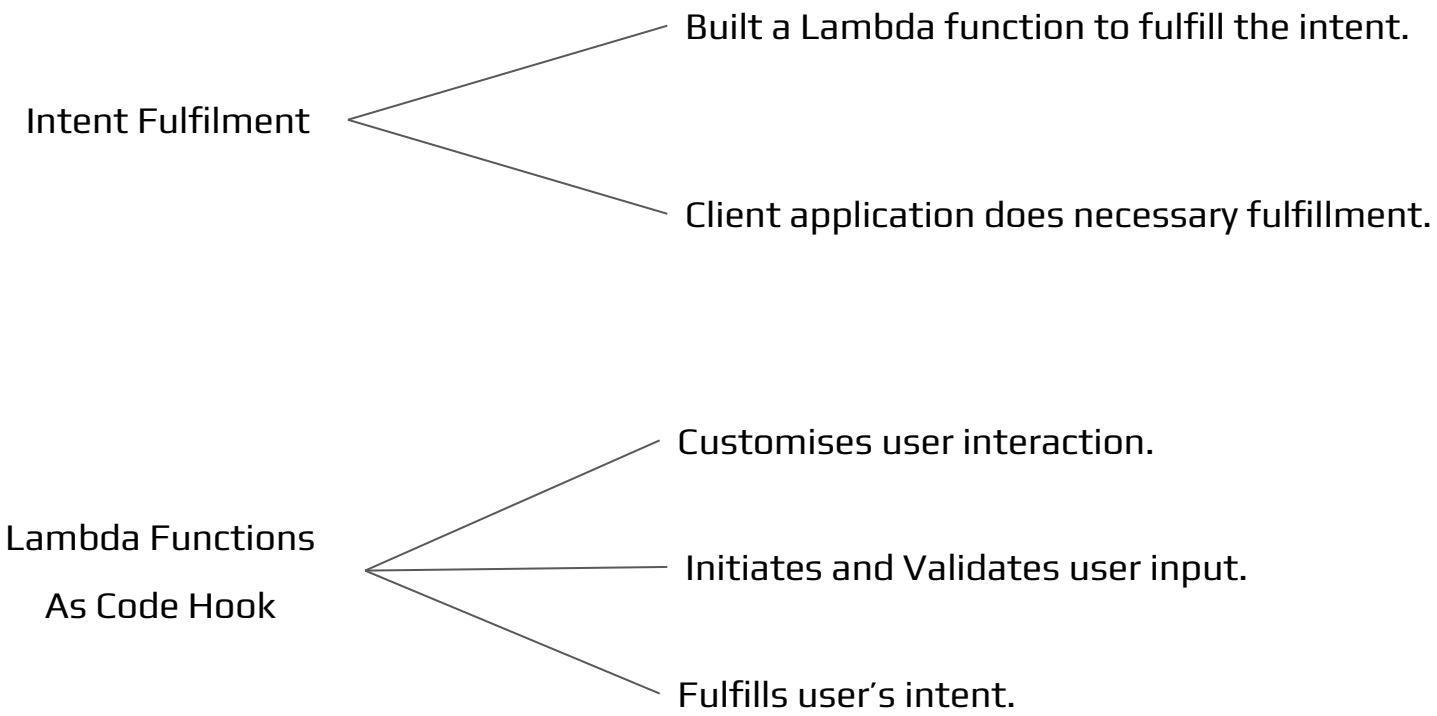
- **Amazon Bot:** An artificial intelligence program that simulates interactive conversation.

- **Intent:** An intent represents an action that user wants to perform.

- **Slots:** Slots are parameters that intent might require.

- **Slot Types:** Every slot has a type. Can create built-in or custom slot types.

Core Concepts & Terminologies



Conclusion

- This project focuses on creating a Pizza Ordering Chatbot using Amazon Lex to help the user order pizza, where the user can select the type of pizza, the crust, the appetizers.

- Through the proposed system, PizzaOrdering chatbot will efficiently handle the customers and take their order in a simple yet coherent way.

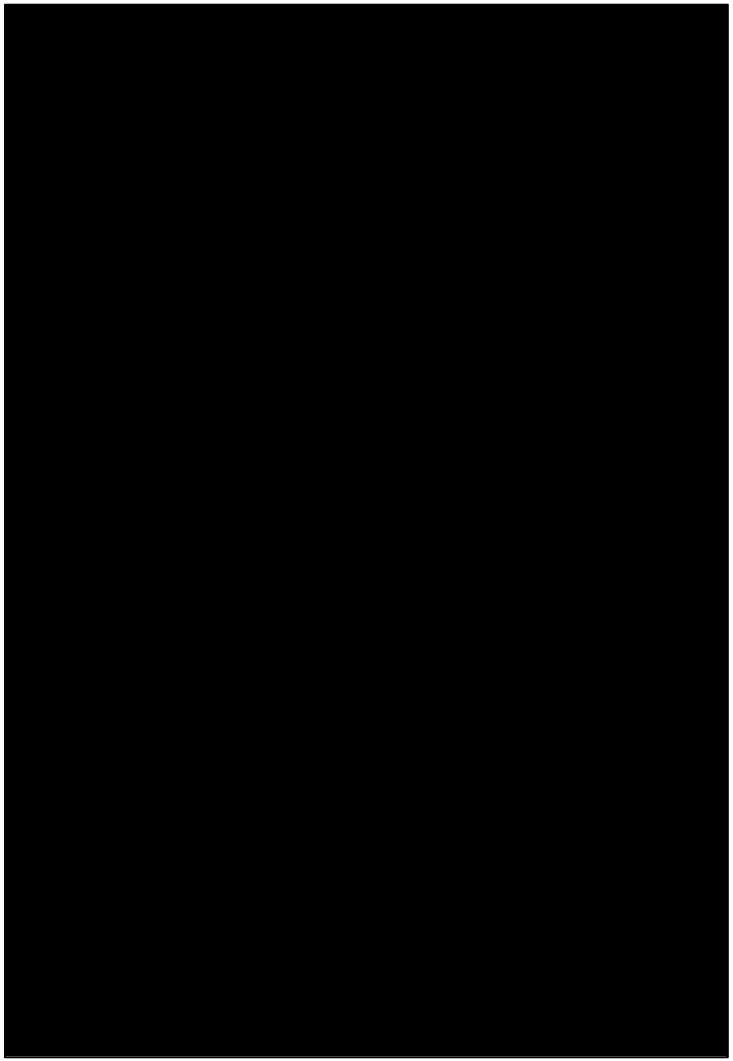
- The chatbot carries out the conversation in a pleasant way and is methodically asking for the type of pizza, the pizza crust and appetizers. It additionally ask for the delivery time and ask for confirmation as well.

- Using Amazon Lex, we can furthermore enhance the look and the utterances of the chatbot and deploy it on a full scale website using Amazon Cloud Services.

Chatbot Demo

PIZZA ORDERING CHATBOT USING AMAZON LEX

Amazon Lex



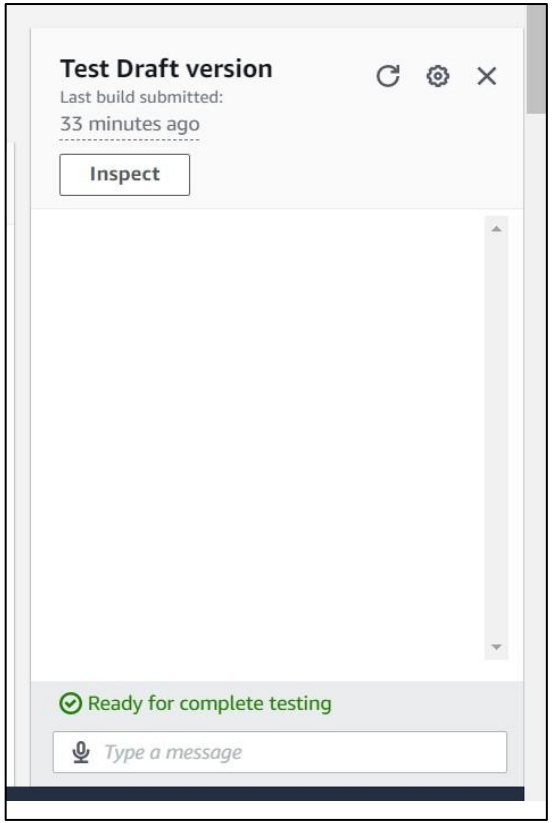
The complete guide to the project

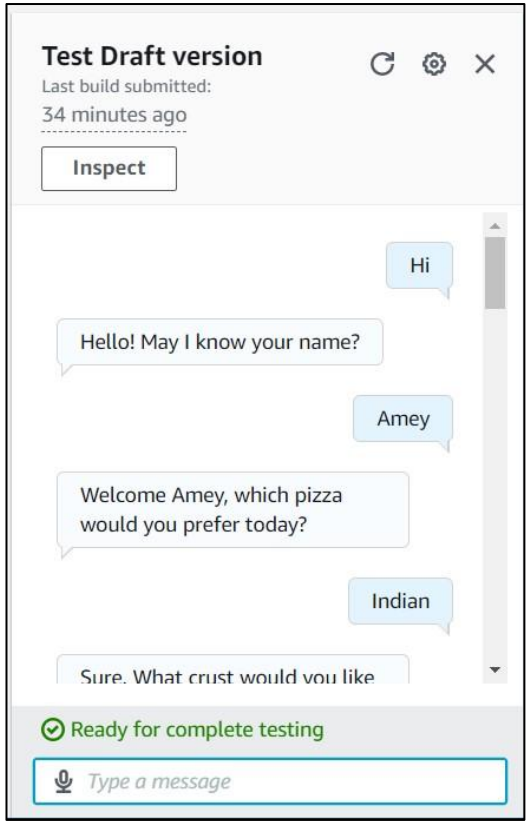
AWS

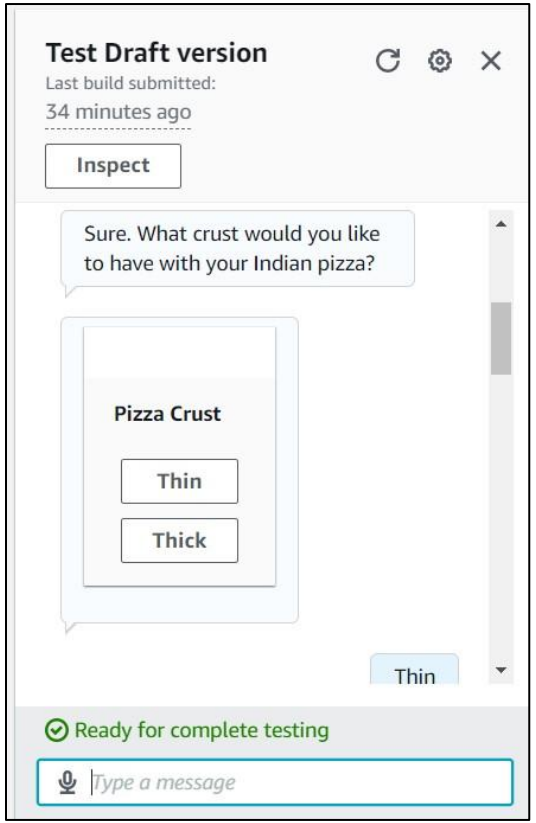
PROJECT

SNAPSHOTS OF OUTPUT

Confirmation of Pizza Order







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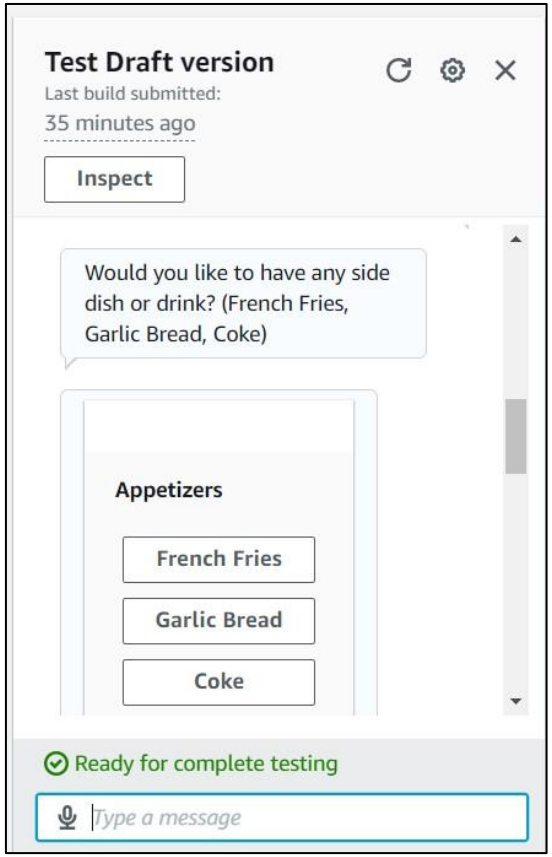

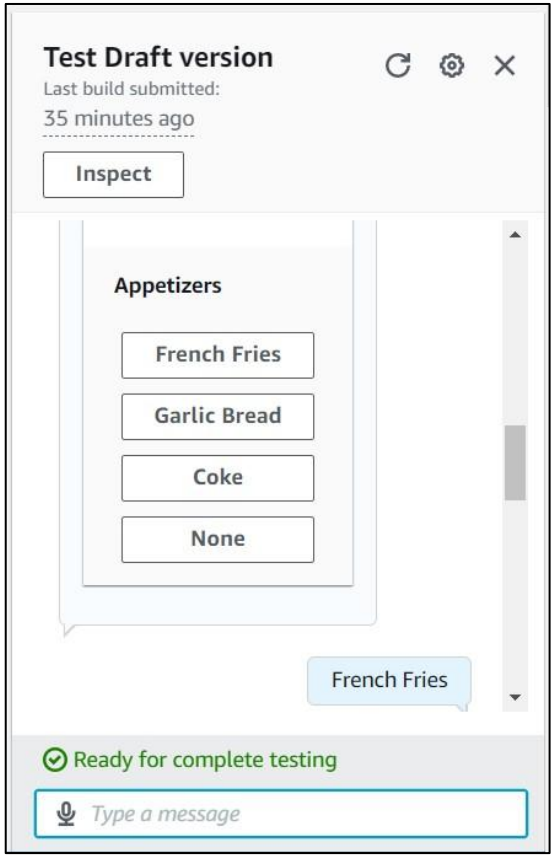

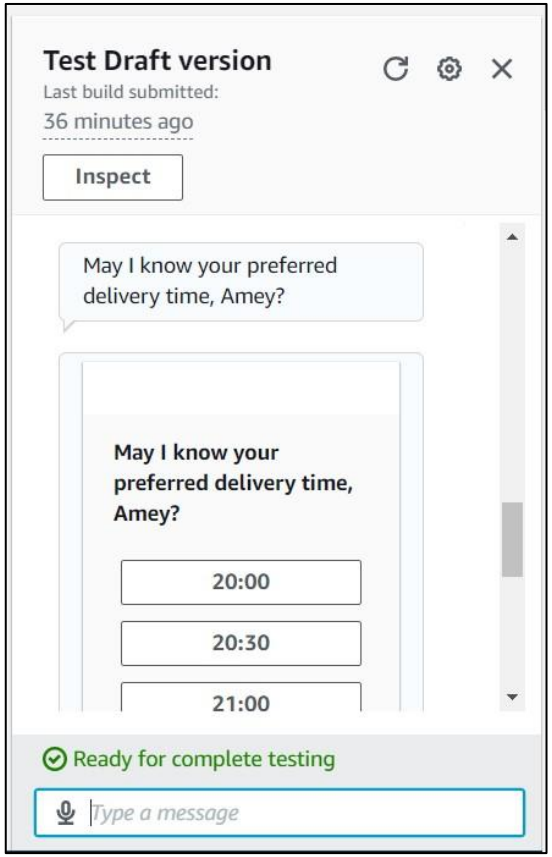

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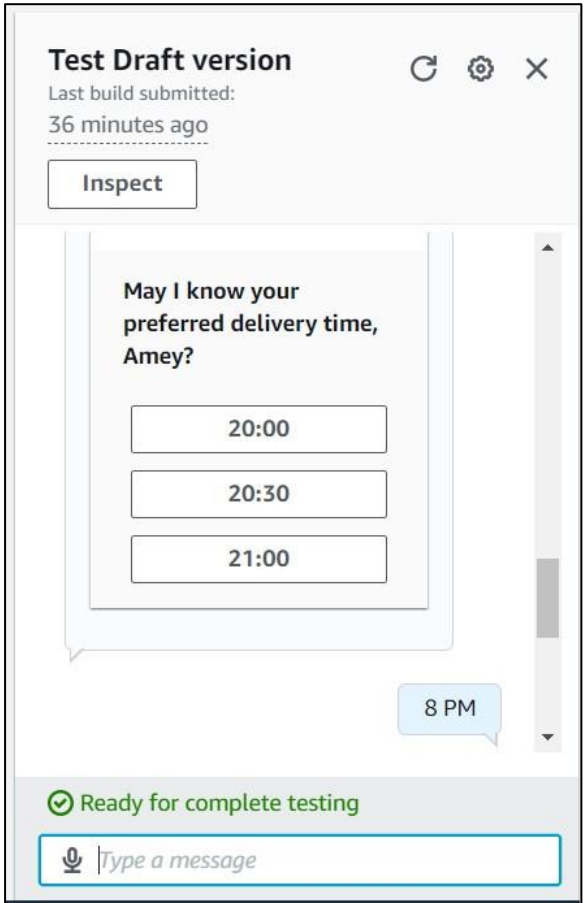
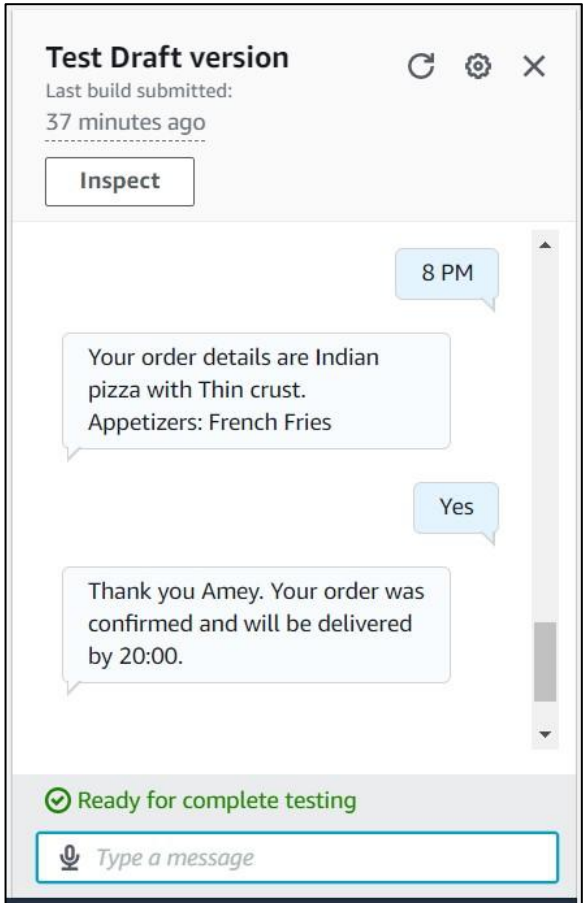
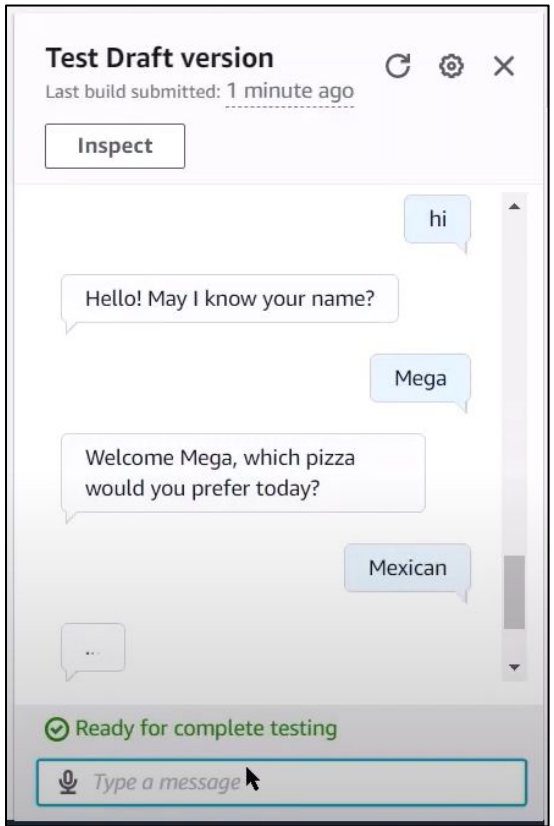
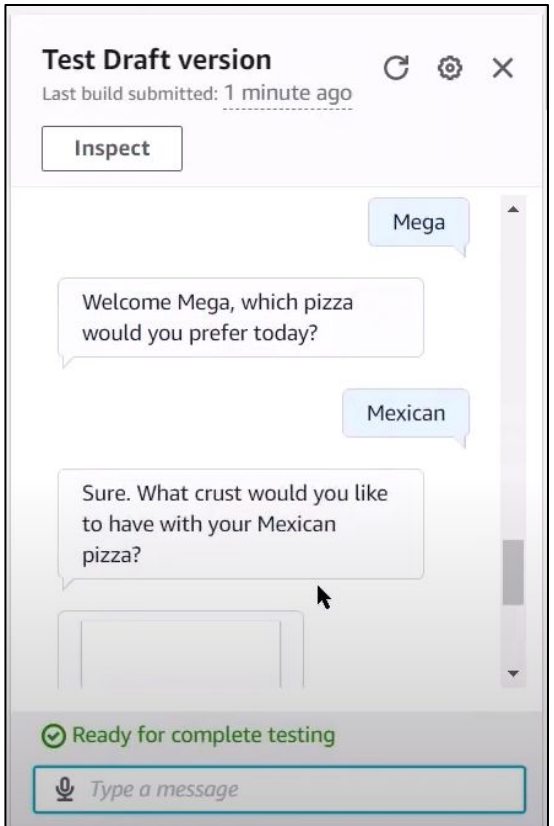


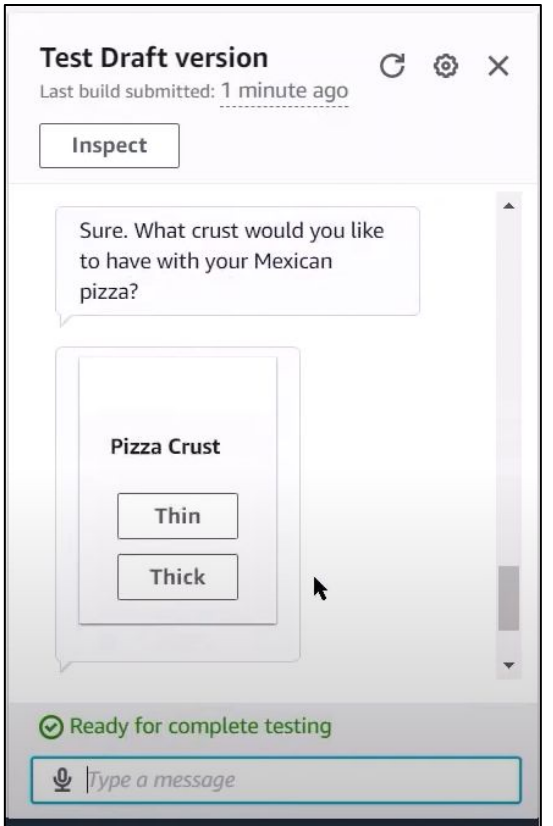


SNAPSHOTS OF OUTPUT

Cancellation of Pizza Order







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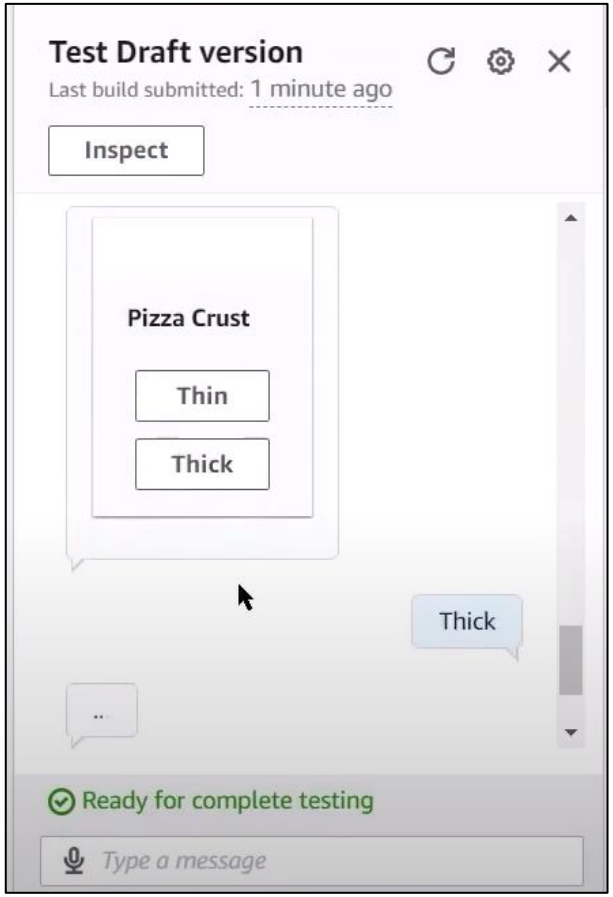

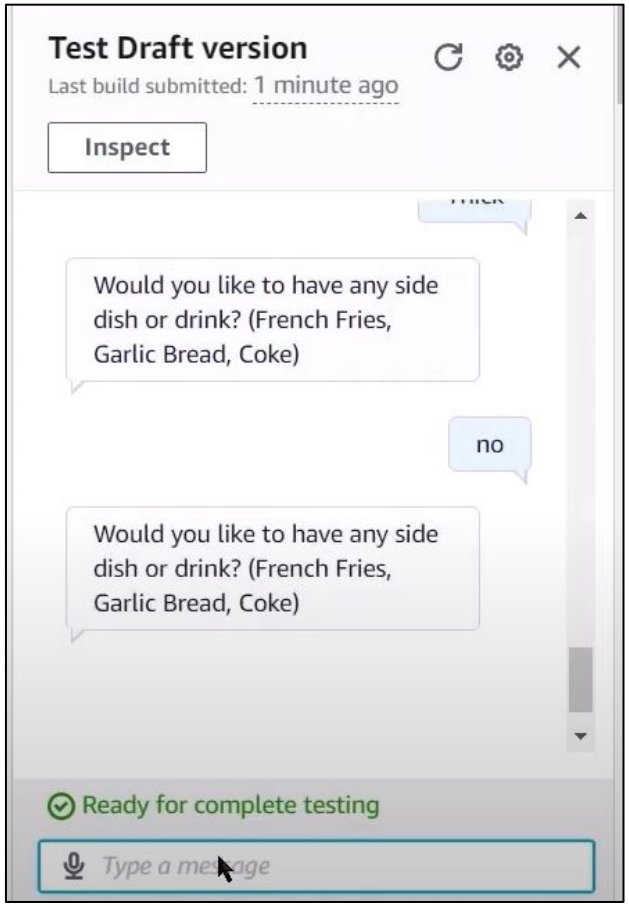

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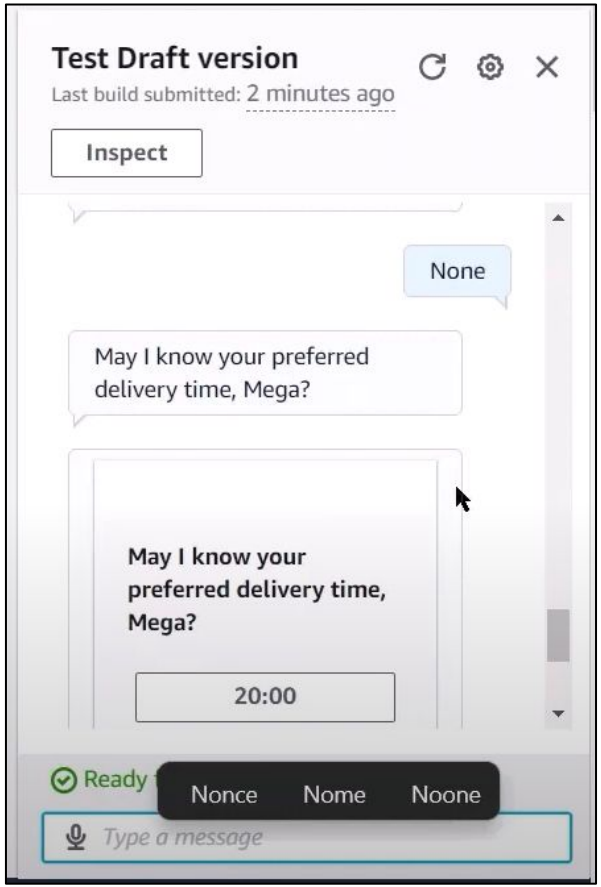

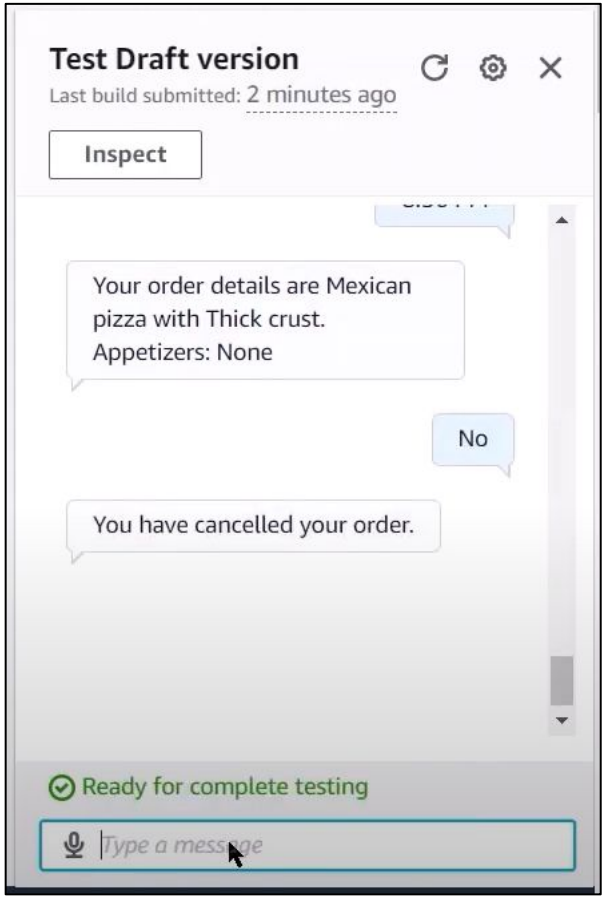

References

- Soni, Radhika & Thapar, Radhika. (2019). Acceptance of Chatbots by Millennial Consumers. 10.18231/2454-9150.2018.1343.
- https://aws.amazon.com
- https://docs.aws.amazon.com
- https://aws.amazon.com/lex
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THANK YOU