

PIZZA ORDERING CHATBOT USING AMAZON LEX



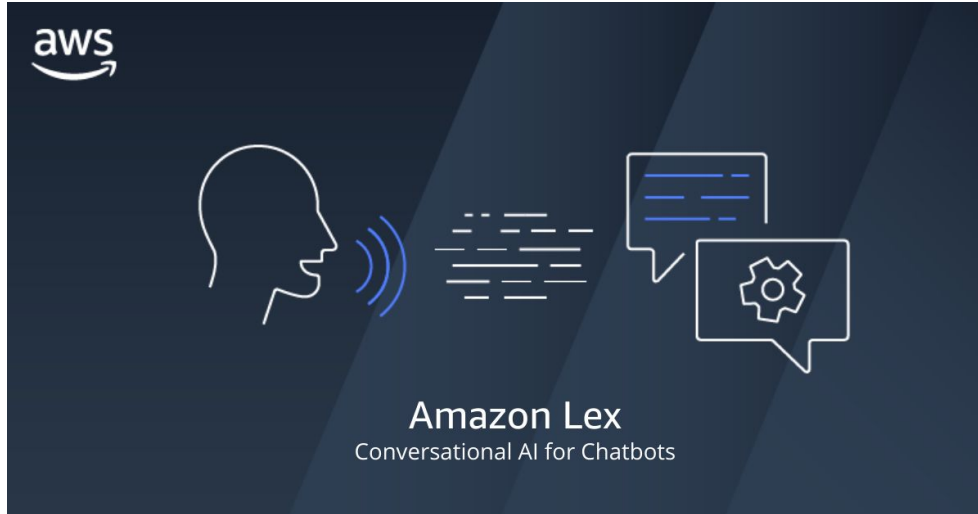
Project Authors -

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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

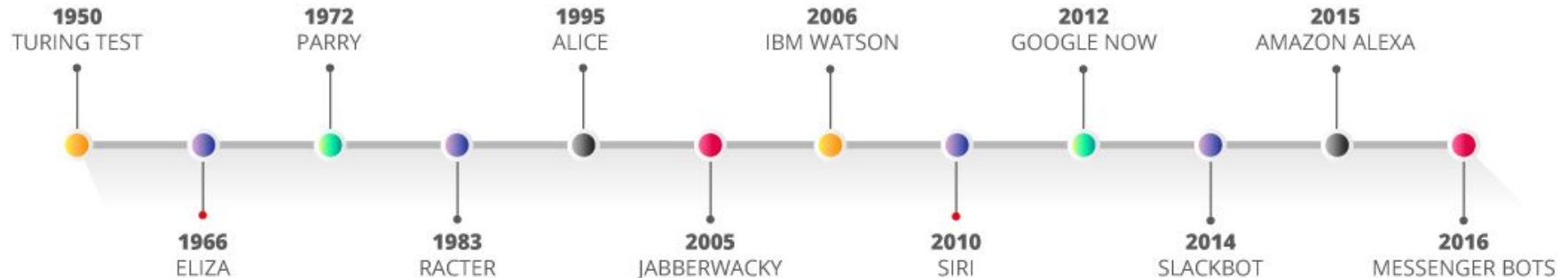


1. What is a Chatbot?
2. What is Amazon Lex?
3. How Lex Works?
4. Core Concepts & Terminologies
5. Pizza Ordering Chatbot Demo
6. References

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.

A TIMELINE OF EVOLUTION OF BOTS



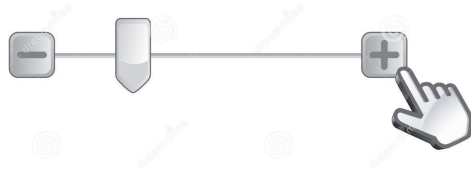
- **Chatbot Applications:** Online Shopping, Book Tickets, News Reports, Order Food, Etc.

Advent of Conversational Interactions



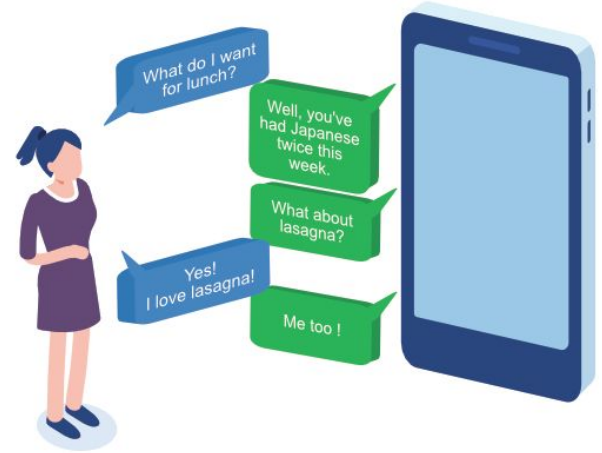
1st Generation:

Punch card and memory registration



2nd Generation:

Pointers & Sliders



3rd Generation:

Conversational Interface

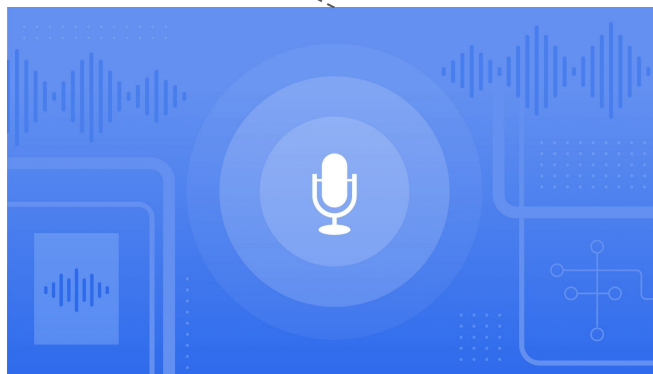
Amazon Lex

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



NLP

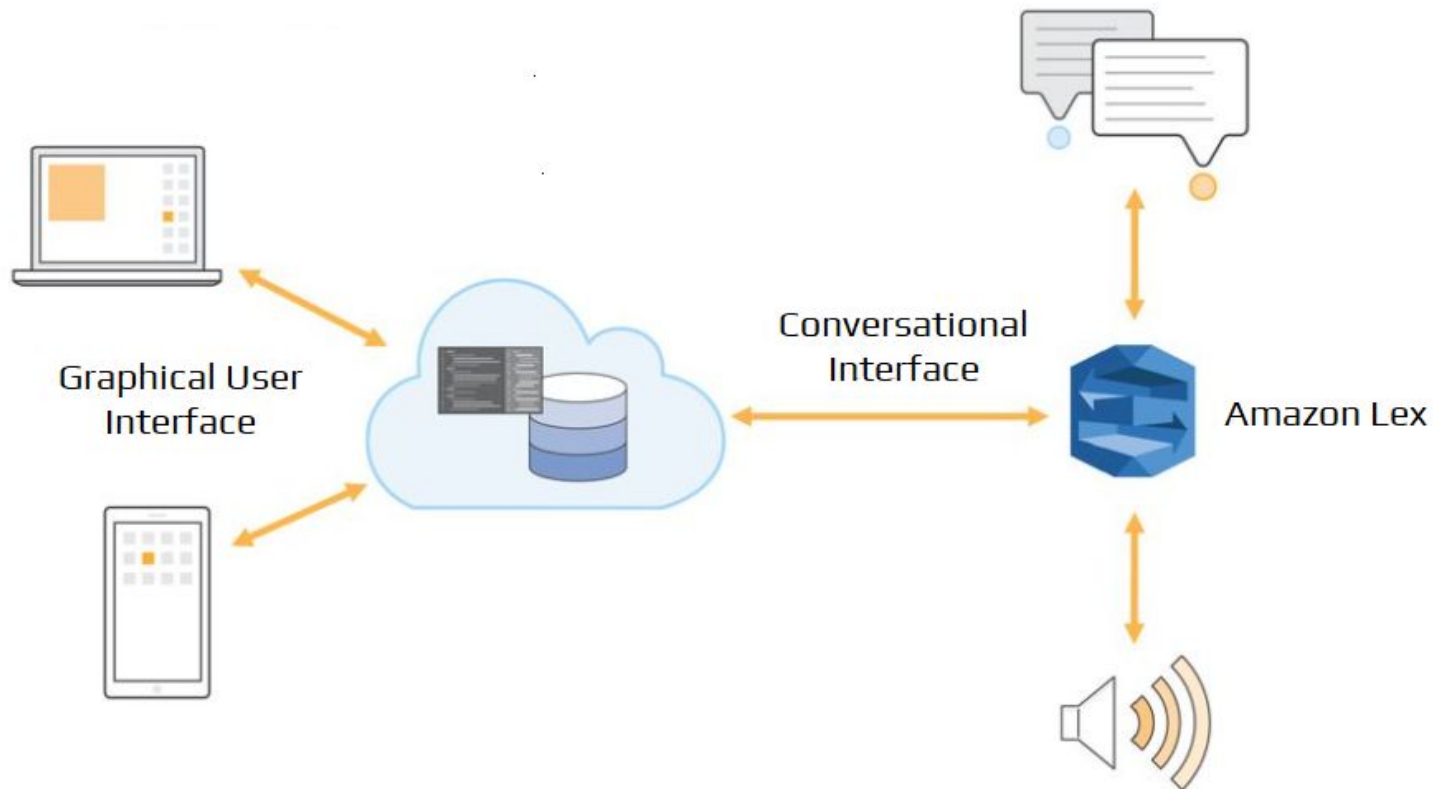
Natural Language Processing



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

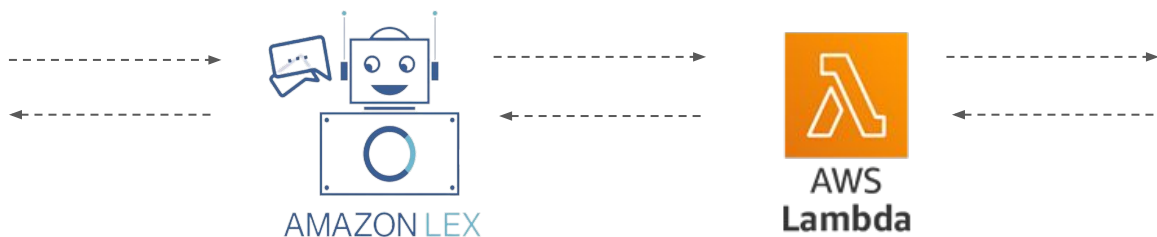


- Offers an easy to use console & predefined bots.
- Employs advanced deep learning functionalities.
- Provides seamless deploying & Scaling.
- Offers built-in integration with AWS platform.
- Cost effective platform to create bots.

Amazon Lex - Use Case

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

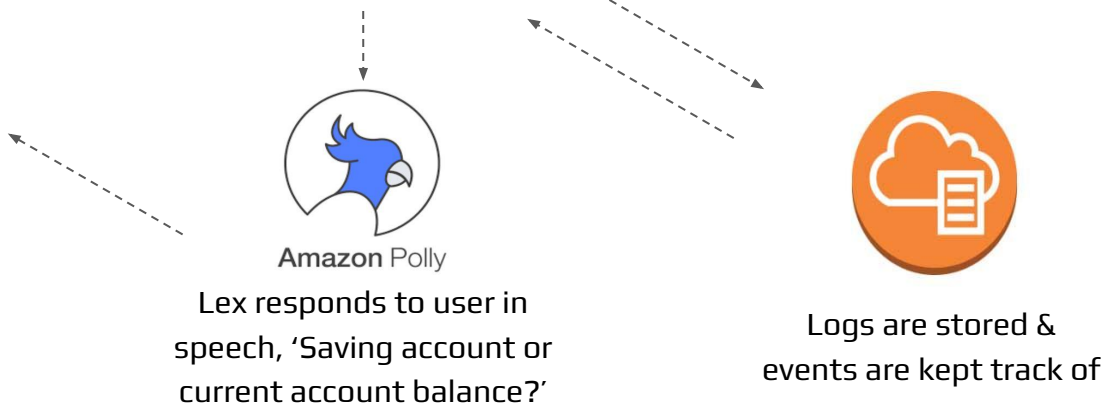
Customer contacts bank
for account balance



Lex understands
user's request

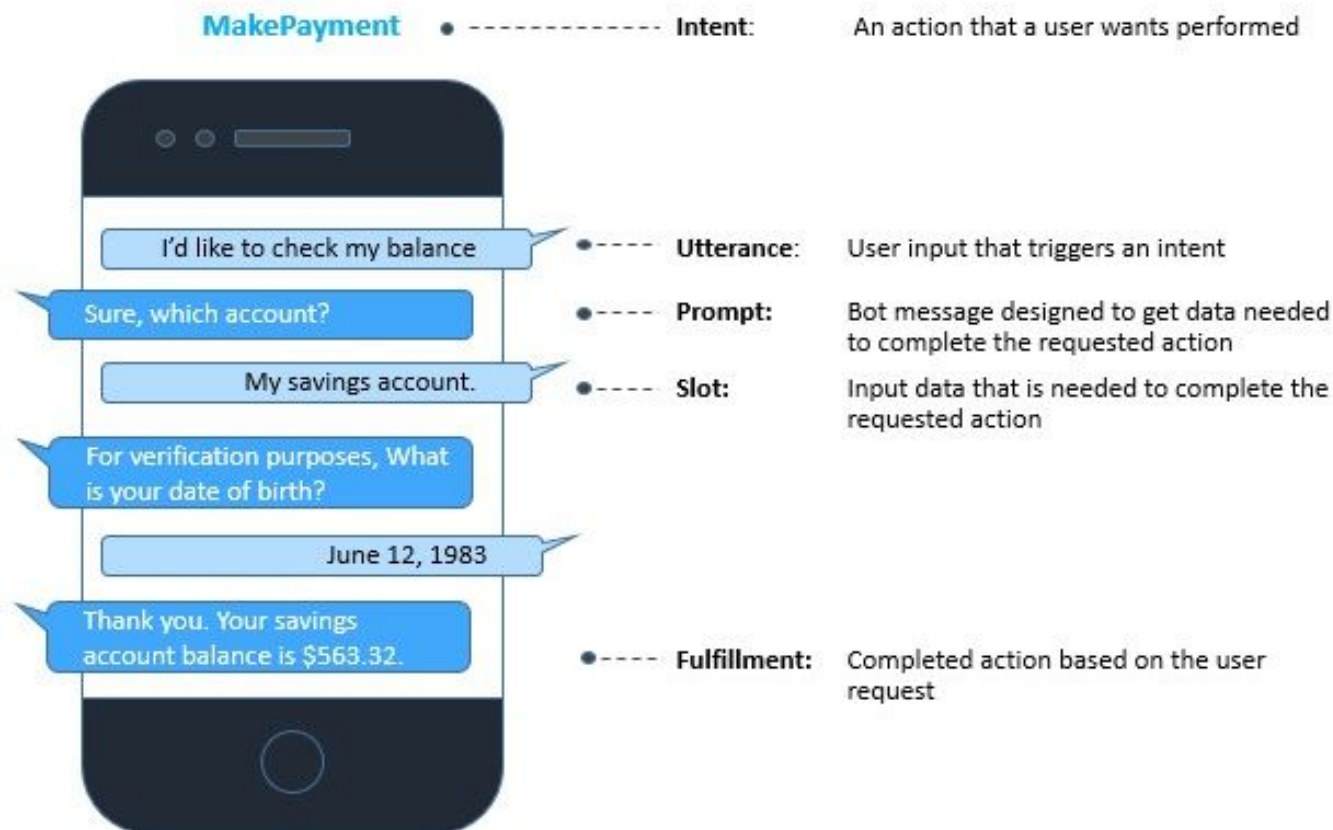
AWS Lambda requests
& retrieves account info

Customer is provide with
account balance



Amazon Lex - Use Case

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



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.

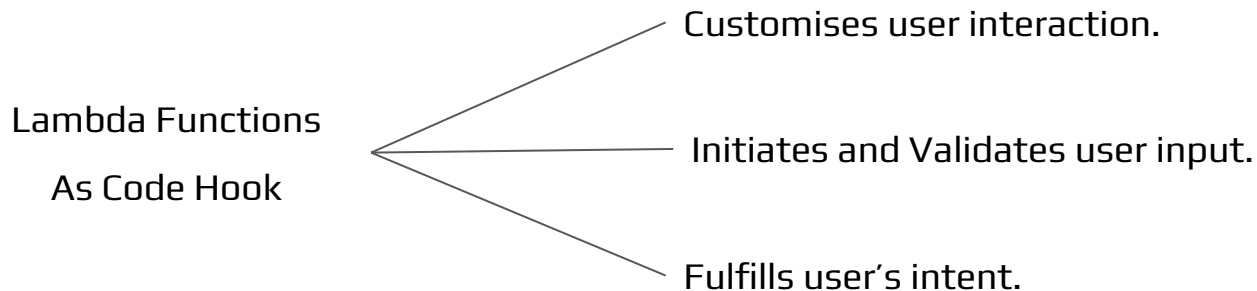
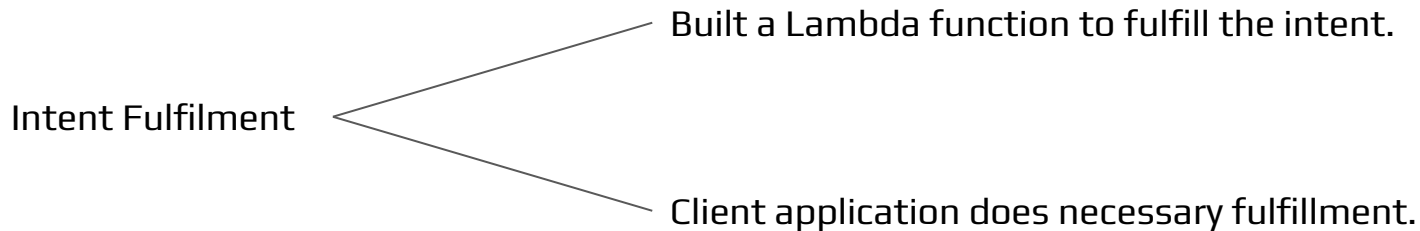
Steps to follow while working with Amazon Lex

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

YouTube Video

https://youtu.be/6iLgN_1e4DU



The complete guide to the Amazon Lex project

AWS



PROJECT

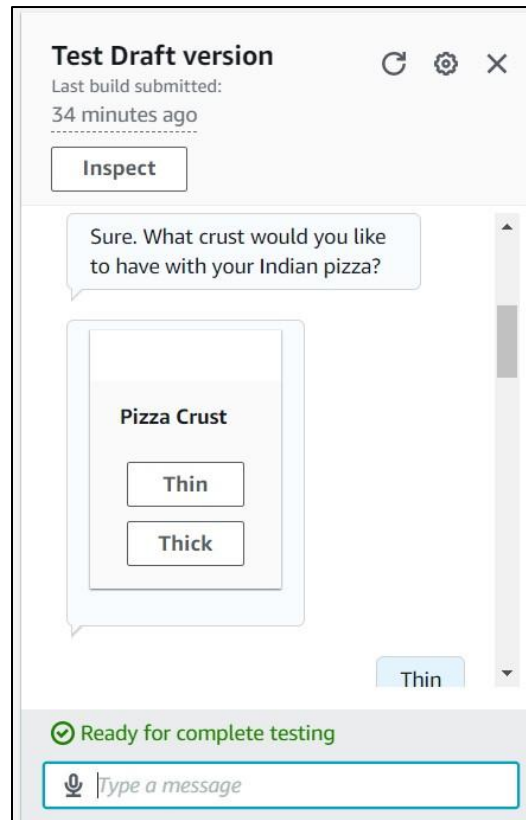
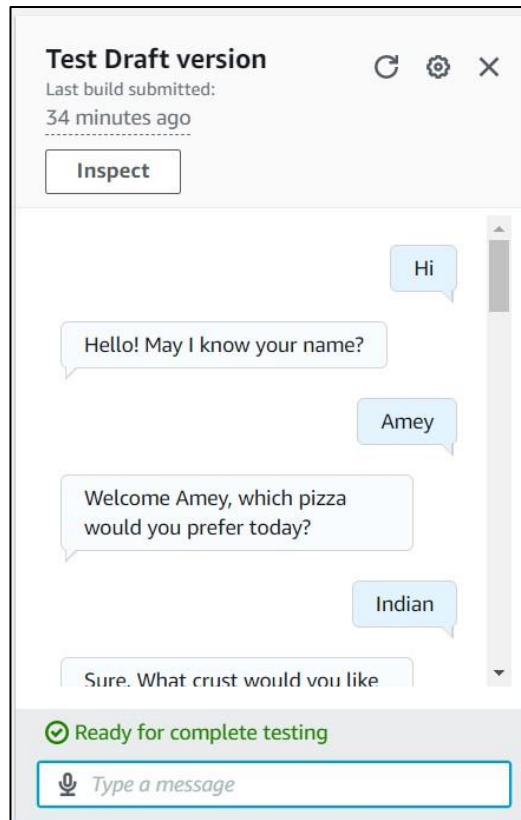
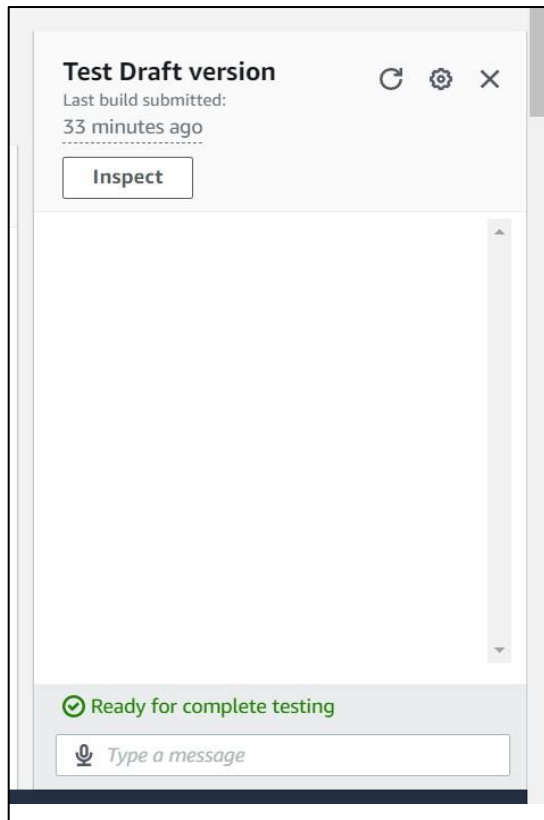
YouTube Video

<https://youtu.be/FHbXSo95S7A>



Snapshots of Output

Confirmation of Pizza Order



Snapshots of Output

Test Draft version

Last build submitted:
35 minutes ago

Inspect

Would you like to have any side dish or drink? (French Fries, Garlic Bread, Coke)

Appetizers

French Fries

Garlic Bread

Coke

Ready for complete testing

Type a message

Test Draft version

Last build submitted:
35 minutes ago

Inspect

Appetizers

French Fries

Garlic Bread

Coke

None

French Fries

Ready for complete testing

Type a message

Test Draft version

Last build submitted:
36 minutes ago

Inspect

May I know your preferred delivery time, Amey?

May I know your preferred delivery time, Amey?

20:00

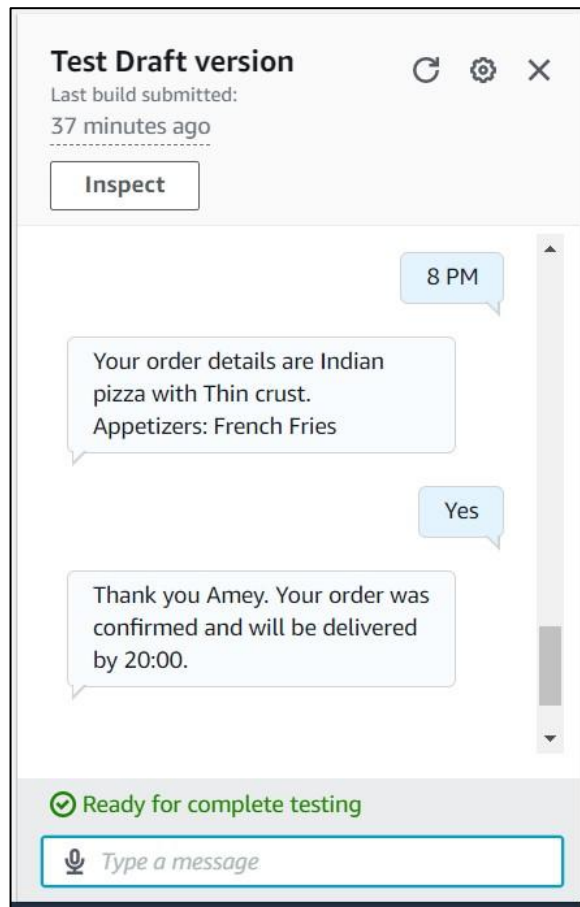
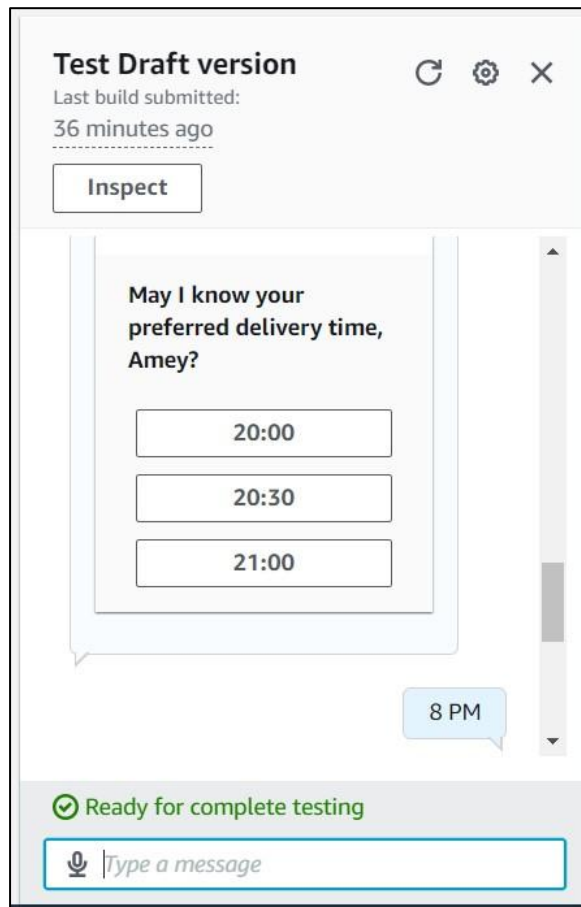
20:30

21:00

Ready for complete testing

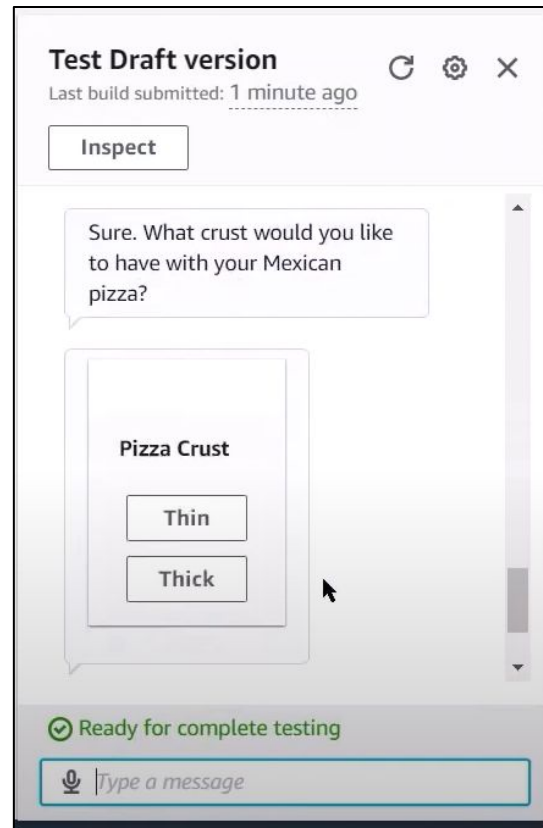
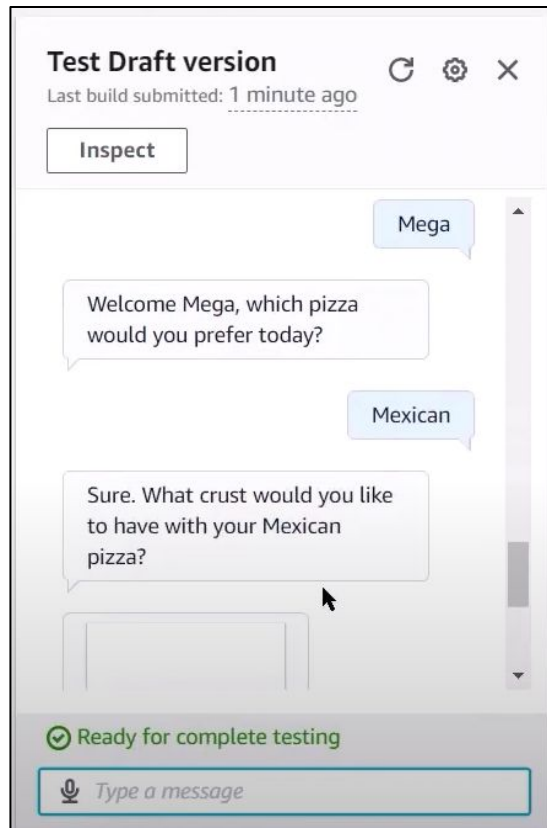
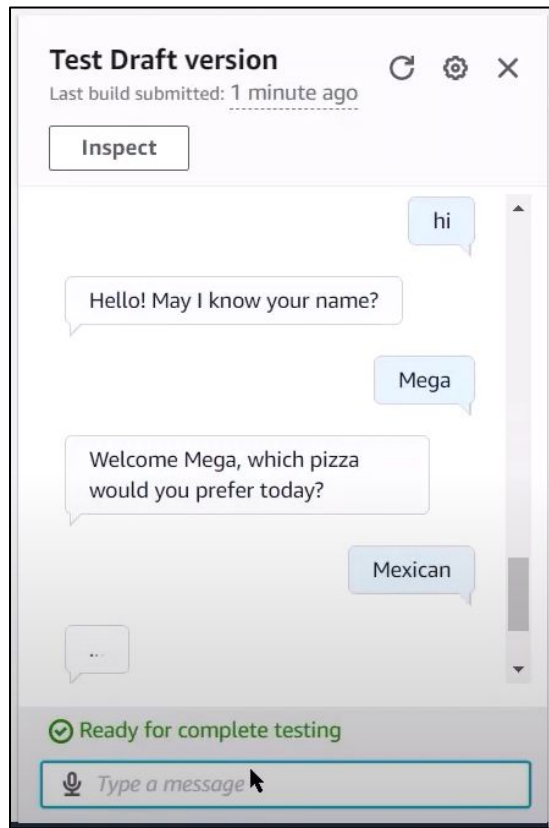
Type a message

Snapshots of Output

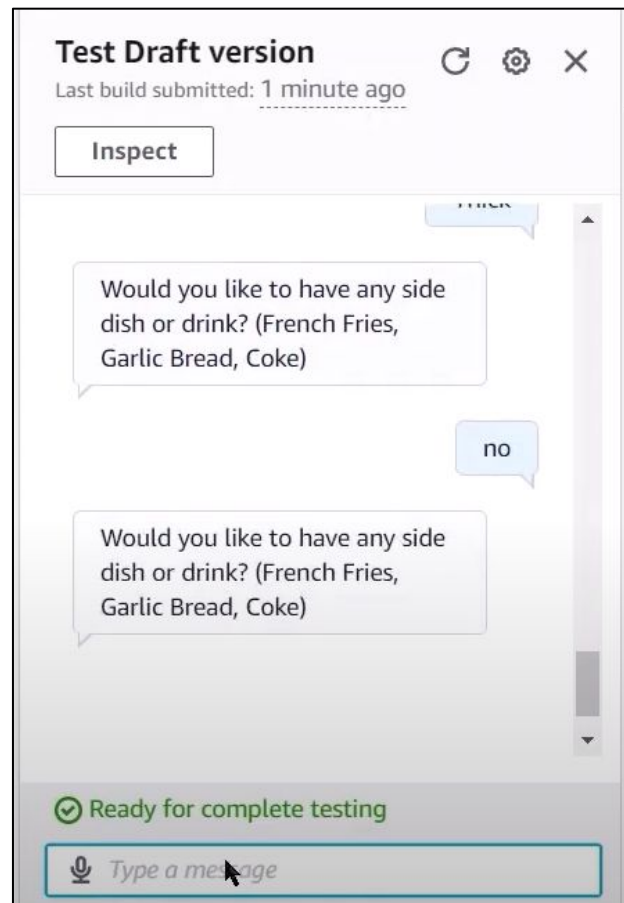
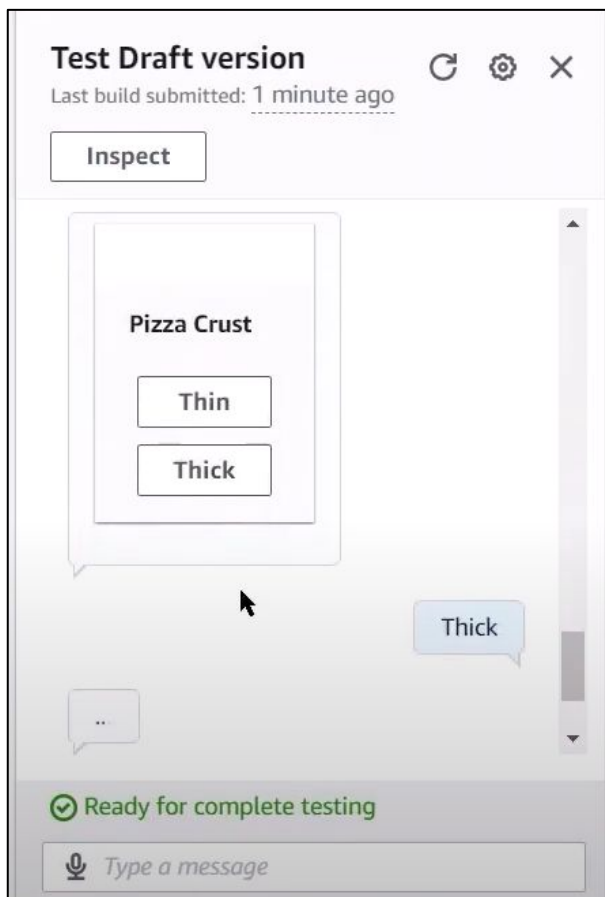


Snapshots of Output

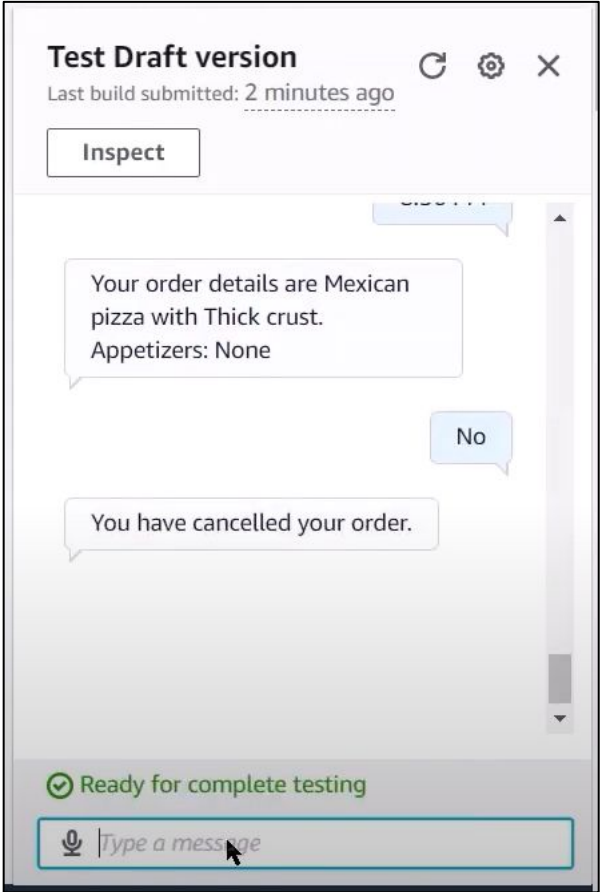
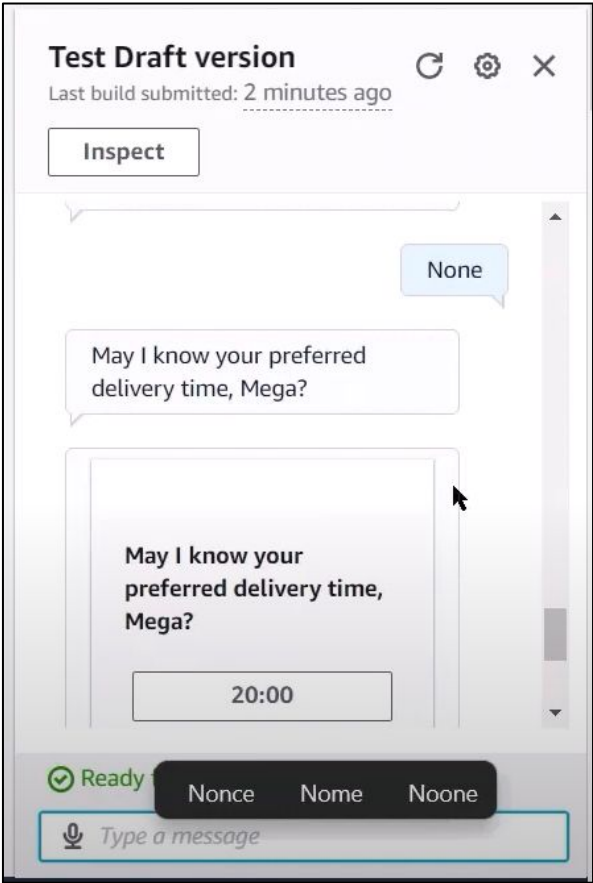
Cancellation of Pizza Order



Snapshots of Output



Snapshots of Output



References

- [1] Varia, Jinesh, and Sajee Mathew. "Overview of amazon web services." *Amazon Web Services* 105 (2014).
- [2] Soni, Radhika & Thapar, Radhika. (2019). Acceptance of Chatbots by Millennial Consumers.
- [3] AWS Documentation - <https://docs.aws.amazon.com>
- [4] Amazon Lex Documentation - <https://docs.aws.amazon.com/lex>
- [5] AWS Lex - <https://aws.amazon.com/lex>
- [6] Pizza Ordering Chatbot Demo - https://youtu.be/6iLgN_1e4DU
- [7] The Complete Guide To The Pizza Ordering Chatbot - <https://youtu.be/FHbXSo9557A>
- [8] GitHub Repository - <https://github.com/Amey-Thakur/AWS-CERTIFIED-CLOUD-PRACTITIONER-CLF-C01>

THANK YOU

Project Title - **Pizza Ordering Chatbot Using Amazon Lex**

Project Authors - **Amey Thakur, Hasan Rizvi & Mega Satish**