

Case Study - Amazon Lex



In the current digital age, business processes are executed at lightning speed, and companies need technology solutions that enable fast and efficient information gathering. Especially in a customer-driven market like Fintech, time is money, and decisions must be made quickly and precisely to stay competitive and keep customers satisfied.

CHALLENGE:

In several Fintech applications, important data is accessed through reporting solutions, presentations, charts, and more. What Fintech companies struggle with in this essential business operation is the excessive number of mouse clicks required in their current solution to access specific reports. Beyond retrieving the data, users then spend valuable time analyzing the information to extract insights and draw conclusions.

Our customer, offering an Asset-Based Lending software product, approached us to help enhance customer engagement with their application's reporting system.

One example of such a data point is: "Who are the borrowers who have their payments due in 3 days?"

In the manual process, the user must search for, locate, and click the correct report to download—then sort and identify the relevant accounts within that data. During a timed simulation, we observed that this query returned approximately 1,000 rows and took 15–20 seconds to generate in the current reporting system.

Another challenge was that some accounts were nearing payment due dates and required borrower communication. At present, there was no automated system in place to notify customers through the reporting system. If the report was not pulled, these accounts often went unmonitored—sometimes leading to delinquency, which in turn created dissatisfaction for both lenders and borrowers.

SOLUTION:

After collaborating with the client to determine the ideal solution, the Idexcel team developed a customized chatbot to address the identified challenges. Built on top of AWS Lex, the solution leverages the deep learning technology that powers Amazon Alexa, providing our customer with enhanced, real-time visibility into client data. Users can interact with the chatbot via text or voice to retrieve information. For example, if a user asks, "Which of the clients have a balance amount of more than \$150,000?"

The chatbot would respond with: "There are 12 accounts which have a balance amount of more than \$150000 USD"

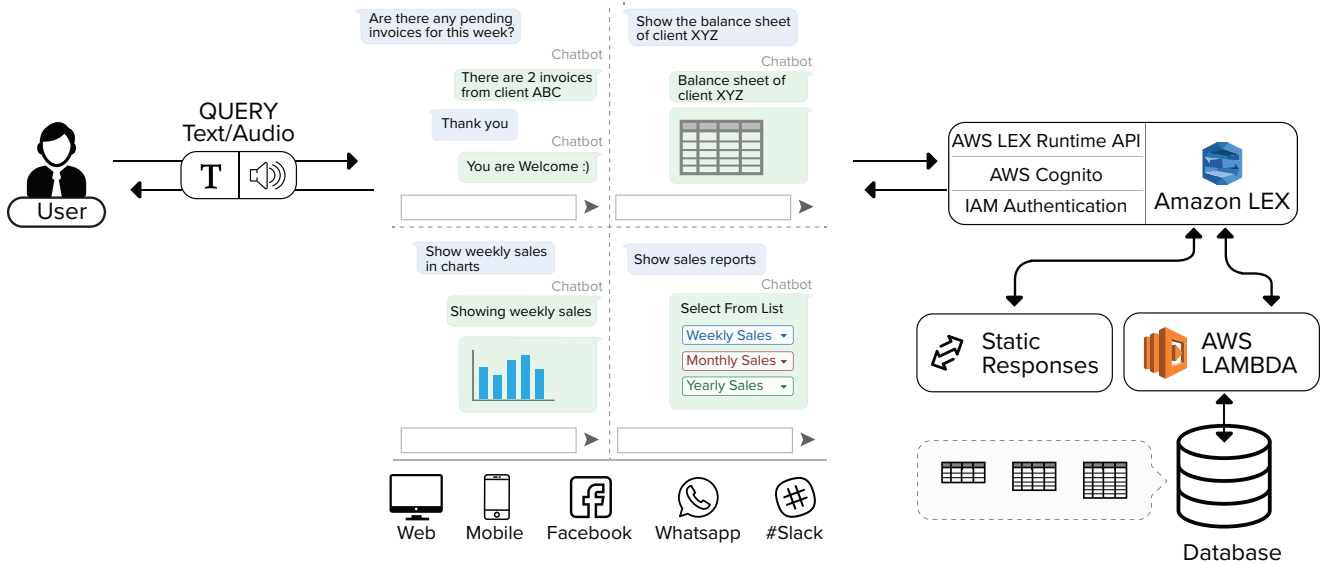
The chatbot is designed to display responses in various formats, depending on user preference—text, tables, or even charts—offering a personalized and efficient view of the requested data.

An added feature of the chatbot is its ability to identify and display accounts that require immediate attention. For instance, if a payment is due on an account within two days, it automatically notifies the user. Leveraging machine learning, the chatbot continuously learns from user interactions and adapts to information requirements over time, significantly reducing the time needed for data retrieval.



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The solution architecture, depicted in the image above, illustrates how chatbot users receive responses. The chatbot's text/voice interface connects to the AWS Lex backend, facilitated by three key services: AWS Cognito, AWS Lex Runtime API, and IAM Authentication. These services ensure secure, seamless user authentication and content delivery tailored to individual users.

AWS Lex is integrated with AWS Lambda and relational databases of the user's choice. With fine-grained customization, we enable the conversion of natural language into database queries. The Idexcel solution also supports report extraction, chart creation, and more. The backbone of the entire architecture is AWS Lex, which serves as the central orchestrator ensuring smooth communication between the user and the system.

Additionally, Lex chatbot agents can be embedded within the client's application portal or mobile app for internal business users. The solution is further scalable to reach end users via popular messaging platforms like Facebook Messenger, WhatsApp, Slack, and more.

BENEFITS

Faster Processing Time: The primary benefit of the Idexcel solution was the ability to retrieve relevant information much faster, significantly reducing the time required to complete business operations.

Precise, Accurate, Valuable Information: Another major advantage of the chatbot is the clarity and accuracy of the information retrieved, along with status notifications of operating accounts—enabling more effective monitoring.

Minimal Effort: The Idexcel team's approach allowed the client to access more information efficiently, with minimal user effort.

Increased Efficiency: Chatbots not only reduce the time taken to perform tasks but also enhance overall workplace productivity by allowing team members to focus on higher-priority objectives.

Fast Results: While the usual turnaround time for obtaining reports from the BI team was at least a day, the chatbot developed by Idexcel provided those reports promptly.

OUR AWS COMPETENCIES



- DevOps Services Competency
- Financial Services Competency
- Migration and Modernization Services Competency

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