

MICHIGAN STATE

U N I V E R S I T Y

Beta Presentation

Digital Banking with Chatbots

The Capstone Experience

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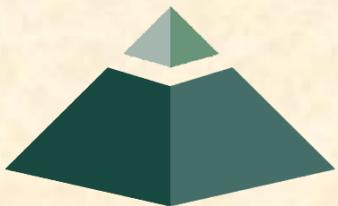
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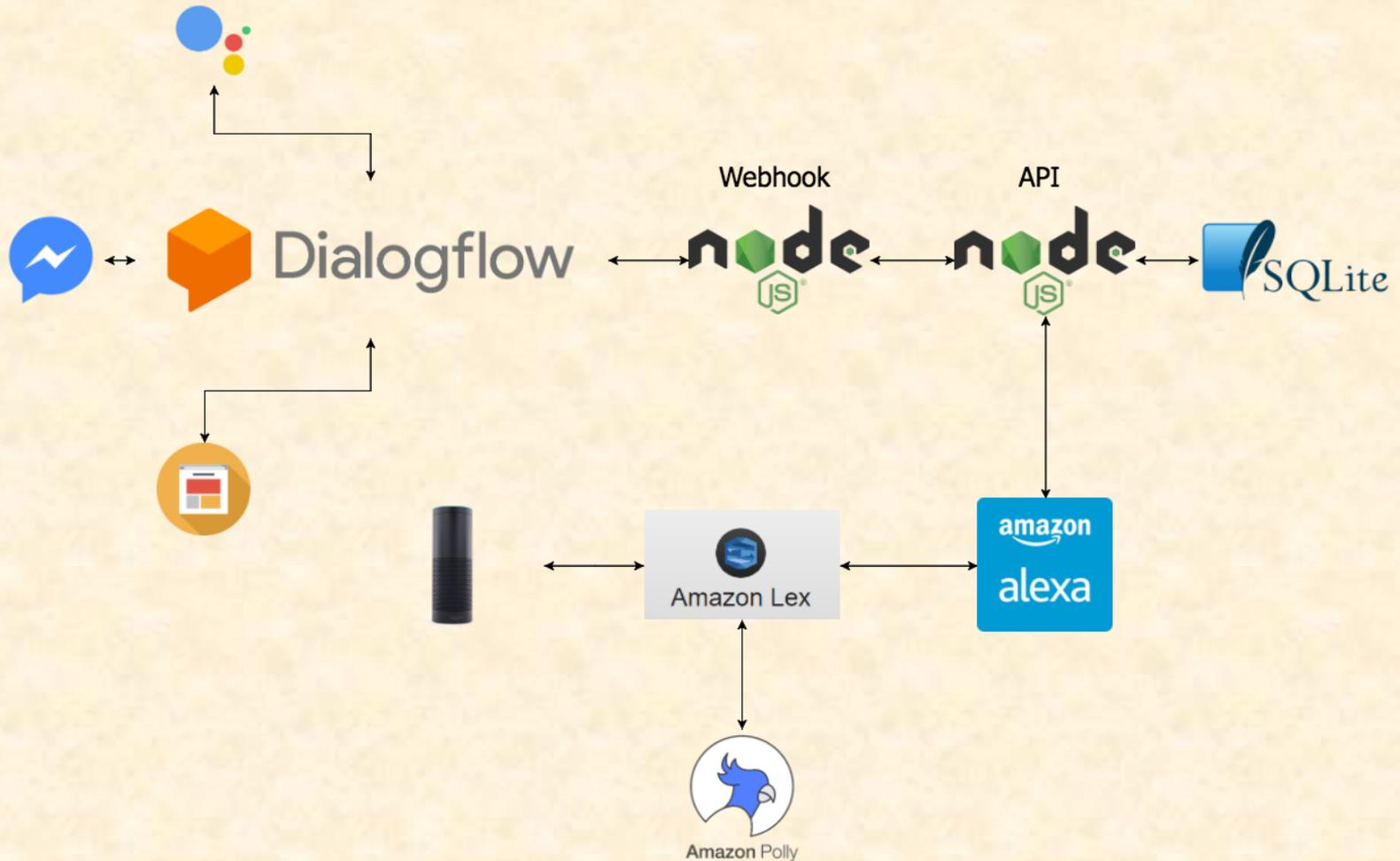


*From Students...
...to Professionals*

Project Overview

- Allow members to more conveniently access support through a digital chatbot
- Expand platforms to include Facebook, Google Assistant, and Amazon Alexa
- Reduce workload on human representatives

System Architecture



Google Assistant and Alexa

Hey MSUFCU, what's my checking account balance?

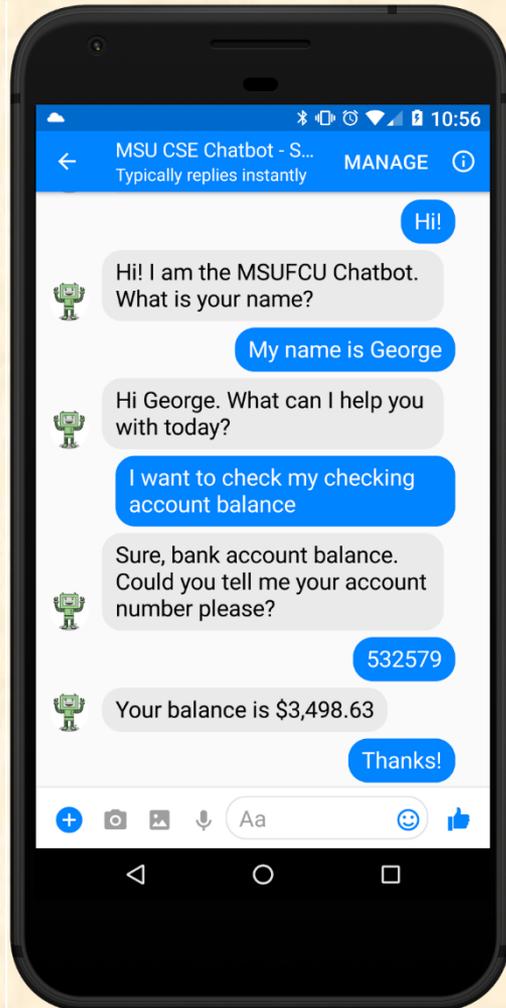
Alright, you want your account balance. Please say your 4 digit PIN.

It's 6781.

Thanks. Your checking account balance is \$3,498.63.



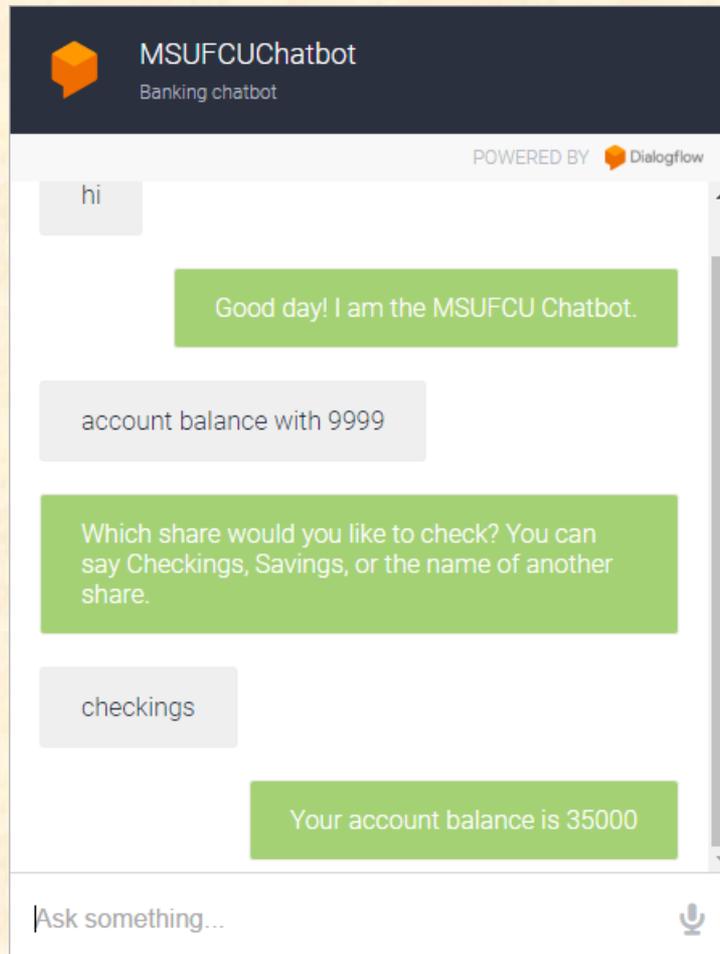
Facebook Messenger



- Convenient
- Easy and fast
- 24/7 support



Web App



Web App

The screenshot displays the MSUFCU website's homepage. At the top left is the MSUFCU logo with the tagline "Building Dreams Together". Navigation links for "Locations", "Careers", and "Live Chat" are present, along with buttons for "Open an Account" and "Sign In". A dark green navigation bar contains links for "LOANS", "ACCOUNT", "SERVICES", "BUSINESS", and "RESOURCES".

In the center, an Amazon Echo device is shown with four blue speech bubbles containing the following text:

- "Alexa, what's my account balance?"
- "Alexa, I can't access my bank account."
- "Alexa, what time does MSUFCU open today?"
- "Alexa, show me my last 5 transactions."

Below the Echo device is the text "With Alexa".

On the right side, a chatbot interface is overlaid. It has a green header with "Chatbot" and a dark blue sub-header with "MSUFCUChatbot" and "Banking chatbot". It is powered by Dialogflow. The chat history shows:

- User: "Hi"
- Chatbot: "Hello! I am the MSUFCU Chatbot."
- User: "What is routing number"
- Chatbot: "The routing number for MSUFCU is 272479663."

The chatbot interface includes a text input field with "Ask something..." and a microphone icon.



Live Demo

- Google Assistant
- Alexa
- Facebook Messenger
- Web App



What's left?

- Unit test all code in Alexa and Dialogflow app
- Fix bugs as needed based on testing
- Review conversation flow and bot responses to ensure a natural dialog
- Polish code and documentation to facilitate a smooth handoff to client
- Implement stretch goal features if possible



Questions?

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Risks Mitigated Overview

- Risk 1
 - Potential vulnerability of intercepting confidential data from database
 - Mitigated:
 - Our API requests are encrypted and sent using SSL/HTTPS
- Risk 2
 - Gaining access to an unauthorized bank account
 - Mitigated:
 - API requests also require a unique ID for their account as well as the specific device ID
 - A User session timeouts after 2 minutes of non-use
- Risk 3
 - Client wants apps on a variety of different platforms
 - Mitigated:
 - API.AI is handling FB MSG, Web App, and Google Assistant off one code base. iOS, SMS, and Android are put on hold
- Risk 4
 - NLP may not understand what the user says due to accents and pitch
 - Mitigated:
 - Suggest users to use the voice training each platform provides



Handling Secure Authentication

- User's can set permissions per feature if it's voice capable.
 - i.e. User can choose to make Check Balance allowed but not Transfer Money
- Able to do sensitive actions only during a 2 minute window



Live Chat Handoff

- Certain actions like fee reversals require more education and personalization, hence they'll be handed off
- Emailing Customer Service Representative when a Customer needs to be helped
- The Customer Service Representative will then click on the Facebook Message
- Other platforms do not currently support live chat, and tapping into MSUFCU's current system(Sysco) is out of this projects scope



Banking Transactional Queries Integrity

- Using Sqlite and the transactional wrapper library for nodejs “sqlite3-transactions”
- Writing Unit Tests to ensure every money transferring query works transactionally



Possible Authentication Flows

- User will sign into Amazon or Google Assistant App
- User will click to link their “MSUFCU” account
- 2 methods:
 - Sign in through an Amazon account
 - Sign in through Web App which shows a 4 digit code to type into Alexa Account Linking



Sample List of Tasks

- Password Reset
- Wire Transfer
- Check Bill Due Date
- Turn off Auto-Pay
- Report Lost/Stolen Card
- Check Balance
- Check Current Fee Rates
- FAQ Questions on [MSUFCU.com/faqs](https://www.msufcu.com/faqs)
- Check Hours
- Transfer Money
- Routing Number
- Direct Deposit Information
- Upcoming Bills Due

