Beta Presentation
Digital Banking with Chatbots
The Capstone Experience

Team MSUFCU
Cori Tymoszek
Josh Benner
Chuanyun Xiao
Gus Fernandes
Syed Naqvi

Department of Computer Science and Engineering
Michigan State University
Fall 2017
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

The diagram shows the system architecture with various components and flows:
- Dialogflow
- Node.js
- SQLite
- Amazon Lex
- Amazon Polly
- Webhook
- API

These components are interconnected, highlighting the flow of information and services within the system.
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

MSUFCU Chatbot
Banking chatbot

hi

Good day! I am the MSUFCU Chatbot.

account balance with 9999

Which share would you like to check? You can say Checkings, Savings, or the name of another share.

checkings

Your account balance is 35000
Web App

"Alexa, what's my account balance?"

"Alexa, what time does MSUFCU open today?"

"Alexa, I can't access my bank account."

"Alexa, show me my last 5 transactions."

"Hi"

"Hello! I am the MSUFCU Chatbot."

"What is routing number"

"The routing number for MSUFCU is 272479663."

"Ask something..."
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?
Risks Mitigated Overview

• Risk 1
  ▪ Potential vulnerability of intercepting confidential data from database
  ▪ Mitigated:
    o Our API requests are encrypted and sent using SSL/HTTPS

• Risk 2
  ▪ Gaining access to an unauthorized bank account
  ▪ Mitigated:
    o API requests also require a unique ID for their account as well as the specific device ID
    o A User session timeouts after 2 minutes of non-use

• Risk 3
  ▪ Client wants apps on a variety of different platforms
  ▪ Mitigated:
    o 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:
    o 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 project’s 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
- Check Hours
- Transfer Money
- Routing Number
- Direct Deposit Information
- Upcoming Bills Due