Alpha Presentation
Digital Banking with Chatbots
The Capstone Experience

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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 Action**
- **iOS Api.ai SDK**
- **Twilio Programmable Chat**
  - Sends Text
- **Api.ai Agent parses information**
  - Response
  - Sends Text
  - Sends Text
- **Api.ai App (webhook)**
  - Response
  - Sends Info
  - Performs action & Returns
  - Sends Info
- **Node.js/Express Api**
  - Sends Info
- **SQLite Database**
- **Facebook Messenger**
- **Alexa Device**
- **Amazon Lex**
- **Alexa Skill**
- **Amazon’s Polly**
Google Assistant and Alexa

Hey, what’s my checking account balance?

Sure, account balance. Please say your 4 digit PIN.

It’s 6781.

Thanks. Your balance is $3,498.63
Facebook Messenger

- Convenient
- Easy and fast
- 24/7 support
Web App

MSUFUCUChatbot
Banking chatbot

hi

Good day! I am the MSUFU 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
Live Demo

• Google Home
• Alexa
• Facebook Messenger
• Web App
What’s left?

- Finish all intents on Api.ai - now “Dialogflow”
- Implement all database related functions - e.g. transfers, bill payments, fee reversals, etc...
- Finish User Authentication
- Unit Testing API and NLP Apps
- If time allows, implement SMS, iOS and Android
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

The Capstone Experience
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