Project Plan Presentation
Digital Avatar Assistant
The Capstone Experience

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Functional Specifications

• College students less financially knowledgeable
• AI bot will help young people budget
• Provide insights on spending habits
• Help describe options for investing
• Advise user on saving for retirement given income/savings
Design Specifications

• Digital Animated Avatar
• Chatbot button activates small window
• Multiple methods of communication
• Graphs from user data presented to user
Screen Mockup: An expanded view of a designed chatbot interaction
Screen Mockup: The chatbot button, shown in the context of the website.
Screen Mockup: The chatbot, opened, as viewed on the Ally website.
Screen Mockup: The virtual assistant helping with budgeting
Technical Specifications

- User interacts with bot through React UI
- UI gets speech or text input from the user
- Speech input is translated to text for Rasa
- Rasa determines the user’s intent, what action should be taken and how to respond
- AI carries out our custom machine learning actions when it determines it necessary
- Rasa returns the response it thinks best fits
- Text output from Rasa is changed into lifelike speech
- Output is given the user in text and speech form in our UI
System Architecture

- Chatbot Open Source Framework
  - NLU Pipeline
  - Dialogue Policies
  - Agent
  - User Interface
    - RASA Open Source HTTP API
    - React

- AWS
  - Tracker Lock
  - Model Storage
    - Amazon S3
  - Speech-to-Text
    - Amazon Transcribe
  - Custom Actions
    - Amazon EC2
  - Machine Learning
    - TensorFlow
  - Text-to-Speech
    - Amazon Polly
System Components

• Software Platforms / Technologies
  ▪ AWS:
    o Amazon Transcribe, Amazon Polly, DynamoDB, Amazon S3, Amazon EC2
  ▪ Python:
    o TensorFlow
  ▪ Rasa:
    o Rasa Open Source, Rasa X, Rasa HTTP API
  ▪ JavaScript:
    o React
Risks

• **Integrating our application with preexisting Ally application**
  ▪ Rasa Agent can directly communicate with web application through Rasa’s REST API, though we’re not certain this method will work.
  ▪ Directly work with Ally engineers to determine which methods of communication with Rasa’s REST API will be possible.

• **Allowing chatbot to directly communicate with User Data**
  ▪ Our application may be unable to retrieve user data necessary for the intended use cases, as banking information is often highly confidential.
  ▪ Make sure backend team is familiar with database retrieval and API communication techniques, and work with Ally engineers for a solution.

• **Ensuring chatbot has sufficient machine learning capabilities**
  ▪ Our team is not certain if the out-the-box Rasa OS Framework ML capabilities will adequately solve our problem statements.
  ▪ Begin work on ML aspects ASAP, and routinely test our chatbot for improving customer satisfaction.
Questions?