Project Plan
MyHumanaBot
The Capstone Experience

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Functional Specifications

• Automated chat service
• Natural language chatbot
• Answers member’s questions about
  ▪ Claims
  ▪ Plans
  ▪ Finding a Doctor
  ▪ Go365 Status
  ▪ Humana Pharmacy Order Status
  ▪ Humana Smartlist
• Logs conversation history
• Saves time for members and employees
• Members get answers to their questions faster
• Administrative portal
  ▪ Authorized Humana employees can review conversation logs
  ▪ Conversations are downloadable text files
Design Specifications

• A chatbot on top of Humana’s existing site
• Looks similar to a text conversation or online chat
• Bot greets user and converses in casual, polite language
• Short text conversations
  ▪ One input, one output
  ▪ User asks a simple question and MyHumanaBot responds with the answer to that question
  ▪ Example:
    o MyHumanaBot: “Is there anything I can help you with today, Sarah?”
    o Sarah: “What is Humana Smartlist?”
    o MyHumanaBot: “SmartList is a Humana program that helps members keep track of the medications they are taking.”
• Long text conversations
  ▪ Multiple inputs, multiple outputs
  ▪ User asks a question and MyHumanaBot
  ▪ Example:
    o MyHumanaBot: “Is there anything I can help you with today, Lee?”
    o Lee: “I want to know about Medicare plans.”
    o MyHumanaBot: “Sure, I can help you understand Humana Medicare Plans. Which of the following types of plans are you looking to understand?”
    o *MyHumanaBot displays options to select from*: Medicare Advantage Plans, Prescription Drug Plans, ...  
    o *Lee selects Medicare Advantage Plans*
    o MyHumanaBot continues to ask questions to isolate the exact plan to inform Lee about. Once a plan is selected, Lee can ask more specific questions about it.
Screen Mockup: MyHumana Site
Screen Mockup: Conversation Area
Screen Mockup: Admin Site

MyHumanaBot Chat Log

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>User ID</th>
<th>Conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep. 19, 2017</td>
<td>guest</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 19, 2017</td>
<td>hpotter7</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 19, 2017</td>
<td>guest</td>
<td>download</td>
</tr>
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<td>download</td>
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<td>download</td>
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<tr>
<td>Sep. 17, 2017</td>
<td>mlevinson</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 17, 2017</td>
<td>guest</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 17, 2017</td>
<td>johnsmith1</td>
<td>download</td>
</tr>
</tbody>
</table>
Technical Specifications

- **Microsoft Bot Framework**
  - Full-featured SDK for .NET platform
  - Backend logic for mapping responses

- **Natural Language Processing**
  - API.ai
  - Processes user’s input
  - Identifies context and intent

- **Web Apps**
  - ASP.NET MVC framework
  - Connected to database through Entity framework

- **Database**
  - Azure SQL Server
  - Stores Humana Member account information
  - Stores conversation history

- **Cloud Based Tools**
  - Azure Cloud Services
  - Bot and database are hosted here

- **Development Tools**
  - Visual Studio
  - CSE GitLab

- **Test Plan**
  - Microsoft Bot Emulator
  - Unit testing
System Architecture
System Components

- Hardware Platforms
  - Azure Cloud Services

- Software Platforms / Technologies
  - Microsoft Bot Framework
  - Azure SQL Server
  - API.ai
  - C# / ASP.NET MVC framework version 4.6
  - Microsoft Bot Emulator
  - Visual Studio
Testing

• Microsoft Bot Emulator
  ▪ MyHumanaBot will be tested locally using Bot Emulator

• Unit Testing
  ▪ Key components in the chatbot project will include unit tests

• Multiple branches in GIT, including a testing branch

• Field Testing
  ▪ Will be stressed throughout semester
  ▪ Humana has a wide user base
  ▪ We will ask people of different ages and with different levels of technological experience to try MyHumanaBot
Risks

- **Developing in Bot Framework**
  - No one on the team has experience creating chatbots or using this framework
  - Mitigation:
    - We will all complete an online tutorial on building chatbots using this framework
    - Review the documentation on the bot framework to get an idea of how it works

- **Natural Language Processing and API.ai**
  - No experience with natural language processing or API.ai
  - MyHumanaBot should incorporate a generative model (somewhere between 20%-40% generative)
  - Mitigation:
    - Team will research API.ai and look through relevant documentation
    - One member of the team is assigned to be the lead on API.ai
    - Team will prototype each functionality we need API.ai to perform

- **User Data Security**
  - Humana has stressed the importance of security for MyHumanaBot.
  - No extensive experience in internet security or securing personal health data
  - Without proper data security, MyHumanaBot will be useless
  - Mitigation:
    - We have assigned one member of the team, Jason, to be the security lead.
    - Research laws and regulations regarding the privacy of personal health data
    - Reach out to peers, experts, and contacts at Humana

- **Mocking Out Homepage and Login**
  - Making a sample host page with login functionality to put the bot on
  - Needs to be easily transferable / integrate well with Humana’s actual site
  - Mitigation:
    - Discuss with client contact and use proper object oriented principles
Questions?