

MICHIGAN STATE

UNIVERSITY

Project Plan Presentation

Leveraging OpenAI for Business Analytics

The Capstone Experience

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

Project Sponsor Overview

- Michigan's Premier Provider:
 - Not for profit health insurance company
 - Serving the healthcare needs of Michigan residents
- Comprehensive Coverage Options:
 - Diverse plans: Individual, family, Medicare, Medicaid
 - Inclusive coverage: Medical, dental, vision, etc.
- Wellness-Centric Approach:
 - Emphasis on preventative care and wellness
 - Access to fitness facilities, health programs, and screenings



Project Functional Specifications

- **Enhanced Customer Service:**
 - Improve the customer service experience by understanding the reason behind customer calls
- **Information Retrieval:**
 - Help HAP customers quickly access answers available on hap.org
- **Plan Selection Assistance:**
 - Aid customers in choosing the most suitable health insurance plan



Project Design Specifications

- **Call Summarization Tool**

- User can upload a call transcript and will be given the call subject and identified keywords
- Raw data will be displayed in a table
- Data visualization for call topics will be displayed in a pie chart

- **Chatbot Tool**

- User can open the popup chatbot to ask questions about hap.org content
- Chatbot will be accessible from any page on the website for quick access

- **Plan Selector Tool**

- User will answer 10 questions (each individually displayed)
- Once completed, a recommended Medicare plan with links to additional information will be provided

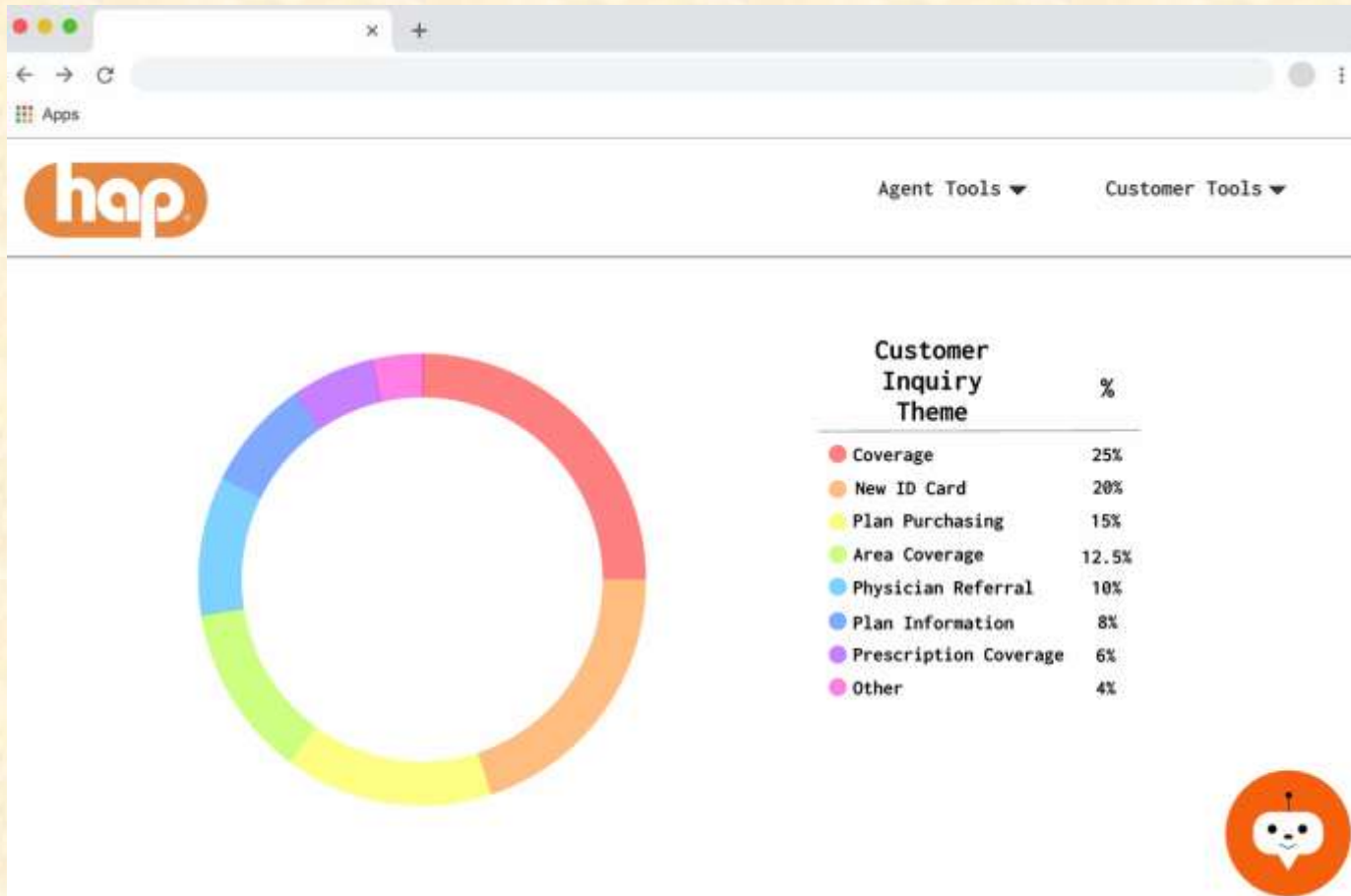


Screen Mockup: Call Summarization Tool

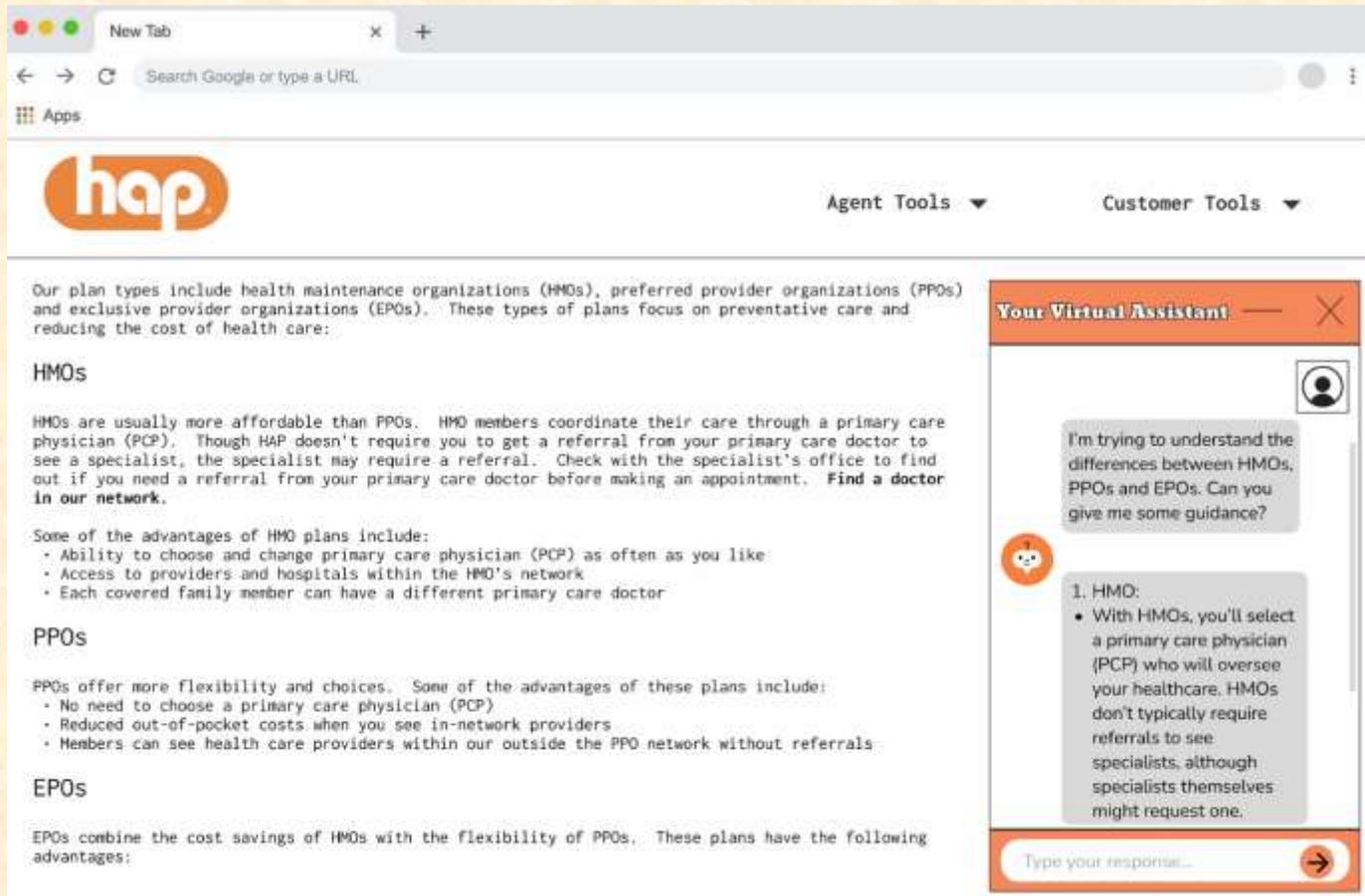
September ▾ Upload Transcript

| Date | Time | Service Phone | Call Subject | Identified Keywords | Transcript File |
|---------|---------|--------------------|-------------------------|---|---|
| 9/08/23 | 4:23pm | Provider Inquiries | Coverage Inquiry | Coverage, Knee Surgery, Deductible, Claim Process | 9-08-23-transcript2.txt |
| 9/08/23 | 4:01pm | Member Inquiries | New ID Card | Replacement, Lost ID, Mailing Address | 9-08-23-transcript1.txt |
| 9/07/23 | 4:46pm | Member Inquiries | Coverage Inquiry | Coverage, Doctor Visit, Deductible | 9-07-23-transcript4.txt |
| 9/07/23 | 1:12pm | Provider Inquiries | Area Coverage | Florida, Out of State, Winter Months | 9-07-23-transcript2.txt |
| 9/07/23 | 10:34am | Member Inquiries | Physician Referral | South Carolina, Out of State, Vacation | 9-07-23-transcript2.txt |
| 9/07/23 | 8:52am | Provider Inquiries | Area Coverage | Metro-Detroit, Heart Doctor | 9-07-23-transcript2.txt |
| 9/07/23 | 5:41am | Provider Inquiries | Pharmaceutical Provider | Drug Pickup, Pharmacist, Copays | 9-07-23-transcript2.txt |
| 9/06/23 | 3:03pm | Member Inquiries | New ID Card | Replacement, Lost ID, Mailing Address | 9-06-23-transcript.txt |
| 9/06/23 | 11:43am | Member Inquiries | Plan Purchasing | Dental, Vision, No Deductible | 9-06-23-transcript.txt |
| 9/06/23 | 7:08am | Member Inquiries | Plan Purchasing | Hearing, Vision, Medicare, Lansing Area | 9-06-23-transcript.txt |

Screen Mockup: Call Transcript Data Summarization Tool



Screen Mockup: Chatbot Tool



Screen Mockup: Chatbot Tool

The screenshot displays a web application interface. At the top left is the 'hap' logo. To the right are 'Agent Tools' and 'Customer Tools' dropdown menus. Below the header is a table of HMO plans. A chatbot window titled 'Your Virtual Assistant' is overlaid on the right side of the table. The chatbot has a friendly greeting and has responded to a user's question about Rx coverage for the HAP Senior Plus (HMO) plan.

HMO More affordable-in-network coverage only. needs an in-network Primary Care Doctor in 46 Michigan counties plus a Visitor Traveler Health Plan for four states for up to 12 months.

| Plan & Rating | Rx Coverage | Monthly Premium | Deductible | Copays | Max Out of Pocket |
|--------------------------------------|-------------|-----------------|------------|--|-------------------|
| HAP Senior Plus (HMO) | Yes | \$0 | \$0 | \$0/\$40 | \$4,500 |
| HAP Senior Plus (medical only) (HMO) | No | \$0 | \$0 | \$0/\$25 | \$4,500 |
| HAP MSUHC Medicare (HMO) | Yes | \$0 | \$0 | \$0/\$30 | \$5,000 |
| HAP Henry Ford Tiered Access (HMO) | Yes | \$99 | \$0 | Tier 1: \$10/\$30 Tier 2: \$30/\$50 | \$4,750 |
| HAP Primary Choice (HMO) | Yes | \$0 | \$0 | \$0/\$40 | \$5,000 |

Your Virtual Assistant

Hi there! I'm your friendly virtual assistant. How can I help you today?

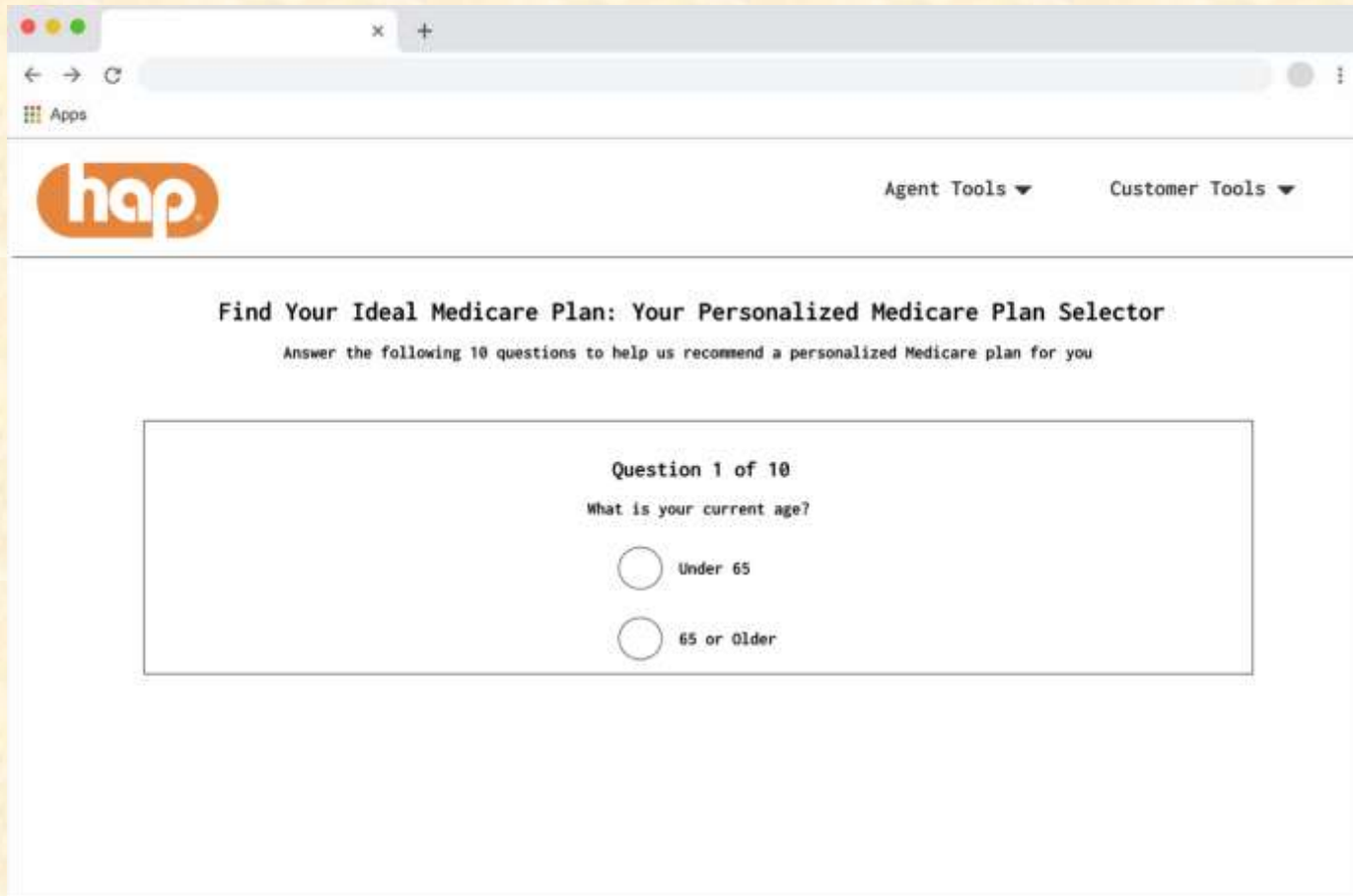
Does HAP Senior Plus (HMO) offer Rx Coverage?

No. The HAP Senior Plus (HMO) currently does not offer Rx Coverage.

Type your response...



Screen Mockup: Plan Selector Tool



The screenshot shows a web browser window with a single tab. The address bar is empty. The page header features the 'hap' logo on the left, and 'Agent Tools' and 'Customer Tools' dropdown menus on the right. The main content area is titled 'Find Your Ideal Medicare Plan: Your Personalized Medicare Plan Selector' and includes the instruction 'Answer the following 10 questions to help us recommend a personalized Medicare plan for you'. A large white box contains the first question: 'Question 1 of 10' and 'What is your current age?'. Below the question are two radio button options: 'Under 65' and '65 or Older'.

hap Agent Tools Customer Tools

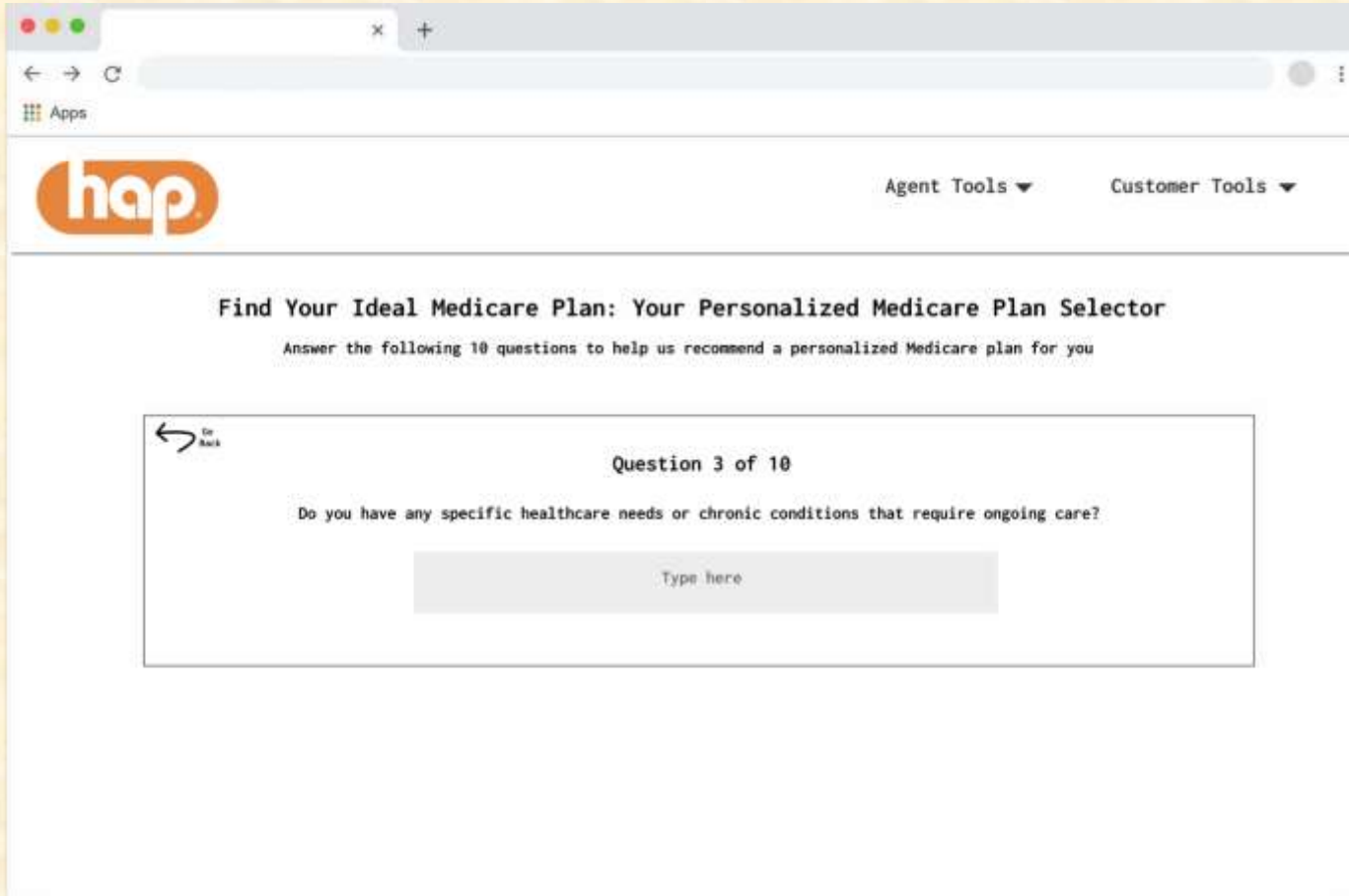
Find Your Ideal Medicare Plan: Your Personalized Medicare Plan Selector
Answer the following 10 questions to help us recommend a personalized Medicare plan for you

Question 1 of 10
What is your current age?

Under 65
 65 or Older



Screen Mockup: Plan Selector Tool



The screenshot shows a web browser window with a single tab. The browser's address bar is empty. The page header features the 'hap' logo on the left, and 'Agent Tools' and 'Customer Tools' dropdown menus on the right. The main content area is titled 'Find Your Ideal Medicare Plan: Your Personalized Medicare Plan Selector' and includes the instruction 'Answer the following 10 questions to help us recommend a personalized Medicare plan for you'. The current question is 'Question 3 of 10' and asks 'Do you have any specific healthcare needs or chronic conditions that require ongoing care?'. A text input field with the placeholder 'Type here' is provided for the answer. A 'Go Back' button with a left-pointing arrow is located in the top-left corner of the question box.

hap Agent Tools Customer Tools

Find Your Ideal Medicare Plan: Your Personalized Medicare Plan Selector
Answer the following 10 questions to help us recommend a personalized Medicare plan for you

← Go Back

Question 3 of 10

Do you have any specific healthcare needs or chronic conditions that require ongoing care?

Type here




Screen Mockup: Plan Selector Tool

Find Your Ideal Medicare Plan: Your Personalized Medicare Plan Selector

Based on your quiz, here is the plan we recommend:

HAP Senior Plus (medical only) (HMO)

HMO More affordable-in-network coverage only. needs an in-network PCP. Doctors in 46 Michigan counties plus a Visitor Traveler benefit for four states for up to 12 months.

| Plan & Rating | Rx Coverage | Monthly Premium | Deductible | Copays | Max Out of Pocket | Service Area |
|-----------------------|-------------|-----------------|------------|----------|-------------------|---|
| HAP Senior Plus (HMO) | Yes | \$0 | \$0 | \$0/\$40 | \$4,500 |  |

[View Plan Details Here](#)

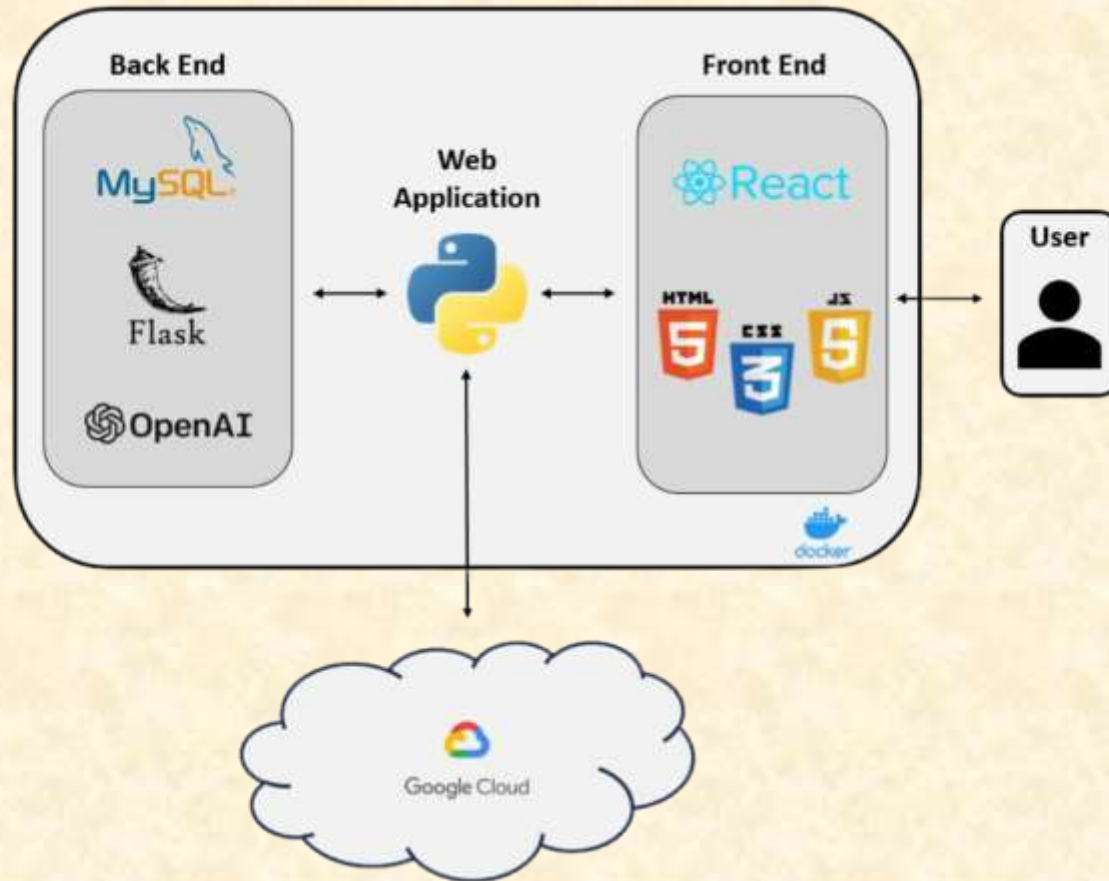


Project Technical Specifications

- Front-end:
 - React framework, HTML, CSS, JavaScript
 - Will test by using Selenium
- Back-end:
 - Flask, MySQL, OpenAI services
 - Will test by using Pytest
- Containerization via Docker



Project System Architecture



Project System Components

- Hardware Platforms
 - Google Cloud Platform for deployment
- Software Platforms / Technologies
 - Docker to build and deploy our web application
 - PyCharm IDE for development
 - Gitlab for version control



Project Risks

- Risk 1
 - Inaccurate summarization of call content by OpenAI
 - Assess OpenAI's ability by manually checking the transcripts we use and verifying that the summarization's are accurate
- Risk 2
 - Ensuring compliance with Protected Health Information (PHI) in call transcript processing
 - Use ChatGPT generated call transcripts to avoid violate PHI laws
- Risk 3
 - Cost implications of OpenAI API usage due to token requirements for integration
 - Engage in open communication with client to understand the level of investment they want to make and actively monitor token usage
- Risk 4
 - Dependency on a third-party API as the core functionality of the web application
 - Redirect users to a hap.org FAQ page in the event that the OpenAI service is unavailable



Questions?

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