MICHIGAN STATE UNIVERSITY

Project Plan Presentation Healthcare Payer Price Transparency

The Capstone Experience

Team HAP Mansour Alblooshi Drew Hamilton Alvin Hoang Joshua Thomas Sai Upparapalle Manan Vyas

Department of Computer Science and Engineering Michigan State University

From Students... ...to Professionals

Fall 2024

Project Sponsor Overview

- Non-profit health insurer that allocates 90% of premium revenue to healthcare services.
- Subsidiary of Henry Ford Medical Services.
- Annually recognized industry leader since 1993.
- Provider network that serves 430,000 members across Michigan.



Michigan's home for health insurance.



Project Functional Specifications

- Read standardized machine-readable files provided by health insurers and hospitals.
- Extract all relevant data from the machinereadable files.
- Use generative AI to analyze the extracted data and provide important insights to the user.

Project Design Specifications

- Our chosen UI is a web application
- Simple check-box selection
- Visualizations and Graphs to improve health plan insights
- Al generated summaries

Screen Mockup: Initial Home Screen

□ • < >		location		
	hap		Healthcare Payer Price Transpa	rency
	Select MRF Files to Compa	re		
	HAP Blue Cross Blue Shield	Priority		
	Paste additional file link			
		Compare Files		
		ChatGPT		
		Cor vin Cestorr Gather Insights		
		3		

Screen Mockup: File Selection

⊡ * < >		location	¢	₫ +
	hap		Healthcare Payer Price Transpa	rency
		vield Priority ord Choice file HMO file POS file PPO file E 3A Option 4A Option E5A Option 6A Option		
	¹ Post (r. prov. The limit frain	Compare Files]	
		ChatGPT the em Cleaner Gather Insights		

Screen Mockup: Link File Selection

□ • < >		L	location	c	₫ +
	hap		He	althcare Payer Price Transpa	rency
	нар 🛛 🛛 🕄		iption ESA Option 6A Option 7A C	Option 8A	
	https://hup.beeithspars.o	onfreektropetgloutlic/Teamortlator/OHTCMockrit	e#psylnumerCodenH4P_IBasedCodenH49/Inschine Compare Files	nedable-thansperency-in-coverage -:textn37651M8E	
			ChatGPT Duri web Chattint		
			Gether Insights		

Screen Mockup: Graphical Analysis



Team [Team Name] Project Plan Presentation

Screen Mockup: CSV Download



Billing code: 434, provider: 34, type: per diem, rate: 25.00 Billing code: 435, provider: 78, type: per diem, rate: 45.99 Billing code: 436, provider: 86, type: negotiated, rate: 50.00

Screen Mockup: Al Summary

0+<>		location	c	ዕ + ወ
	Encorpore) advance(1976) Designation (1976) Encorpore, advances per Name Ford any advance the (3, sector) any design (3, sector) (4, sector) (4, sector) Apry (4, 3, 4, sector) (4, sector	Health System Tracker	TIME VALUE VIEW VIEW VIEW VIEW	
	Characteriter (Second Characteriter) and Moderatel, 2006-2022	The U.C. mant for	ARAS Sillion on handlik care in 2022 where did it go?	
	- /			
			and a second sec	
	Same III mayor diselect Soft Dependent Billions	Health System Tracker		
		ChatGPT One rea a servicely of the Ges compares.		
		Gather Insights		

Project Technical Specifications

- Google Cloud Platform
- File Ingestion Service
- SDK or REST API to handle files in cloud
- Google BigQuery
- Data processing

Project System Architecture



The Capstone Experience

Project System Components

Hardware Platforms

Google Cloud Compute Engine

- Software Platforms / Technologies
 - HTML/CSS/Js
 - Flask
 - Docker
 - BigQuery

Project Risks

Parsing JSON files

- Large files require attention to runtime and storage.
- Use cloud databases to process and store the files.
- Overcoming LLM input limits
 - We can't input as much data as we would like.
 - Pass smaller amounts of data that is of higher quality.

• Expense

- Cloud computing and other needs could be very expensive.
- Convert to using smaller files that can be stored in the cloud to minimize BigQuery utilization

Questions?

