MICHIGAN STATE UNIVERSITY

Project Plan Presentation Customer Intent Engine and Training Tool

The Capstone Experience

Team HAP

Abdulrahman Alanazi Praneetha Ankisettipalli Averey Davis Bao Hoang Saarthak Sharma Karoline Yashin er Science and Engineering

Department of Computer Science and Engineering Michigan State University

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From Students... ...to Professionals

Project Sponsor Overview

- HAP is a nonprofit health insurance plan organization founded in 1960.
- Located in Troy, Michigan.
- Subsidiary of Henry Ford Health.
- Partner with doctors, employers and community groups to enhance the overall health and well-beings.
- HAP was among one of the first 21 health plans in the United States to publicly report on quality of care.

Project Functional Specifications

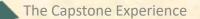
- Enhance HAP customer service skills training.
- Build a web application.
- Provide insights from past call transcripts via an interactive dashboard and graphs.
- Identify customer intents from call transcripts.
- Provide a Chatbot that answers customer service concerns.

Project Design Specifications

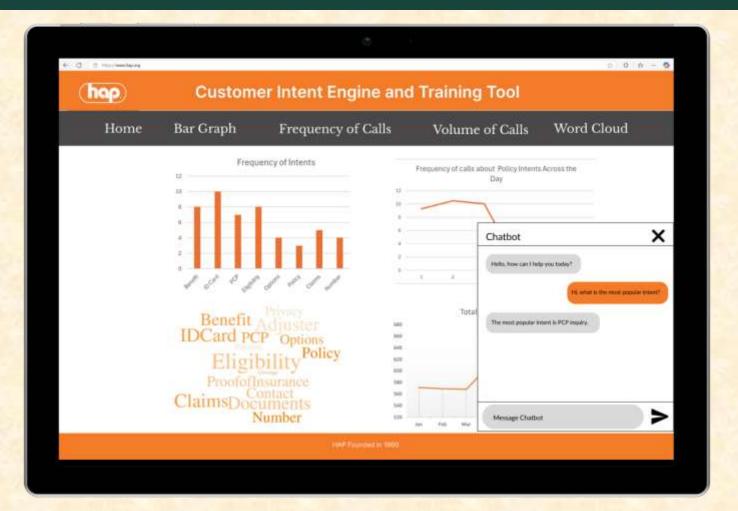
- The web application includes interactive graphs and a dashboard to enhance employee training.
- Detailed information is presented in a modal popup.
- A smart Chatbot is integrated in the lower right corner for easy access.

Screen Mockup: Homepage





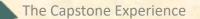
Screen Mockup: Chatbot





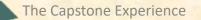
Screen Mockup: Bar Graph

hap	Custome	r Intent Engine and	Training Tool	
Home	Bar Graph	Frequency of Calls	Volume of Calls	Word Cloud
Select Inte				
Select intents to	view their frequency in further d	letail		
	PCP		Frequency of Intents	
	Eligibility	12	riequency of intents	
	ID Card			
	Benefit	10		
	Proof of Insurance	8		
	Privacy	6		
	Claims	4		
	Policy	2		
	Options			
	Documents	0	3 03 0 0 0	
	Coverage	Appen Don 6.	Contraction Colores based Control	
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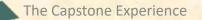
Screen Mockup: Bar Graph

hap	Custome	r Intent Engine a	ind Training Tool	
Home	Bar Graph	Frequency of Cal	ls Volume of Calls	s Word Cloud
Select Inte				
Select intents to	view their frequency in further o	letail		
	PCP		Frequency of Inter	nts
	Eligibility	9		
	ID Card	8		
	Benefit	7		
	Proof of Insurance	6		
	Privacy	5		
	Claims	4		
	Policy Options	3		
	Documents	2		
	Coverage	1		
	Adjuster	Benefit	PCP	Policy



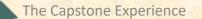
Screen Mockup: Volume of Calls

hap	Custom	er Inte	ent En	gine a	ind Tr	aining	j Tool			
Home	Bar Graph	Fre	quency	of Call	s V	olume	of Calls	w	ord Cl	oud
Total Volum	e of Calls view the volume of calls per	month								
_	CP			Total	Volum	e of Ca	lls			
Elig	ibility 680									
ID	Card 660									
Pay	ment					1				
Proof of	Insurance 640				/					
Pri	vacy 620				/					
CL	aims 600								-	
Nu	mber 580			/						
Op	tions 560			_						
Docu	iments 540									-
Cov	erage									00
Ad	juster 520	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	2



Screen Mockup: Volume of Calls

(hap)	Custome	r Inte	nt Eng	gine ai	nd Tr	aining	Tool			
Home	Bar Graph	Free	luency	of Calls	v	olume o	of Calls	W	ord Cl	oud
Total Volume	of PCP Calls									
Select an intent to vi	ew the volume of calls per mo	nth								
PC	P		3	Total Vo	olume	of PCP	Calls			
Eligib	680									
IDC	ard 660									
Рауп	ent					-				
Proof of Ir	surance 640					/		1		
Priva	620				/					
Clai	ms 600				/				-	
Num	ber 580			/						
Opti	ons 560			_						
Docum	NEW CONTRACTOR OF STREET									
Cover	age									0
Adju	ster 520	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	

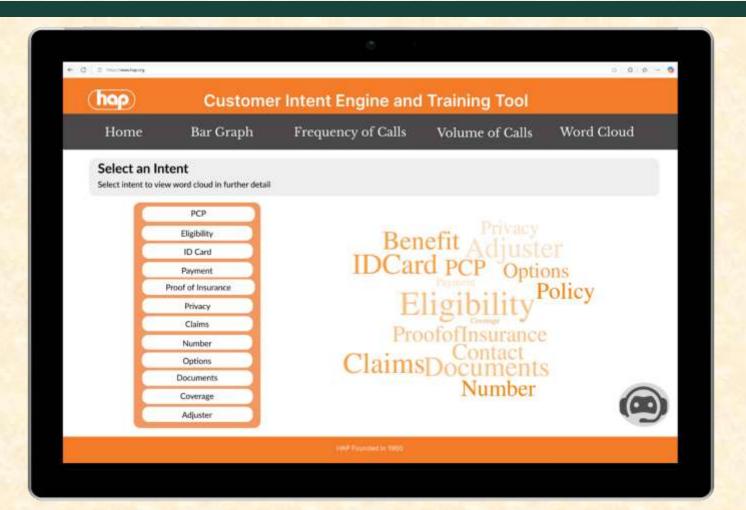


Screen Mockup: Frequency of Calls

hap	Custome	istomer Intent Engine and Training Tool								
Home	Bar Graph	Frequency of Calls	Volume of Calls	Word Cloud						
		ntent Across the Day								
Contraction of the second	iew the volume of calls per m	onth								
PC		Frequency of calls a	bout PCP Intent Across t	he						
Eligibility			Day							
Payr		14								
Proof of I		12								
Priv	acy	10	6							
Cla	ims	8								
Num		6								
Opti		2								
Docur	and the second design of the s	0	-	-						
Adju	and the second se	1 2 3 4	5 6 7 8							
- sula										



Screen Mockup: Word Cloud





Screen Mockup: Word Cloud

C monoralisery				0 0 0 -
hap	Custome	r Intent Engine and	Training Tool	
Home	Bar Graph	Frequency of Calls	Volume of Calls	Word Cloud
Select an In Select intent to vie	PCP Eligibility ID Card Payment Proof of Insurance	Dr.Rod	Dr.Phil ^{riguez} Dr.Wilson Kumar	n
	Privacy Claims Number Options	D De-Sha	n.Davis n.Davis ^{a. Dr.Sunith Dr.Patel} IllerDr.Johnso	
	Documents Coverage Adjuster			

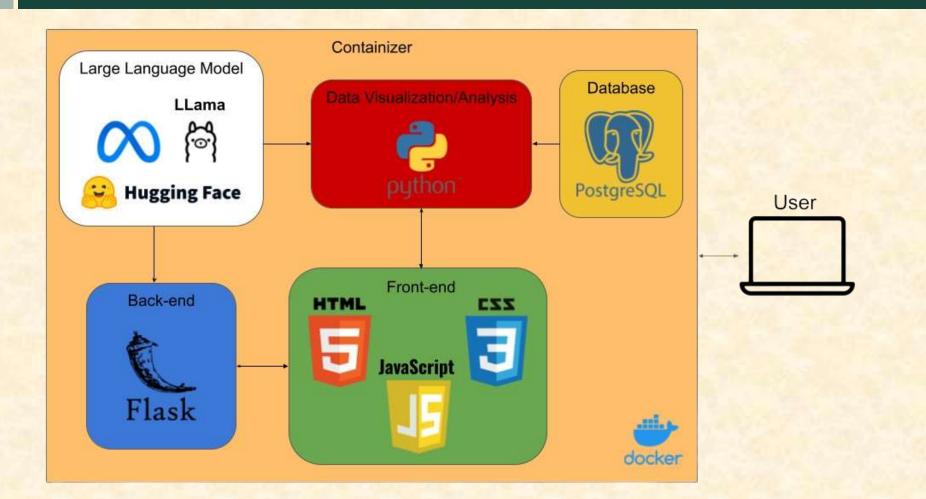


Project Technical Specifications

- Train an AI model to detect intents from call transcripts.
- Train a smart Chatbot to answer customer service training questions.
- Perform data analysis to get insights from call transcripts.
- Build a web application with multiple interactive dashboard and graphs.



Project System Architecture



Project System Components

- Hardware Platforms
 - Hardware is not applicable to our project.
- Software Platforms / Technologies
 - Web Development: HTML, CSS, JavaScript, Flask.
 - Data Visualization/Analysis: Python.
 - Database: PostgreSQL.
 - Al models: Local LLMs like Llama.



Project Risks

- Unlabeled Dataset
 - The dataset is unlabeled.
 - We will manually label it or use a pre-trained model like GPT to generate labels.
- Noisy Transcripts
 - Some transcripts generated with Genesys software may not be accurate based on the user's call.
 - We will use context clues to determine intents or remove the noisy transcript based on the AI model's low confidence score.
- Multiple Intents
 - The transcripts contain multiple intents, so the AI model may be confused.
 - We will manually review the transcripts and specify which parts of the call correspond to different intents.
- Slow Inference Time
 - The AI model is large, so the inference time may be slow, which could negatively impact the user experience.
 - We will perform model optimization, such as quantization or pruning.

Questions?

