

# City Council Aid Assistant

**Team 3:** James Gile, Tim Willard, Carl Peterson, Anna Fine



The lack of police presence and code enforcement is sending a growing message that these violations are not important...



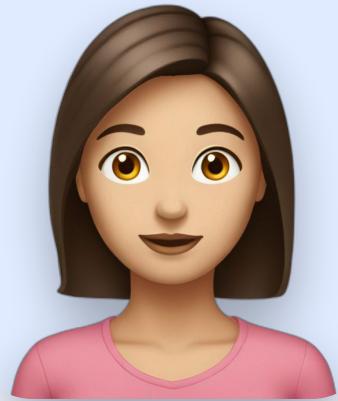
Good morning Ron,  
Thank you for your email.  
We recognize the concerns  
regarding police presence ...



Thank you for your inquiry about  
getting a compost bin.  
Unfortunately, as noted in your case  
number 9578014, the compost  
rollout in your area won't occur ...

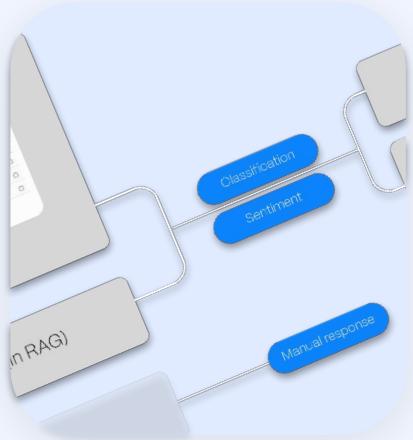


## Process overview



01

*Define the problem and  
who we're solving it for*



02

*Outline the ideal  
solution*



03

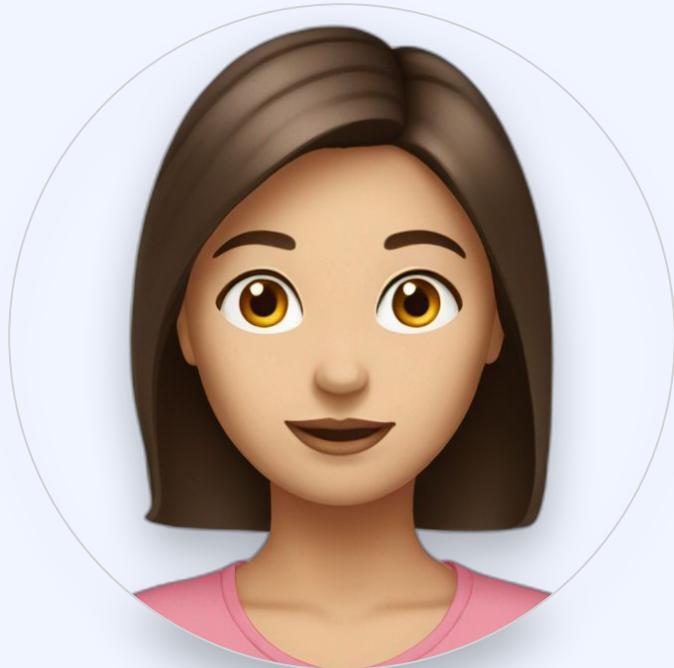
*Determine best models  
& APIs to use*



04

*Create an engine with LLMs,  
Gradio and huggingface*

## Persona



# Kathy

District Aid • GenX

Kathy is a hard-working aid for the City of Denver.

She currently sifts through hundreds of emails a day having to craft individualized responses to each complaint issued. It's time consuming and thankless work.

She's looking for a way to do the work more efficiently, but still ensure that everyone gets the individualized attention they deserve.



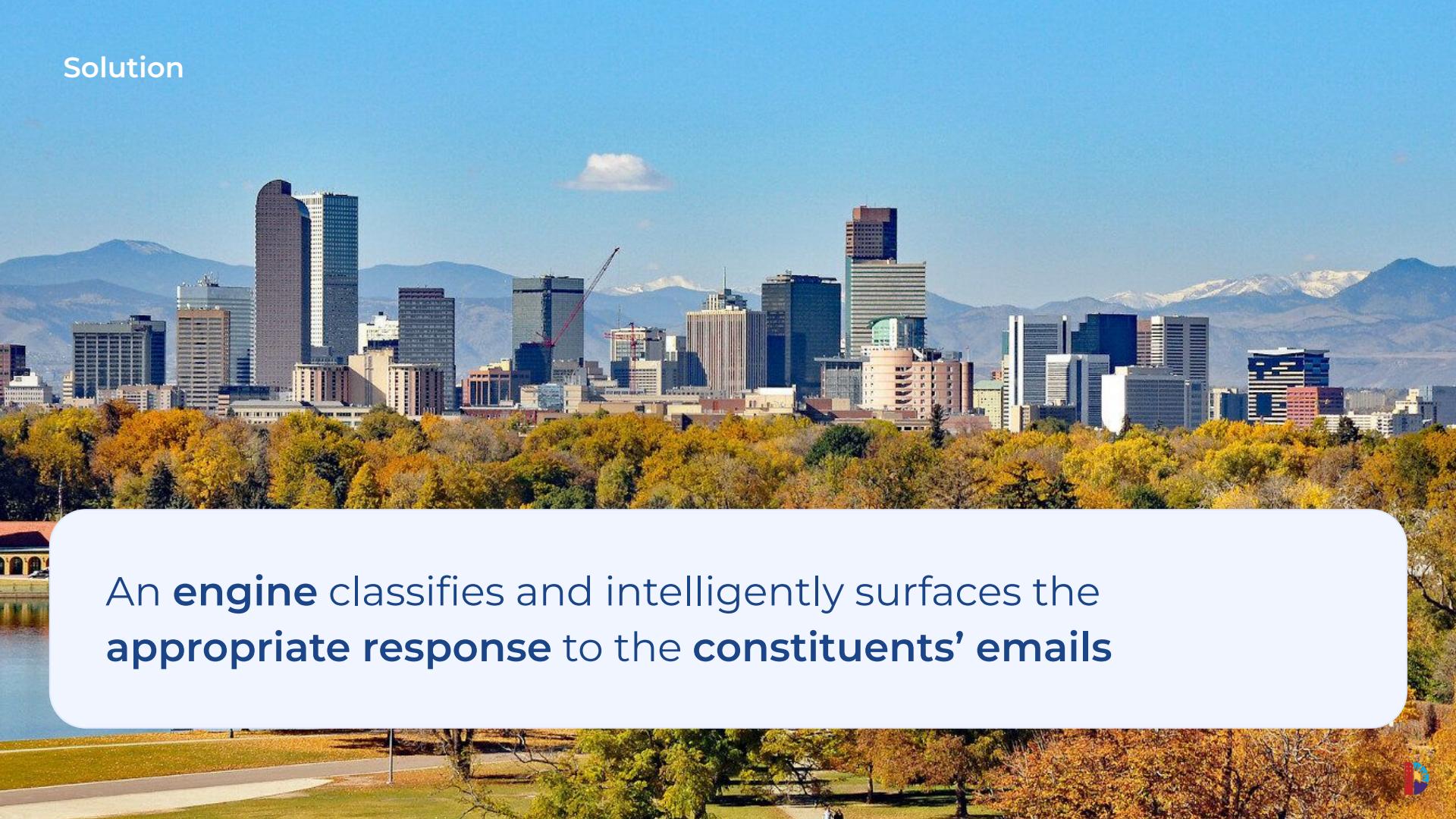
## Pain point



City council aids get complaint emails despite their focus on policy, regularly having to redirect constituents to 311, a time-consuming practice



## Solution



An **engine** classifies and intelligently surfaces the appropriate response to the **constituents' emails**



# Resources

[311 Report an Issue](#)

[City of Denver](#)

[huggingface](#)

[ChatGPT API](#)

The screenshot shows the City of Denver's online services hub for reporting issues. The page has a modern design with a blue hexagonal background pattern. At the top, the Denver logo is displayed along with links for 'MAKE A PAYMENT', 'REPORT AN ISSUE', 'SERVICES', and 'ENGLISH (UNITED STATES)'. The main content area is titled 'Report an Issue' and includes sections for 'Before you begin' and 'Would you like to create an account?'. There are buttons for 'Login' and 'Sign Up'. At the bottom, there are five tabs labeled 'Describe the issue', 'Where did it occur?', 'How can we contact you?', 'Review and submit', and 'Submission complete'. A sidebar on the right lists various service categories such as Encampment Reporting, Graffiti, Pothole, Animal Complaint, Weeds & Vegetation, Neighborhood Issue, Other, Snow on Sidewalk, Abandoned Vehicle, Illegal Parking, Damaged/Fallen Tree, Police: Non-emergency, Fireworks, and Illegal Dumping.



# Ideal process

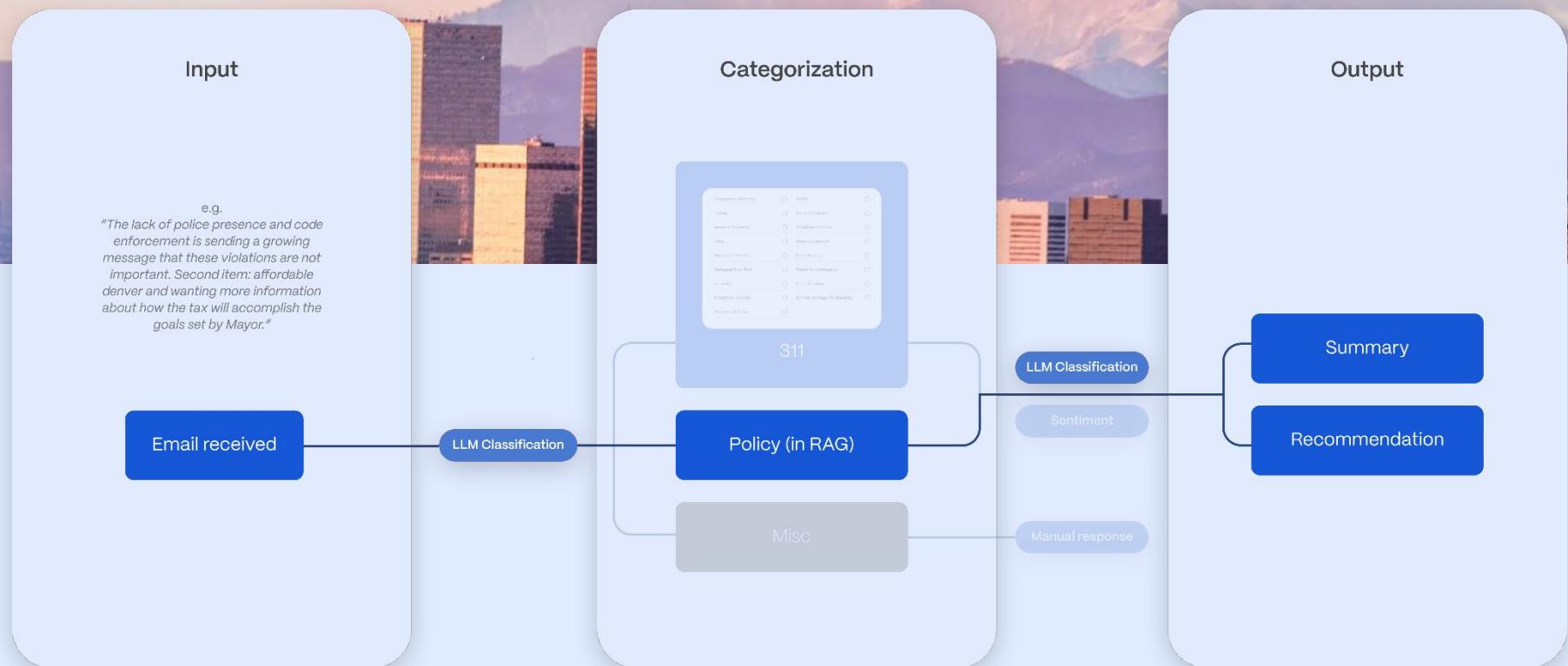


Xactly

Version 1



# User flow 1



# Showcase 1

Denver City Council District 4 Email Assistant

Enter a constituent email and the app will generate a sample response.

Constituent Email  
Enter email here...

Prompt Template  
D4 Specific Prompt

GPT Model  
gpt-4o-mini

D4 Specificity Scale - 0 is most specific, 1 is least specific

Sample response:  
Generated response will show here...

Clear Submit

Examples

Constituent Email	Prompt Template	GPT Model	D4 Specificity Scale - 0 is most specific, 1 is least specific
The lack of police presence and code enforcement is sending a growing message that these violations are not important. Second item: affordable denver and wanting more information about how the tax will accomplish the goals set by Mayor.	D4 Specific Prompt	gpt-4o-mini	0.3
The lack of police presence and code enforcement is sending a growing message that these violations are not important. Second item: affordable denver and wanting more information about how the tax will accomplish the goals set by Mayor.	Generic Prompt	gpt-4o-mini	1
I want information on getting a compost bin. I have submitted case number: 9578014	D4 Specific Prompt	gpt-4o-mini	1
I want information on getting a compost bin. I have submitted case number: 9578014	Generic Prompt	gpt-4o-mini	0.3

Generate a response



# Showcase 1

## Denver City Council District 4 Email Assistant

Enter a constituent email and the app will generate a sample response.

### Constituent Email

The lack of police presence and code enforcement is sending a growing message that these violations are not important. Second item: affordable denver and wanting more information about how the tax will accomplish the goals set by Mayor.

### Prompt Template

D4 Specific Prompt

### GPT Model

gpt-4o-mini

D4 Specificity Scale - 0 is most specific, 1 is least specific

### Sample response:

Good morning Ron,

Thank you for reaching out. We understand your concerns regarding the lack of police presence and code enforcement. Councilwoman Romero Campbell is in regular communication with DPD District 3 and ensures community concerns are addressed through ongoing dialogue and council support for necessary resources. Regarding the Mayor's affordable housing tax, this initiative aims to generate funding for various affordable housing solutions, and we encourage you to contact the Mayor's office for more detailed information on its implementation. Thank you for your input.

Clear

Submit

### Examples

Constituent Email	Prompt Template	GPT Model	D4 Specificity Scale - 0 is most specific, 1 is least specific
The lack of police presence and code enforcement is sending a growing message that these violations are not important. Second item: affordable denver and wanting more information about how the tax will accomplish the goals set by Mayor.	D4 Specific Prompt	gpt-4o-mini	0.3
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I want information on getting a compost bin. I have submitted case number: 9578014	D4 Specific Prompt	gpt-4o-mini	1

Refine the results



## **Input**

Email received to general inbox

“The lack of police presence and code enforcement is sending a growing message that these violations are not important. Second item: affordable denver and wanting more information about how the tax will accomplish the goals set by Mayor.”

## **Output**

Generated single response for aid to use

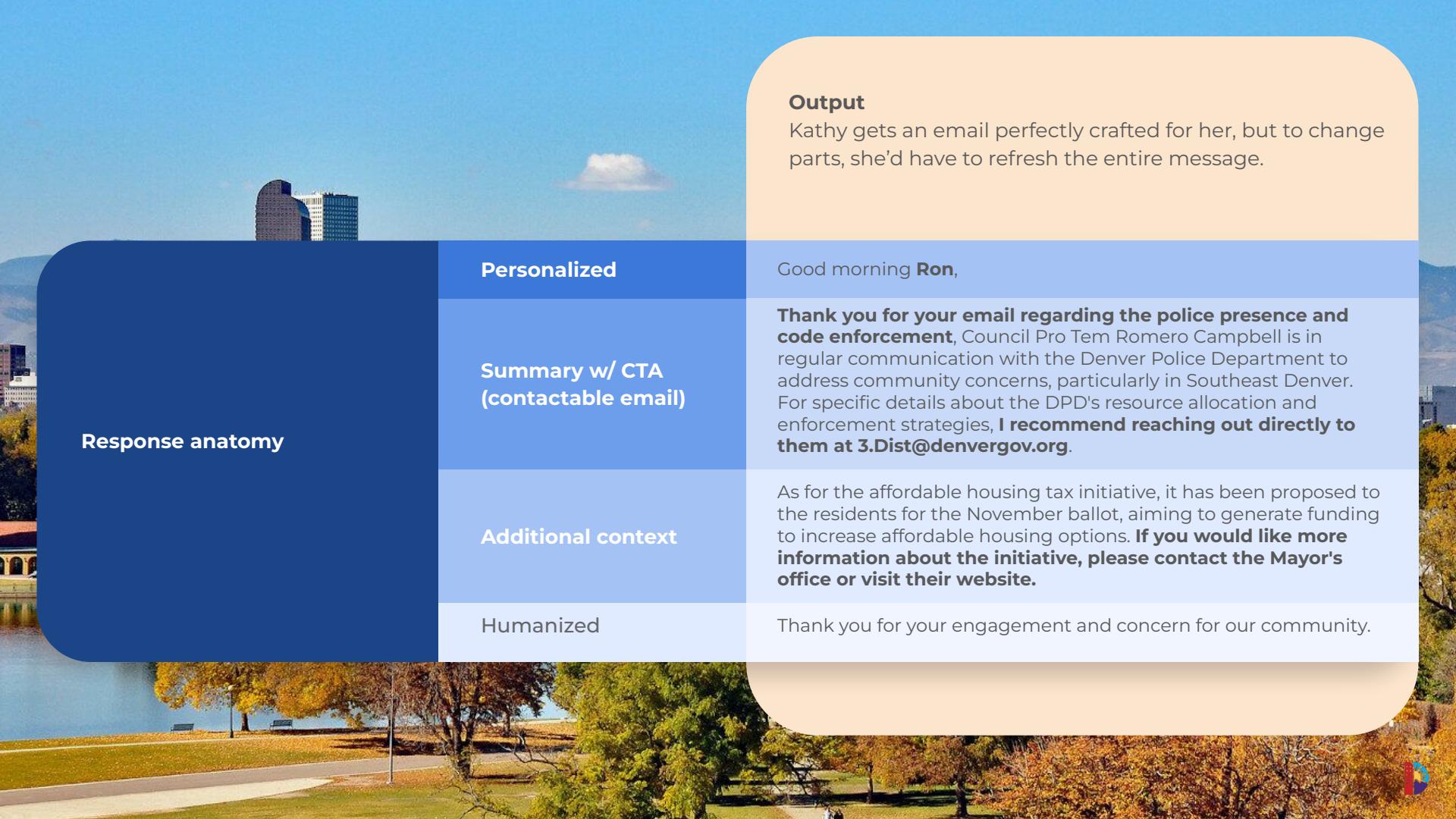
Good morning Ron,

Thank you for your email. Regarding the police presence and code enforcement, Council Pro Tem Romero Campbell is in regular communication with the Denver Police Department to address community concerns, particularly in Southeast Denver. For specific details about the DPD's resource allocation and enforcement strategies, I recommend reaching out directly to them at [3.Dist@denvergov.org](mailto:3.Dist@denvergov.org).

As for the affordable housing tax initiative, it has been proposed to the residents for the November ballot, aiming to generate funding to increase affordable housing options. If you would like more information about the initiative, please contact the Mayor's office or visit their website.

Thank you for your engagement and concern for our community.





## Response anatomy

### Personalized

### Summary w/ CTA (contactable email)

### Additional context

### Humanized

### Output

Kathy gets an email perfectly crafted for her, but to change parts, she'd have to refresh the entire message.

Good morning **Ron**,

**Thank you for your email regarding the police presence and code enforcement**, Council Pro Tem Romero Campbell is in regular communication with the Denver Police Department to address community concerns, particularly in Southeast Denver. For specific details about the DPD's resource allocation and enforcement strategies, **I recommend reaching out directly to them at [3.Dist@denvergov.org](mailto:3.Dist@denvergov.org).**

As for the affordable housing tax initiative, it has been proposed to the residents for the November ballot, aiming to generate funding to increase affordable housing options. **If you would like more information about the initiative, please contact the Mayor's office or visit their website.**

Thank you for your engagement and concern for our community.

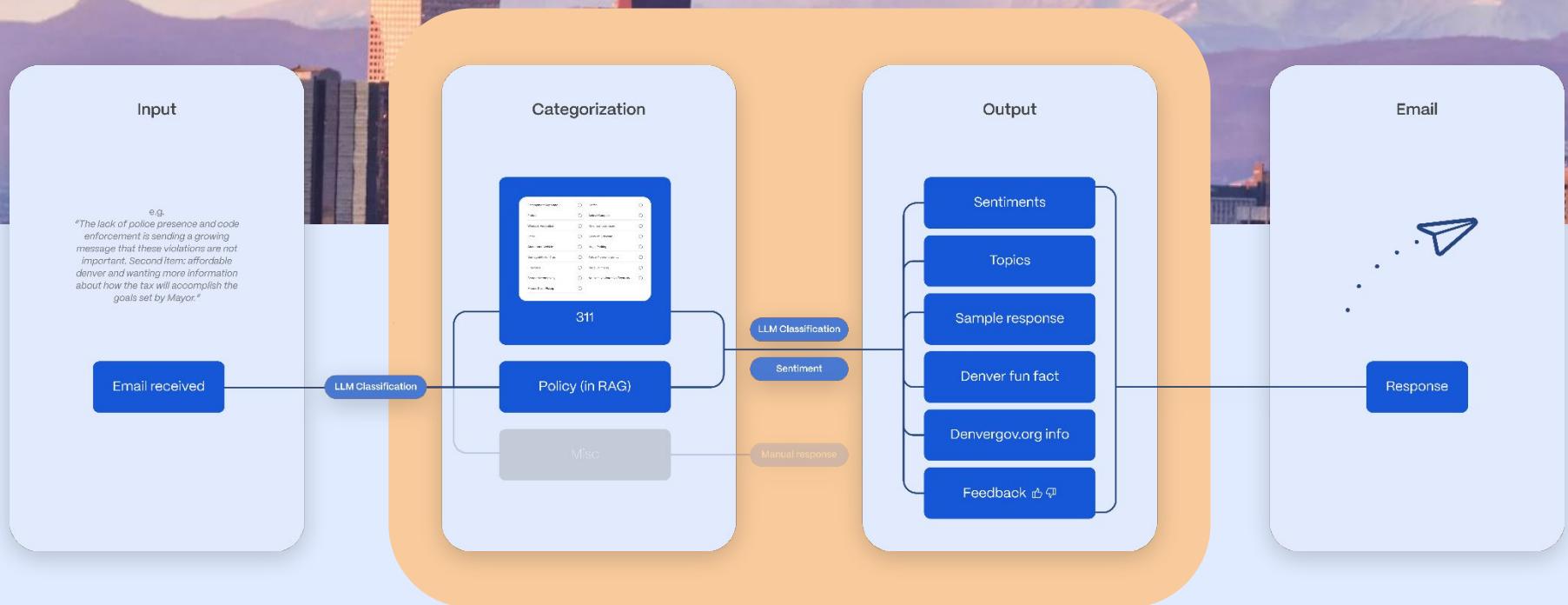




Version 2



## User flow 2



## Demo V2

Denver City Council District 4 Email Assistant  
Enter a constituent email and the app will generate a sample response.

Constituent Email  
Enter email here...

Prompt Template  
D4 Specific Prompt

GPT Model  
gpt-4o-mini

D4 Scale: 0 more specific - 1 less specific  
0  1

Generate Response

Sentiment:  
The sentiment of the email will show here...

Topics:  
Email topics will show here...

Sample response:  
Generated response will show here...

311 Topic Specific Details  
Topic based 311 details will show here...

Denver Fun Fact:  
Random Denver fun fact will show here...

Additional Denvergov.org Info  
Any additional Denvergov.org info will show here...

Thumbs Up      Thumbs Down

Feedback:  
Feedback on the response will show here...

Examples

Constituent Email	Prompt Template	GPT Model	D4 Scale: 0 more specific - 1 less specific
The lack of police presence and code enforcement is sending a growing message that these violations are not important. Second item: affordable denver and wanting more information about how the tax will accomplish the goals set by Mayor.	D4 Specific Prompt	gpt-4o-mini	0.1
The lack of police presence and code enforcement is sending a growing message that these violations are not important. Second item: affordable denver and wanting more information about how the tax will accomplish the goals set by Mayor.	Generic Prompt	gpt-4o-mini	1
I want information on getting a compost bin. I have submitted case number: 9578014	D4 Specific Prompt	gpt-4o-mini	1
I want information on getting a compost bin. I have submitted case number: 9578014	Generic Prompt	gpt-4o-mini	0.3
I saw a downed tree at the intersection of Yale and Clayton. One of the limbs is blocking the street.	D4 Specific Prompt	gpt-4o-mini	0.6

Use via API - Built with Gradio

Try it for yourself



## Response anatomy

### Sentiments

How best to handle the constituent based on how they're feeling

### Topics

Category breakdown to verify if it's an appropriate response

### Sample response

A shorter response than version 1.

### Denver Fun Fact

Correlating facts based on the topics

### Denvergov.org info

Scraper to pull related additional/contextual articles

### Feedback



Kathy can provide the engine feedback for better responses in future

### Output

Kathy is now has more control over content with the cognitive load of crafting an email.

## What we'd do next

Continue to refine the responses and the copy

Add the ability to scroll within all responses to keep things above the fold

Allow for “quick copy” of the individual sections as well as the entire response



## Learnings



Always use a virtual environment  
The models return amazing results with some good prompting and relevant context



Dev environment is needed for projects where multiple folks working on different pieces which are trying to be put together. This allows for everyone to be using the same versions of each imported elements, libraries, models, etc with a single requirements file.

If we were working with Denver directly and had additional development time; we would have worked on making the submission of the 311 form with an API connection easier for the constituent, formatted Gradio further and potentially added additional LLM's for more options.



6 months from now the entire process of building these models will have changed



We ran into issues with integrating our requirements into our respective environments. We found conflicting versions for different API's that caused errors for our work.

A lot of manual work we've learned up until this point has essentially been optimized with LLMs, APIs and other aids that makes building faster, but requires real coding literacy to read how to integrate everything together.



# Thank you

And thank YOU, Anthony, for your time, care and enthusiasm in this class. We would not have gotten through it all without you!



# Repository

[Github](#)

group3-project2-ml Public

Unwatch 2 Fork 0 Starred 1

main 1 Branch Tags Go to file Add file Code About

timwillard24 README final updates 40d4658 · last month 128 Commits

AF WIP Final updates last month

Data README final updates last month

Notebooks README final updates last month

jim all city test files last month

tw README final updates last month

.DS\_Store all city test files last month

.gitignore All cities modeling last month

PLAN OF ATTACK plan of attack last month

README.md README final updates last month

image-1.png README updates last month

image.png README updates last month

README

## Group 3 - Project 2 - Machine Learning

### Analyzing & Predicting Housing Data

This project aims to analyze and predict house prices in various cities using machine learning techniques. The dataset includes city housing prices data (Atlanta, Charlotte, Cincinnati, Denver, Indianapolis, Providence, and Tampa) from Zillow, Education data from National Center for Education Statistics (NCES), and mortgage rates from the Federal Home Loan Bank Board.

Group 3 - Project 2 - Machine Learning

Readme Activity 1 star 2 watching 0 forks Report repository

No releases published Create a new release

No packages published Publish your first package

Contributors 4

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afine5 Anna Fine  
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Languages

Jupyter Notebook 99.1%  
Python 0.9%

