

Parking Violations & Weather in the Philadelphia Region

Team Express:

Tianchi Zhang

Rob Matelyan

Aaron Lee

Francisco Zuluaga





Presentation Agenda



- Project Overview
- Technical Diagram
- Methods
- Visualizations





Project Overview

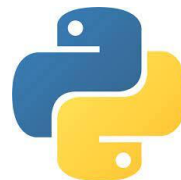
- Objective:
 - Analyze parking violation data in Philadelphia from 2017
 - Make a more educated decision on how to park to car.
- Hypothesis:
 - Null: Inclement weather conditions do not negatively impact violation issuance.
 - Alternative: Inclement weather conditions negatively impact violation issuance.

Methods & Approach

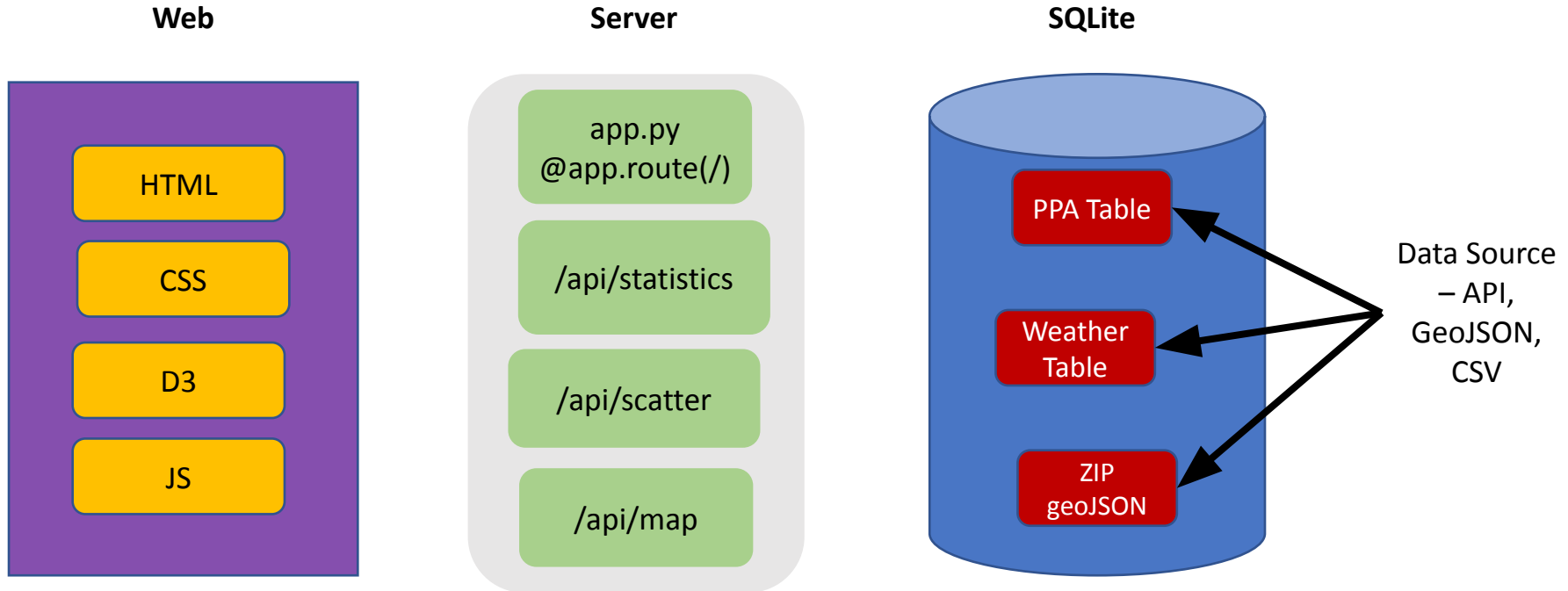


Data sources

- OpenDataPhilly (API)
 - Parking violations 2017
 - Zip code geoJSON
- OpenWeather
 - Historical Weather Data 2017
- We sampled 30% of the data due to its size and randomly pulled this data to ensure analysis integrity



Technical Diagram



Data



	anon_ticket_number	issue_datetime	state	anon_plate_id	location	violation_desc	fine	issuing_agency	lat	lon	zip_code	month
0	7689050	2017-01-09 12:29:00	PA	1975860	8419 GERMANTOWN AVE	METER EXPIRED	26	PPA	40.075568	-75.205661	19118	1

	dt	lat	lon	temp	feels_like	temp_min	temp_max	humidity	wind_speed	wind_deg	...	snow_3h	clouds_all	weather_id
0	2017- 01-01 00:00:00	39.952584	-75.165222	42.51	27.28	39.2	44.83	42	18.34	200	...	0.0	90	804

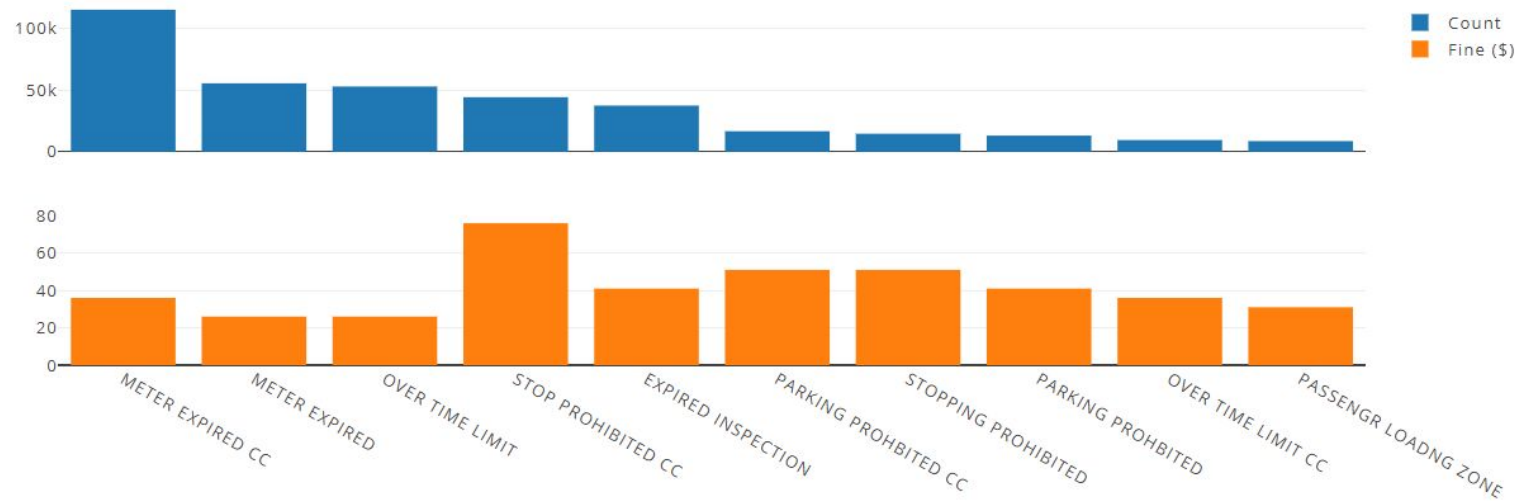
For JOIN:

ymdh
2017- 01-01 00



Violation Types

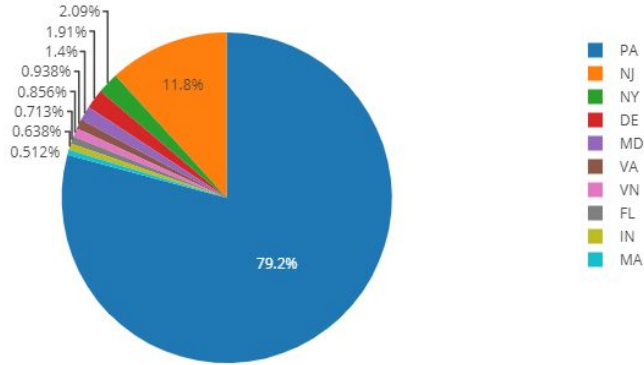
Top 10 Violations by Count & Their Average Fine



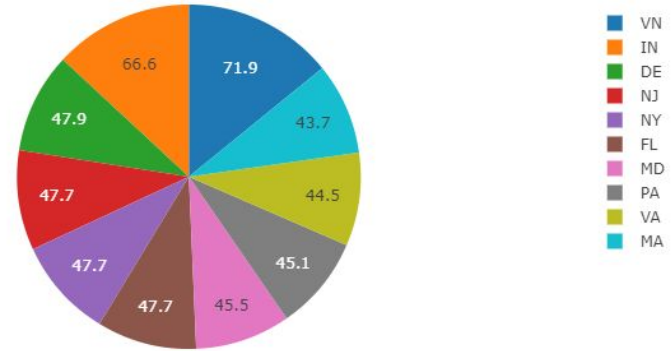
State Breakdown



Top 10 States by Count

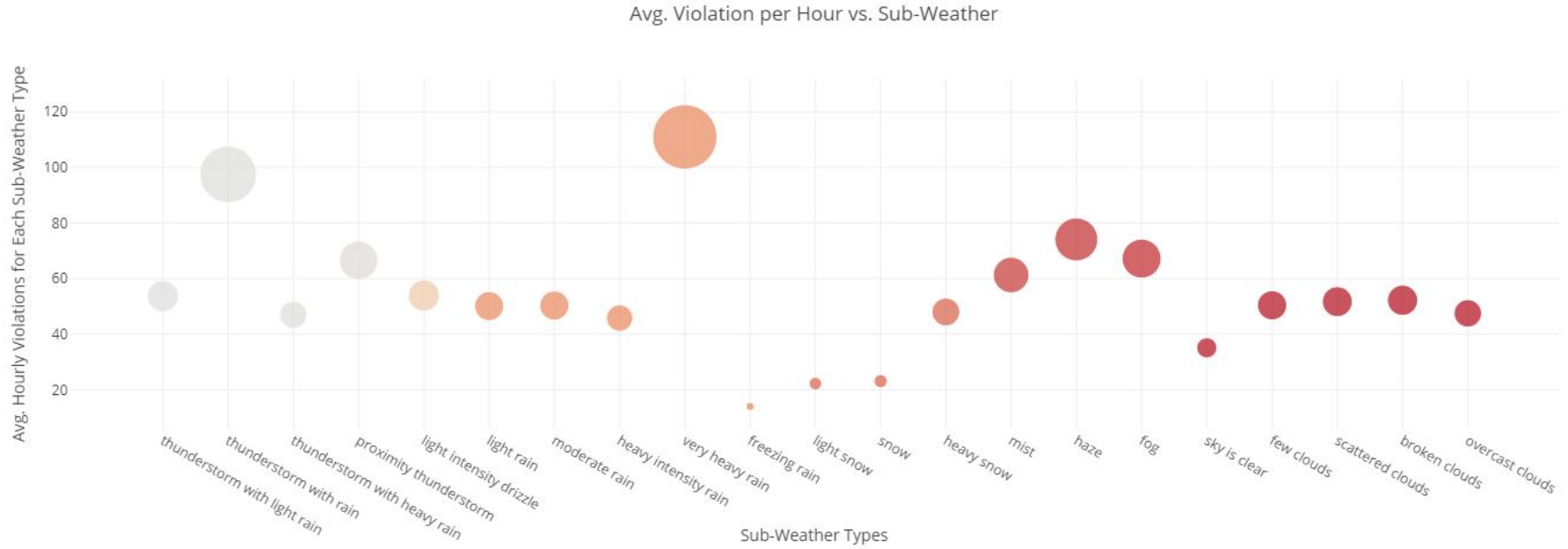


Top 10 States by Avg. Fine



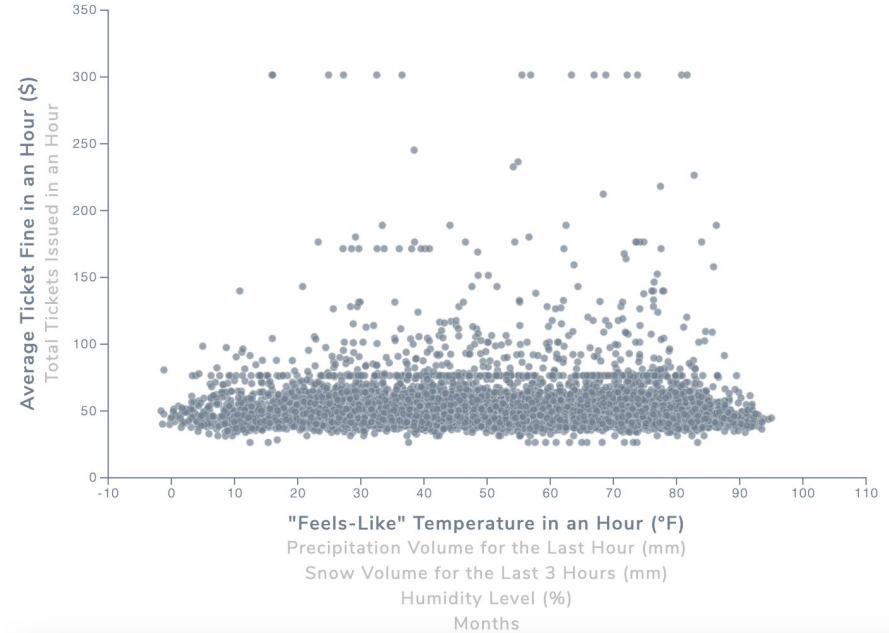
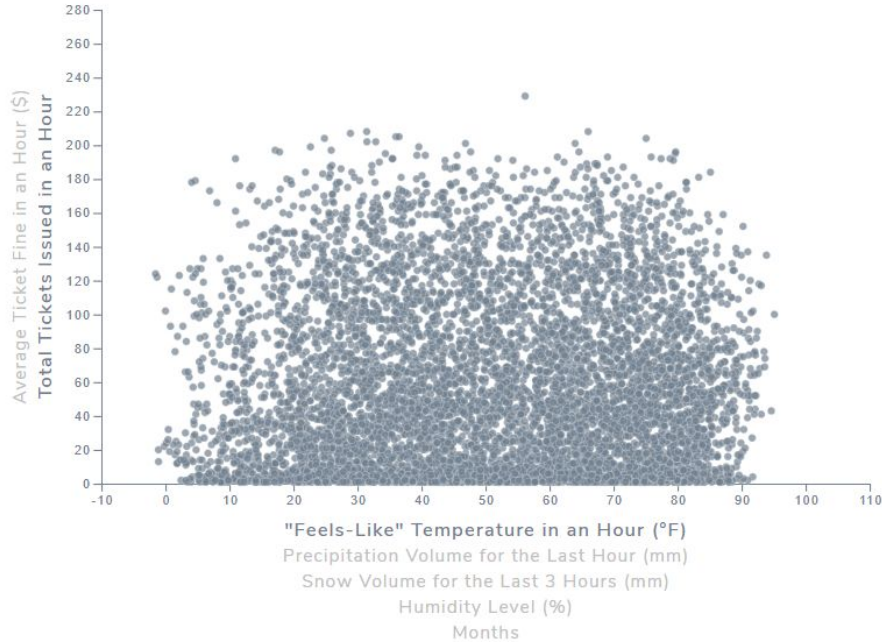


Weather Types vs. Violations



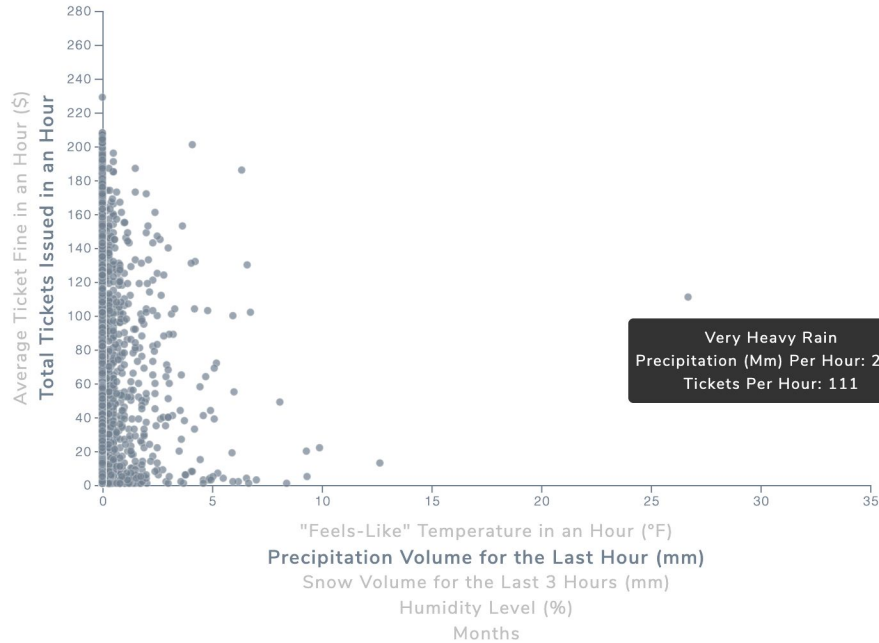


Scatter Plot

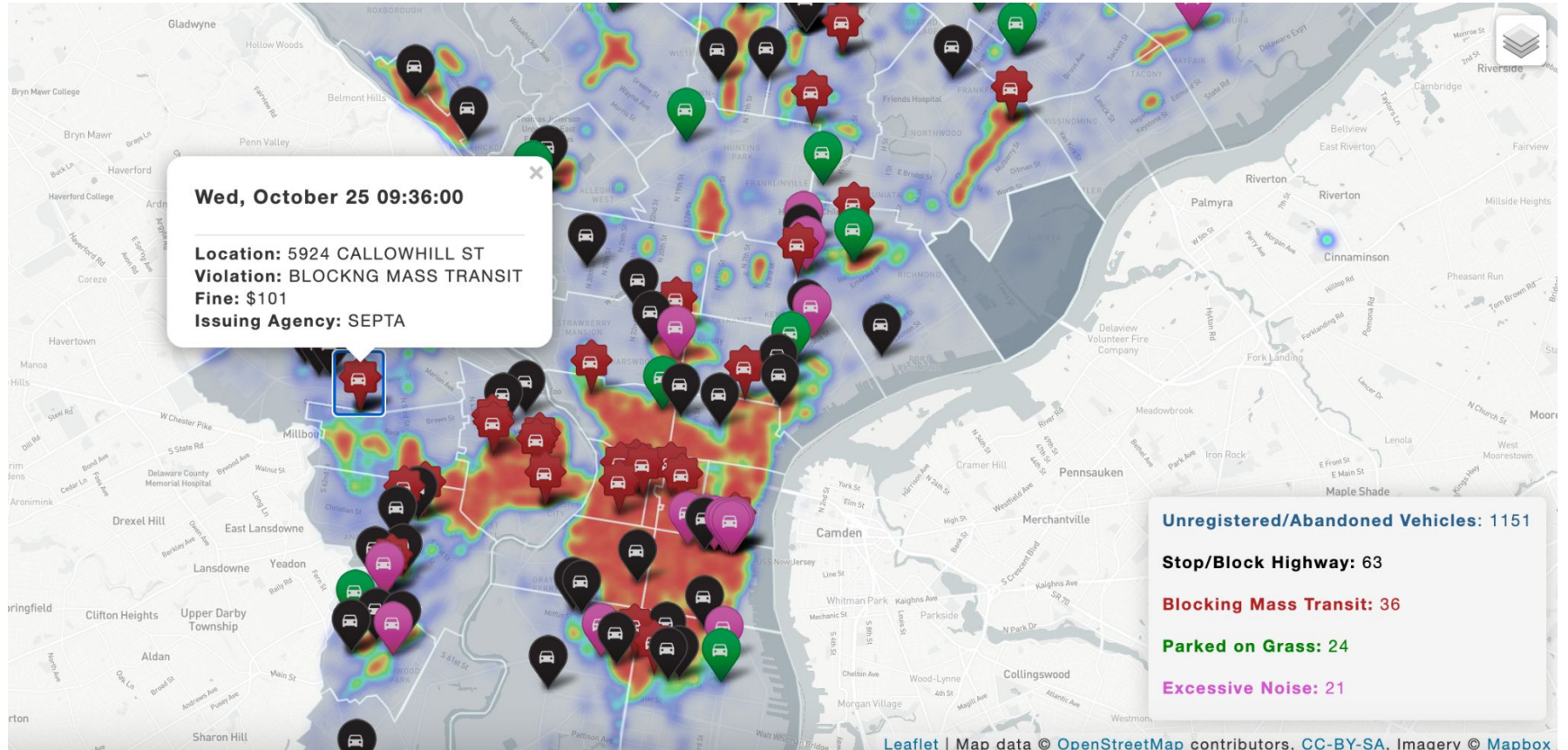




Scatter Plot Pt.2



Multi-Layered Map



Findings

- There was no strong evidence of correlation between weather metrics (temp, precipitation, humidity) and number of citations issued, as demonstrated by the scatter.
 - Thus, we failed to reject our null hypothesis
- The average hourly violations are consistent throughout weather conditions, with the exception to inclement conditions, as shown by the bubble chart.
- Opportunities for further analysis:
 - Plot a time series to look at how violation count changes throughout the day
 - Explore other weather data points (e.g. wind speed)
 - Other external factors that could influence citation issuance (e.g. events, street closures)





Thank you