



# AIR WATCH

TEAM 5

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# Agenda



1. Project Goal
2. Approach
3. Website Demo
4. Data Story
5. Conclusion
6. Next Steps
7. Q&A



# Project Goal

Visualize Air Quality Index (AQI) data from 2014-2023 by county in the US

- What are the national trends year to year?
- Which years should we further investigate?
- What is the trend for counties with the worst max AQI?



# Approach

- **Tools and Libraries**

- PgAdmin
- SQLAlchemy
- Flask
- Leaflet
- Render\_template
- Request
- Chart.js

- **Prerequisites**

- Python 3.8+, PostgreSQL 12+

- **Languages**

- HTML, JavaScript, CSS

```
▼ [
  ▼ {
    "county": "Mason",
    "county_fips": "26105",
    "days_with_aqi": 119,
    "good_days": 91,
    "hazardous_days": 0,
    "latitude": 43.9952,
    "longitude": -86.25,
    "max_aqi": 143,
    "median_aqi": 42,
    "moderate_days": 27,
    "population": 29178,
    "state": "Michigan",
    "state_fips": "26",
    "unhealthy_days": 0,
    "unhealthy_for_sensitive_groups_days": 1,
    "very_unhealthy_days": 0,
    "year": 2023
  },
]
```

# Approach



## Data Sources



[Aqs.epa.gov](https://aqs.epa.gov)



[census.gov](https://census.gov)

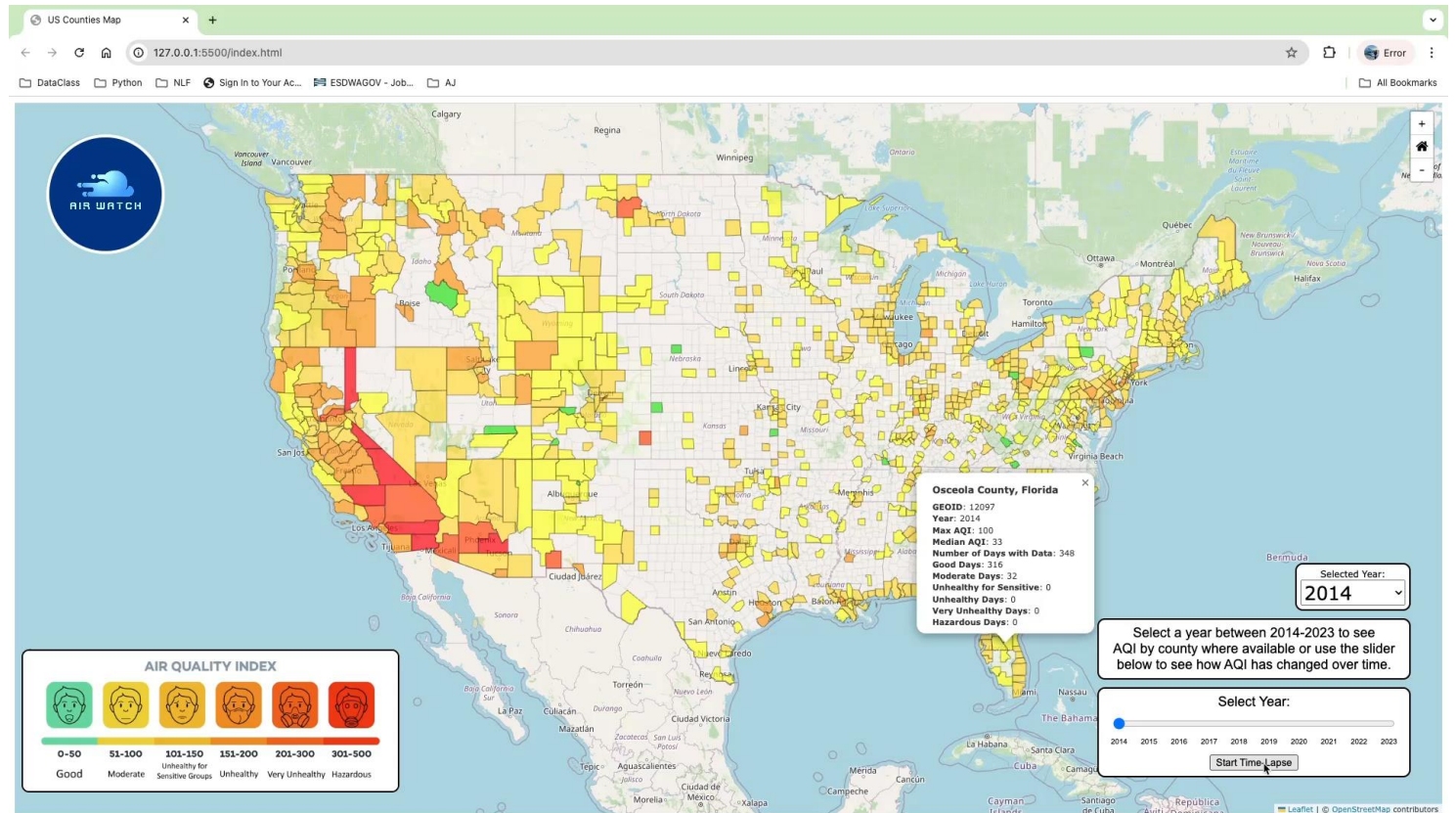
## Challenges

- Median AQI vs Max AQI
- Data accuracy
  - 69 points over 500
- County names



# Demo

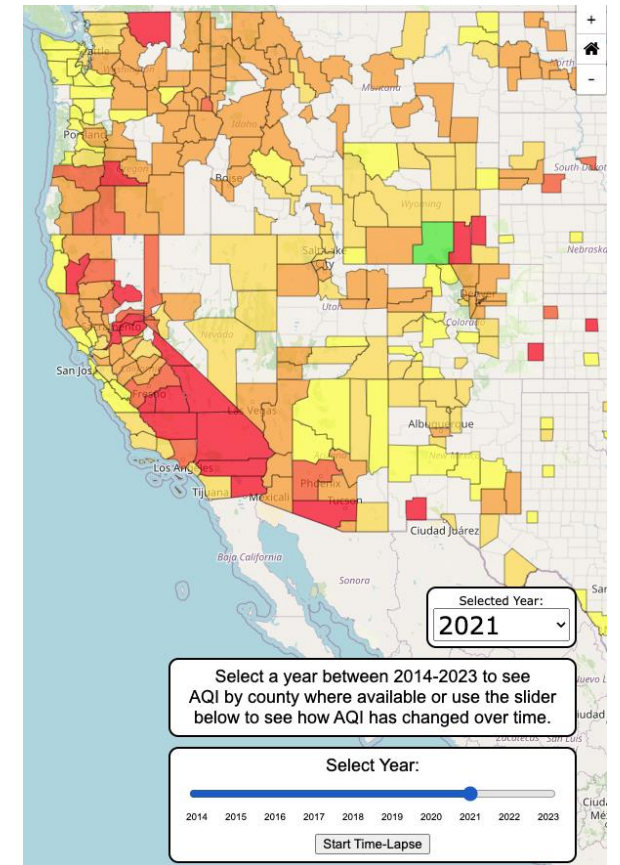
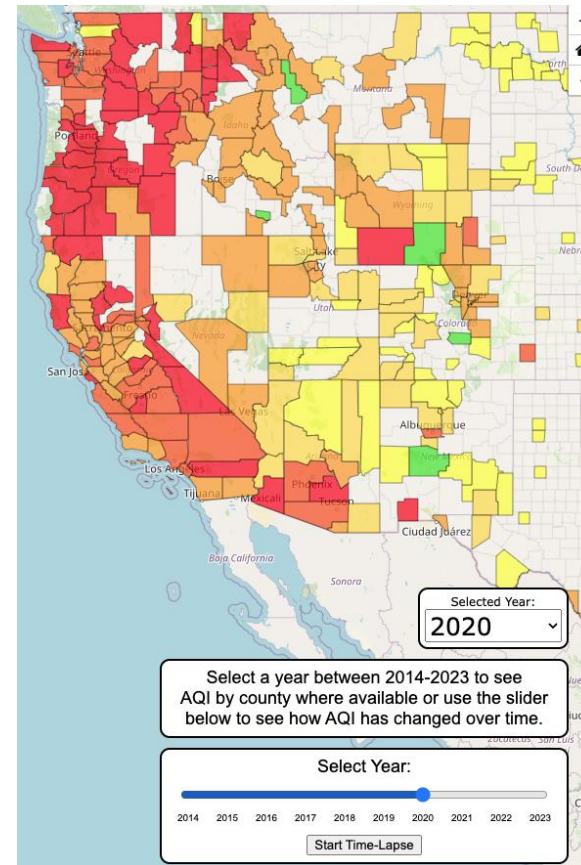
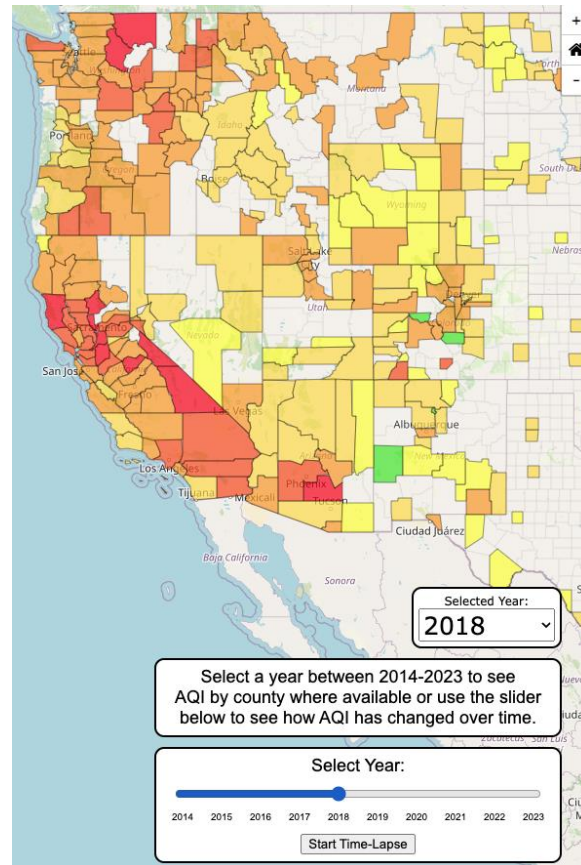
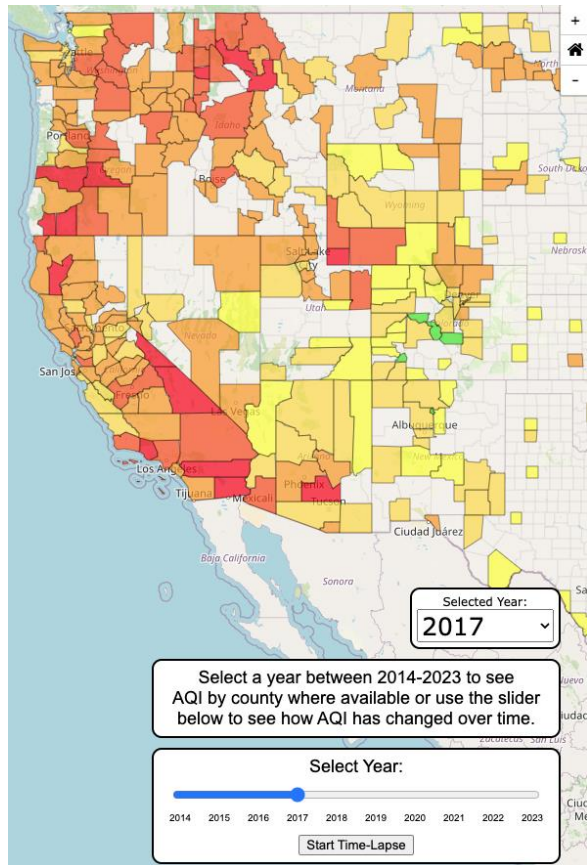
# Data Story : National Trends



- Timelapse
- West Coast Region
- CA, WA, OR, ID



# Data Story: Years to Investigate





# Data Story: County Information

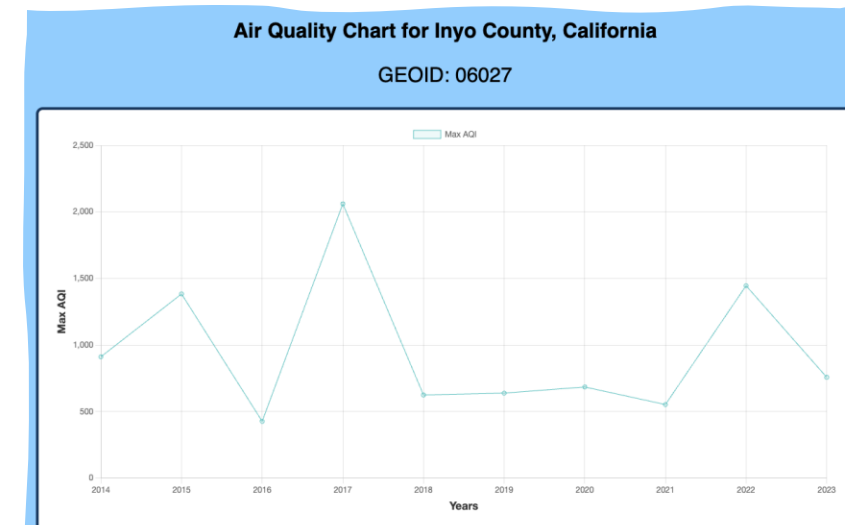
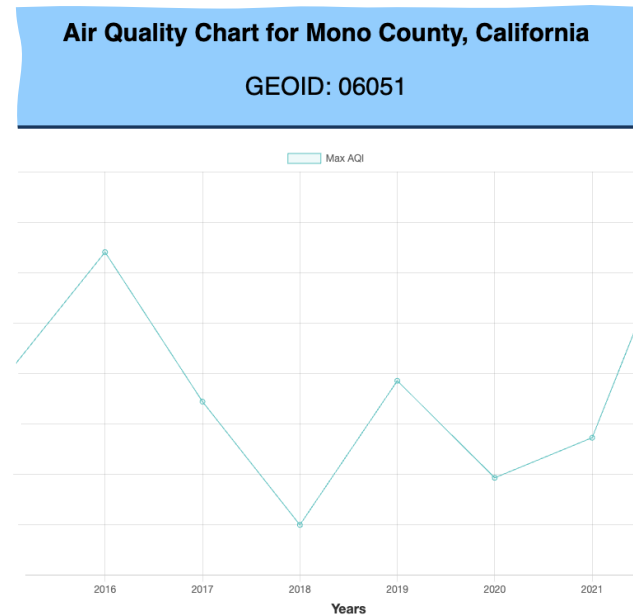
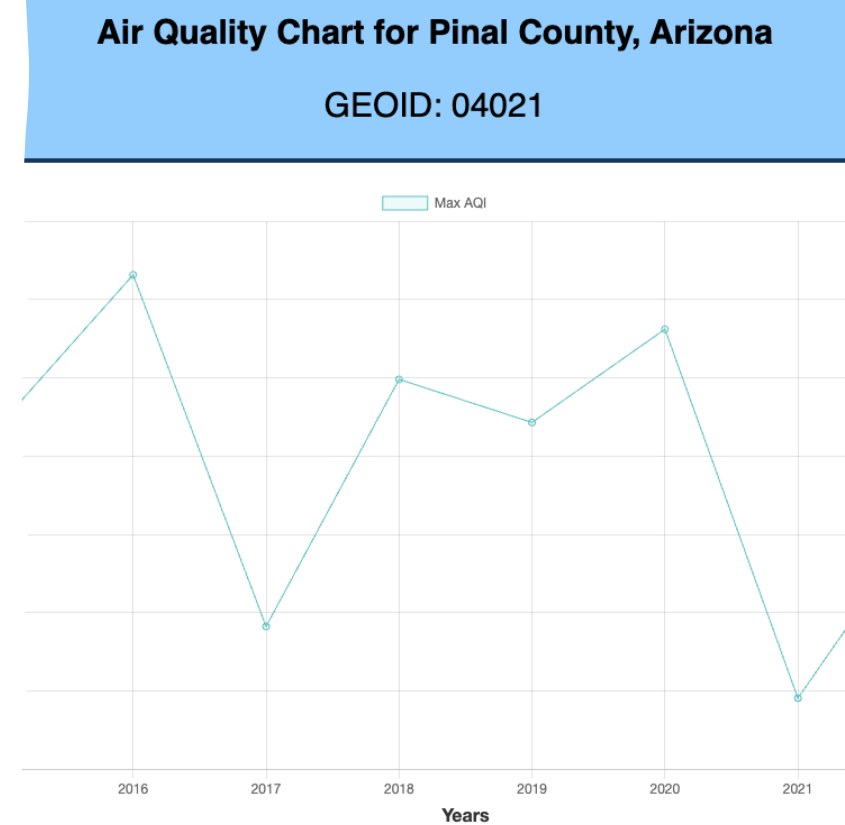
- PostgreSQL Query
- Three worst counties
  - Mono, CA
  - Inyo, CA
  - Pinal, AZ

```
23 SELECT
24     state,
25     county,
26     countyfips AS GeoID,
27     COUNT(*) AS top_5_count
28 FROM
29     Top5Counties
30 GROUP BY
31     state,
32     county,
33     countyfips
34 ORDER BY
35     top_5_count DESC;
```

	state character varying (100)	county character varying (100)	geoid character varying (5)	top_5_count bigint
1	California	Mono	06051	10
2	California	Inyo	06027	8
3	Arizona	Pinal	04021	6
4	California	Riverside	06065	3

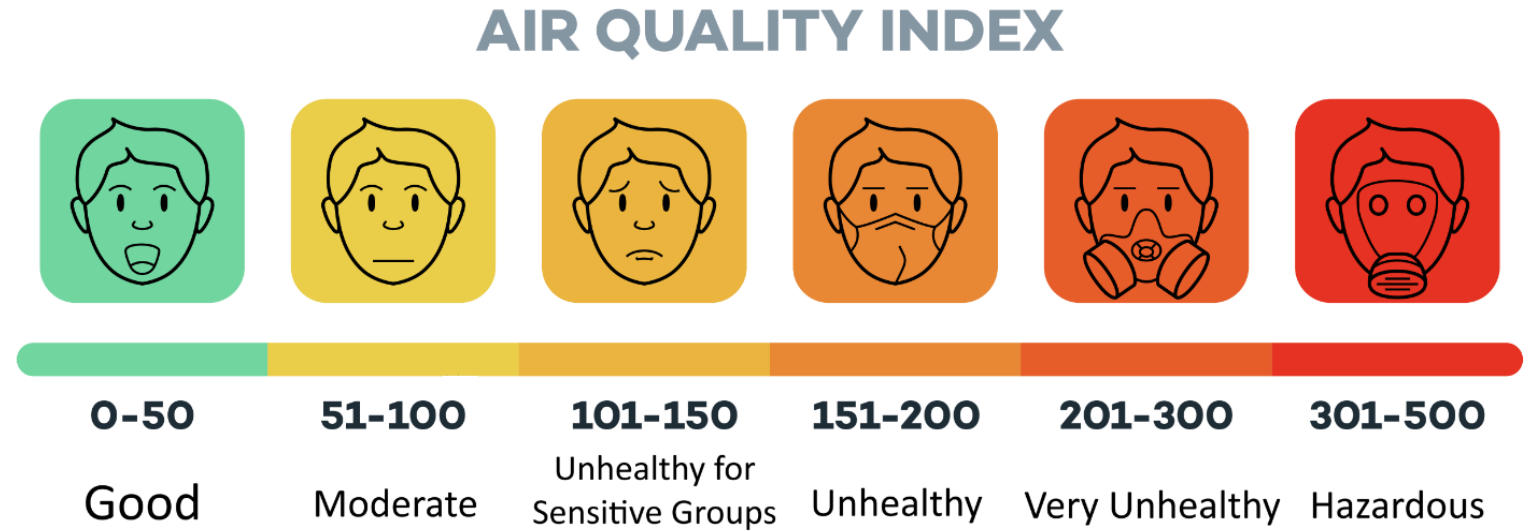
# Data Story: County Information

- Pinal, AZ
  - ~275-1250
  - 7 points above 500
- Inyo, CA
  - ~450-2050
  - 9 points above 500
- Mono, CA
  - 1000-7600
  - 10 points above 500



# Conclusions

- West Coast Region
- 2017, 2018, 2020, 2021
- Mono, CA; Inyo, CA; Pinal, AZ



# Next Steps

- **Expand Data Sources**
  - **Global Expansion**
- **User Engagement Features**
  - **Personalized Alerts**



THANK  
YOU!

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