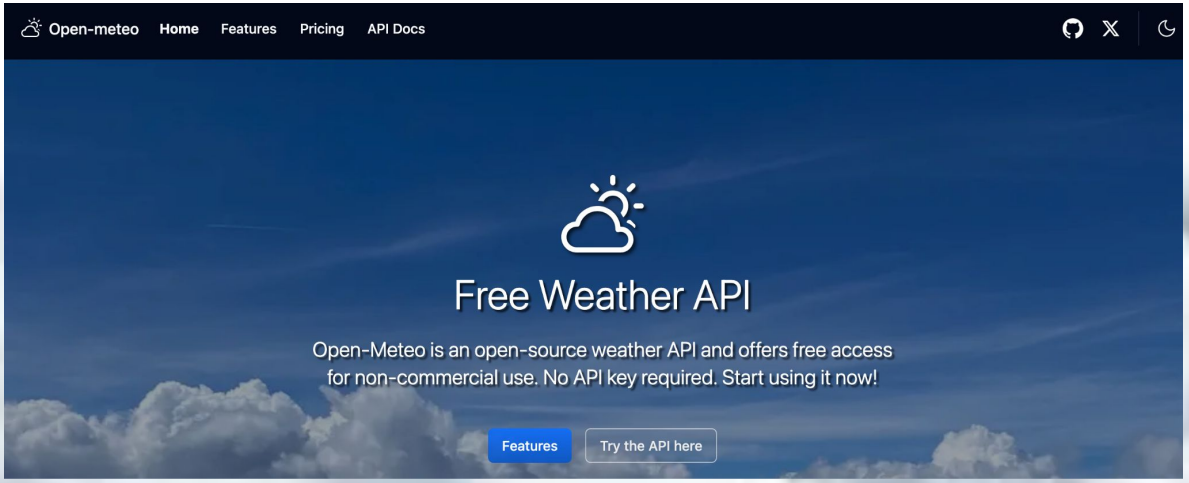
Westwood Quality Air Prediction App

Stats 418 Final Presentation

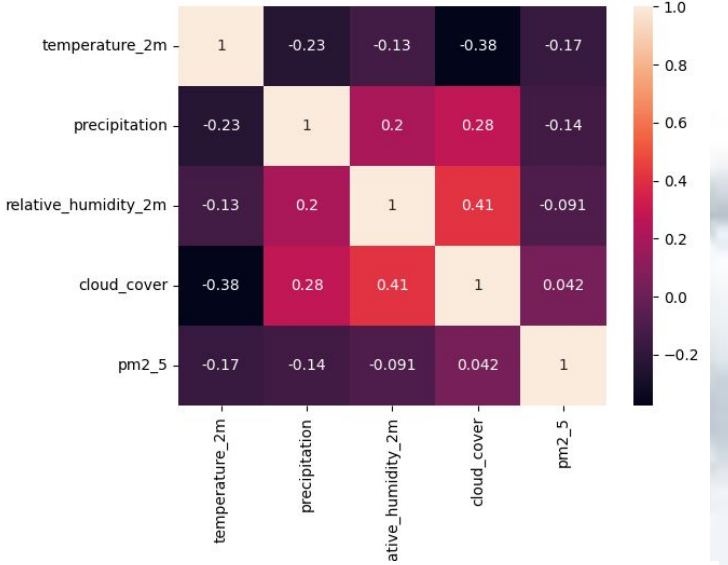
Data Collection

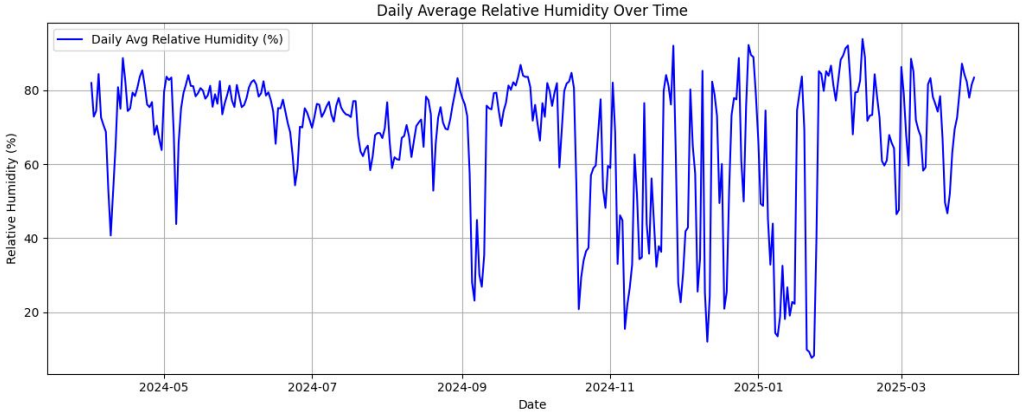


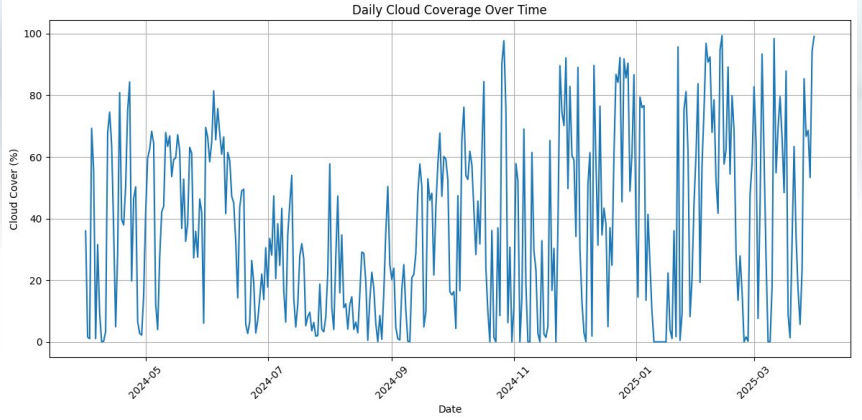
- Free API to get historical weather and air quality data
- Formatted as JSON, information hourly
- Weather : Temperature (C), Precipitation (mm), Relative Humidity (%), Cloud Cover (%)
- AQI: PM2.5 (μ/m^3)

EDA

	temperature_2m	precipitation	relative_humidity_2m	cloud_cover	pm2_5
count	365.000000	365.000000	365.000000	365.000000	365.000000
mean	16.579172	0.601644	66.773052	37.324772	21.579555
std	4.275017	2.975910	18.872000	28.627434	13.476347
min	8.067916	0.000000	7.620384	0.000000	4.754167
25%	13.345000	0.000000	60.081418	10.250000	13.770833
50%	15.799166	0.000000	73.363189	34.208333	18.379167
75%	19.884583	0.000000	79.439220	60.875000	26.404167
max	33.245000	29.800000	93.885696	99.375000	141.733333

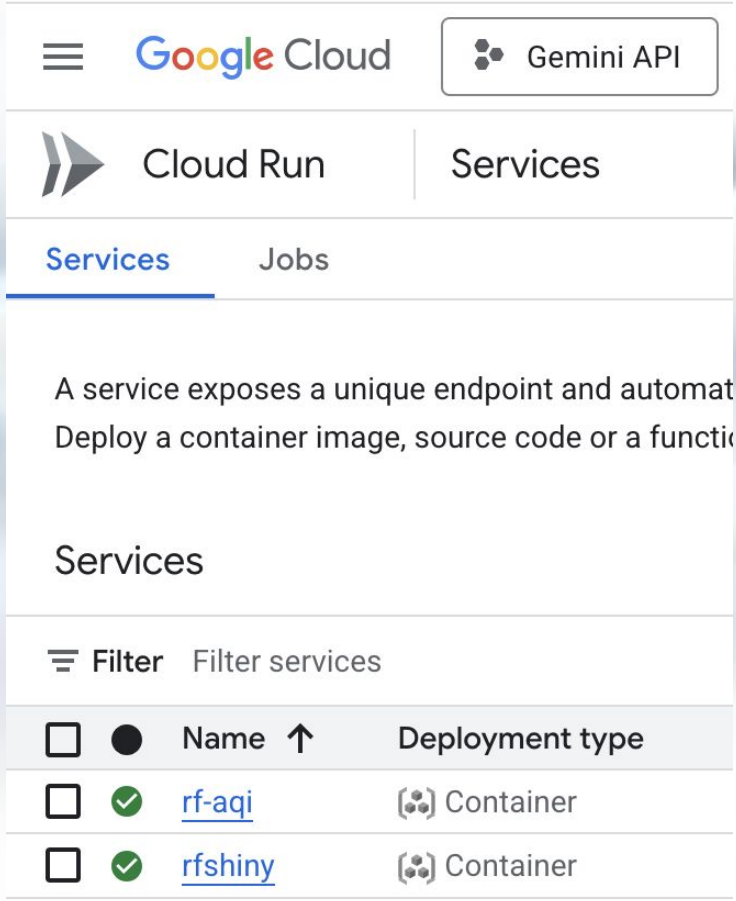




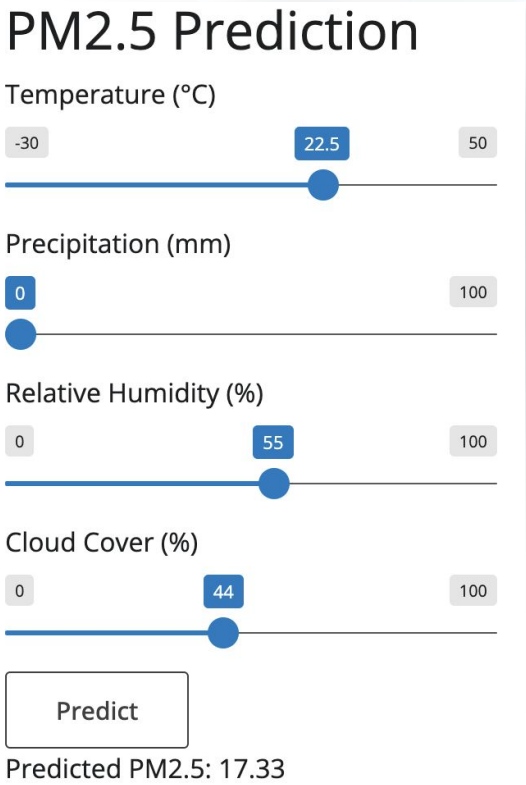


Methodology/Model

- Random Forest
  - Use weather conditions to predict PM2.5
  - Easy to integrate
- Flask API
- Shiny App



App



- Sliders similar to the Iris Example
- Improvements
  - Different model
    - Accuracy
  - More visuals