BrainStation®

Delhi Air Quality Prediction

Data-Driven Insights

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Agenda

- Problem Statement
- Data - Driven Solution
- Dataset Overview
- EDA Findings
- Models Comparision
- Feature Importance
- Product Demo
- Next Steps

Problem Statement ?

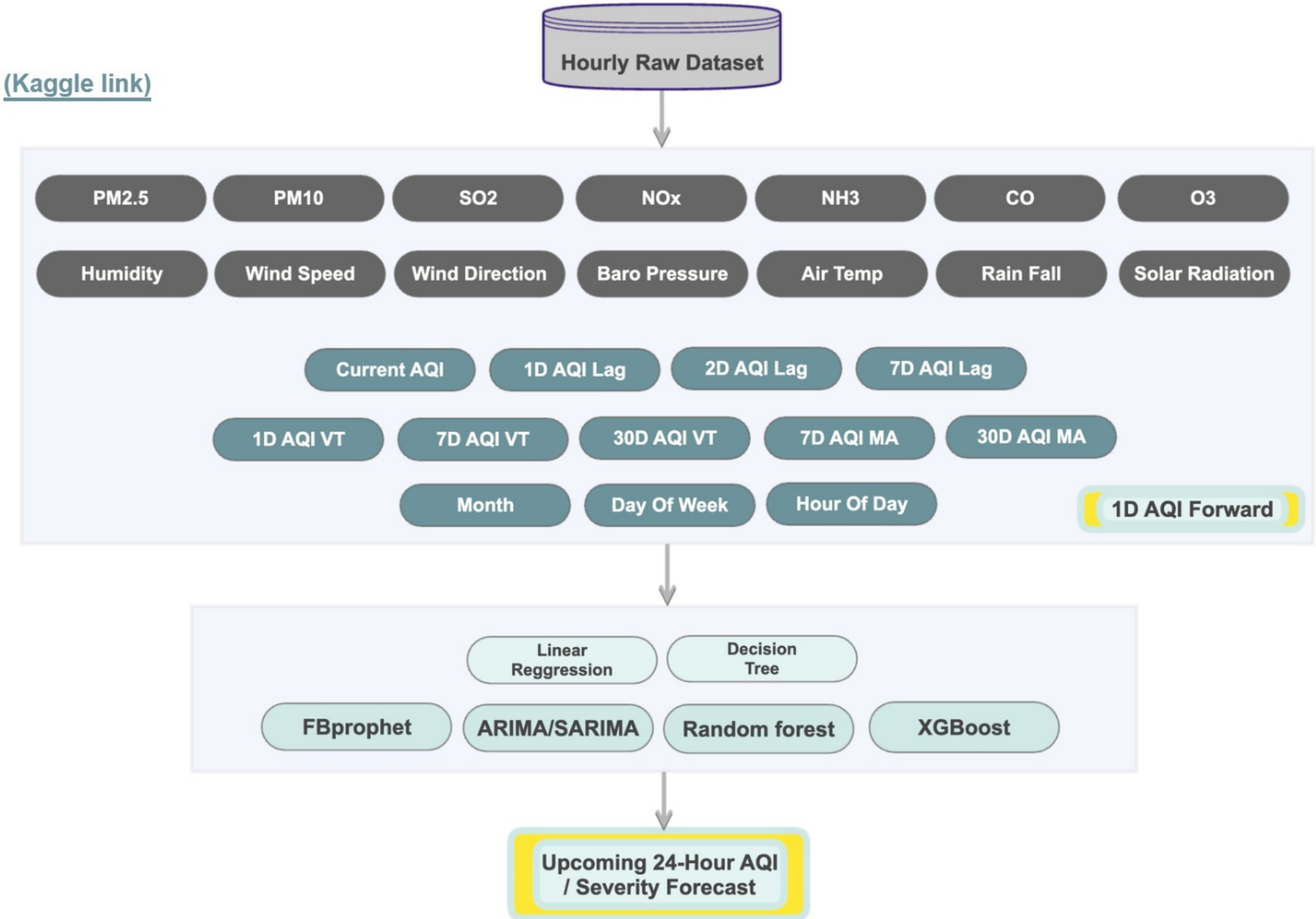
By predicting next-day air quality, how can we empower decision-makers with actionable insights to implement timely measures and safeguard urban environments effectively?

Data Driven Solution

- Timely Intervention
- Resource Allocation
- Public Health Safeguard
- Environmental Impact Mitigation
- Real-Time Monitoring
- Extension and Widget Integration
- Night Sky Astronomy

Data

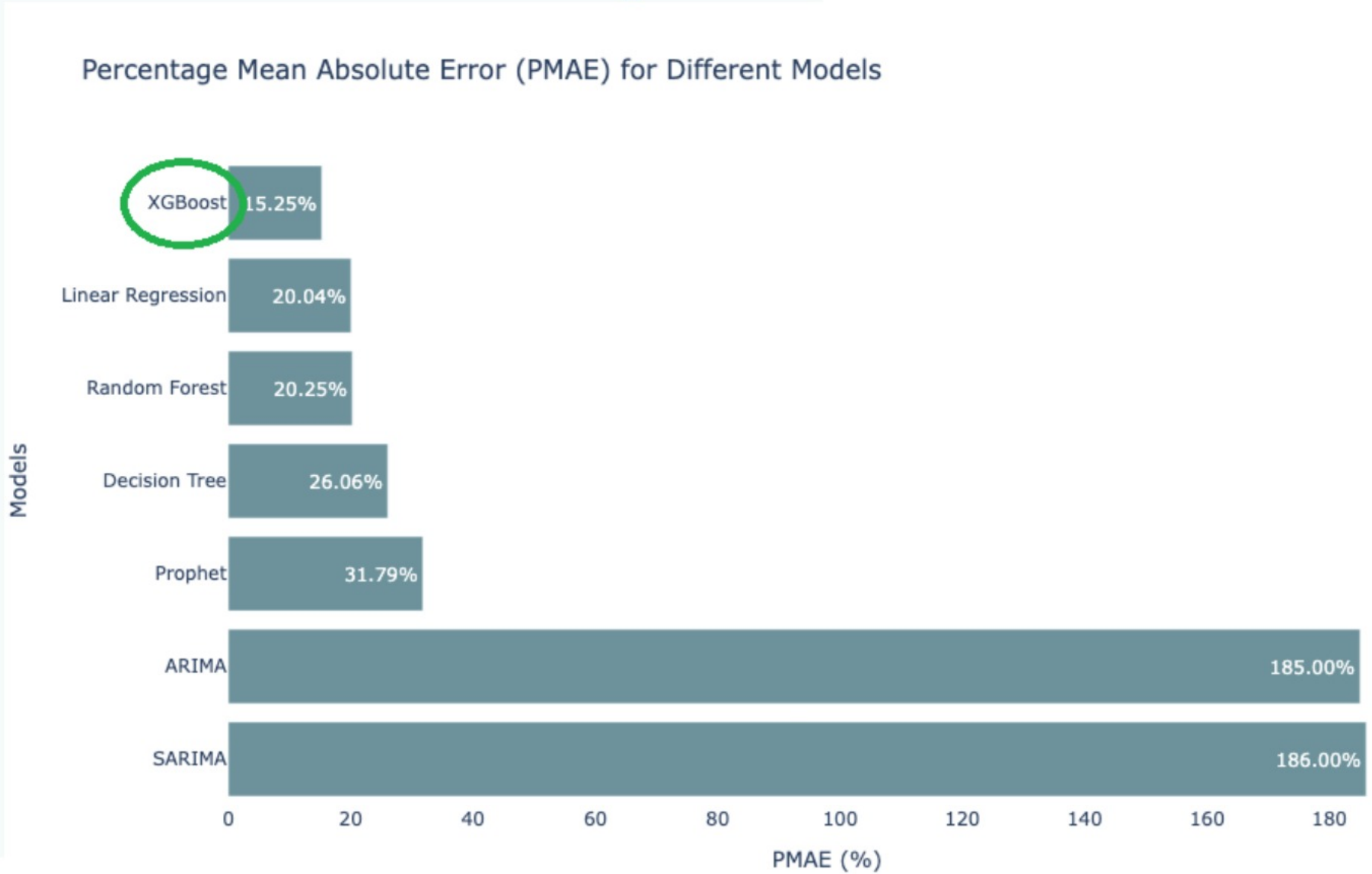
(Kaggle link)



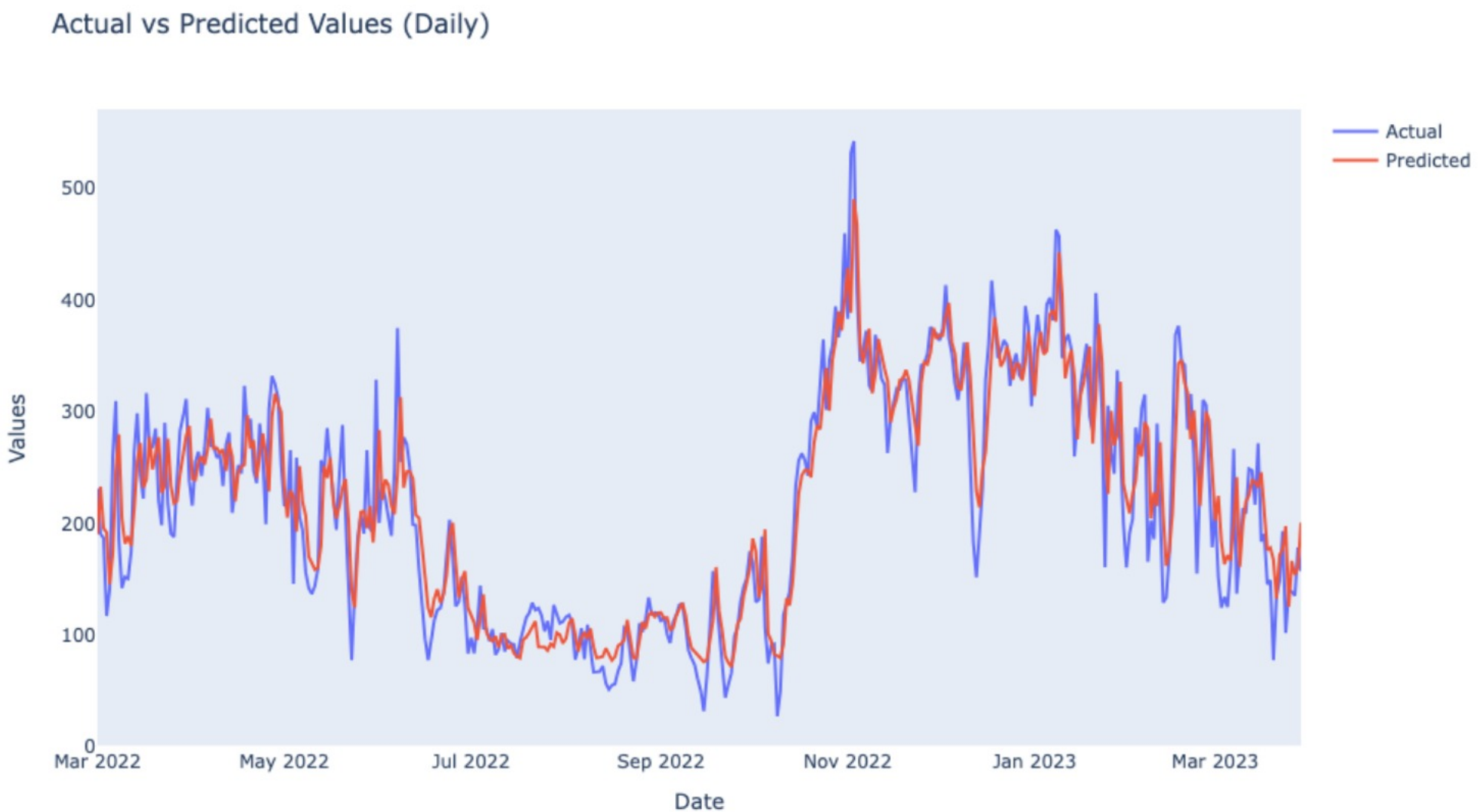
Temporal Challenges

- **Challenge:** Addressing duplicate indices from simultaneous recordings.
- **Solution:** Utilizing data aggregation for improved model efficiency.
- **Constraint:** Initial focus on 2021-2023 limited yearly pattern capture.
- **Expansion:** Broadening dataset to cover 2013-2023 for a comprehensive temporal view.

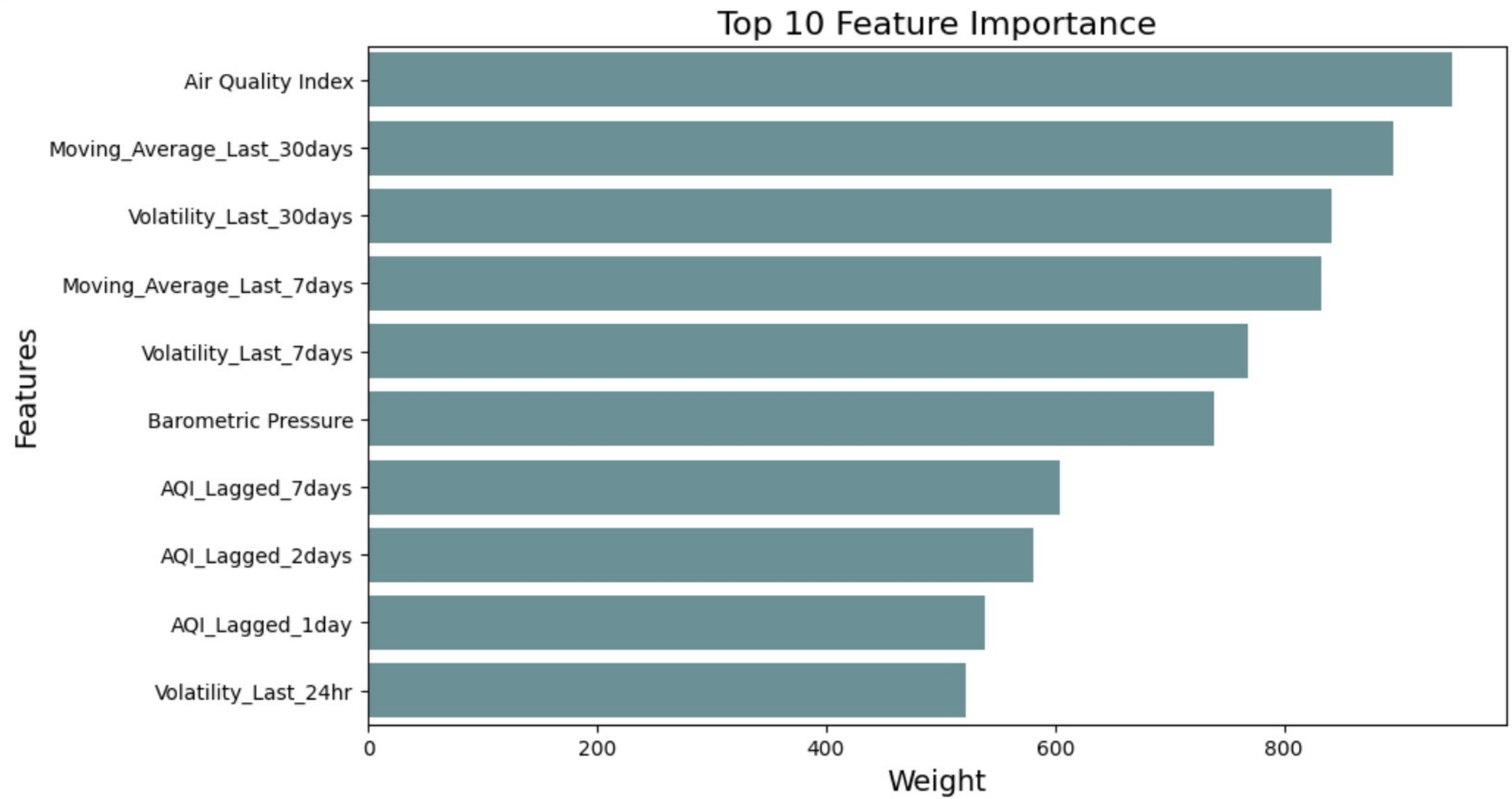
Model Comparision on PMAE



Actual Vs. Predicted AQI



Feature Importance



Product Demo

Next Steps:

- Treat Individual Station's Data Independently
- Build Location Dependencies
- Predict AQI Differences
- Extend Prediction Horizon
- Explore Advanced Models
- Incorporate External Factors
- Continuous Model Evaluation

Thank You!