**Summary Report on System Performance Monitoring**

**Overview:**

During the recent live performance monitoring of our system, a comprehensive analysis was conducted to evaluate the model's predictive capabilities based on the training data utilized.

**Training Data Analysis:**

* **Time Frame:** November 1, 2024, to December 1, 2024.
* **Location:** Specific latitude and longitude coordinates (details withheld for confidentiality).
* **Environmental Conditions:** The training dataset predominantly featured high pollution levels, with Air Quality Index (AQI) values ranging between 3 and 5.

**Observations:**

* **Data Limitations:** The model was trained on a relatively narrow dataset spanning one month and confined to a specific geographic area. This limited scope resulted in insufficient data diversity, potentially affecting the model's ability to generalize across different conditions and locations.
* **Live Performance:** Current live monitoring indicates that the system's predictions are functioning within expected parameters; however, the accuracy and reliability of these predictions are suboptimal. The model's performance does not meet the desired standards, likely attributable to the constrained and high-pollution-focused training data.

**Conclusion:**The analysis highlights that the limited and high-pollution-specific training data has constrained the model's effectiveness in live environments. To enhance predictive performance, it is recommended to expand the training dataset to include a broader range of AQI values and diverse geographic locations. This will enable the model to better generalize and improve the accuracy of its predictions under varying conditions.

**Next Steps**

* **Data Expansion:** Incorporate additional data covering different time periods, locations, and a wider spectrum of AQI values.
* **Model Retraining:** Retrain the model with the enhanced dataset to improve its predictive capabilities.
* **Continuous Monitoring:** Implement ongoing performance evaluations to assess improvements and ensure the model meets the required performance standards.