

# Traffic and Air Quality: Executive Report

Group 1

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# **1 Executive Summary**

(Write your executive summary here regarding the Traffic and Air Quality analysis.)

## **1.1 Business Problem**

(Write your business problem here regarding the Traffic and Air Quality analysis.)

## **1.2 Objectives**

(Write your objectives here regarding the Traffic and Air Quality analysis.) - find the relationship between traffic and NO2 levels

# **2 Methodology**

(Write your methodology here regarding the Traffic and Air Quality analysis.)

## **2.1 Data Collection and Description**

(Write your data collection and cleaning here regarding the Traffic and Air Quality analysis.)  
(Web-scraping, etc.) data dictionary (link to github data\_description.md)

## **2.2 Data Analysis**

The following analysis explores the relationship between traffic volume and NO2 levels.

correlation plot (link to github results/eda\_correlation\_matrices.png) seasonal pattern plot (link to github results/eda\_seasonal\_pattern.png)

## **2.3 Model Architecture**

- Feature Engineering
- k-fold Cross-Validation (expanding window)

cross-validation plot (link to github results/cv\_vs\_test\_with\_traffic.png)

- Model Performance and Evaluation Metrics (RMSE)
- Model Selection (RMSE)

plots: - feature importance

## **3 Results**

(Write your results here regarding the Traffic and Air Quality analysis.) - Shareholder value impact  
- Relationship between traffic and NO<sub>2</sub> levels - Business impact and recommendations

Answer these questions: - Is there a positive or negative association between traffic and air quality?  
- Is increased traffic volume associated with higher concentrations of air pollutants in Toronto? - Does traffic explain a meaningful proportion of variation in air quality after controlling for time effects? - Is there evidence of nonlinear effects between traffic volume and air pollution levels? - Does the relationship between traffic and air quality change over time?

### **3.1 Conclusions**

- Relationship between traffic and NO<sub>2</sub> levels
- answer the questions in proposal

### **3.2 Limitations**

(Write your limitations here regarding the Traffic and Air Quality analysis.) - Data limitations (hourly, daily data, location, time)

### **3.3 Future Directions**

- Future Directions
- 

## **4 References**

## **5 Appendix**