Toronto Transit Commission (TTC) Bus Delay

Group 4

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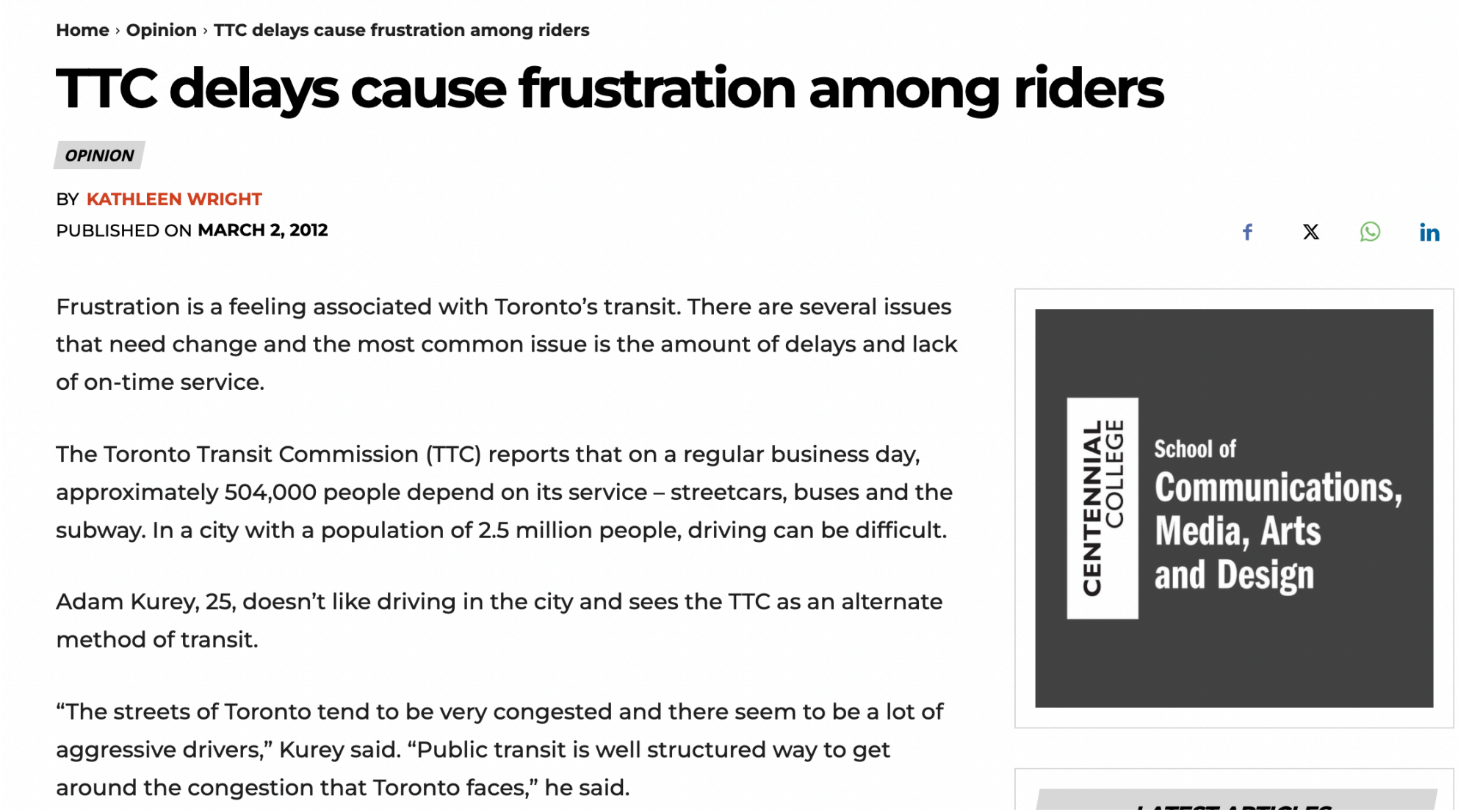
Introduction

Source: Toronto Star

Introduction



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TTC delays cause frustration among riders

OPINION

BY KATHLEEN WRIGHT

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Frustration is a feeling associated with Toronto's transit. There are several issues that need change and the most common issue is the amount of delays and lack of on-time service.

The Toronto Transit Commission (TTC) reports that on a regular business day, approximately 504,000 people depend on its service – streetcars, buses and the subway. In a city with a population of 2.5 million people, driving can be difficult.

Adam Kurey, 25, doesn't like driving in the city and sees the TTC as an alternate method of transit.

"The streets of Toronto tend to be very congested and there seem to be a lot of aggressive drivers," Kurey said. "Public transit is well structured way to get around the congestion that Toronto faces," he said.

Source: Toronto Observer

Introduction

- Importance of the topic
  - Impacts on commuters
  - Effects on transportation network

Introduction

- Purpose of the report
  - To analyze bus delays in the TTC system
  - To identify key patterns, causes, and potential solutions for these delays

Introduction

- End product: build a logistic regression model to predict future bus delay duration
  - Better allocate resources
  - Enhance bus service precision

Analysis

Analysis

1. **Loading and Preprocessing Data**
2. **Visualization**
3. **Modelling**

Analysis: Loading and Preprocessing Data

- Handle missing values,
- Convert timestamp data to day parts, and
- Clean data fields irrelevant to the analysis

Analysis: Visualization

- Analyze distribution of delays,
- Identify top routes and locations with frequent delay incidents, and
- Visualize delays based on day and incident type

Analysis: Modelling

- Logistic Regression model to predict
  - “Short”, “Medium” or “Long” duration
- Cross-validation and randomized grid for hyperparameter tuning

Results and Conclusions

Results

- EDA
- Model

EDA

- Distributions
- Reclassified Labels

Model

- Model Scores
- Hyperparameter Tuning
- Cross Validation

Conclusion

- Interpretation
- Future Scope

Interpretation

- Comparison of Actual vs Prediction
- Exlpanation of Results

Future Scope

- Improve Prediction of Long Delays
- Experiment with other techniques

Thank you for your attention