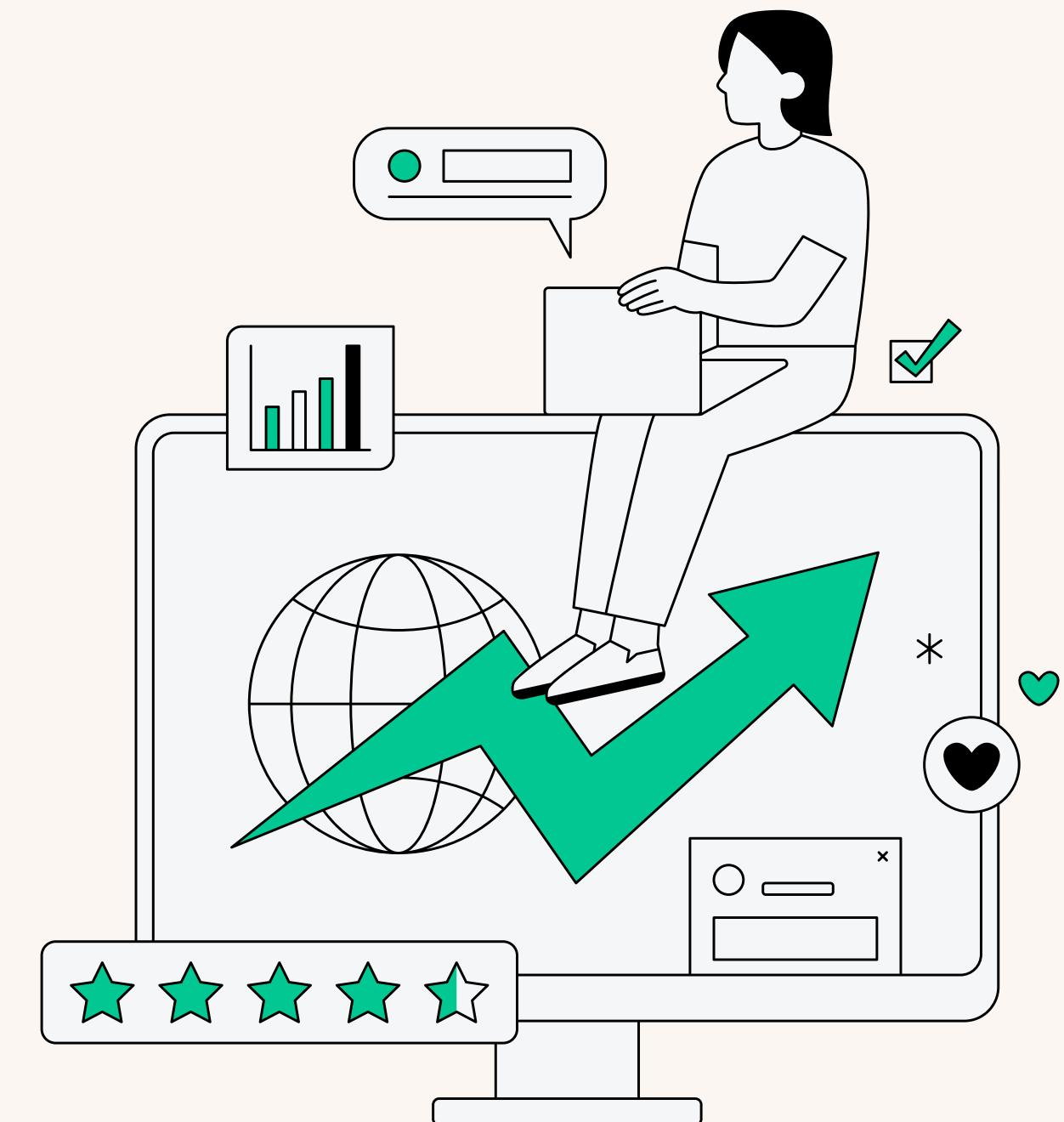


Presented by Tilova Shahrin

# Uncovering Urban Parking Patterns

Insights from Toronto's  
Ticket Data



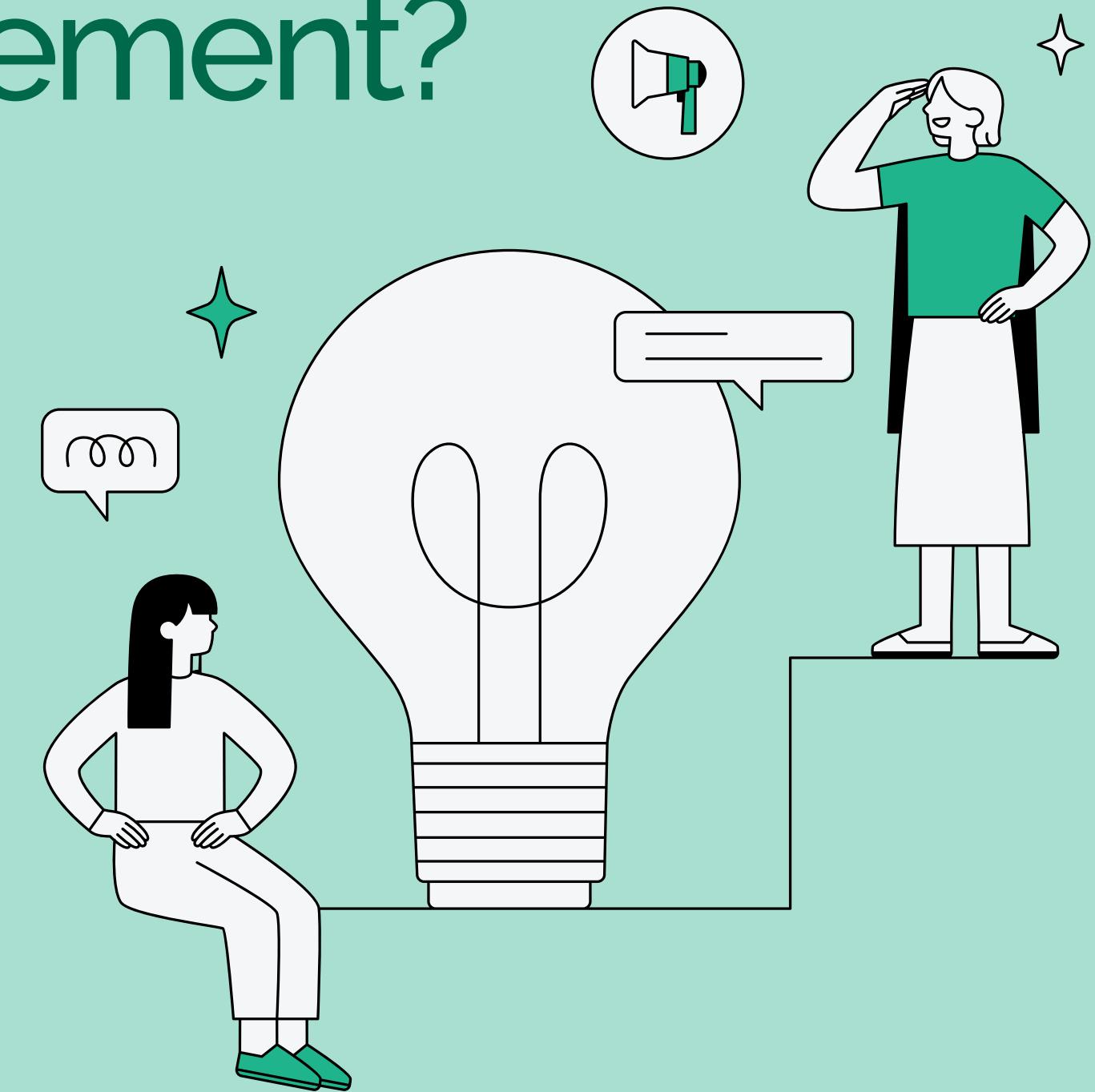
# Can Data unlock fairness in Toronto's Parking Enforcement?

## Fairness and Equity:

- Identify disparities in ticket distribution across different neighborhoods.
- Determine if enforcement practices are disproportionately affecting certain demographic groups.

## Resource Allocation:

- Optimize resource allocation for enforcement efforts.
- Identify peak times and hotspot locations for parking violations.
- Develop predictive models for proactive enforcement strategies.



# Leveraging Data Science for Fairer Parking Enforcement

## Predictive Modeling

Developing predictive models based on historical data to forecast future parking violation hotspots. Incorporating factors such as time of day, day of the week, events, and other relevant variables.

## Geospatial Analysis

Using mapping analysis to identify hotspots of parking violations within the city and prioritize enforcement efforts in these locations. This could involve techniques such as spatial clustering and geospatial visualization.

## Bias Detection

Assessing the fairness and equity of parking enforcement practices by evaluating whether ticket distribution is disproportionately impacting certain neighbourhoods or demographic groups.

# Impact

## Cost Savings

Proactively allocating resources based on predictive models can lead to cost savings by reducing the need for reactive enforcement measures. This can result in more efficient use of municipal budgets and resources.

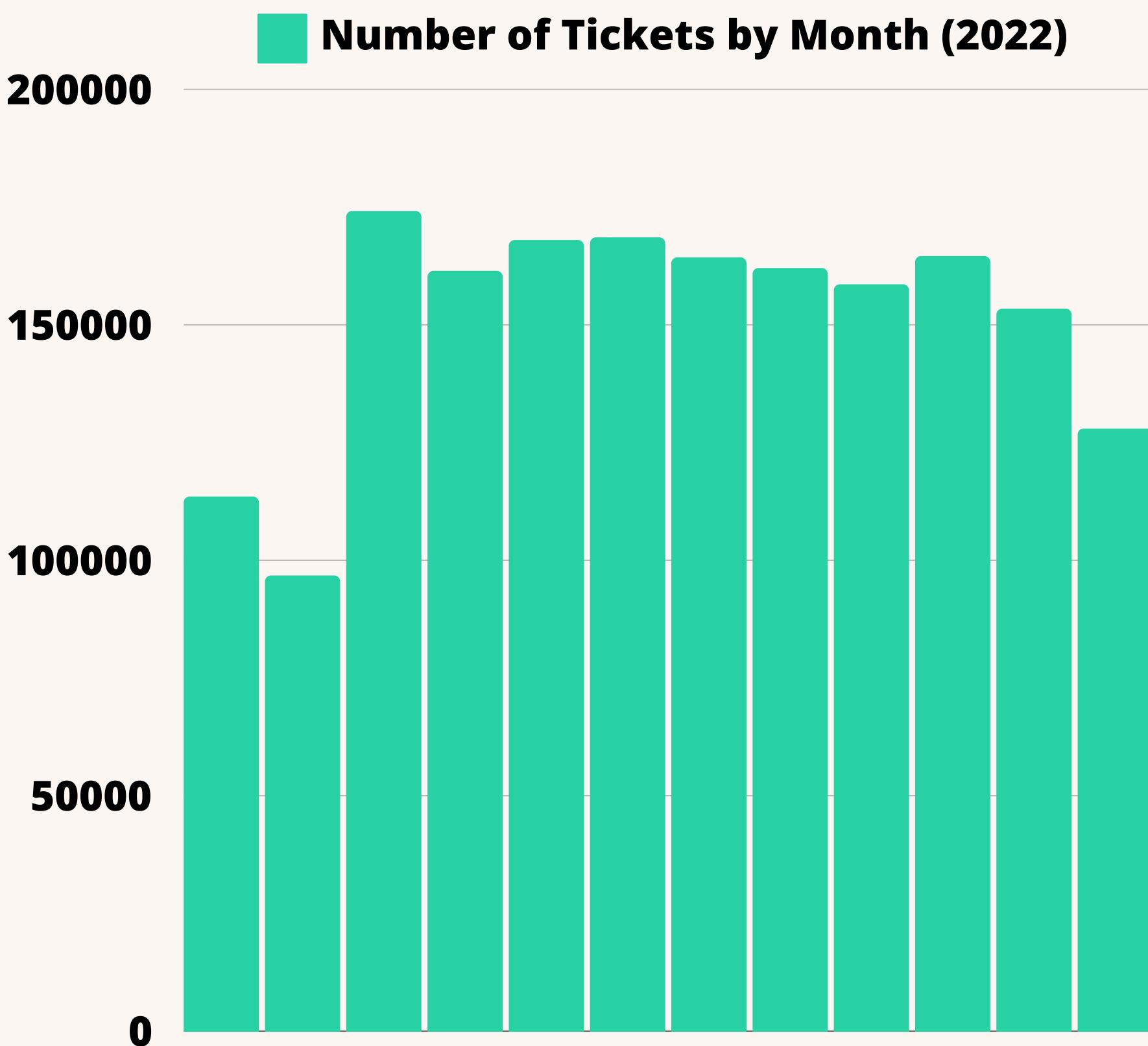
## Efficient Resource Utilization

By scheduling enforcement patrols more efficiently and prioritizing enforcement efforts in hotspot areas, we can optimize resource utilization and maximize the effectiveness of enforcement measures.

# Histogram of Infraction Date (2022)

Examining the histogram allows us to observe any seasonal variations in parking ticket issuance. This may include fluctuations in ticket volume based on factors such as weather conditions, events, or holidays.

Analyzing the temporal distribution of tickets over the course of the year can help identify long-term trends and patterns in parking behavior. This information can inform policy decisions, interventions, and long-term planning efforts.



# Top 10 Locations with the Most Infractions

These locations represent areas where parking violations are most prevalent.

Insights from a mapping analysis can inform policy decisions to address parking issues and improving compliance with parking regulations.

Actions may involve increasing patrols, deploying parking enforcement officers, or implementing technology solutions such as parking meters or automated enforcement systems.

**4700 KEELE ST**

**20 EDWARD ST**

**15 MARINE PARADE DR**

**2075 BAYVIEW AVE**

**4001 LESLIE ST**

# Next Steps

## Data Processing

Convert addresses to geographic coordinates (latitude and longitude). Geocoding allows for precise mapping and spatial analysis of parking violations, enabling visualization and identification of patterns.

## Text Analysis of Parking Infraction Descriptions & Proximity Codes (N/S, S/S etc.)

Break down infraction descriptions into tokens and apply stemming to normalize the text data to identify common parking offenses and patterns in infraction descriptions. Can also categorize parking violations into distinct groups or categories based on similarities in the text descriptions.



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# Thank you very much!

