Urban Insights

Collision Course: NYC's Risky Roadways

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Today's Agenda

Key takeaways:

- Goals with ML
- Exploring NYC crash dataset
- Research Questions
- Key findings & Analytics

Goals with ML

HOW CAN WE MAKE THINGS BETTER?

The project's aim is to ***predict when and where accidents were likely to occur*** in New York City.

This may help with ***improving traffic laws and policies***, guiding the allocation of ***resources***, and optimizing police presence.

Furthermore, these insights can ***inform urban planning decisions***, such as where to install traffic calming measures or redesign intersections.

Making it big online

WOW!

The NYC Open Data platform offers a comprehensive Motor Vehicle Collisions table containing details on **over 200,000 reported crashes**. This dataset captures every police-reported incident, including those with i**njuries, fatalities, or property damage exceeding $1,000.**

Exploring NYC crash dataset

Key Details

- Dataset years: 2012 - 2023
- Up to 1M data entries (reduced for analytics purpose)
- Only accidents with 2 vehicles

Research Questions

Leading you with answers.

Q1.

Are there temporal trends in motor vehicle collisions (e.g., do more collisions occur at certain times of the day, days of the week, or months of the year)?

Q2.

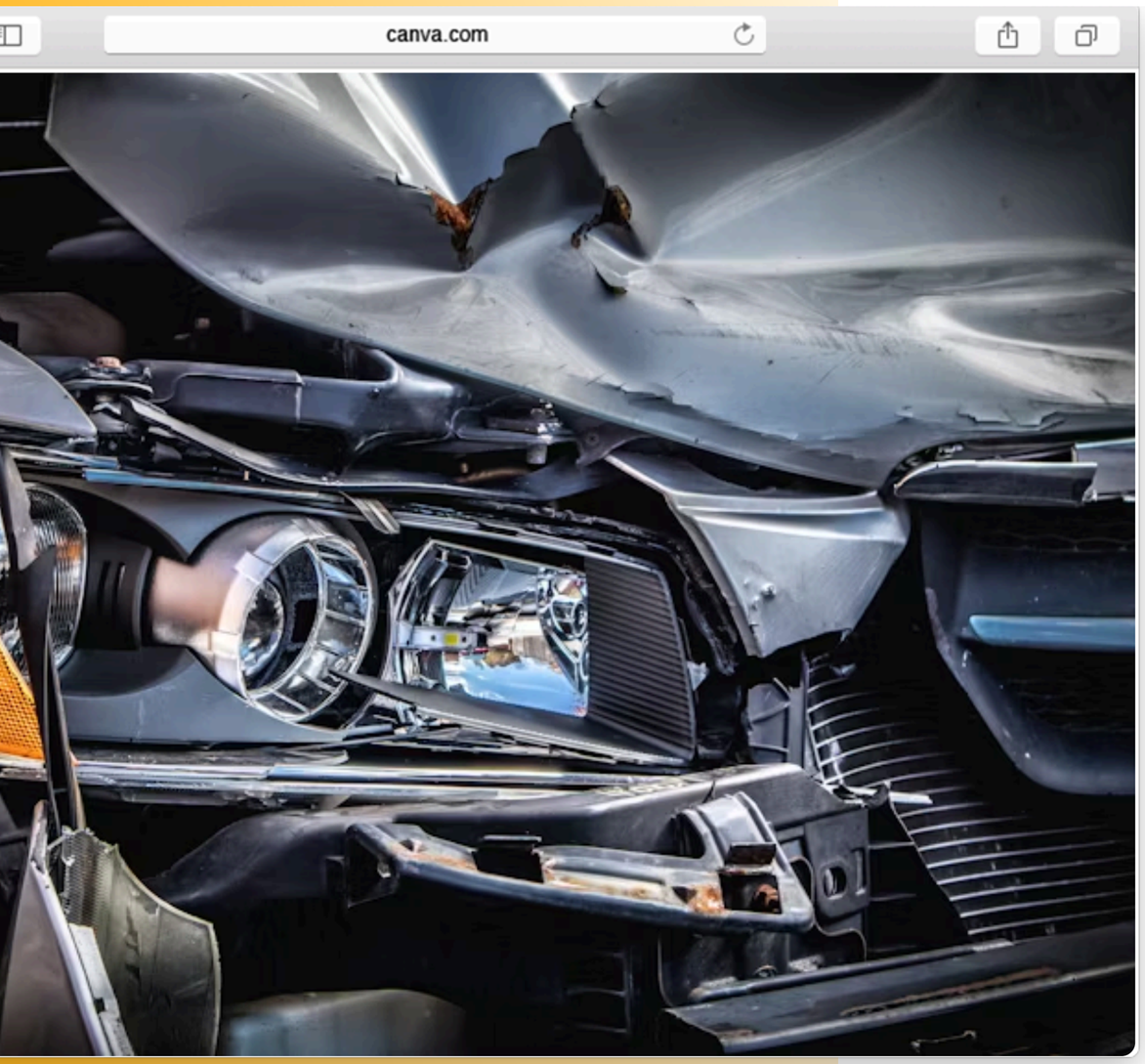
Are there geographical trends in motor vehicle collisions (e.g., do more collisions occur in certain boroughs or at certain locations)?

Q3.

Is there a correlation between the type of vehicle and the severity of the collision (in terms of injuries or fatalities)?

Q4.

What are the common contributing factors to motor vehicle collisions in NYC?



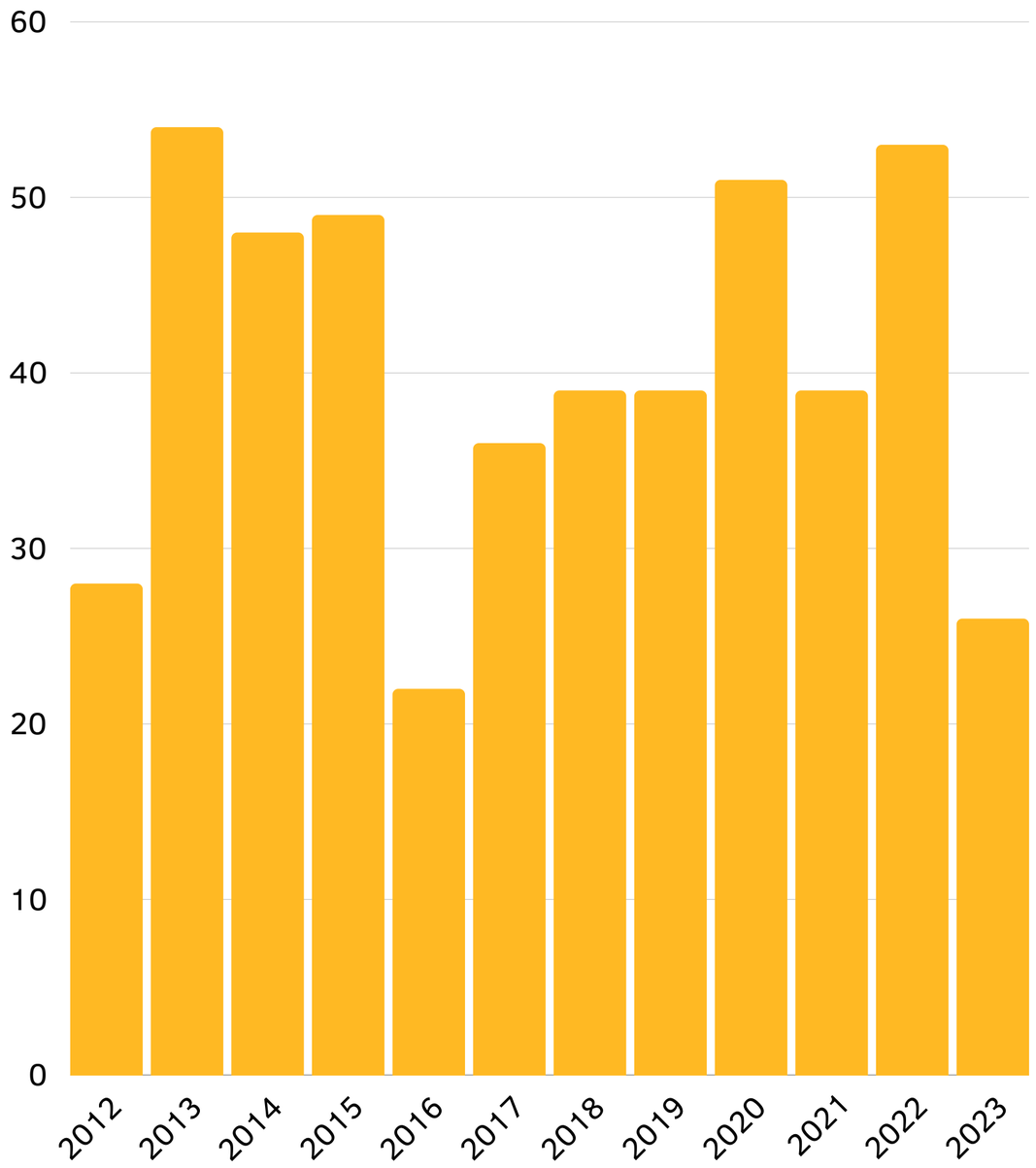
It all came crashing down in...

2013

THE WORST CRASHES & FATALITIES

Our data shows:

- 2013 had the highest number of accidents.
- 2013 also had the highest number of fatalities by vehicle accidents.
- The most common cause of accidents over the years was '**Unspecified**' with **350913 accidents**



QI.

Are there temporal trends in motor vehicle collisions (e.g., do more collisions occur at certain times of the day, days of the week, or months of the year)?

FATALITIES PER YEAR

2013

- 54 fatalities

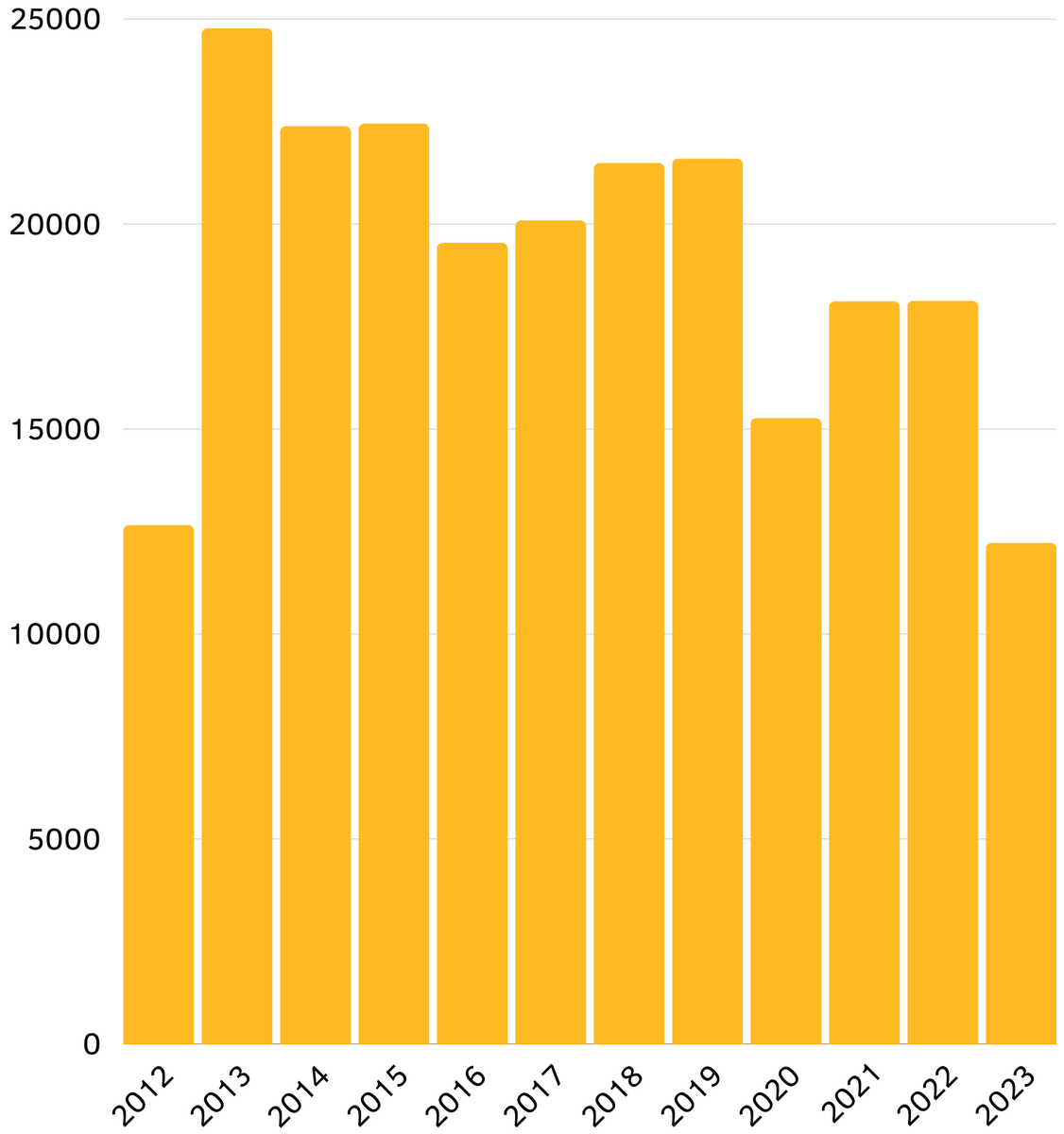
QI.

Are there temporal trends in motor vehicle collisions (e.g., do more collisions occur at certain times of the day, days of the week, or months of the year)?

CRASH RESULTS PER YEAR

2013

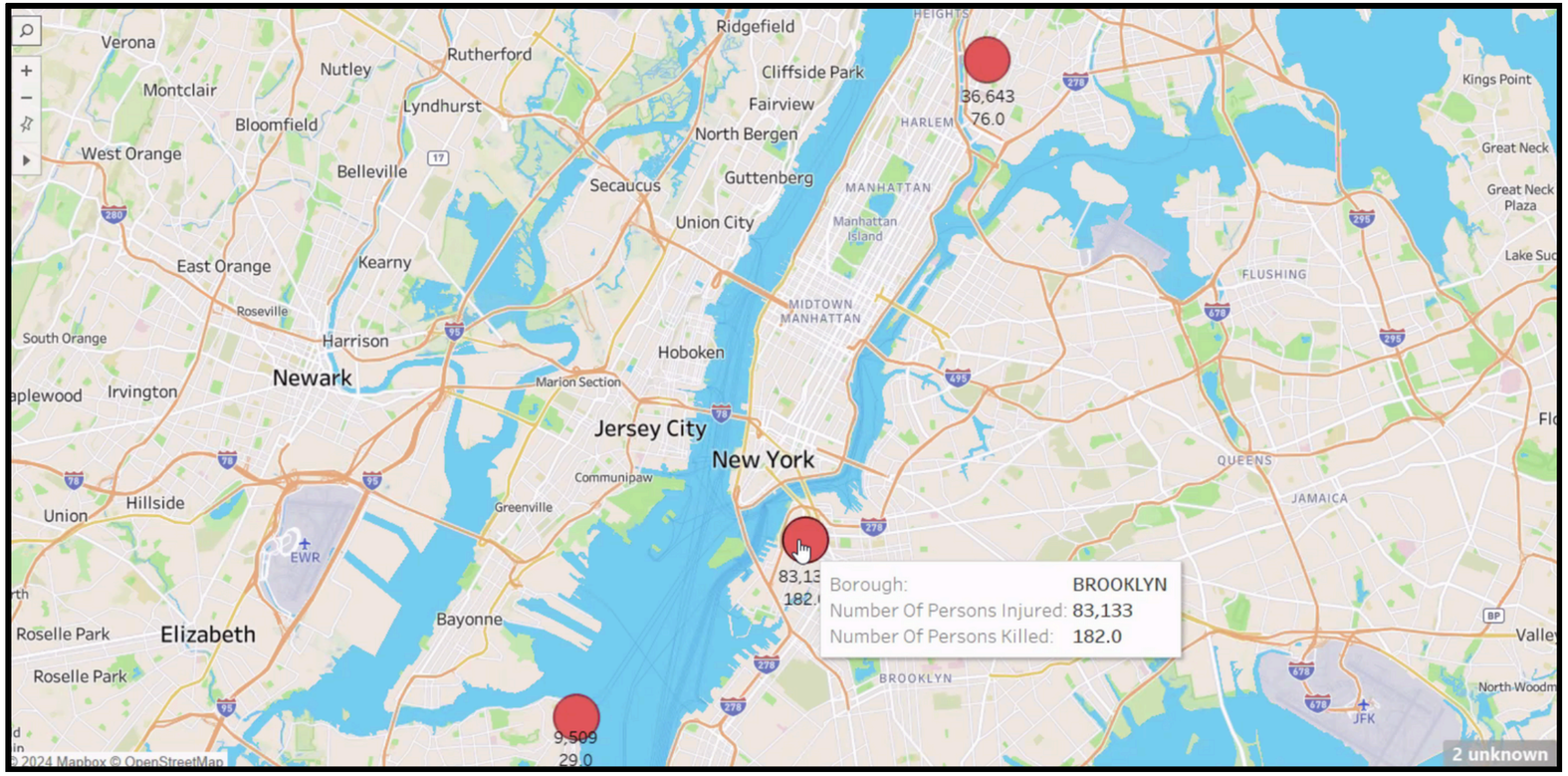
- 24772 crashes



Q2.

Are there geographical trends in motor vehicle collisions (e.g., do more collisions occur in certain boroughs or at certain locations)?

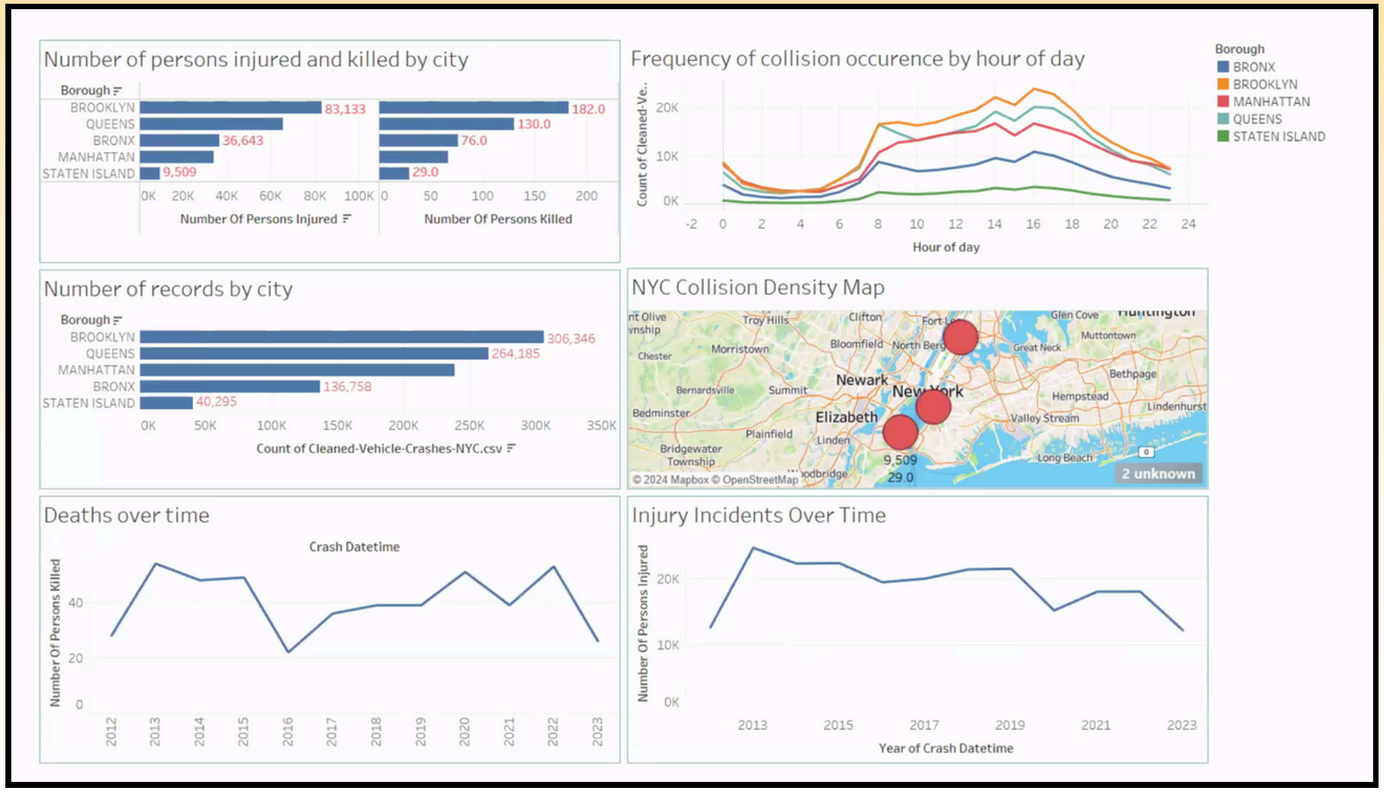
Take a look at the map!

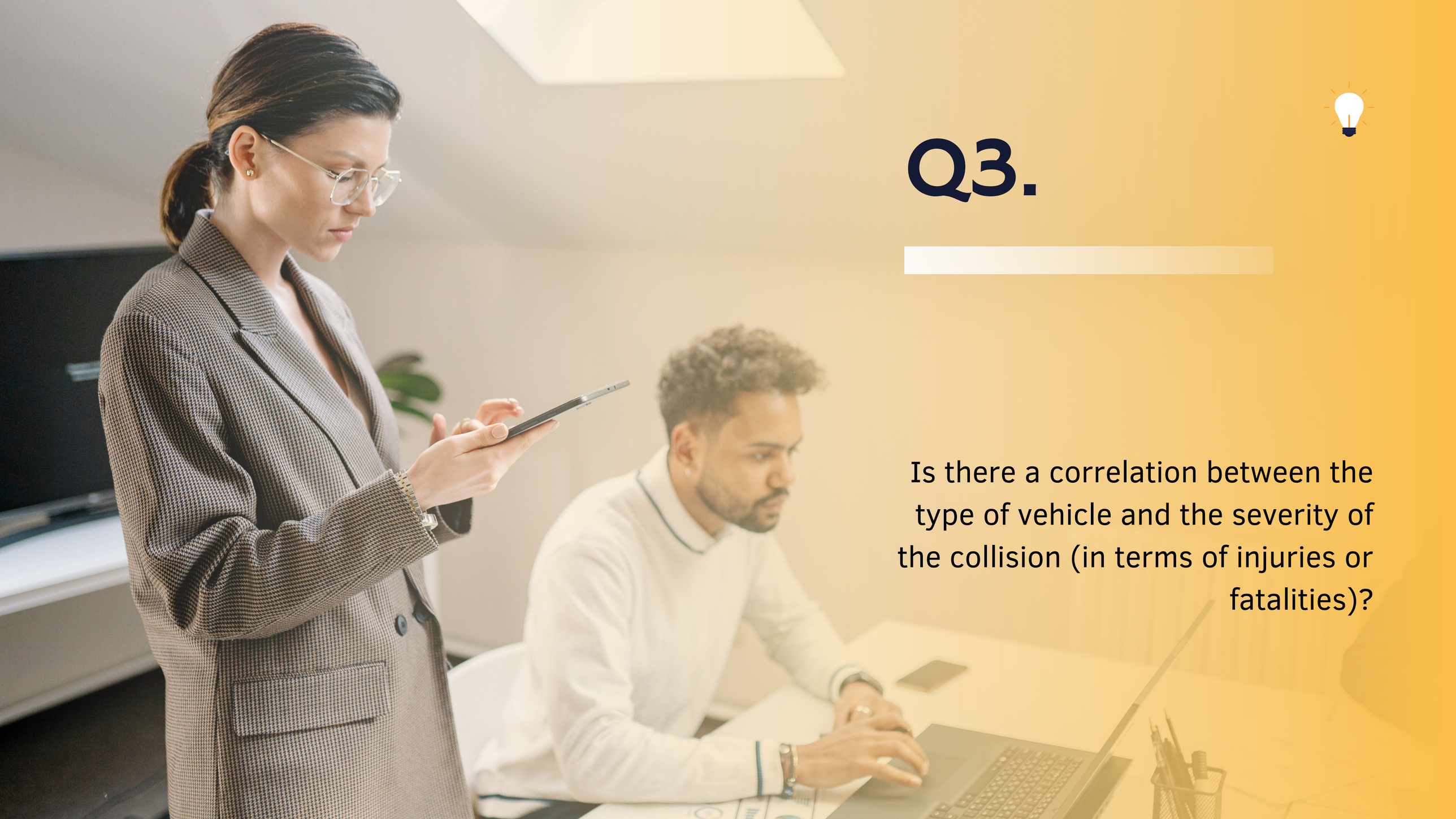


Q2.

Key Points: NYC Traffic Safety Trends (2012-2023)

- **Overall:** Fatalities peaked in 2016, injuries peaked in 2013. 2023 has the fewest injuries, 2016 has the fewest fatalities.
- **Time of Day:** A line chart shows peak crash times.
- **Location:** Brooklyn has the most crashes. A bar chart shows crashes by city with injuries/deaths stacked on top.
- **Density:** A heatmap highlights areas with high crash density (limited to 3 boroughs).
- **Visualization:** All data is combined into an interactive dashboard for easy exploration.





Q3.

Is there a correlation between the type of vehicle and the severity of the collision (in terms of injuries or fatalities)?

Q3.

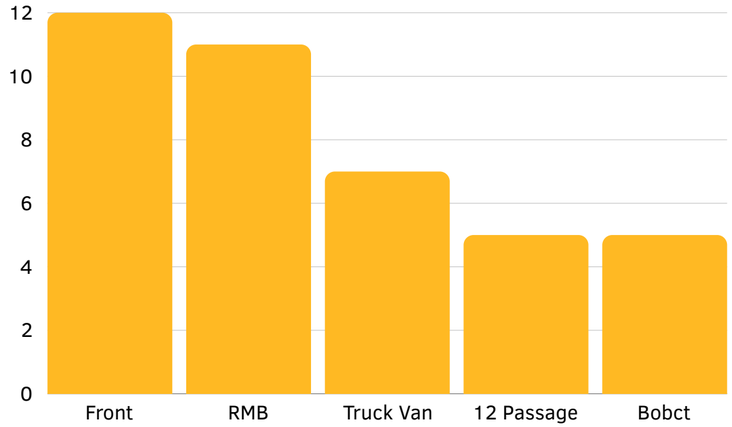
The vehicle types with the highest average of casualties (injuries or deaths) are the largest vehicle types such as **trucks**, as well as the smallest vehicle types such as **e-scooters.** Regular sized cars like sedans or suvs have the lowest average of casualties.

Q3.

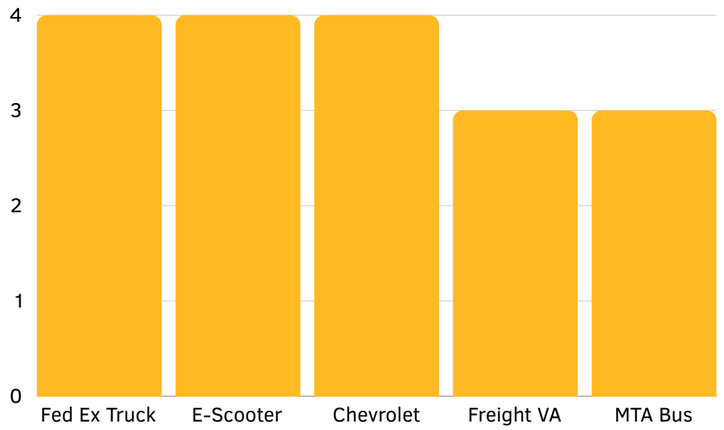
Is there a correlation between the type of vehicle and the severity of the collision (in terms of injuries or fatalities)?

AVG # OF CASUALITIES BY VEHICLE TYPE

Vehicle I vs Casualties



Vehicle 2 vs Casualties



Q4.

What are the common contributing factors to motor vehicle collisions in NYC?

A **high frequency of "Unspecified"** causes indicates a **significant gap** in understanding the root causes of accidents. Addressing this issue **requires** a comprehensive approach involving better data collection processes, improved training and education, system enhancements, **detailed root cause analyses, and ongoing evaluation of policies and their impacts.** By improving the accuracy and specificity of accident reporting, organizations can **better identify trends, prevent future incidents, and enhance overall safety.**

THE END