Introduction

- Objective: Explore the relationship between weather conditions and traffic accidents in New York City
- Key Question: How do different weather conditions affect the frequency and severity of traffic accidents in NYC?

Data Sources

- Datasource 1: NYC Traffic Accidents
  - Metadata URL: NYC Traffic Accidents - Metadata
  - Data URL: NYC Traffic Accidents - Data
  - Details: Information about traffic accidents recorded in NYC from January 2020 to August 2020

- Datasource 2: NYC Weather Data
  - Metadata URL: NYC Weather - Metadata
  - Data URL: NYC Weather - Data
  - Details: Weather parameters recorded in NYC during the same period

Data Integration and Preparation

- Process: Filtering and merging the datasets based on the common date field
- Goal: Facilitate analysis of the combined dataset to identify correlations between weather conditions and traffic accidents

Exploratory Data Analysis (EDA)

- Monthly Traffic Accidents: Distribution of traffic accidents over months to identify seasonal patterns
- Figure 1: Total Accidents by Month

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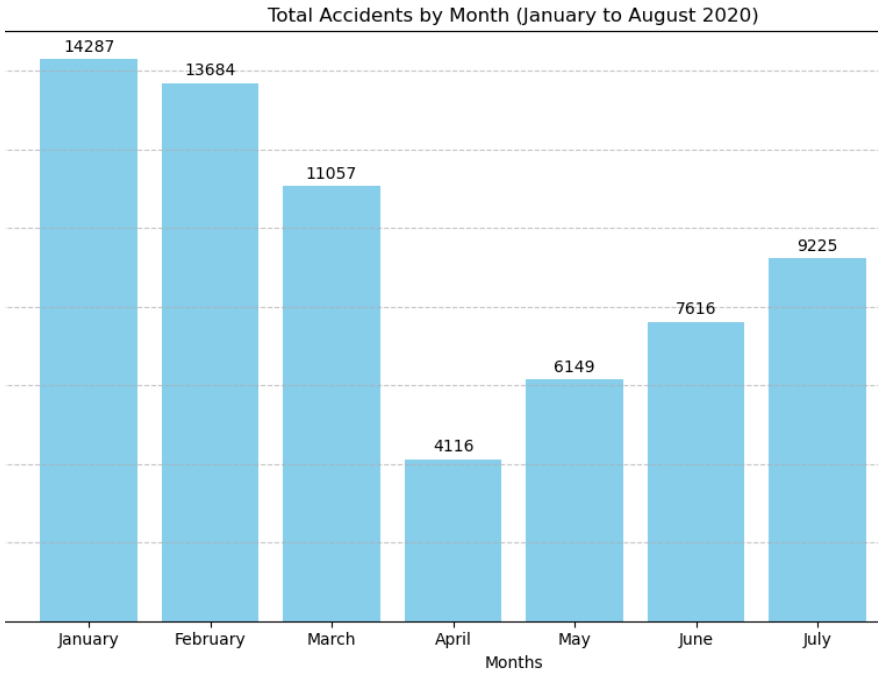


Weather Variables Analysis

- Temperature and Accidents: Analyzing the variation of average temperature across different months
- Figure 2a: Average Temperature and Total Accidents by Month
- Precipitation and Accidents: Analyzing the variation of total precipitation across different months
- Figure 2b: Total Precipitation and Total Accidents by Month

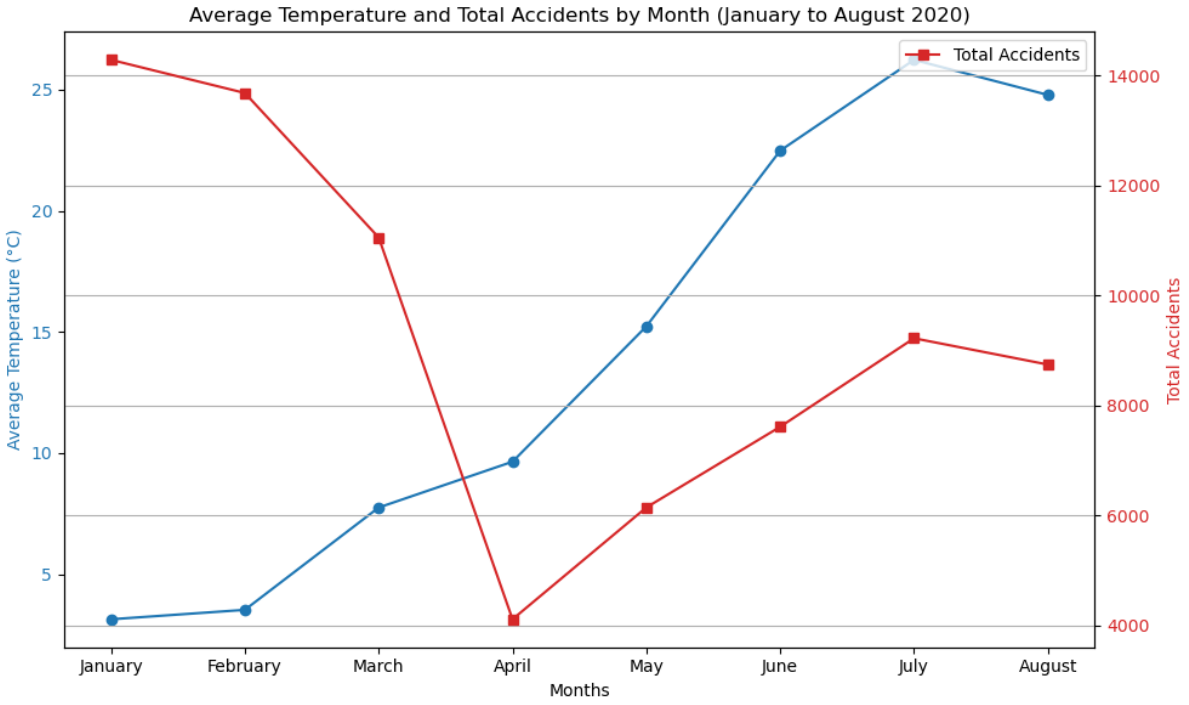


Figure 2a: Average Temperature and Total Accidents by Month

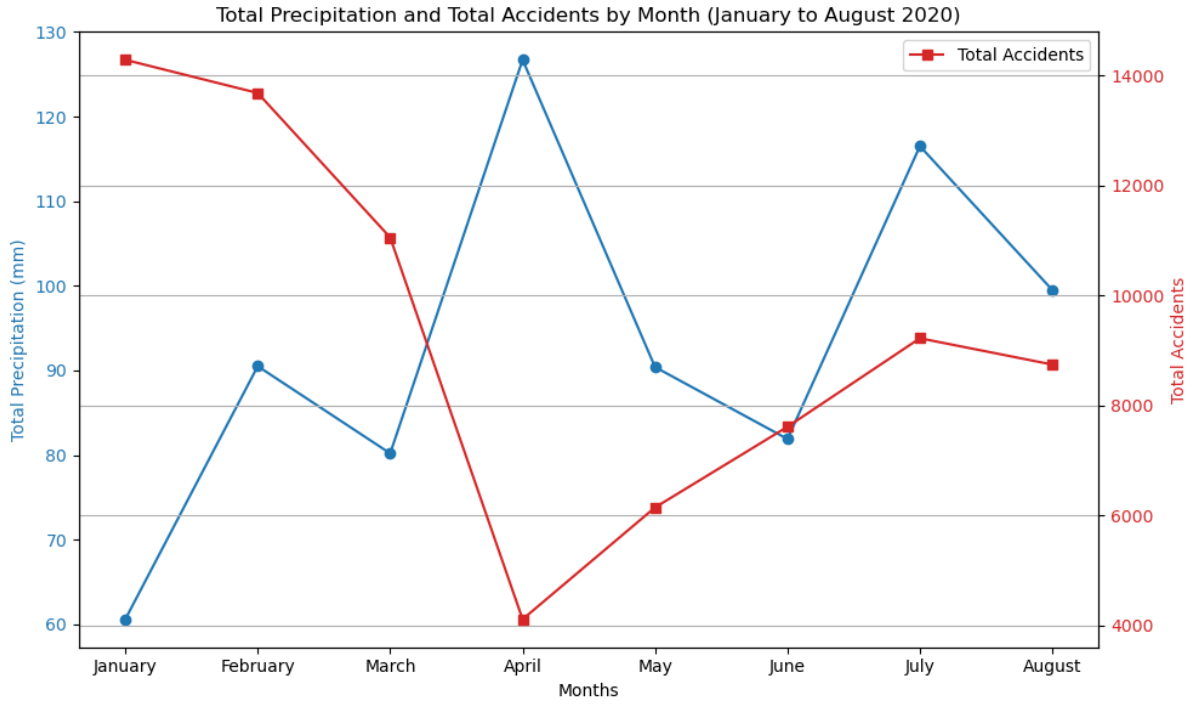


Figure 2b: Total Precipitation and Total Accidents by Month

Further Weather Analysis

- Cloud Cover and Accidents: Analyzing the variation of average cloud cover across different months
- Figure 3a: Average Cloud Cover and Accident Count by Month
- Wind Speed and Accidents: Analyzing the variation of average wind speed across different months
- Figure 3b: Average Wind Speed and Total Accidents by Month

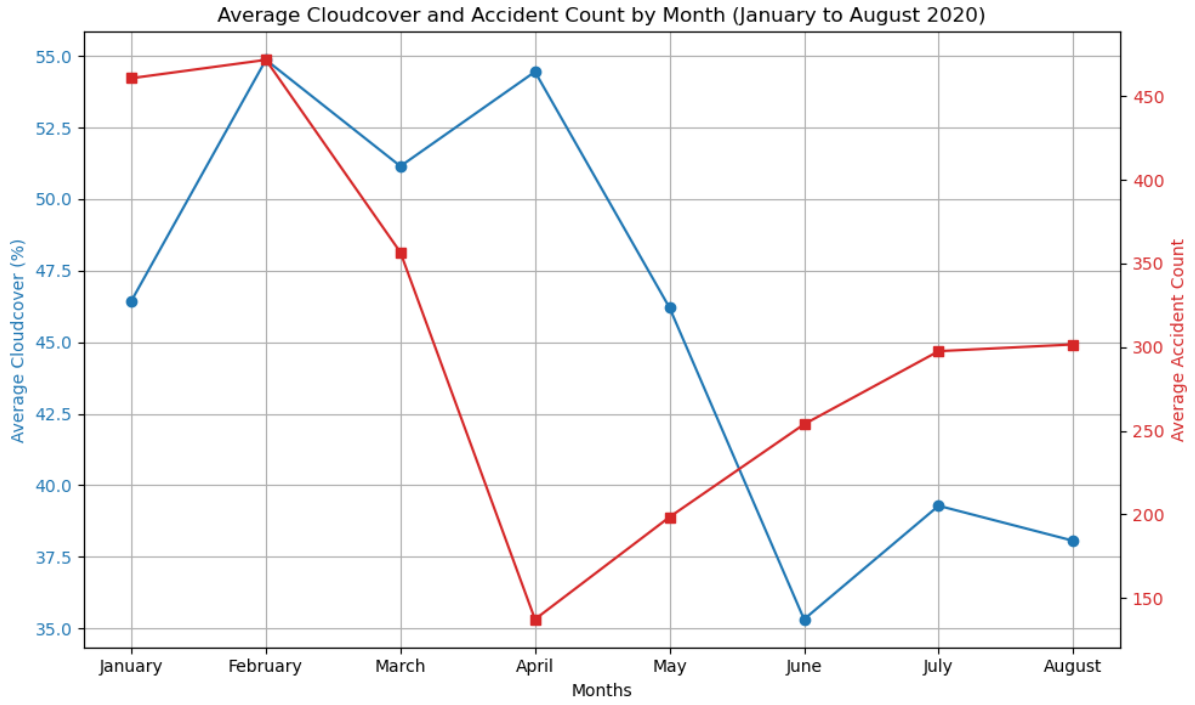


Figure 3a: Average Cloud Cover and Accident Count by Month

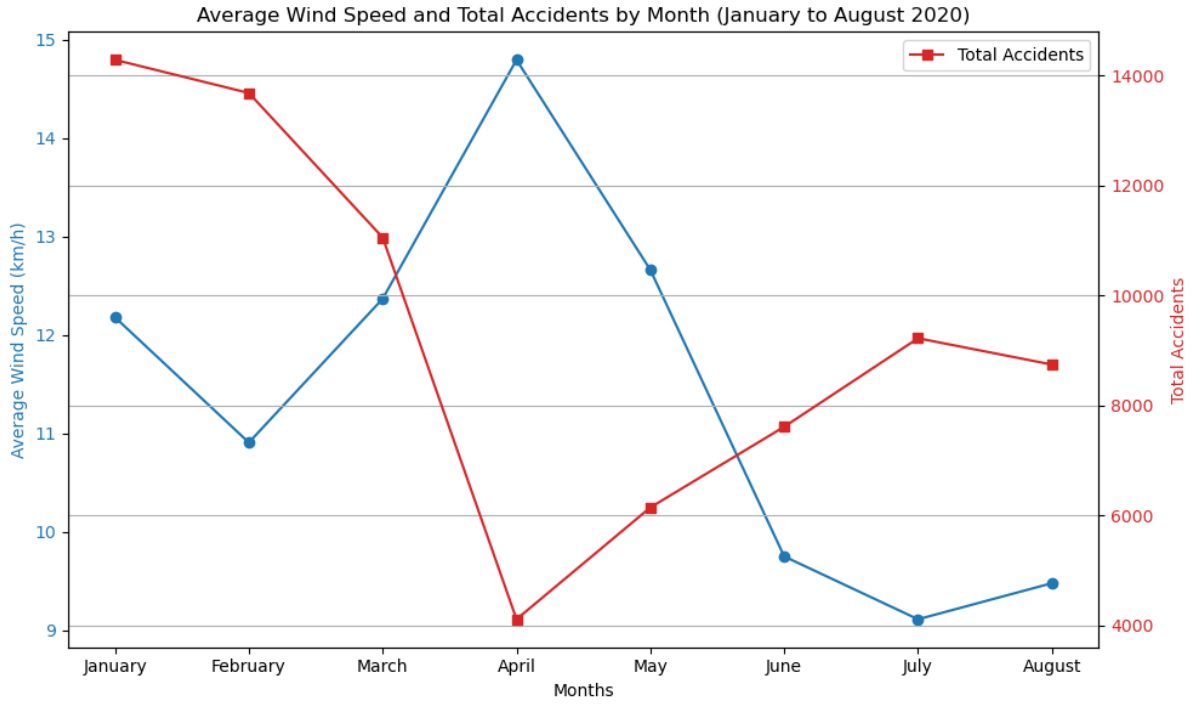


Figure 3b: Average Wind Speed and Total Accidents by Month

Correlation Analysis

Objective:

Identify correlations between weather variables (temperature, precipitation, cloud cover, wind speed) and traffic accidents

Techniques:

Statistical analysis and descriptive statistics to quantify effects

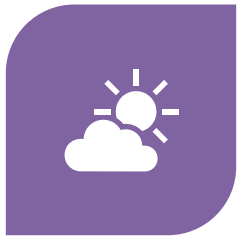
Key Findings

TEMPERATURE:

HIGHER TEMPERATURES CORRELATE WITH AN INCREASE IN TRAFFIC ACCIDENTS. THIS MAY BE DUE TO HIGHER PEDESTRIAN AND VEHICLE ACTIVITY DURING WARMER WEATHER

PRECIPITATION:

HEAVY PRECIPITATION LEADS TO A HIGHER RATE OF ACCIDENTS, HIGHLIGHTING THE DANGERS OF WET ROAD CONDITIONS



CLOUD COVER:

MODERATE LEVELS OF CLOUD COVER SHOWED MIXED EFFECTS

WIND SPEED:

INCREASED WIND SPEED IS ASSOCIATED WITH A SLIGHT RISE IN ACCIDENTS, POSSIBLY DUE TO REDUCED VISIBILITY AND CONTROL FOR DRIVERS

Limitations and Uncertainties

- Focus: Correlational relationships, not causation
- Scope: Limited to NYC and a specific time period (January 2020 to August 2020)
- Generalizability: Findings may not apply to other regions or different years

Conclusions

- Impact: Weather conditions influence traffic accident rates in NYC
- Future Research: Larger datasets and extended time periods needed for deeper insights
- Policy Implications: Informing safety measures and traffic management strategies