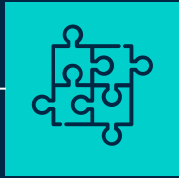# Imagine…

ANALYZING VEHICLE CRASH DATA

By: Sehrish Daud, Shuxin Dong, Xiangcheng Ji

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# Introduction

Why did we choose this topic?

Traffic accidents are a widespread and concerning phenomenon that occurs every day globally, leaving behind a series of devastating injuries and, sadly, even fatalities. The impact extends beyond individuals to entire families.
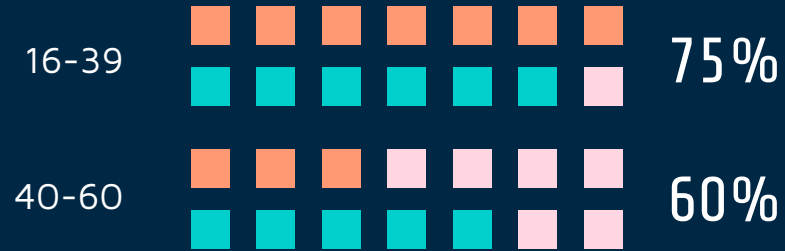

(2023.1.12) 36-year-old Danny Tiner has been hit with numerous felony charges after investigators found he was actively using TikTok when he was driving a semi-truck and caused a six-vehicle car accident in January, killing five people.

TARGET AUDIENCE

GENDER

50% Female

50% Male

AGE

16-39   75%

40-60   60%
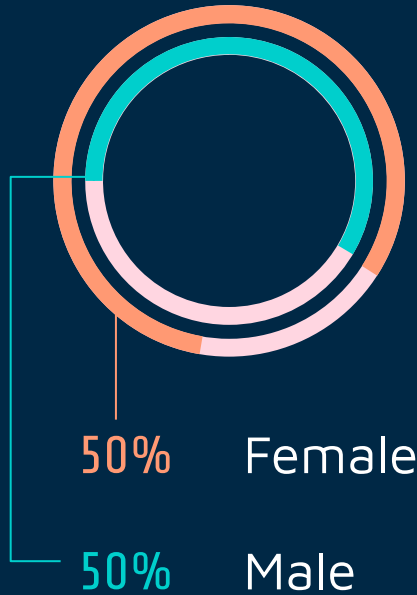
Policymakers!

Our analysis provides significant insight that can inform policymakers

Data Overview

https://www.nhtsa.gov/file-downloads?p=nhtsa%2Fdownloads%2FCRSS%2F2021%2F

ALCOHOL USE

Research Question:Is there a correlation between alcohol involvement and injury severity?

01

GRAPHICAL ANALYSIS – Fig. 1

Count of Vehicle Crashes in Regards to Alcohol Involvement
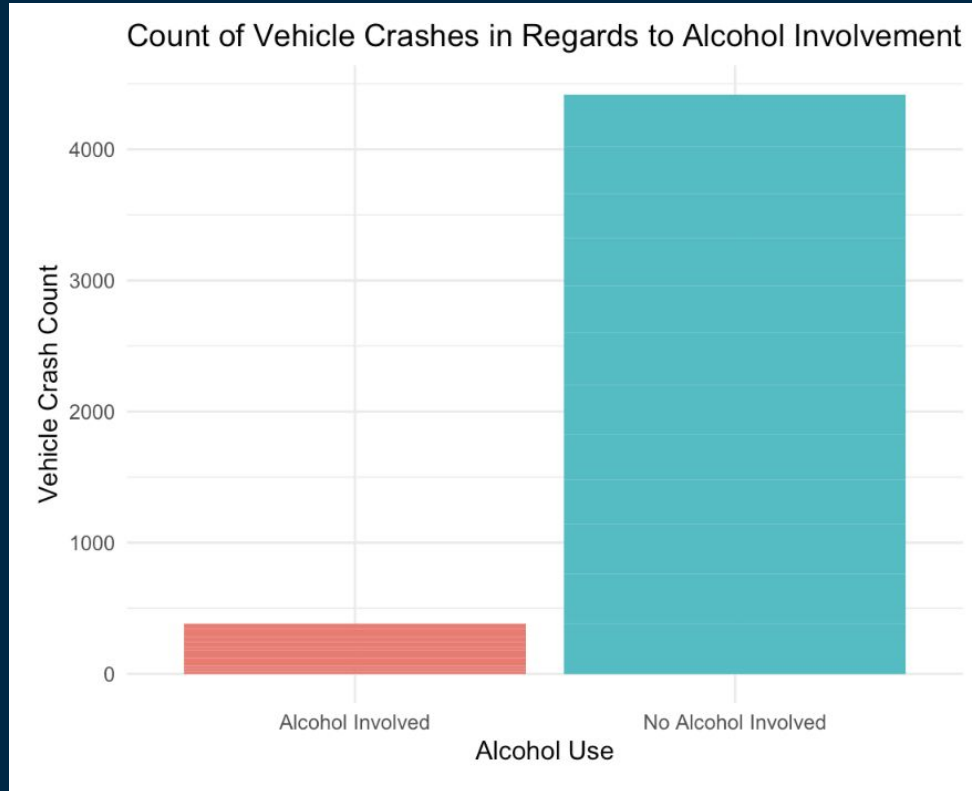
- Crashes while drinking while driving is not common
- policies are working to deter this dangerous behaviour.
- Still hundreds of crashes with alcohol is worrying
- Should work toward mitigating this issue so that 0 crashes because of alcohol

GRAPHICAL ANALYSIS – Fig. 2

Count of Vehicle Crashes in Regards to Alcohol Involvement and Sex
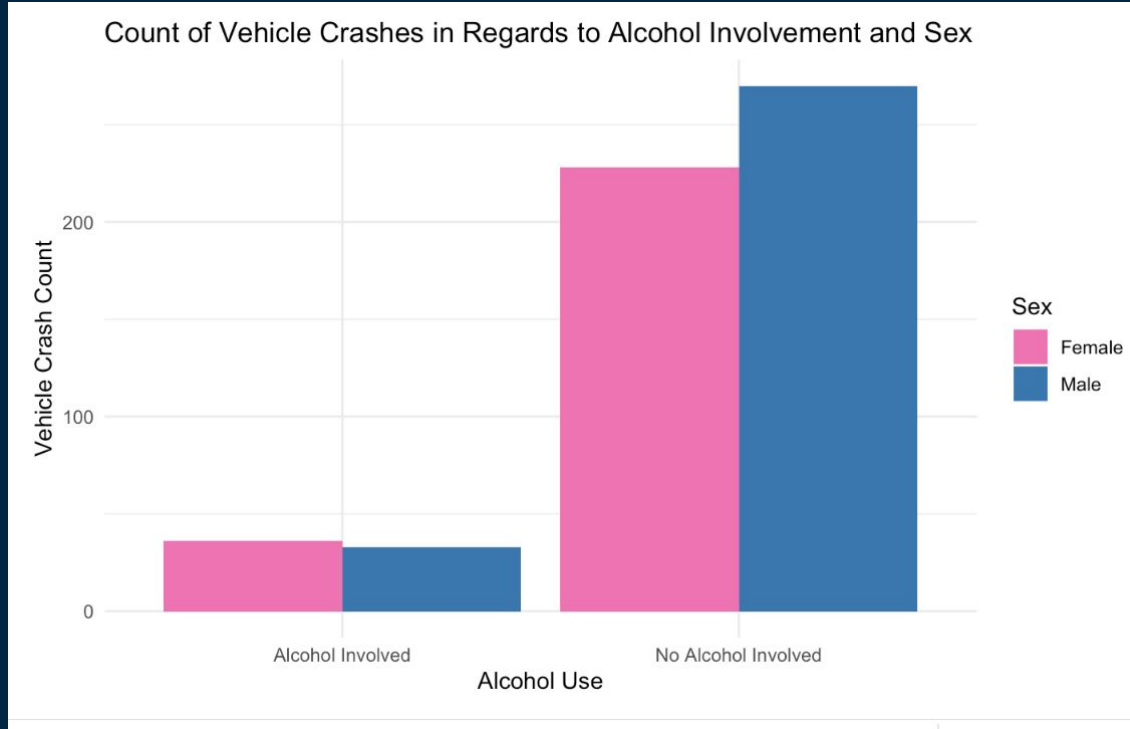
- Men more likely to get in crashes without the use of alcohol than women
- Sex barely played a factor with alcohol involvement - minimal height difference
- sex does not play a significant role in alcohol use and crashes.

GRAPHICAL ANALYSIS – Fig. 3

Count of Alcohol Use and Injury Severity
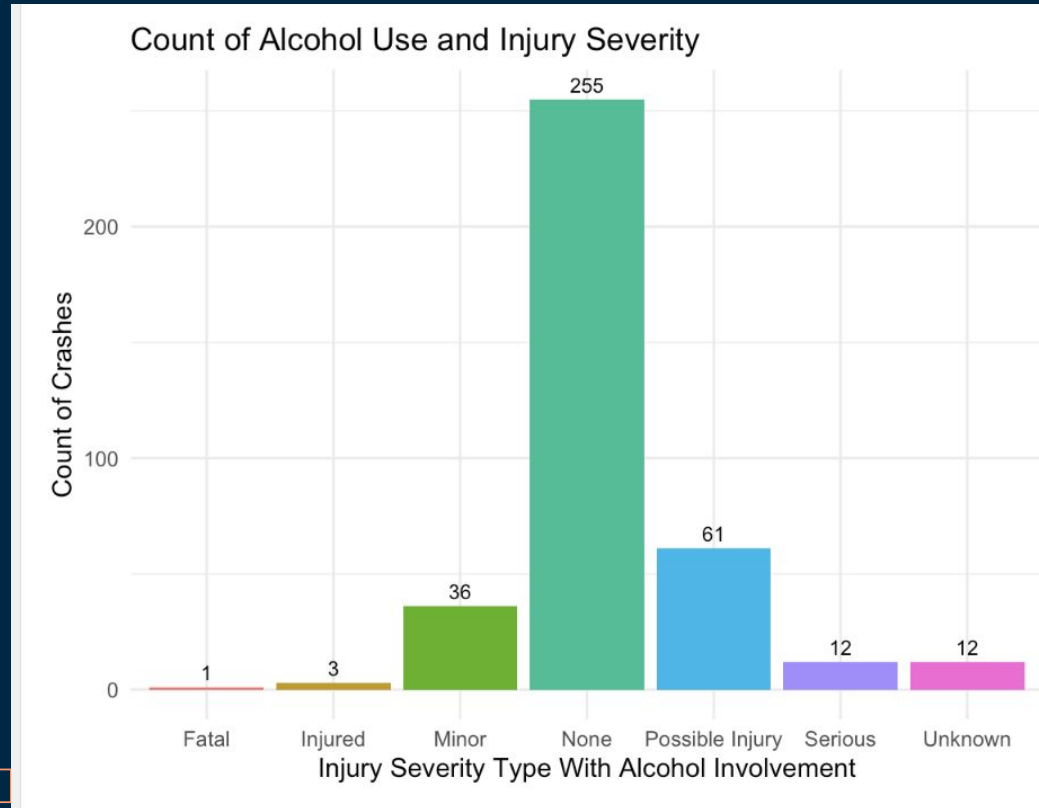
- Majority resulted in a non-fatal injury
- 125 total people who were injured still hold weight
- Stricter enforcement of alcohol-related driving laws, public awareness campaigns, and educational programs, will reduce the overall number of accidents.
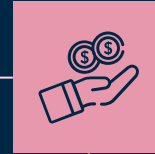
How is this analysis relevant? - Policymakers!

Resource Allocation
Place emphasis on rehab or support services

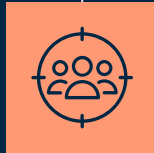## Educational Campaigns
Raise awareness about drinking responsibly

Law Enforcement Strategies
implement or enhance sobriety checkpoints, patrol stations, and public awareness

Emotional Well-being
Focus on emotional distress rather than injury severity

AGE

Research Question: Is it reasonable for car rental companies to charge extra young driver fees for drivers under 25 years old?

02

GRAPHICAL ANALYSIS
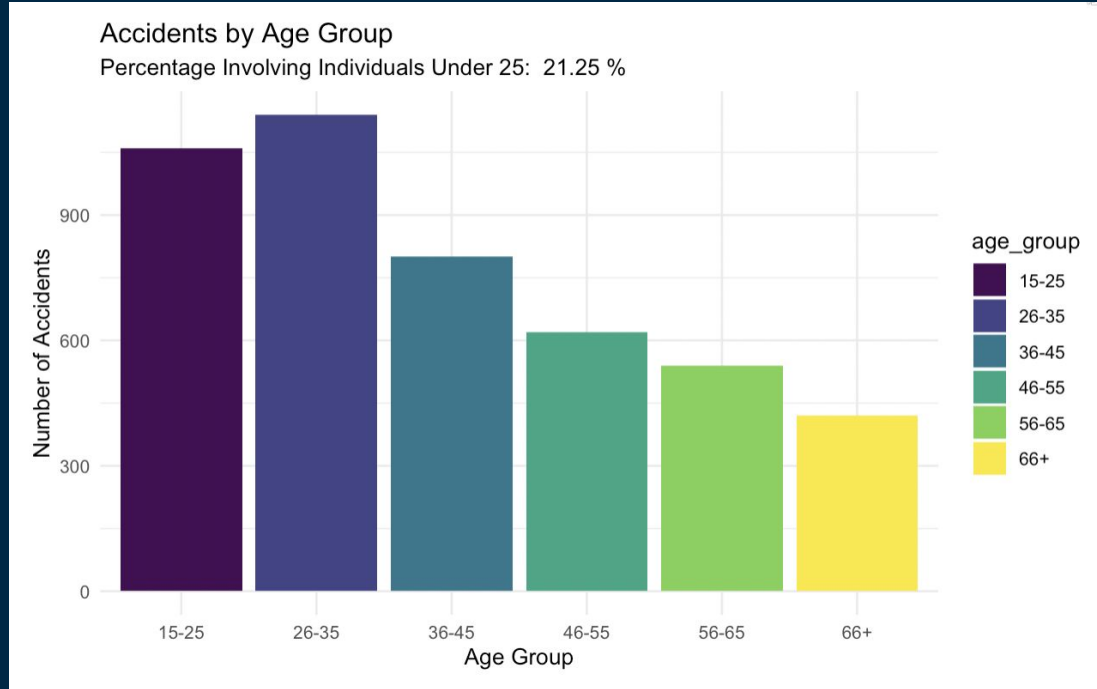
Reasonable ✅

- The number of traffic accidents occurring in the 15-25 age group is high.

- Under 25 age group has fewer individuals with both a driver's license and a necessity to drive compared to other groups.

SEX

03

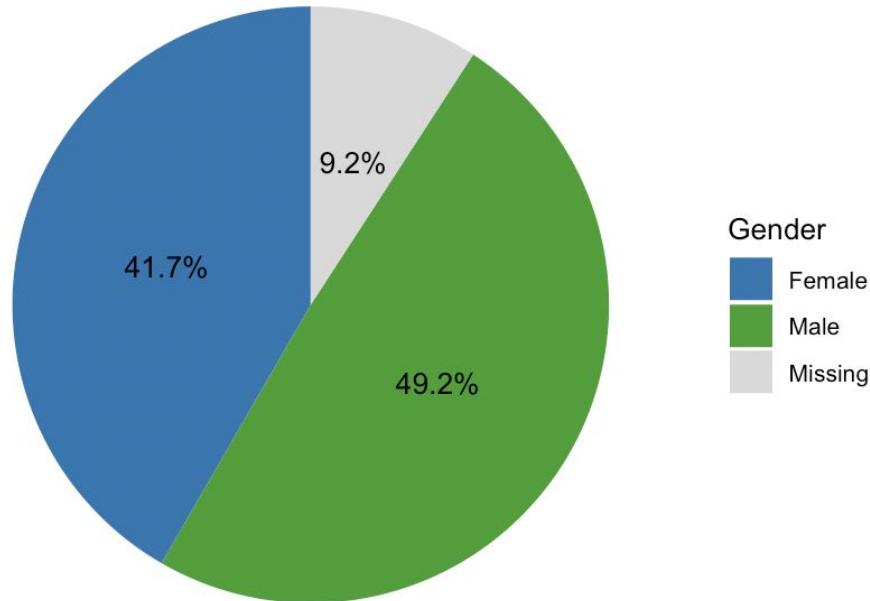Research Question: Are female drivers more likely to be involved in accidents than male drivers? Is this a stereotype?

GRAPHICAL ANALYSIS

Accidents by Gender
Total Accidents: 4800

9.2%

41.7%

49.2%

Gender
- Female
- Male
- Missing

Stereotype ✅

- Male drivers account for more of all accidents than female drivers.

-

Advanced Method: Bar plot ➡️ a polar coordinate system (fan chart)

SEX & AGE

04

Research Question：Why people have the stereotype that female drivers more likely to be involved in accidents than male drivers?

GRAPHICAL ANALYSIS

Accidents by Age and Gender
Total Accidents: 4800

Explanations:

- In the 35-45 age group, female drivers are involved in a larger percentage of crashes than male drivers.
- People don't always see the whole picture.(That's why we need data.)
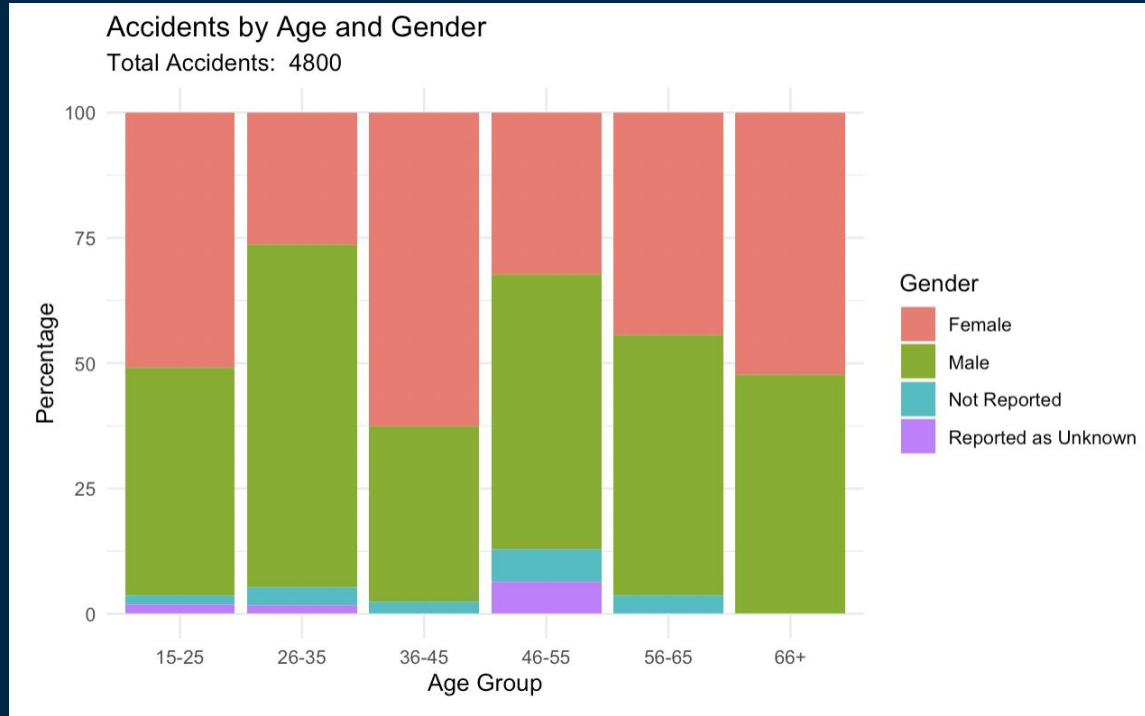
Tips...

- Enhance driving skills & Enhance safety awareness

TIME & WEATHER

05

Research Question: how does the time and weather affect traffic accidents?

GRAPHICAL ANALYSIS

- The line chart displays traffic accidents over the course of a day

- There is a steady increase in accidents from 6 AM to 2 PM.

- Accidents peak between 3 PM and 7 PM, coinciding with afternoon rush hours.

- A significant decrease in accidents is observed after 7 PM

GRAPHICAL ANALYSIS
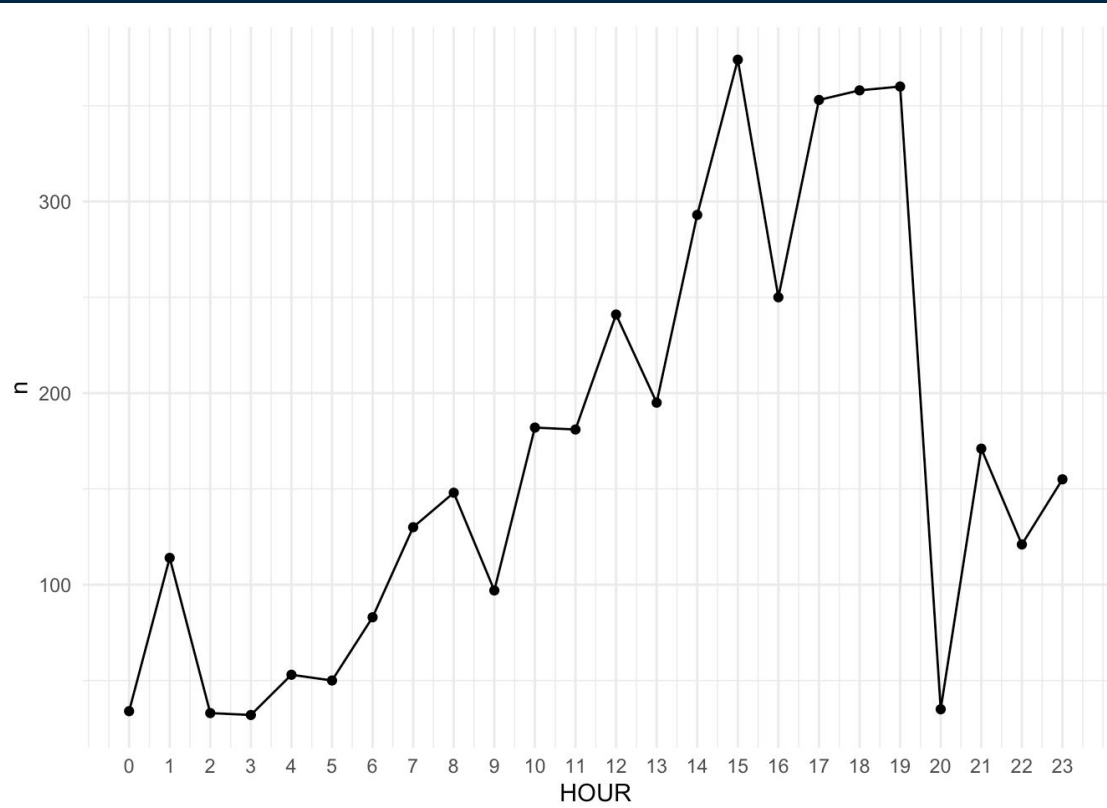
Number of accidents under different weather conditions
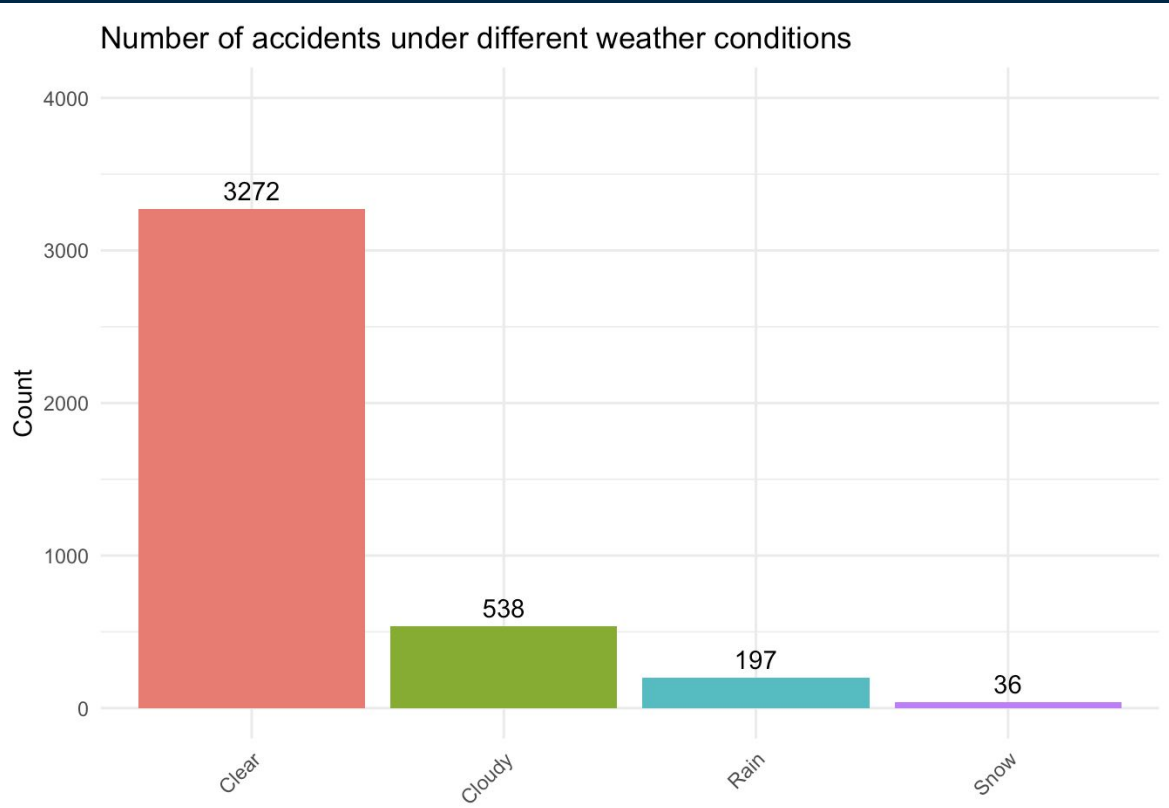
- The bar chart visualizes the number of traffic accidents that occurred under different weather conditions.

- The largest number of accidents occurred during clear weather conditions, followed by cloudy, rain, and snow

References

Fatality Facts 2021: Teenagers. (n.d.). IIHS-HLDI Crash Testing and Highway Safety.

https://www.iihs.org/topics/fatality-statistics/detail/teenagers