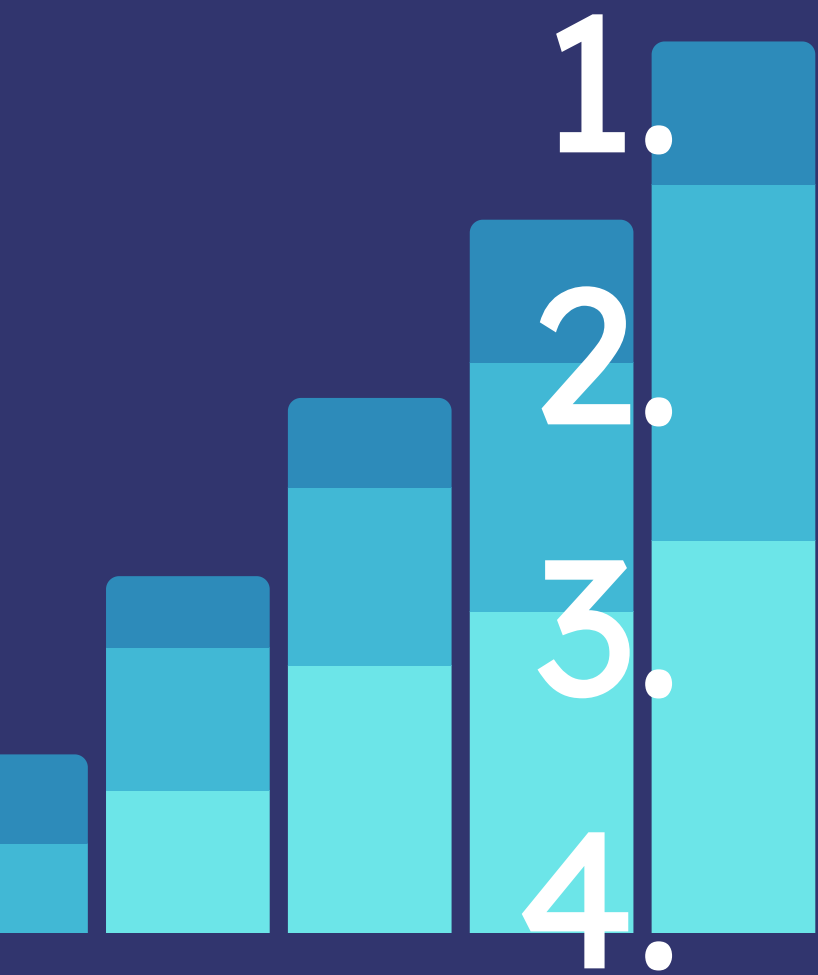Project Contents

Project Overview
Business Problem
Data Visualization
Conclusions

1. PROJECT OVERVIEW

DATA CLEANING

ANALYSIS

VISUALIZE

GENERATE INSIGHTS

KEY QUESTIONS

WHAT IS THE TREND IN ACCIDENTS OVER THE YEARS?

DOES PURPOSE OF FLIGHT, WEATHER, ENGINE TYPE, MAKE INFLUENCE THESE TRENDS?

WHAT IS THE RISK ANALYSIS OF ENGINE TYPE ON BOTH ON THE PEOPLE AND AIRCRACTS?

2. BUSINESS PROBLEM

THE COMPANY SEEKS TO IDENTIFY AND PURCHASE LOW-RISK AIRCRAFT FOR ITS EXPANSION INTO THE AVIATION SECTOR, AIMING TO ENSURE SAFETY AND RELIABILITY FOR BOTH COMMERCIAL AND PRIVATE OPERATIONS.
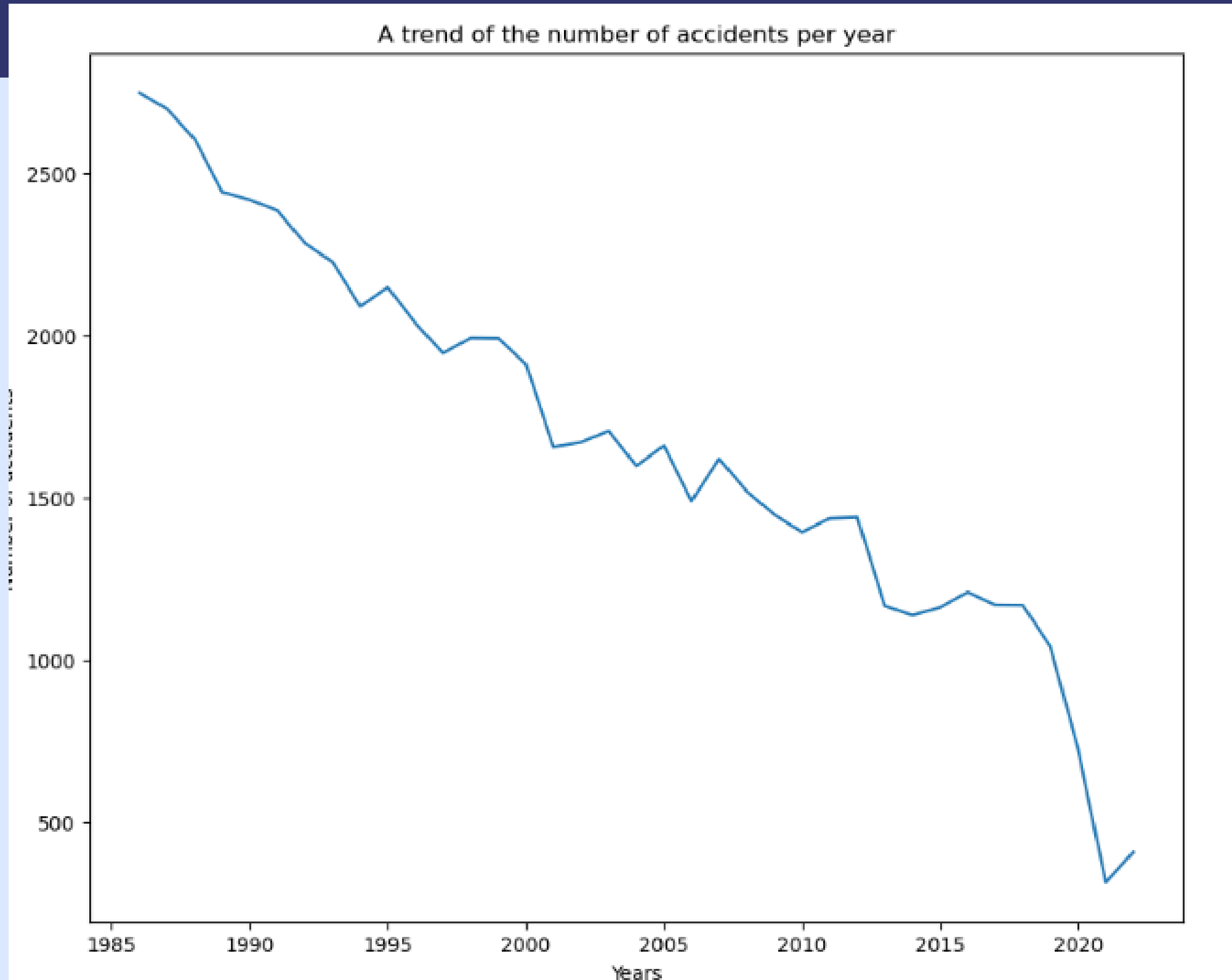
DATA SOURCE

AVIATION ACCIDENT DATABASE SYNOPSES (KAGGLE)

3. DATA VISUALIZATION
3.1 .TRENDS OF OCCURENCES OVER THE YEARS

A trend of the number of accidents per year

- The number of events (accidents and incidents) see to decrease over the years...why?

3.2. BAR GRAPH

Purpose Of Flight

- Personal
- Instructional
- Unknown
- Aerial Application
- Business
- Positioning
- Other Work Use
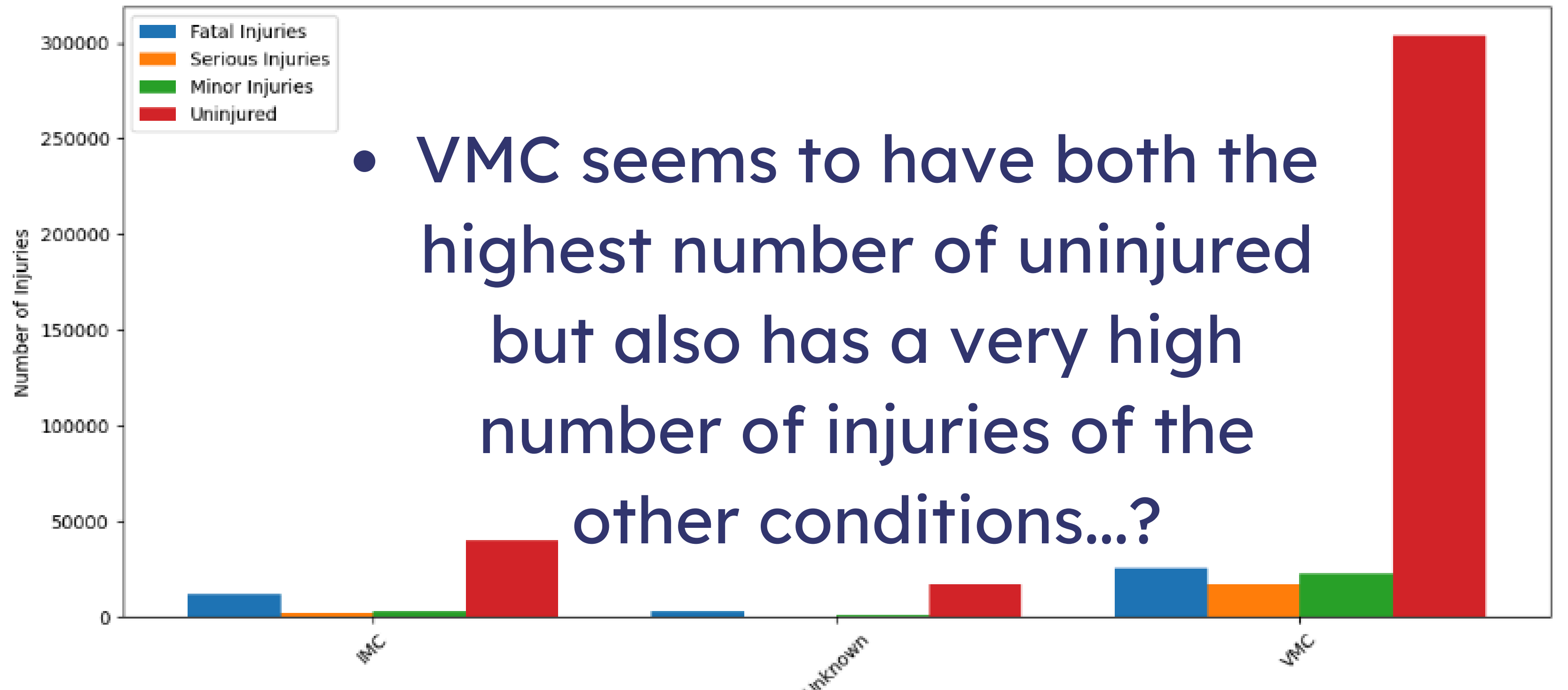- Ferry
- Aerial Observation
- Public Aircraft

- Top 10 purpose of flight categories with very high number (events) of accidents or incidents...why?
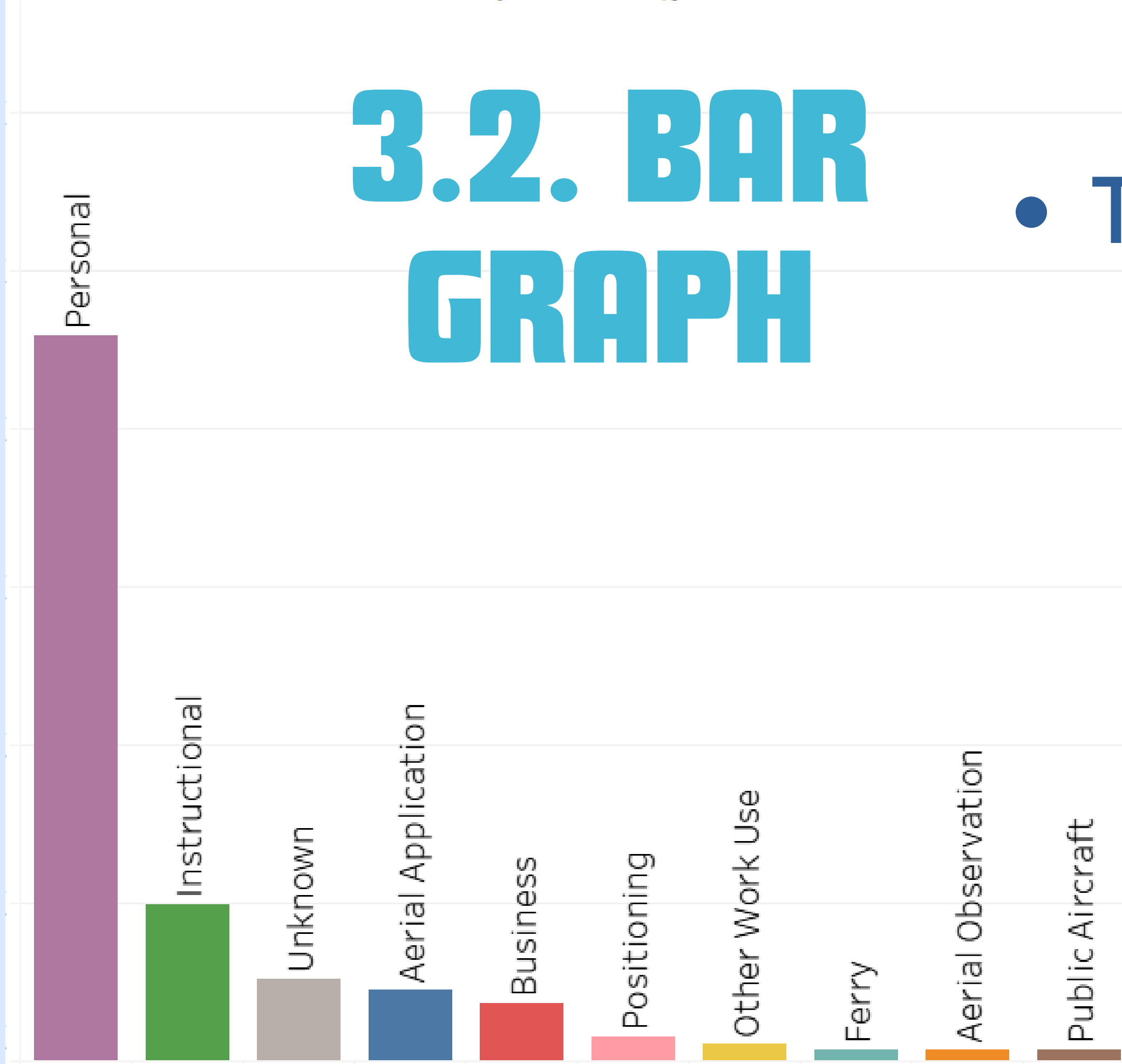
3.3.BAR CHART
WEATHER CONDITIONS VS INJURY TYPE

- VMC seems to have both the highest number of uninjured but also has a very high number of injuries of the other conditions…?
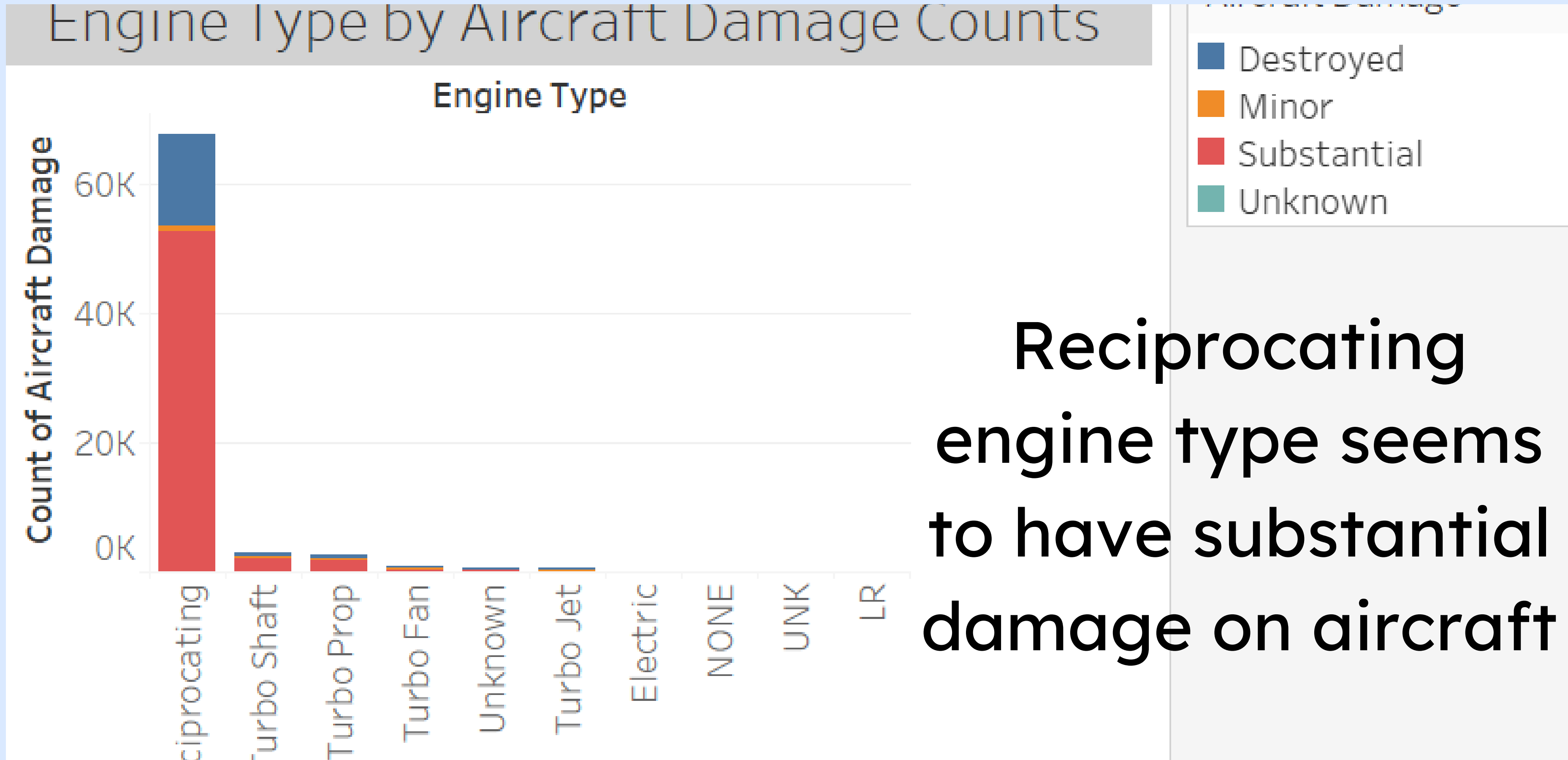
3.4.BAR CHART

Engine Type by Injury Type

Engine Type
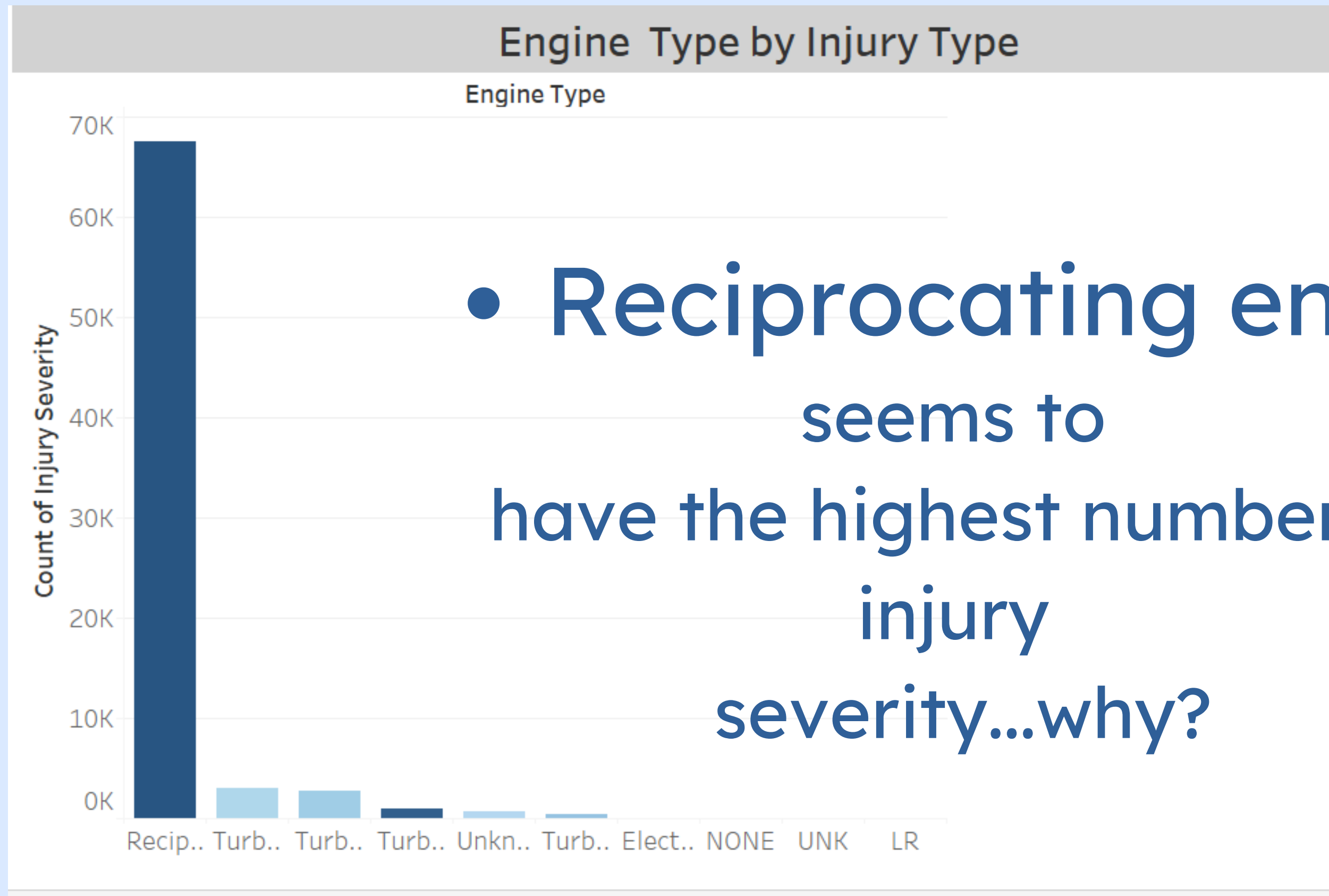
- **Reciprocating engine** seems to have the highest number of injury severity...why?

3.5.BAR GRAPH

Engine Type by Aircraft Damage Counts

Engine Type

Aircraft Damage
- Destroyed
- Minor
- Substantial
- Unknown

Count of Aircraft Damage

60K
40K
20K
0K

Reciprocating, Turbo Shaft, Turbo Prop, Turbo Fan, Unknown, Turbo Jet, Electric, NONE, UNK, LR

Reciprocating engine type seems to have substantial damage on aircraft

4.0 CONCLUSIONS
4.1. FINDINGS AND INSIGHTS

- The overall number of aviation events has decreased, possibly due to improved safety regulations and technology.
- Specific flight purposes have significantly higher accident rates. Focus on these categories for targeted safety interventions.
- VMC accidents have the highest number of uninjured passengers, but many injuries occur. Enhanced safety measures for flights in these conditions are recommended.
- Reciprocating engines are linked to the highest severity of injuries. Increased maintenance standards or a shift to turbine engines could reduce risk.

4.2. RECOMMENDATIONS

1. Based on accident frequency analysis, I recommend avoiding aircraft makes with high accident rates (e.g., Cessna)

2. I suggest prioritizing safety in flight operations under VMC (Visual Meteorological Conditions), as accidents tend to be higher than those in IMC (Instrument Meteorological Conditions).

3. I advise considering engine types like Turbo Fan and Turbo Jet, which show better safety outcomes regarding survivability and uninjured passengers despite their higher accident counts.

THE END

THANK YOU!