

# AVIATION RISKS ANALYSIS

Insight for Aircraft Acquisition

# Overview

- ▶ This presentation outlines:
  1. Key considerations for selecting aircraft
  2. Safety and performance insights from historical aviation data
  3. Recommendations based on data analysis

# Business Understanding

## ► Objective:

- Recommend suitable aircraft based on safety and reliability.

## ► Specific Objectives:

- Impact of weather conditions on safety of aircrafts
- Accidents rates by aircraft model and makes
- Severity of aircraft accidents

## ► Importance:

- Ensure safety, efficiency, and cost-effectiveness.

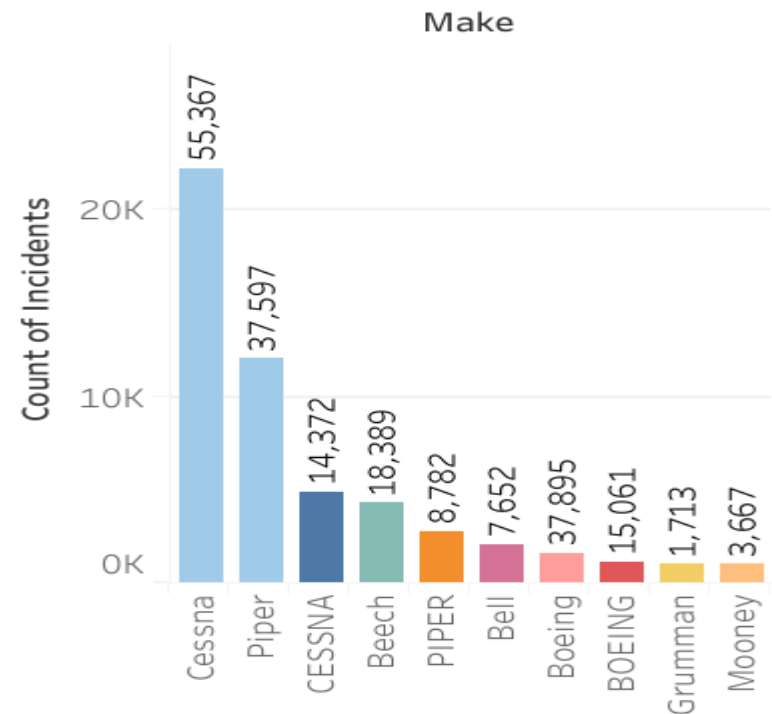
# Data Understanding

- ▶ Dataset includes historical aviation incidents and accidents recorded in AviationData.csv
- ▶ Key attributes :
  - \* Aircraft make and model
  - \* Accident frequency and severity
  - \* Weather conditions (VMC vs. IMC vs. Unknown cases)
  - \* Phase of flight

# Data Analysis: Top Aircraft by Safety Records

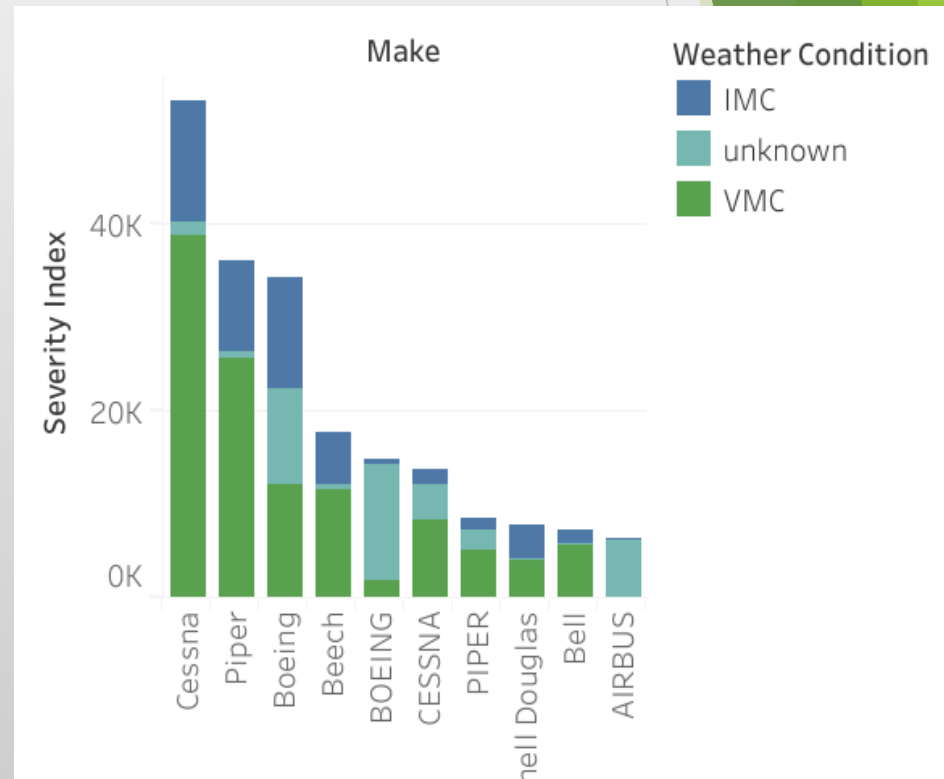
- ▶ 1. CESSNA: Moderately Lower severity
- ▶ 2. Cessna: Very high severity index, high frequency
- ▶ 3. Piper : Second highest severity, and high frequency
- ▶ 4. GRUMMAN: Reliable under diverse conditions

Accidents by Aircraft Make (Top 10)



# Data Analysis: Weather Performance

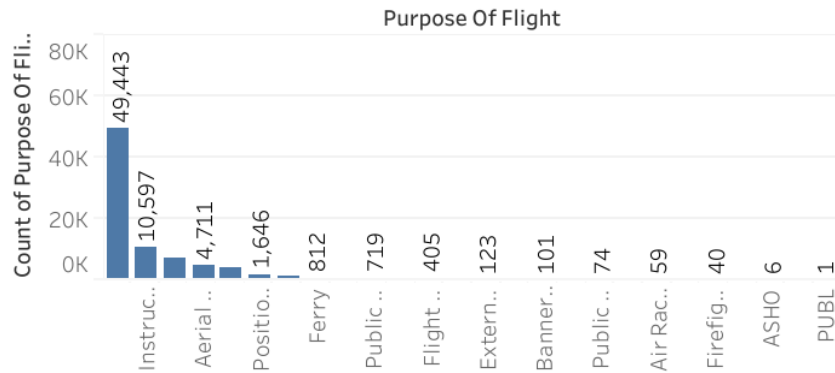
- ▶ - Cessna 172: Not reliable in VMC, moderate severity in IMC
- ▶ - BOEING: Consistently low severity in IMC and VMC conditions
- ▶ - Douglas: Balanced performance in diverse weather categories
- ▶ - Airbus: low severity in IMC other condition is unrecorded



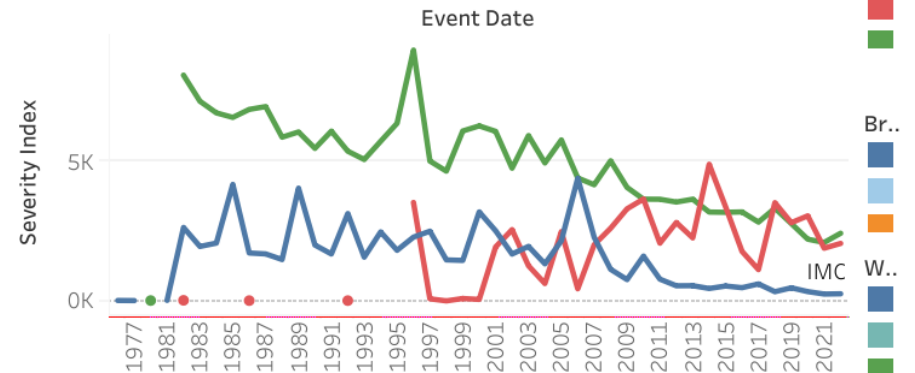
# Recommendations

- ▶ - Consider Boeing 737 for larger operations requiring high reliability.
- ▶ - Evaluate Bell 206 for operations involving varied weather conditions.
- ▶ - Consider larger aircrafts ;less prone to accidents
- ▶ - Address unknown data gaps to improve safety tracking.
- ▶ - Invest in training of pilots and improved technology to mitigate risks during takeoff and landing.

## Aviation Sector



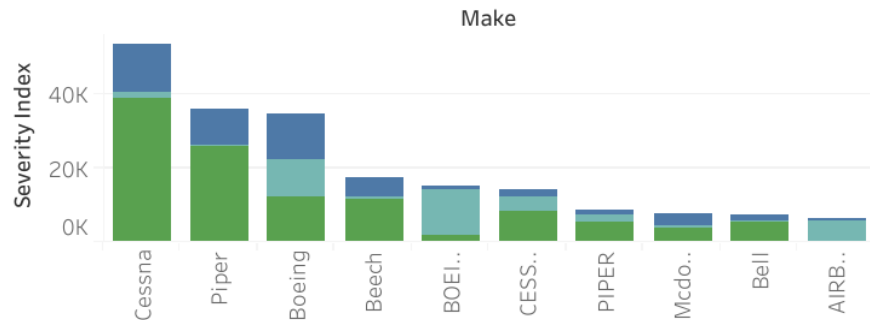
## Accidents Trends Over Time



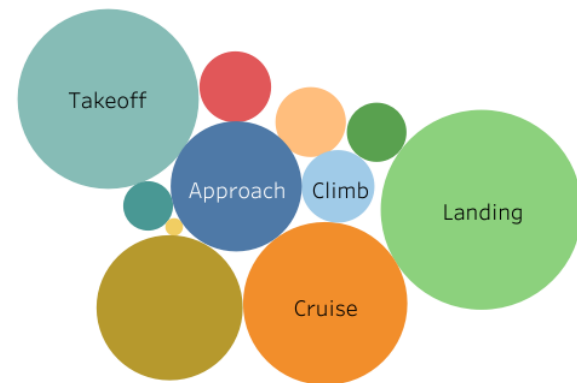
## Accidents Locations



## Severity & Weather Conditions Across Different Aircraft Makes



## Injury Severity by Phase of Flight





# Next Steps

- ▶ - Conduct a cost-benefit analysis for the recommended aircraft.
- ▶ - Present findings to stakeholders for final decision-making.

# Thank You

- ▶ If You Have any Questions?
- ▶ Contact Information:
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