



Business Risk Assessment: Aircraft Industry

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Overview

1. Business Understanding
2. Data Understanding
3. Recommendations

Business Understanding

BUSINESS CONSIDERATIONS INCLUDE;

1. Market Demand
2. Capital Investment
3. Regulatory & Compliance i.e FAA, EASA, and ICAO
4. Competition e.g Boeing and Airbus
5. Supply Chain Risks
6. Technology & Innovation
7. Profitability & Risk

Stakeholders;

- Head of Aviation Division
- Executive Management
- Operations Team



Key Business Questions

- ✓ Which aircraft types historically have the lowest accident rates?
- ✓ Are certain aircraft models or manufacturers consistently safer than others?
- ✓ What factors (e.g., aircraft age, engine type, usage) influence risk?
- ✓ Based on safety and operational history, which aircraft are the most viable for entry into the market?

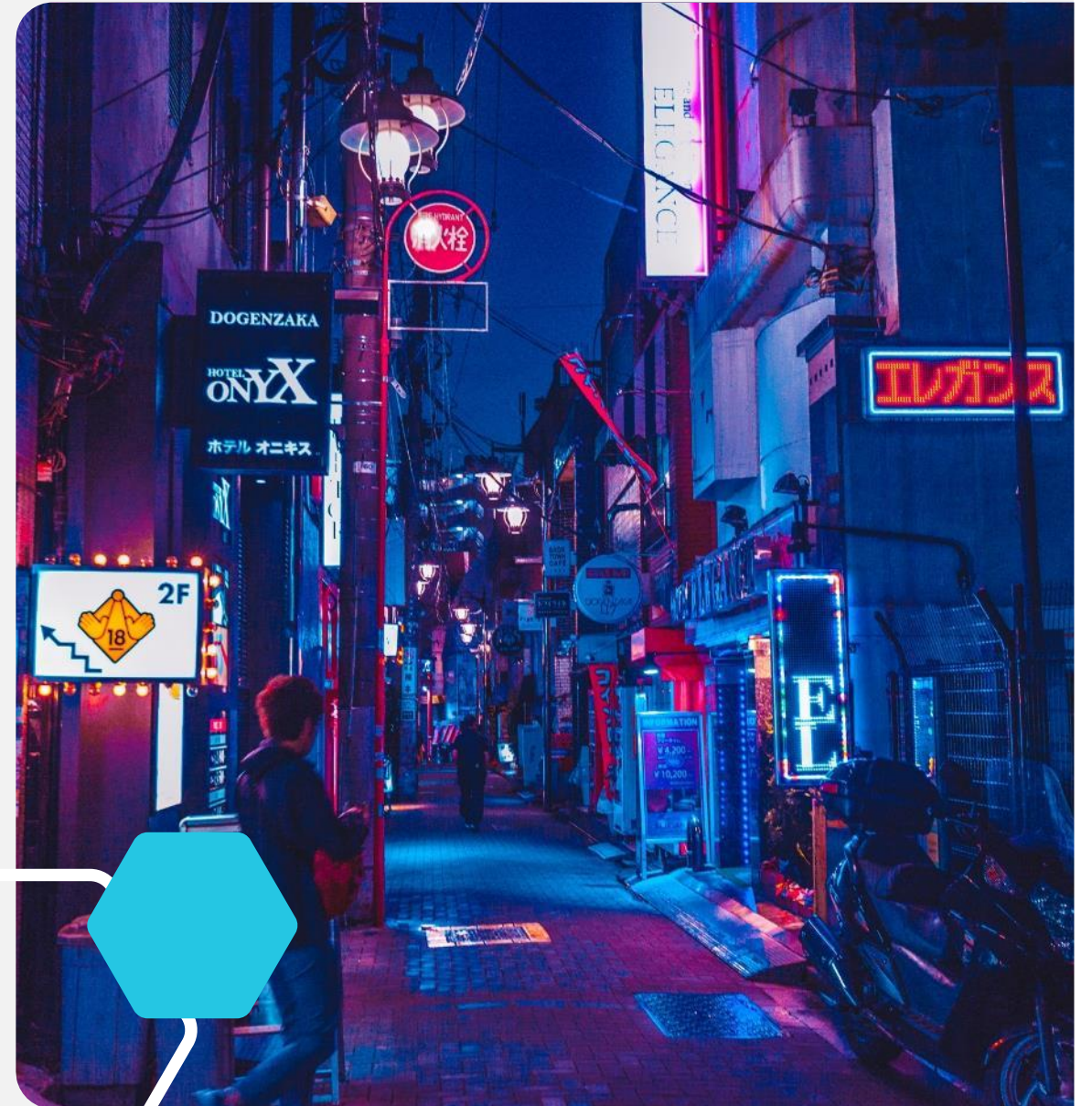
Data Understanding

In this section, we will look at the analyzed data, models and methods used in the analysis.

Description of Data

Key fields include:

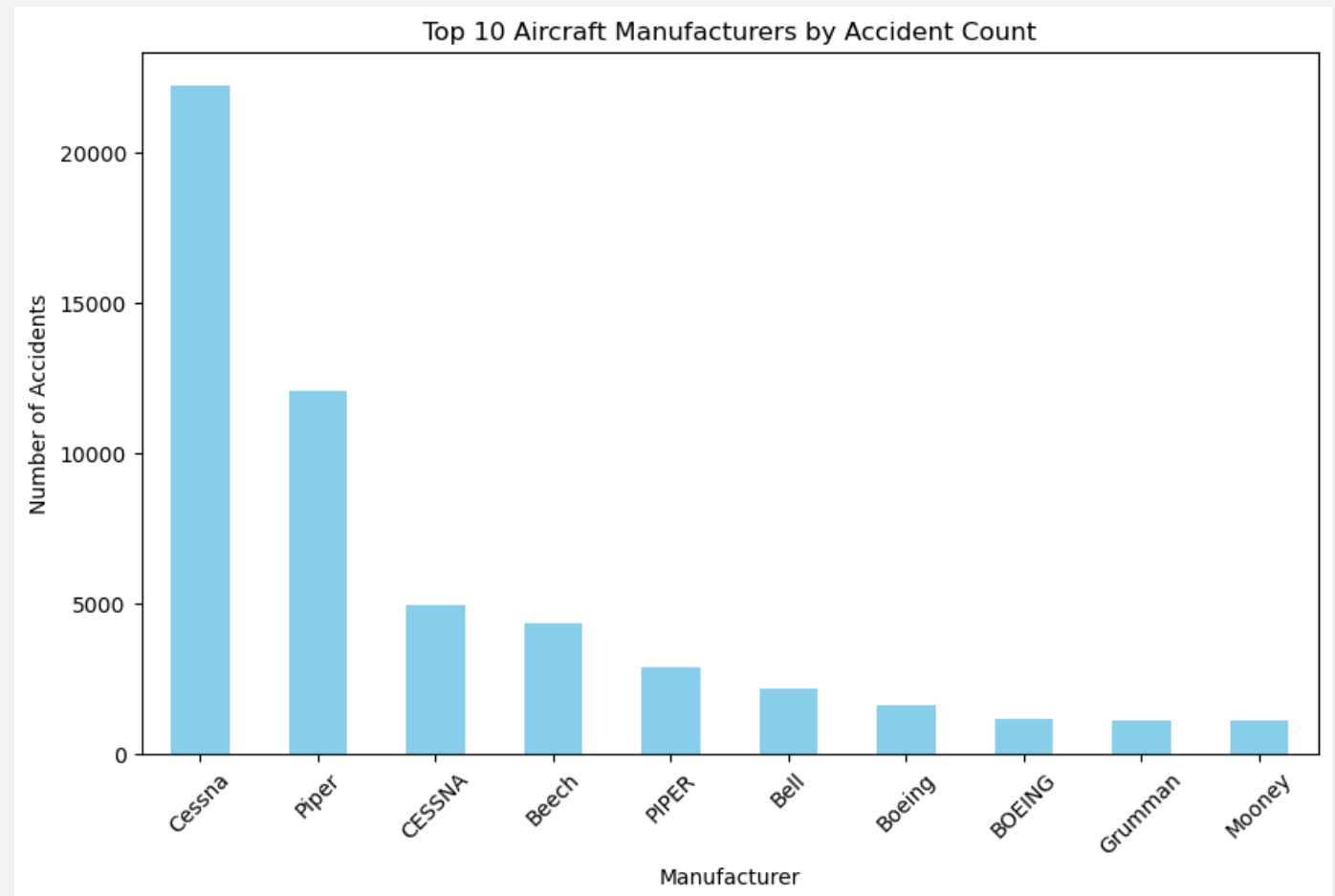
- Accident.Number – unique ID for each accident.
- Event.Date – date of occurrence.
- Location – geographical region.
- Aircraft.Category – Commercial, General Aviation.
- Make and Model – manufacturer and aircraft type.
- Injury.Severity – Fatal, Serious, Minor, or None.
- Total.Fatal.Injuries – fatalities per accident.



Visualization 1

Accident frequency by aircraft manufacturer

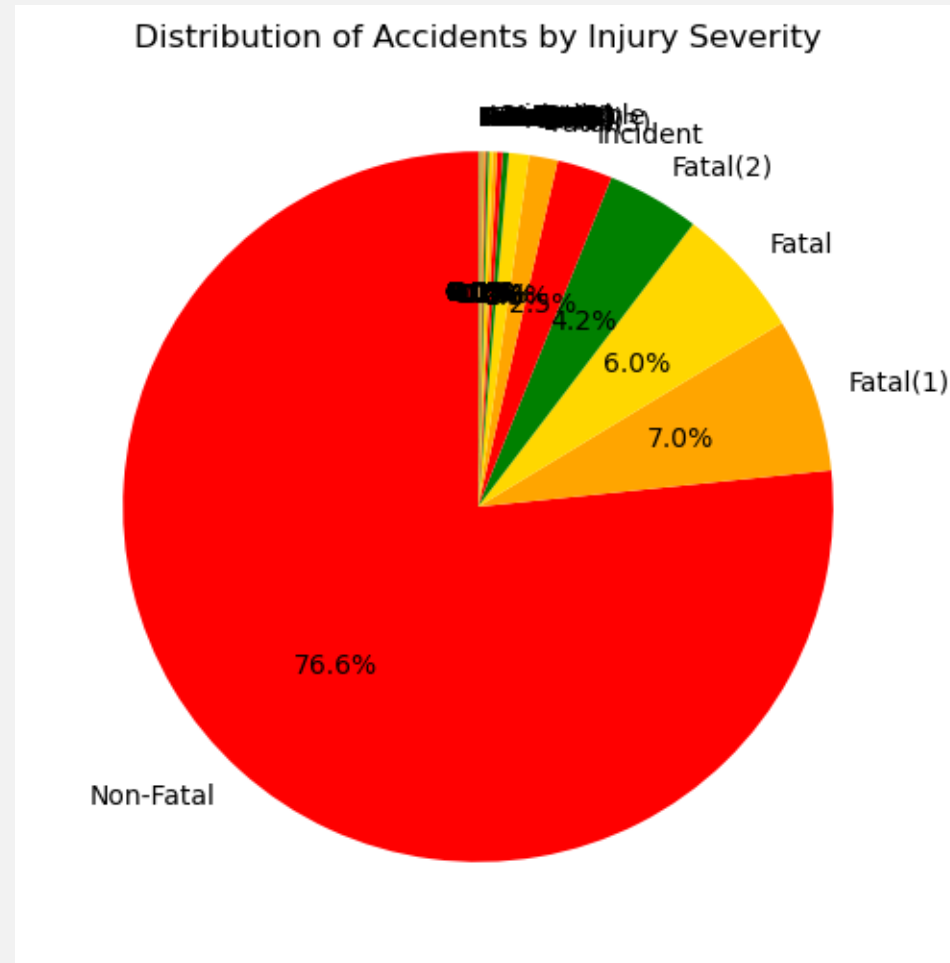
- Bar chart comparing manufacturers (Cessna, Boeing, Airbus, Piper, etc.). Helps identify which manufacturers are associated with more incidents.



Visualization 2

Distribution of accidents by severity

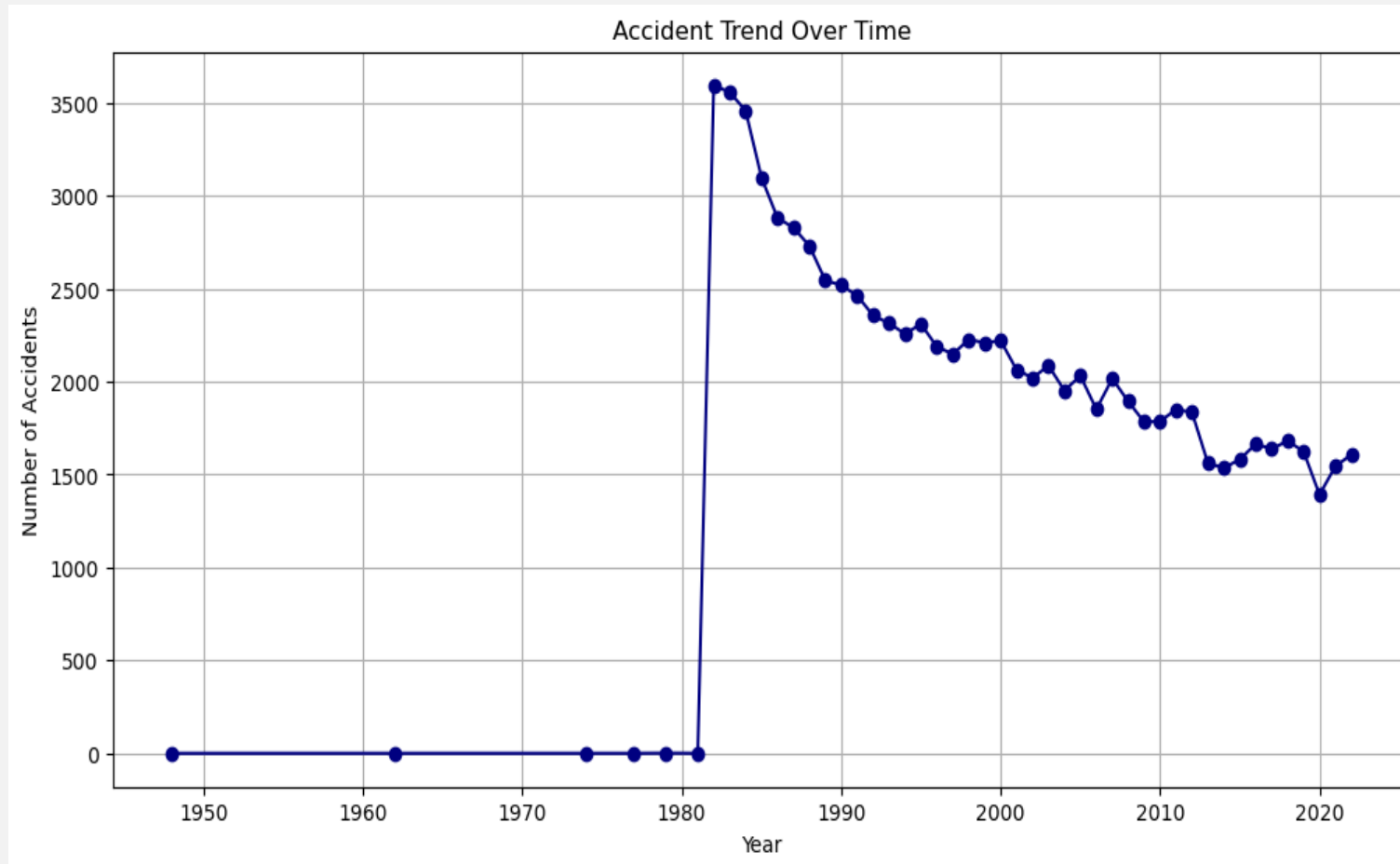
Pie chart or stacked bar chart (Fatal, Serious, Minor, None). Helps measure how severe accidents are across different aircraft categories.



Visualization 3

Trend of accidents over time

Line chart of accidents per year. Reveals whether aviation safety is improving or worsening over time.



Conclusion

Summary of Findings


1. Certain manufacturers/models reliably have lower accident severity (e.g., newer Boeing and Airbus jets in commercial flight have fewer fatal crashes than older, smaller general aviation planes).
2. The majority of accidents occur in general aviation planes (e.g., small Piper, Cessna), which suggests more risk for private enterprise flights than commercial fleets.
3. Accident severity has been trending downwards, which means that newer models and new technology are safer investments overall.


Recommendations


- ✓ Focus on early growth into newer commercial aircraft (Boeing, Airbus, Embraer) with pristine safety records.
- ✓ Avoid high-risk, older general aviation aircraft unless targeting private markets with strict risk management.
- ✓ Invest in full-maintenance programs and pilot training to further reduce operational risk.



Thank You

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