



RISK ASSESSMENT FOR THE OPERATIONS OF PRIVATE AND COMMERCIAL AIRCRAFT

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INTRODUCTION

This presentation aims to provide data-driven insights into the operations of private and commercial flights in the aviation industry and the risk factors associated with the industry.



BUSINESS PROBLEM

Umoja Logistics is expanding its portfolio by entering the aviation industry. The objective is to acquire and operate aircraft for both commercial and private enterprises.



OBJECTIVES

1. Identify the safest aircraft models based on accident history.
2. Analyze risk factors for aircraft accidents.
3. Evaluate operational risks by flight purpose.
4. Provide data-driven recommendations for aircraft selection and operations



DATA OVERVIEW

- **Dataset:** Aviation Data from the National Transportation and Safety Board of the USA
- **Key features:**
 - ✓ Aircraft make, model, and date of accident
 - ✓ Weather conditions and broad phase of flight
- **Timeframe:** Between 2000 and 2023 (23years)



METHODS OF ANALYSIS

1. Descriptive Statistics
2. Risk Assessments
3. Data Visualizations
4. Dashboard



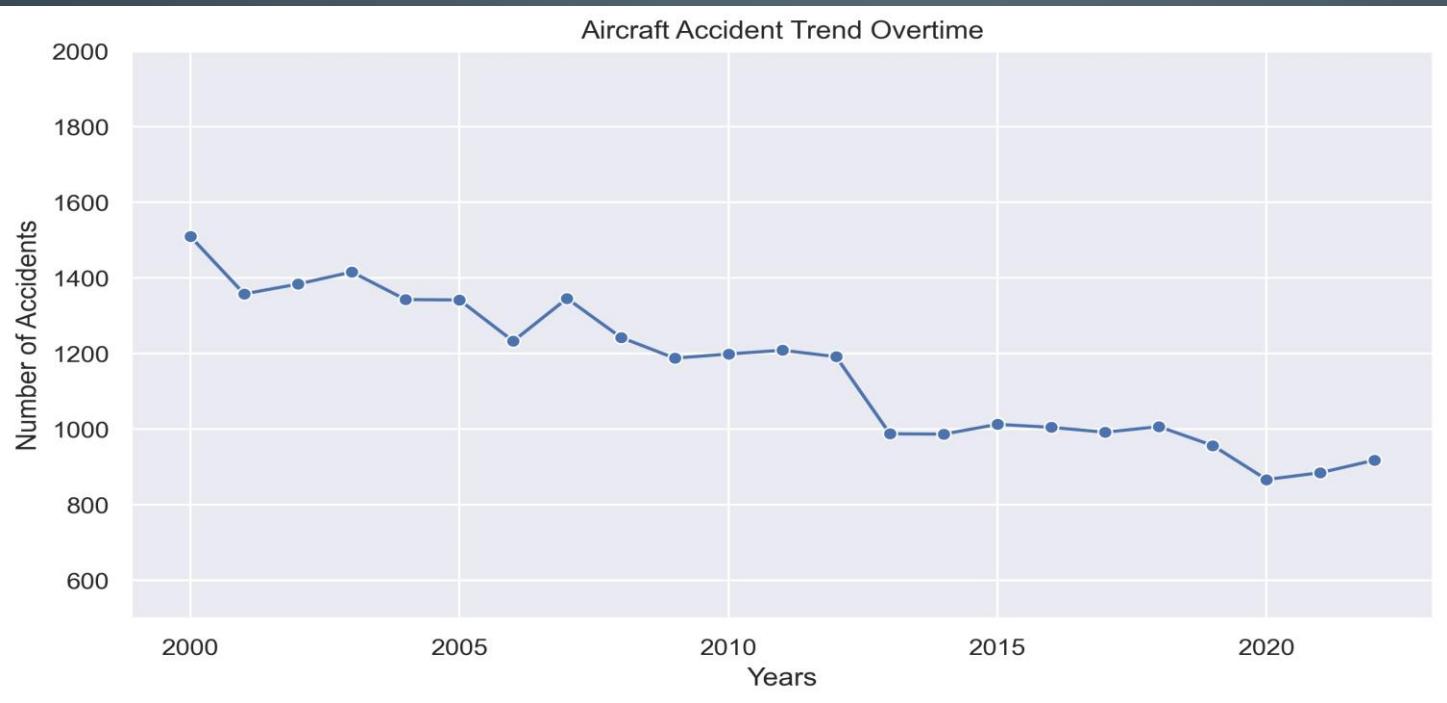
FINDINGS

- The aviation industry offers a promising business opportunity.
- The safest aircraft models encompass various types.
- Risk factors include:
 - ✓ Weather effects.
 - ✓ Phases of accidents.
- Operational hazards.



BUSINESS OPPORTUNITY

- Trend of aircraft accidents over the between 2000 and 2023

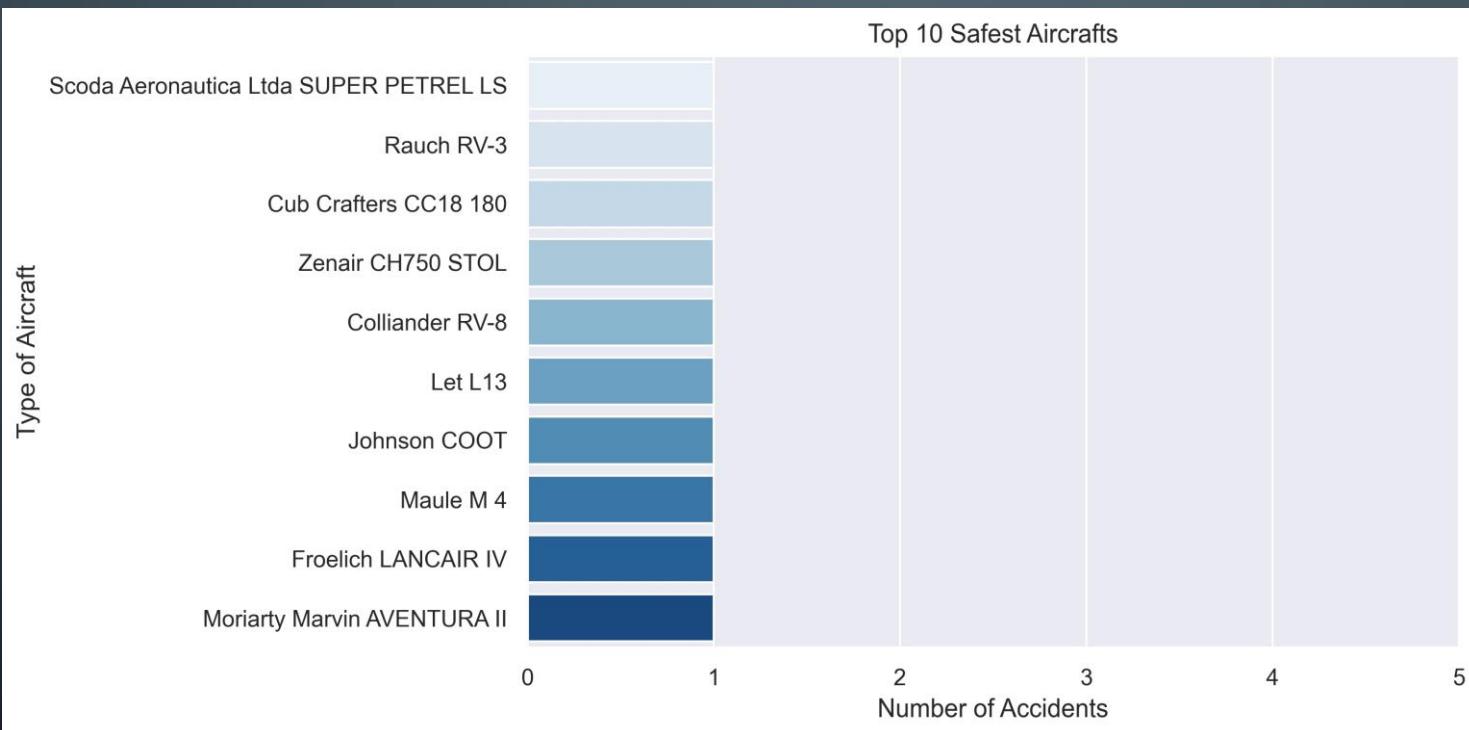


- Insights: Overall aircraft accident numbers have decreased steadily over the years possibly due to technological advancement



SAFEST AIRCRAFT FINDINGS

- Discover the top 10 safest aircraft based on the lowest accident numbers.

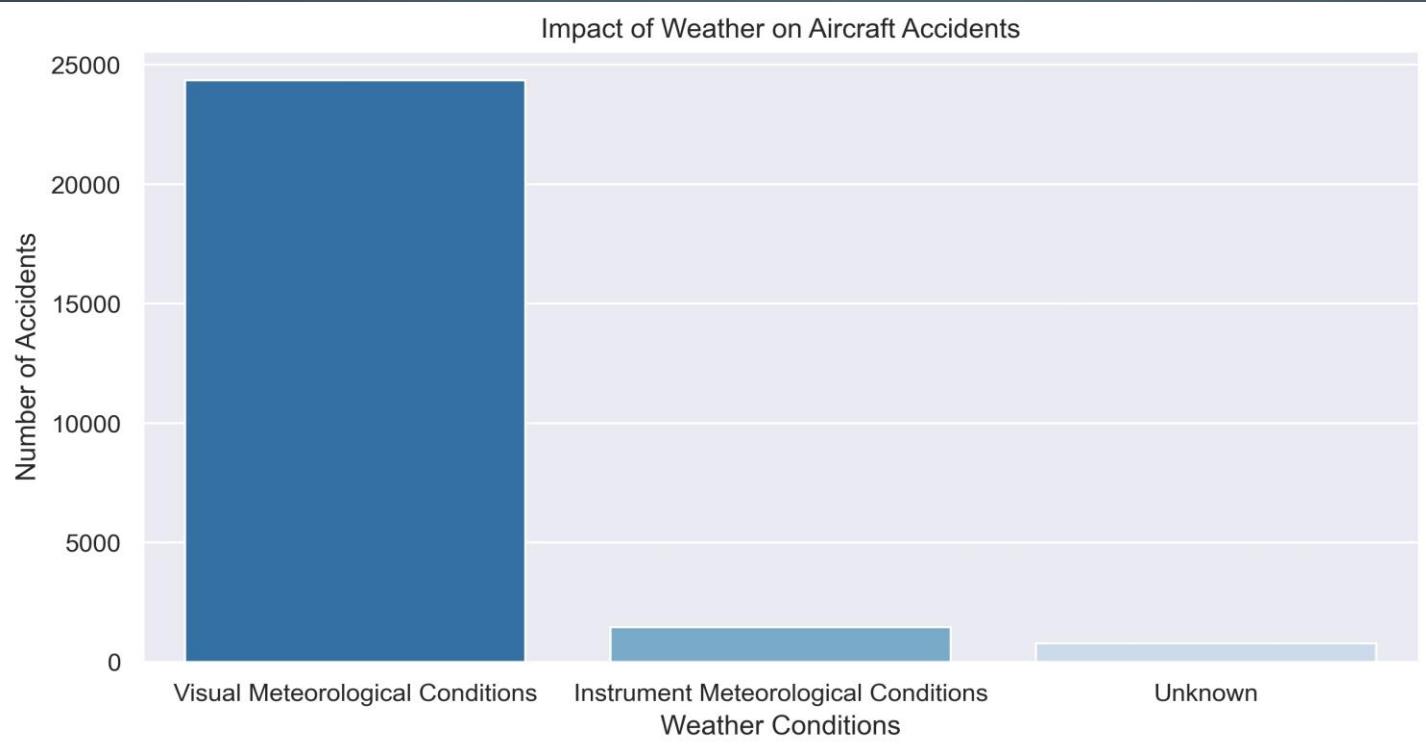


- Insights: The safest aircraft had only one accident recorded over the analyzed period



IMPACT OF WEATHER

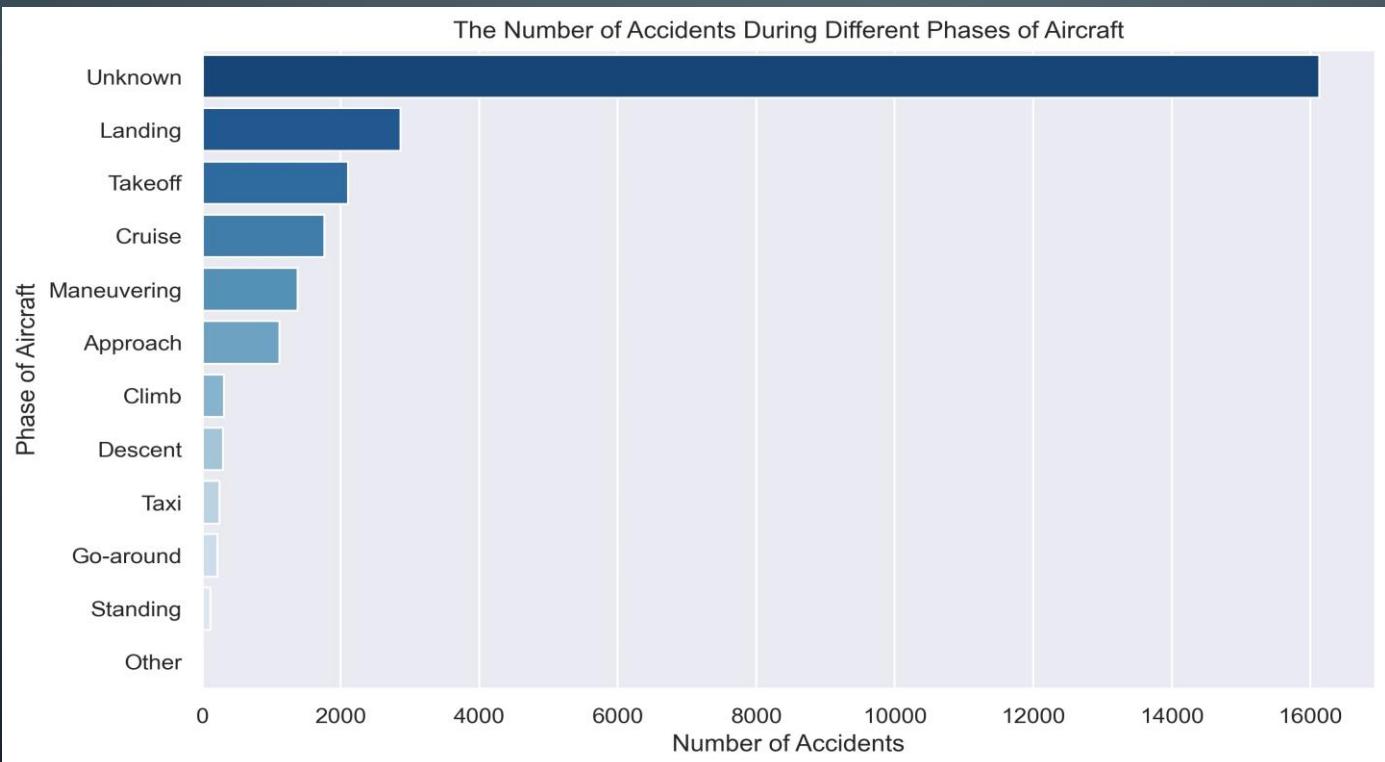
- Majority of accidents occurred in VMC (clear weather conditions)



- Insights: Weather is not the primary risk factor. Other factors like human error, mechanical failure, or operational decisions play a bigger role.

PHASE OF AIRCRAFT

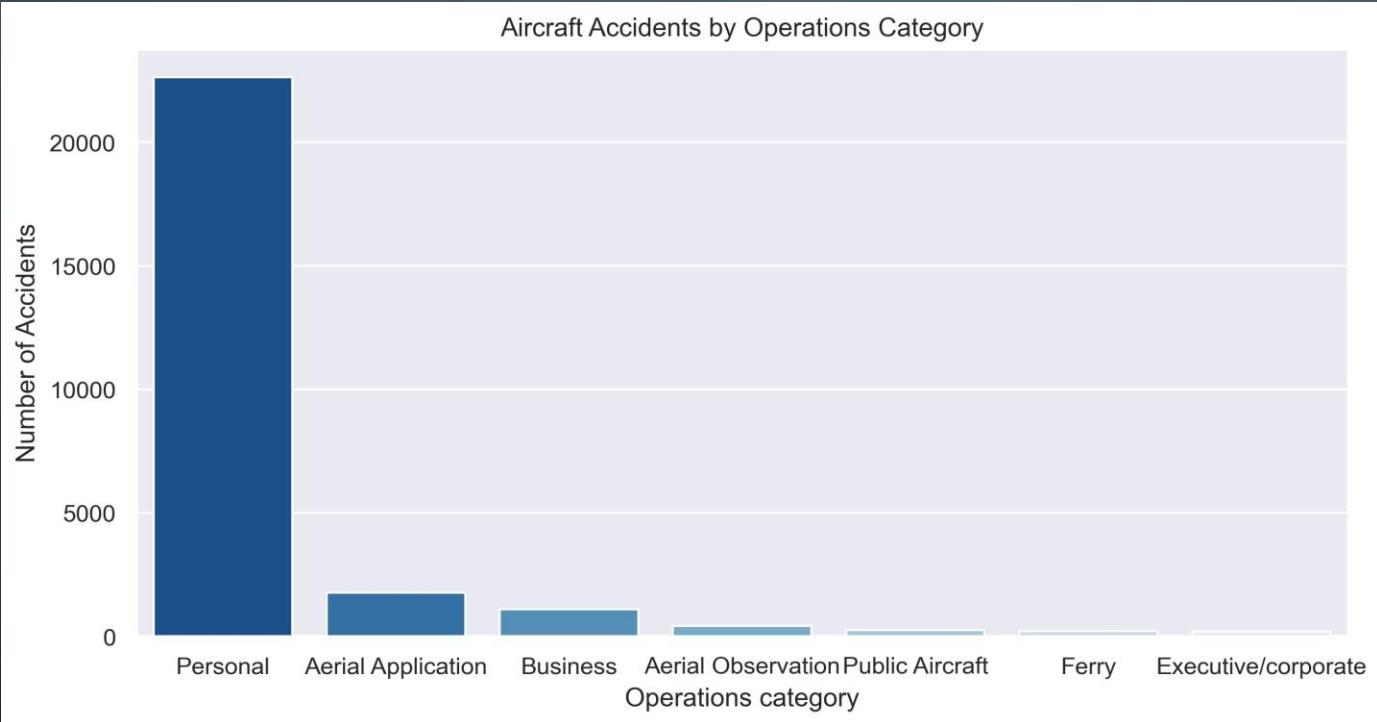
- Discover the phases when most aircraft accidents occur.



- Insights: Landing and taking off have high accident rates

OPERATIONS RISK

- Compare private and commercial flight operations



- Insights: Private flights had a higher accident numbers than commercial flights

RECOMMENDATIONS

1. Invest in aircraft with a strong safety record
2. Invest in pilot training
3. Establish safety protocol
4. Establish a protocol for regular maintenance and safety check
5. Mitigate risks during landing and taking off
6. Encourage technological advancements



CONCLUSION AND NEXT STEP

- Takeaways:
 - ✓ Identified safest aircraft models
 - ✓ Analyzed risk factors
 - ✓ Provided data-driven recommendations
- Next steps:
 - ✓ Further analysis of the fleet size of the aircraft for the analysis period
 - ✓ Further analysis for future predictions
 - ✓ Collaboration stakeholders in the aviation industry
- Q&A session



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THANK YOU

