# ANALYSIS OF AVIATION DATA

# Business Context

## The importance of aviation risk analysis.

- This project examines historical  accident data to identify patterns and risk factors affecting aviation safety and financial stability.
- Without such ana analysis investors run at a risk of high maintenance costs, safety violations and reputational damage.

# Data Overview

- Source of data for this study was from the National Transport Safety Board(NTSB) from 1962-2023
- Data processing steps were implemented to ensure accuracy and usability.
- Missing values were resolved before analysis could be done.

# Data Analysis

## Process steps

- Data cleaning and preparation.  Used pandas to remove irrelevant variables to focus on the key risk factors
- Data exploration and visualization. Used matplotlib to create bar charts, pie charts to represent various relationships within the data
- Identified patterns in accident severity across different models.
- Established correlation between different data within the dataset
- Generated business recommendations for safer aviation investments.

# Results and key findings

- Model 152 has the highest accident accident frequency
- More accidents occurred in clear weather
- Landing and takeoff phases account for more accidents combined
- Destroyed aircraft results in the highest fatality count confirming their high risk profile

# Business Recommendations

- Choose aircraft models with strong safety records and low fatality rates
- Equip aircraft with advanced instrumentation and weather adaptabllity
- Enhance pilot training for high risk phases and ensure stable flight control systems
- Prioritze aircraft durability and regular maintenance checks

# Evaluation and challenges

- **Strengths of the analysis**. Comprehensive data driven approach providing clear accident trends.
- Effective visualizations highlight risk patterns.
- Business insights directly applicable to aviation investment and safety improvements
- **Challenges faced.** Missing data , some reports lacked complete details. Data collecting strategies require improvement.

# Thank you