

# Airline Analysis Project

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# Overview

This project analyzes aircraft data to help a new airline make informed decisions about aircraft acquisition. The goal is to identify aircraft with low operational risk and good performance.

## Business Understanding

The objective of this analysis is to help stakeholders choose suitable aircraft models for a new business venture by evaluating operational risk, cost, and performance factors.

## Data Understanding

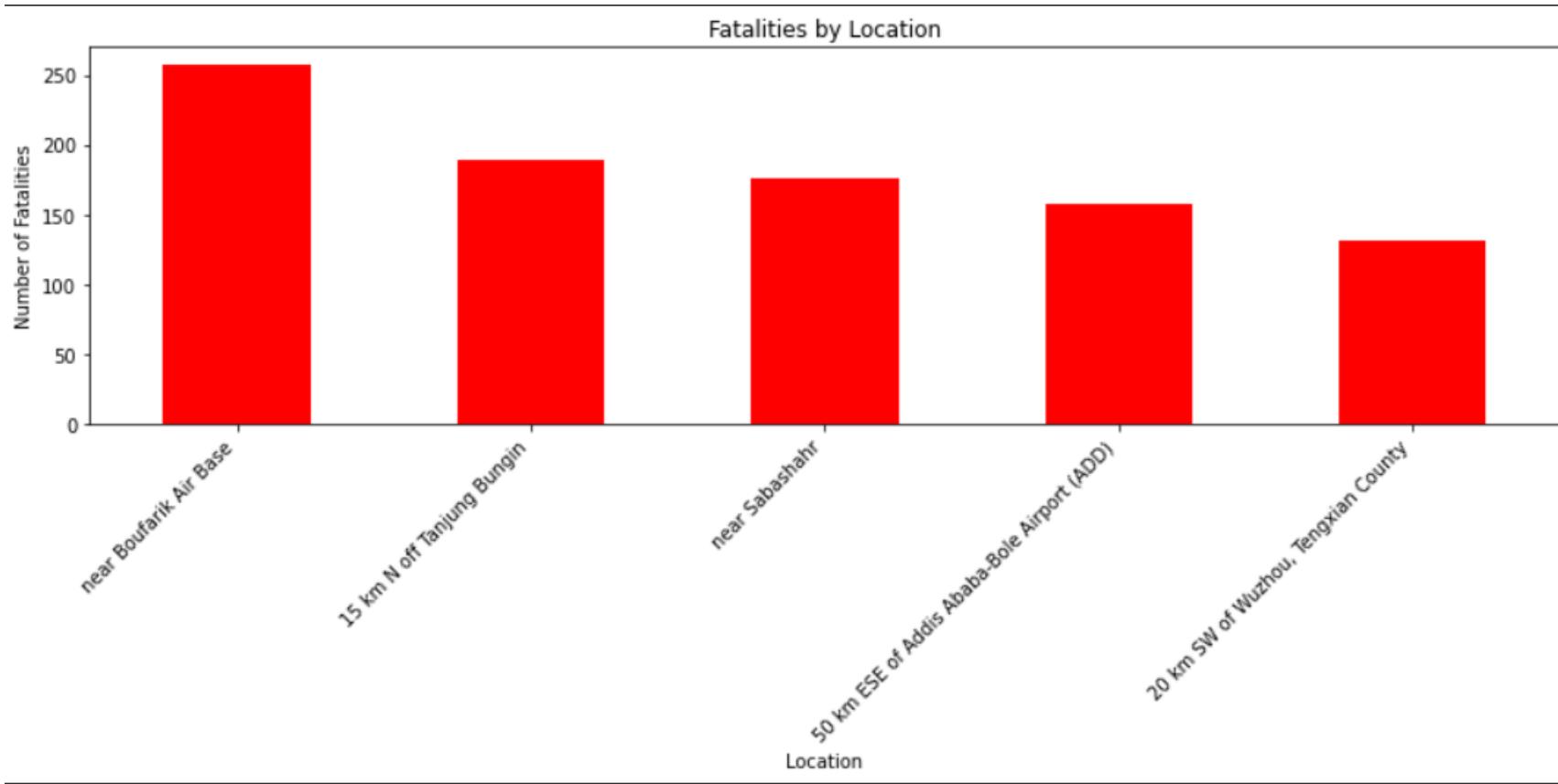
- Dataset includes aircraft and airline operational information
- The dataset had 2500 rows and 8 columns
- Used to compare aircraft suitability for expansion
- There were 118 missing values and 1199

## Data Cleaning

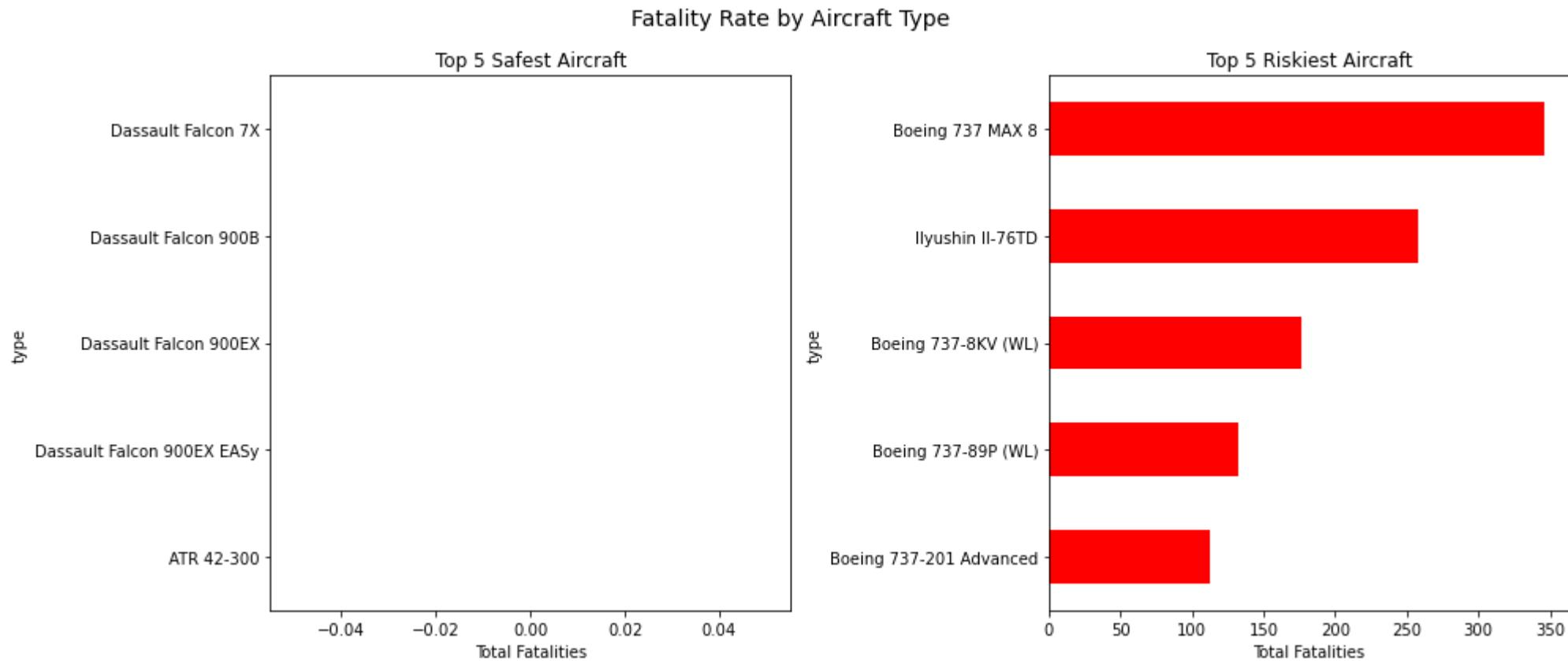
- Removed missing values
- Removed duplicates
- Standardized column names and data types
- Dropped irrelevant columns

# Key Visualizations

## 1. Fatalities by location



- 2. Fatalities by Aircraft Type



# Insights

- - Out of 506 unique aircraft types, the Dassault Falcon series (7X, 900B, 900EX, 900EX EASy) and ATR 42-300 recorded zero fatalities.
- - The Boeing 737 MAX 8 is the riskiest with 346 fatalities, followed by Illyushin Il-76TD (258) and other Boeing 737 variants.
- - Substantial damage is the most common outcome across all incidents (661 out of 1,199), meaning most accidents result in serious damage.
- - Write-offs (315) are the second most common, meaning the aircraft is destroyed.

## Recommendation

- - The company should prioritize purchasing Dassault Falcon aircraft (7X, 900B, 900EX) as they have the lowest operational risk.
- - The company should avoid Boeing 737 variants, especially the 737 MAX 8, due to the high fatality and damage record.
- - The ATR 42-300 is also a safe option if the company needs smaller aircraft.

## Next Step

- Compare the total costs of the Dassault Falcon series and the ATR 42-300 to help decide which offers better long-term value.
- - Check the company's flight needs to ensure the chosen aircraft meets operational requirements.
- - Validate the safety trends identified by exploring more recent aviation safety data.
- - Find current market pricing and availability for the Dassault Falcon and ATR aircraft from manufacturers or dealers.
- - Use these results to help make a final aircraft choice based on cost, safety, and operational fit.