

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

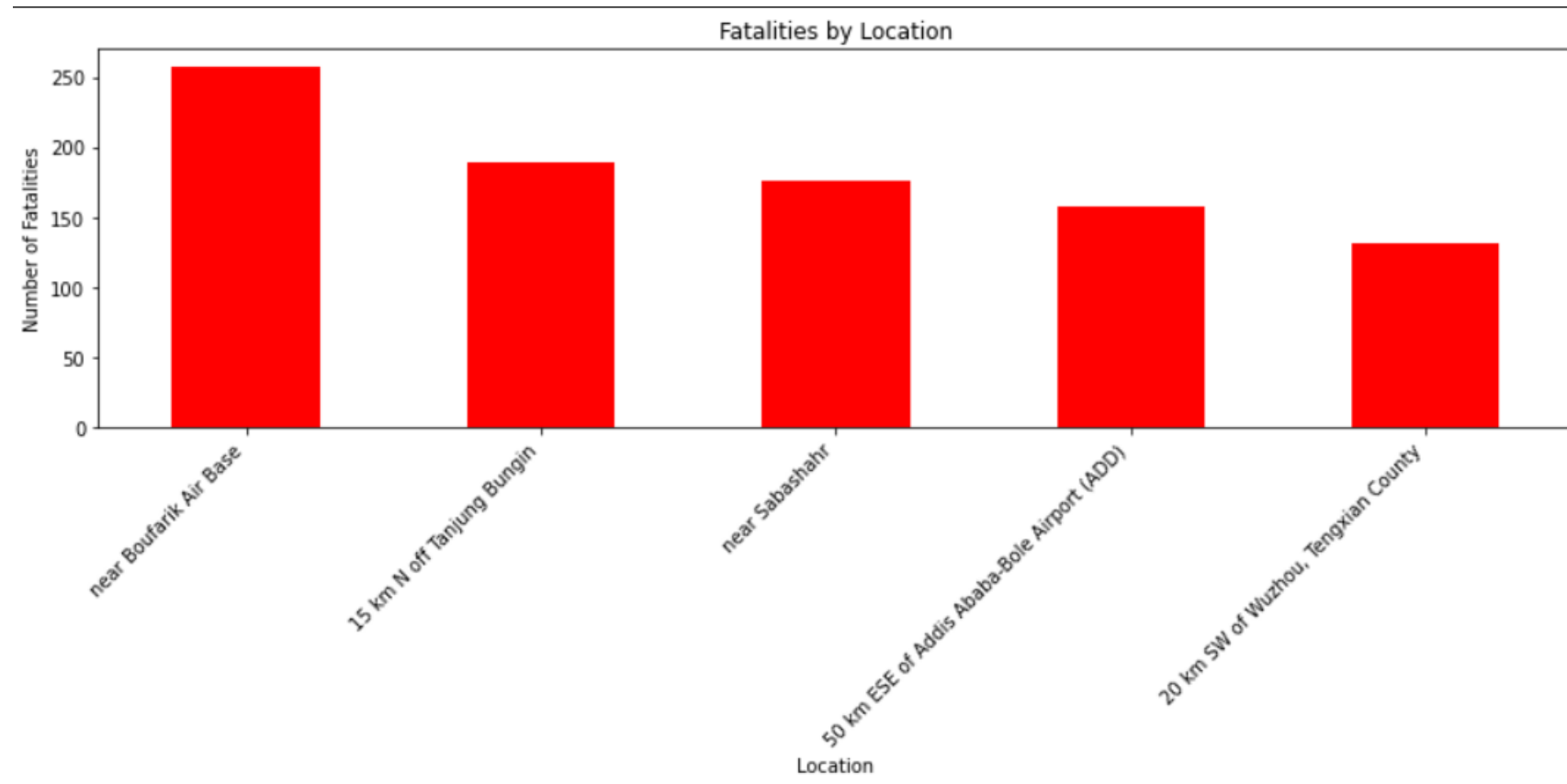
- Dataset includes aircraft and airline operational information
- The dataset had 2500 rows and 8 columns
- Used to compare aircraft suitability for expansion
- There were 118 missing values and 1199

Data Cleaning

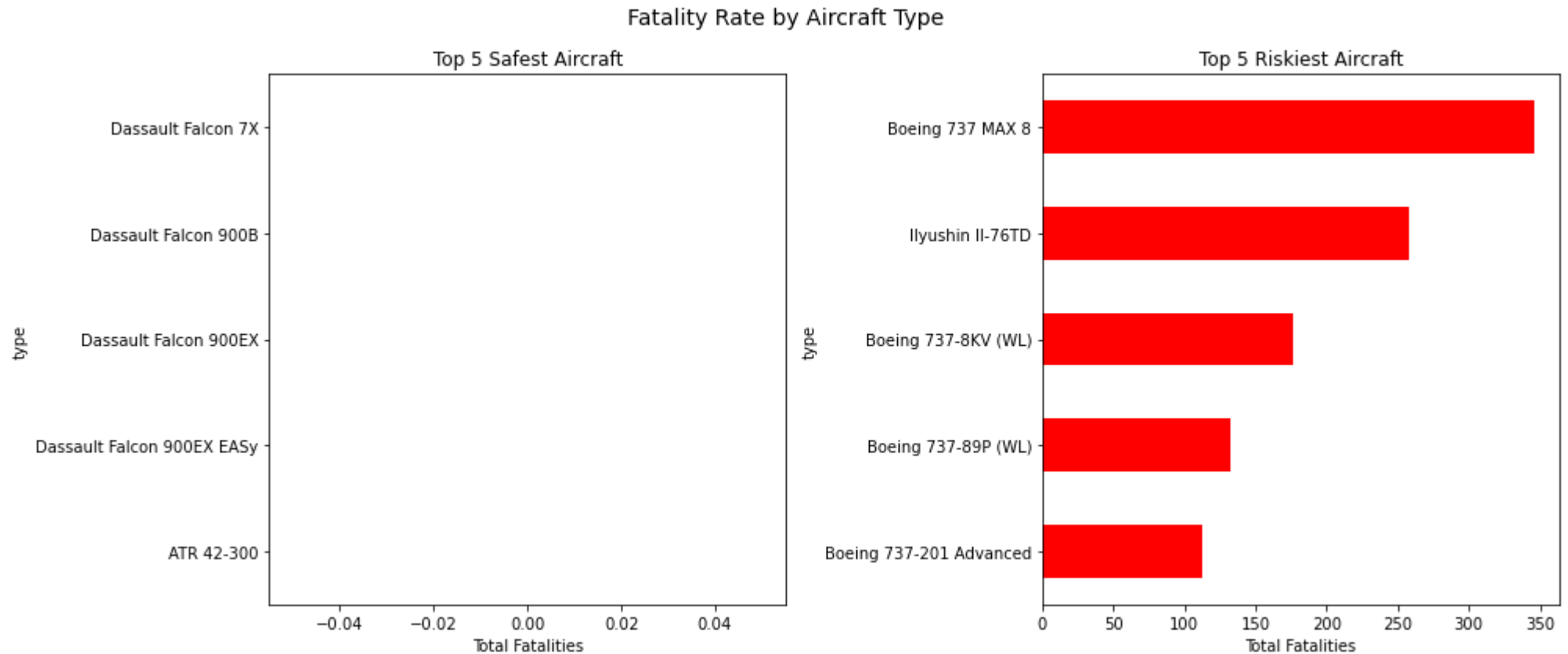
- **Removed missing values**
- **Removed duplicates**
- **Standardized column names and data types**
- **Dropped irrelevant columns**

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 Ilyushin 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.