Title: Data-Driven Selection of Aircraft

Identifying Low-Risk Aircraft Models for Safe and Profitable Expansion

Project Overview

★ *The aviation industry expansion requires data-driven insights to minimize risks in aircraft selection.*

★ *Goal is to identify low-risk aircraft models that ensure safety, efficiency, and regulatory compliance.*

★ *I leveraged historical incident and operational data to drive decision-making.*

Business Understanding

★ **Objective:** *To identify the safest and most cost-effective aircraft models for both commercial and private aviation operations.*

★ **Key Considerations***:*

★ *Aircraft safety and historical incident rates.*

★ *Operating costs including fuel efficiency and maintenance.*

★ *Technological advancements and compliance with safety standards.*

★ **Key Questions***:*

★ *Which aircraft models have the lowest accident rates?*

★ *What are the cost implications and operational risks for different aircraft?*

Data Understanding

★ **Data Sources**:

★ *Aviation safety databases (National Transportation Safety Board). Historical accident and incident reports. Aircraft performance, weather conditions, and flight phases.*

★ **Key Data Columns**:

★ *Aircraft Make/Model, Incident Count, Flight Phase, Weather Condition, Casualties (Fatal/Serious Injuries).*

★ **Data Challenges**:

★ *Missing values in certain columns (weather and location data).*

★ *Inconsistent entries for aircraft models.*

Data Analysis

* ⭐ *Incident Count by Aircraft Make:*

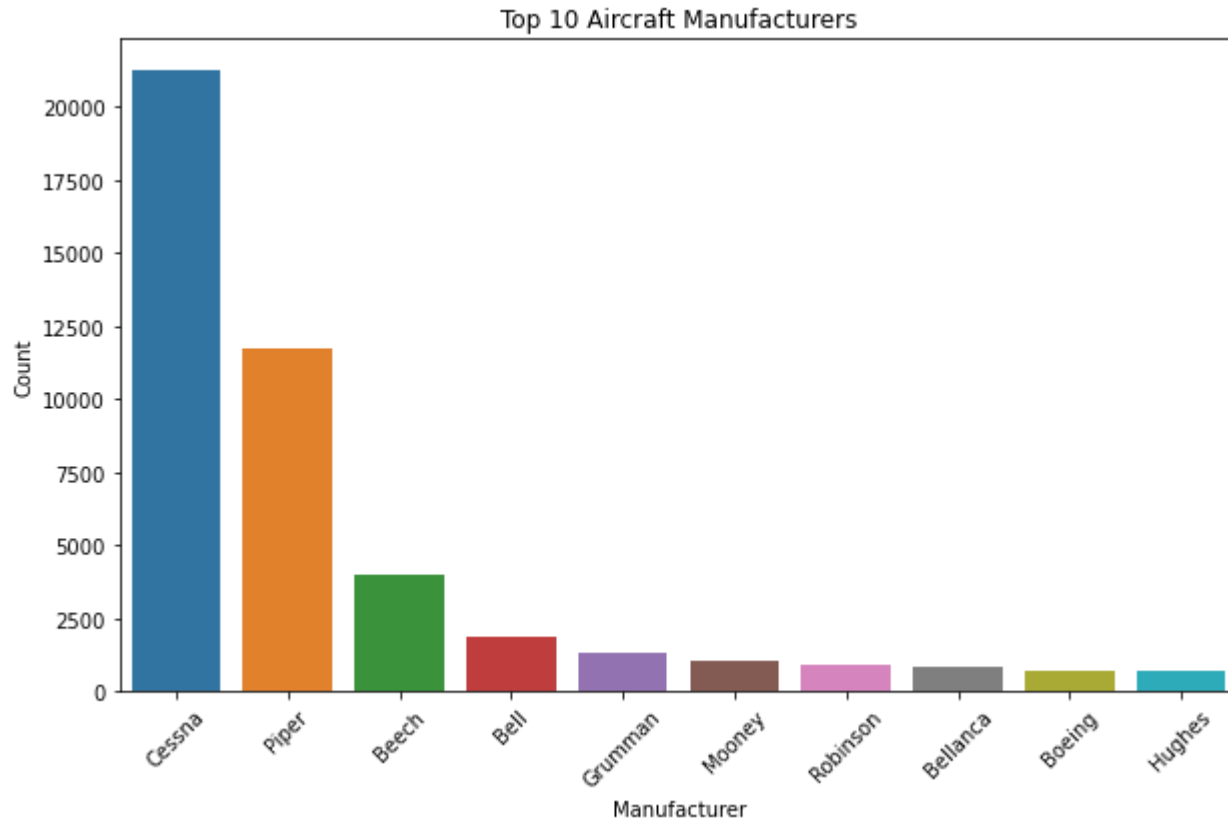* ⭐ Analyzed aircraft models with the fewest recorded incidents.

* ⭐ **Phase of Flight Risk**:

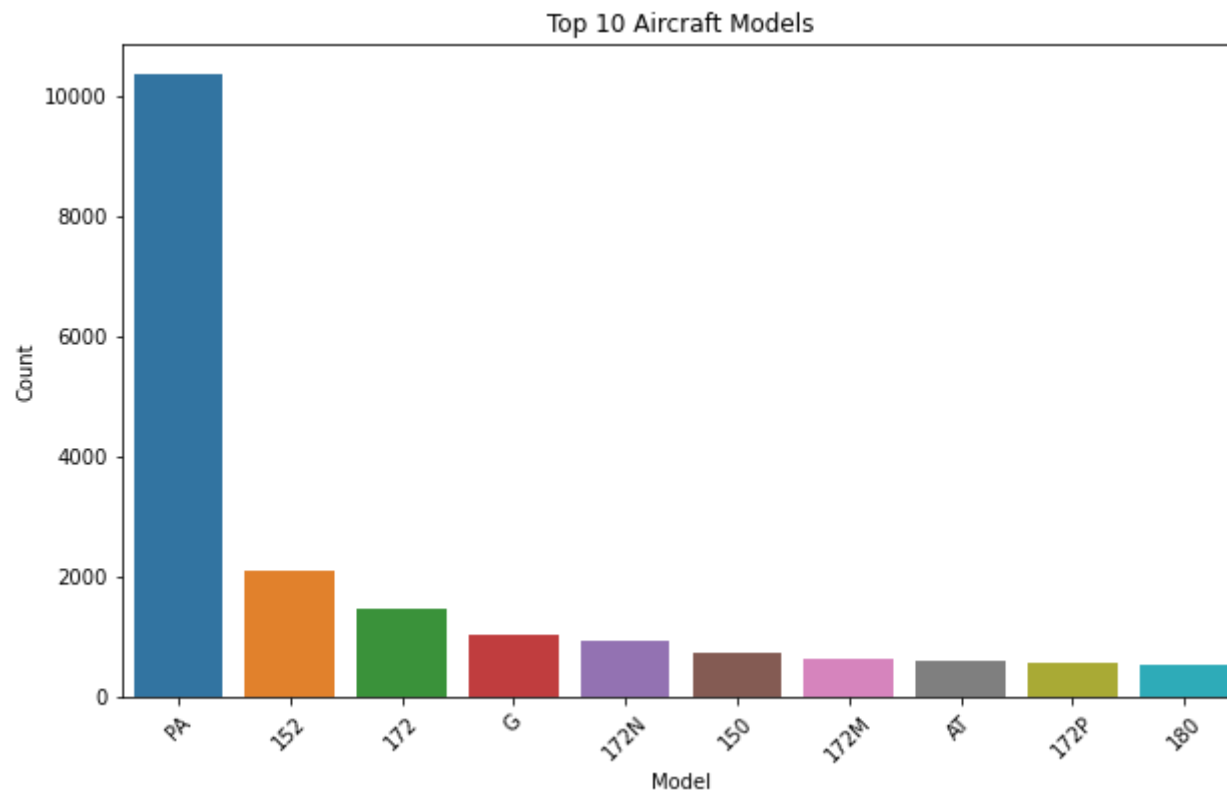* ⭐ Incidents more common in critical phases (takeoff, approach, landing).

* ⭐ **Weather Conditions**:

* ⭐ Aircraft that performed well in adverse weather conditions were favored.
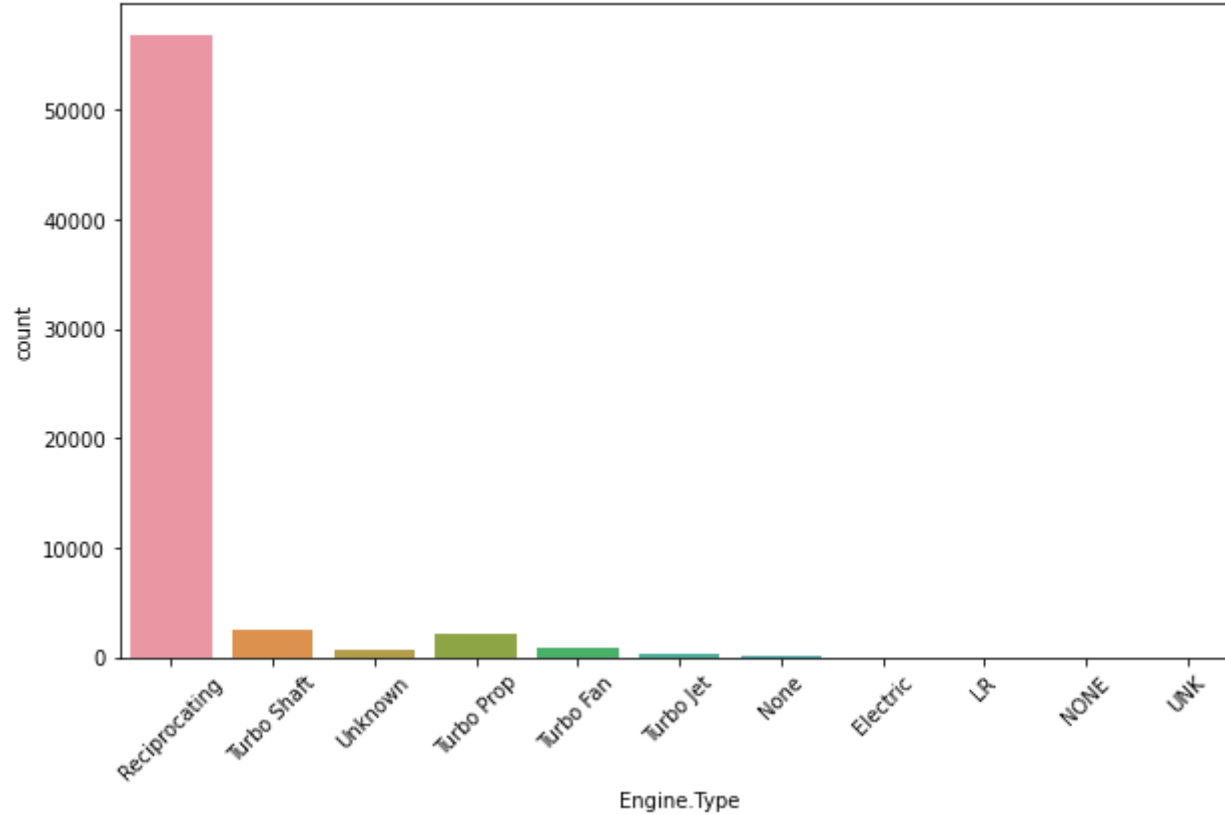
Preview of the Data Analysis

Top 10 Aircraft Manufacturers

Preview of the Data Analysis

Top 10 Aircraft Models

Preview of the Data Analysis

Incidents by Engine Type

Conclusion

★ *Based on data analysis, the following insights were drawn:*

★ ***Low-Risk Aircraft****: Identified aircraft models with low accident rates and strong safety records.*

★ ***Weather Resilience****: Prioritized models that operate well in challenging weather conditions.*

★ *Thus recommend this aircraft based on incident rate and other factors: this aircraft types;- KnaKenDacWel, Menees, Menzimer, Mercer, Merchant since they have the least incident cases and seem to be reliable in this case.*

★ ***Next Steps****: Further assessment and pilot small-scale operations with identified aircraft models to validate real-world performance.*

- *Thank you for your time and attention.*