

AIRCRAFT DATA ANALYSIS

To determine a less risk aircraft for investment.

Introduction

- In response to our company's desire to expand into the aviation industry, this data analysis examines aviation accident data from 1962 to 2023. we aim to identify less risky aircraft for investment by leveraging data-driven insights.
- This analysis will also help us identify aircrafts that align with both commercial and private enterprise. This work is designed to guide strategic decision-making, reduce uncertainty and ensure success in the new venture.

Purpose

- This study aims to give data-driven recommendations for selecting low-risk aircraft that align with our company's long term strategic expansion into the aviation industry.
- By analyzing aviation accidents from 1992 to 2023, this analysis aims at enhancing decision making on what aircraft to invest, reduce operational risk and support sustainable growth in both commercial and private aviation sector.

DATA ANALYSIS TECHNIQUES

In preparing the aviation dataset for analysis the following was employed to enhance the outcome;

- **Data Loading** – We will be reading the dataset in python application using an inbuilt library, pandas, which will help examine its structure and content.
- **Data Cleaning** – Using various methods, we examine the data to have a clean dataset to work with. We eliminate duplicate data, fill missing values, remove outliers.

DATA ANALYSIS TECHNIQUES

- **Missing Data** – Any large data set will definitely have missing data values. I handled this by using techniques like mean to fill the missing numerical values and setting missing categorical values as “Unknown.”
- **Grouped Data Analysis** – I grouped data for easier analysis into aircraft model, year and accident causes to identify trends and draw important insights

Visualization

- **Aircraft Make By Injuries**

With this visual aid I aim to understand which aircraft make had the highest number of injuries in the event of an accident

- **Aircraft Model By Injuries**

This one too helped me identify the model that had the highest and that with the lowest injuries in the event of an accident

Visualization

- **Engine Type By Aircraft Damage.**

This visual study helped me identify aircraft that had less damage basing on the engine type it had.

Recommendation

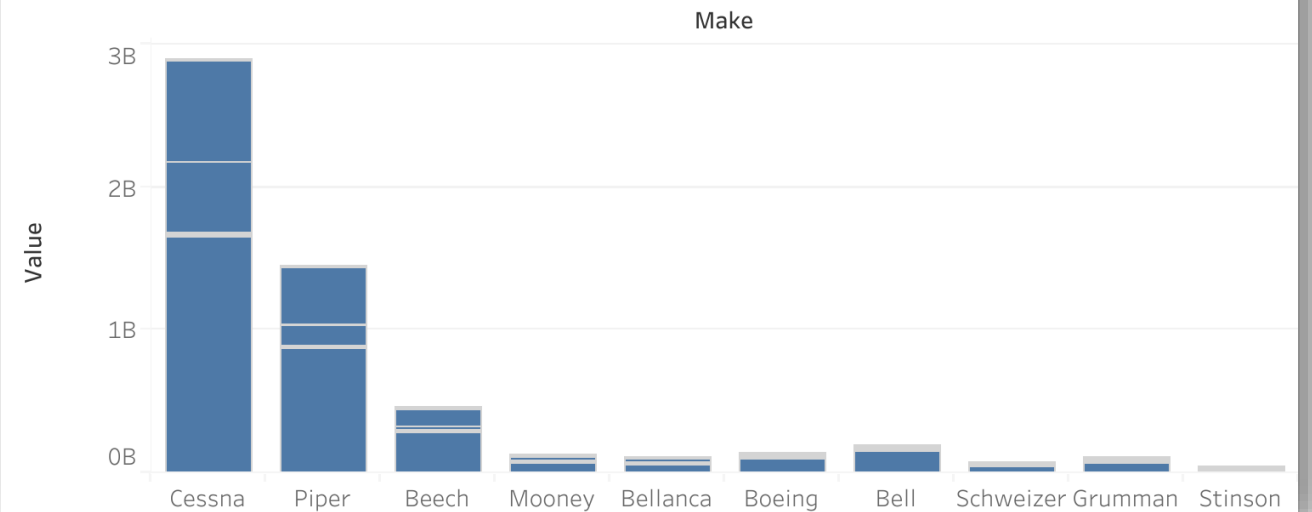
- My analysis relied mainly on the aircraft make, model, injuries, engine type and aircraft damage to make recommendation.
- Basing on my analysis, the following recommendation can be drawn to the top management for decision making.

Aircraft By Injuries

This visualization shows the type aircraft and the level of injuries in the event of an accident.

I will recommend one with less injuries.

Airplane By Injuries.



Aircraft Model By Injuries.

This visualization shows the level of injuries in an accident against the type if Aircraft model.

We will recommend model with less injuries.

Airplane Model By Injuries.



Engine Type By Aircraft Damage.

This visualization shows the damage an aircraft sustains based on the engine running the aircraft.

Choose engine types with less aircraft damage.

Engine Type By Aircraft Damage.

Aircraft.da..	Engine.Type												
	Electric	Geared Turbofan	Hybrid Rocket	LR	NONE	None	Reciproc..	Turbo Fan	Turbo Jet	Turbo Prop	Turbo Shaft	UNK	Unknown
Destroyed	■		■			■	■	■	■	■	■		■
Minor		■				■	■	■	■	■	■		■
Substantial	■	■		■	■	■	■	■	■	■	■	■	■
Unknown							■						■

THANK YOU.

By Sitialo.