Proposal on purchase of low-risk aircraft

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Introduction

Business Problem:

- Determine which models of aircraft are the lowest risk to purchase for a company seeking to venture into the aviation industry

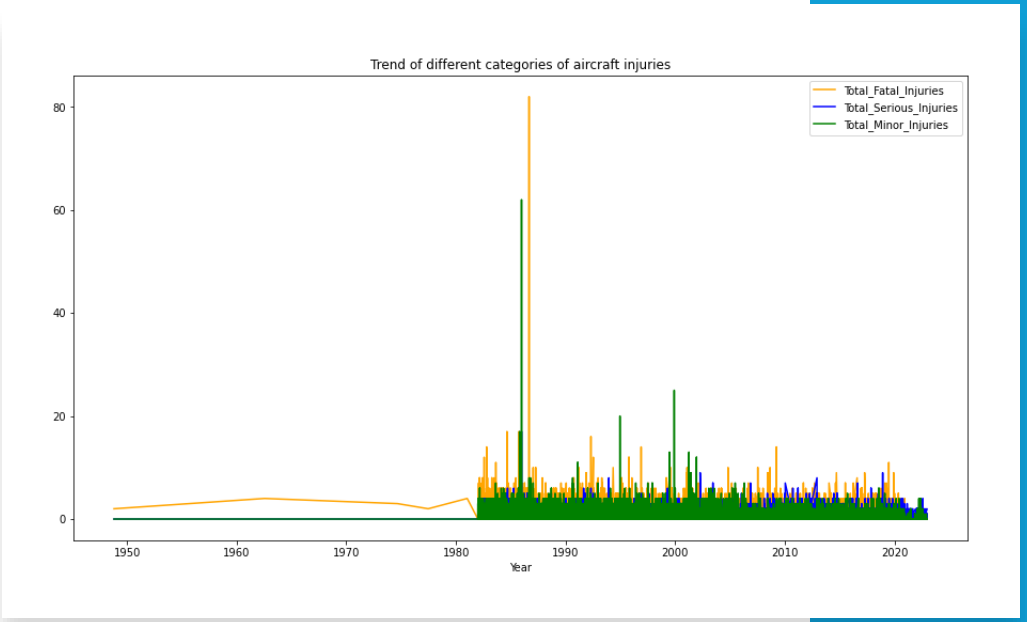
Data

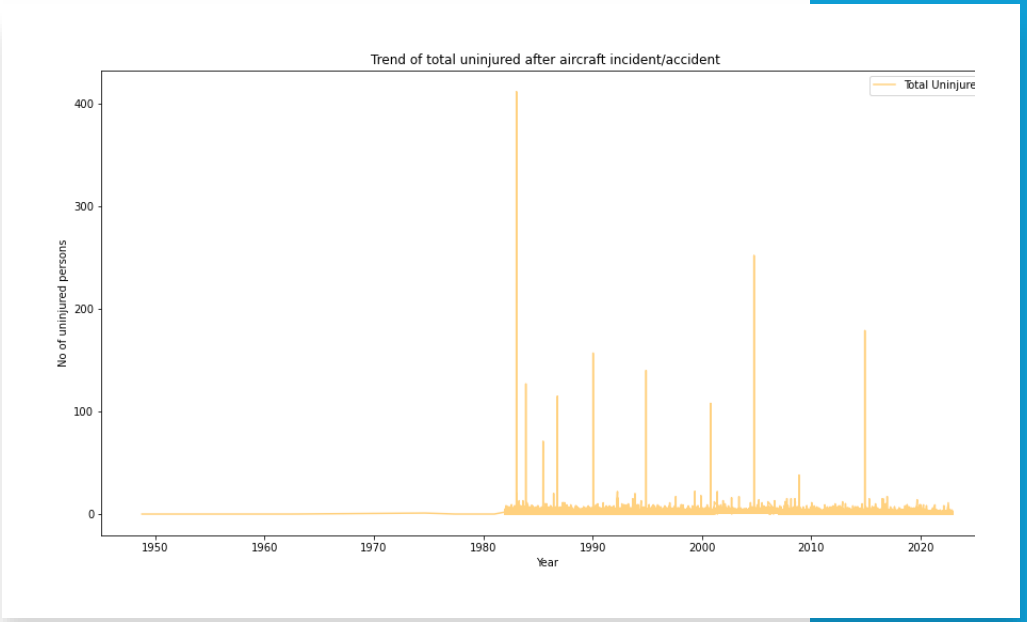
- Aviation accident data from 1962 to 2023 on civil aviation accidents and selected incidents in the United States and international waters sourced from the National Transportation Safety Board.

Overview of the data

Large number of aviation accidents/incidents in the 1980s to the late 1990s which resulted in higher fatal and serious injuries.

Huge number of spikes observed in total uninjured trend in 1980s and 1990s as opposed to the post 2000 period showing a decline in aviation accidents/incidents post 2000.





Data used for the analysis

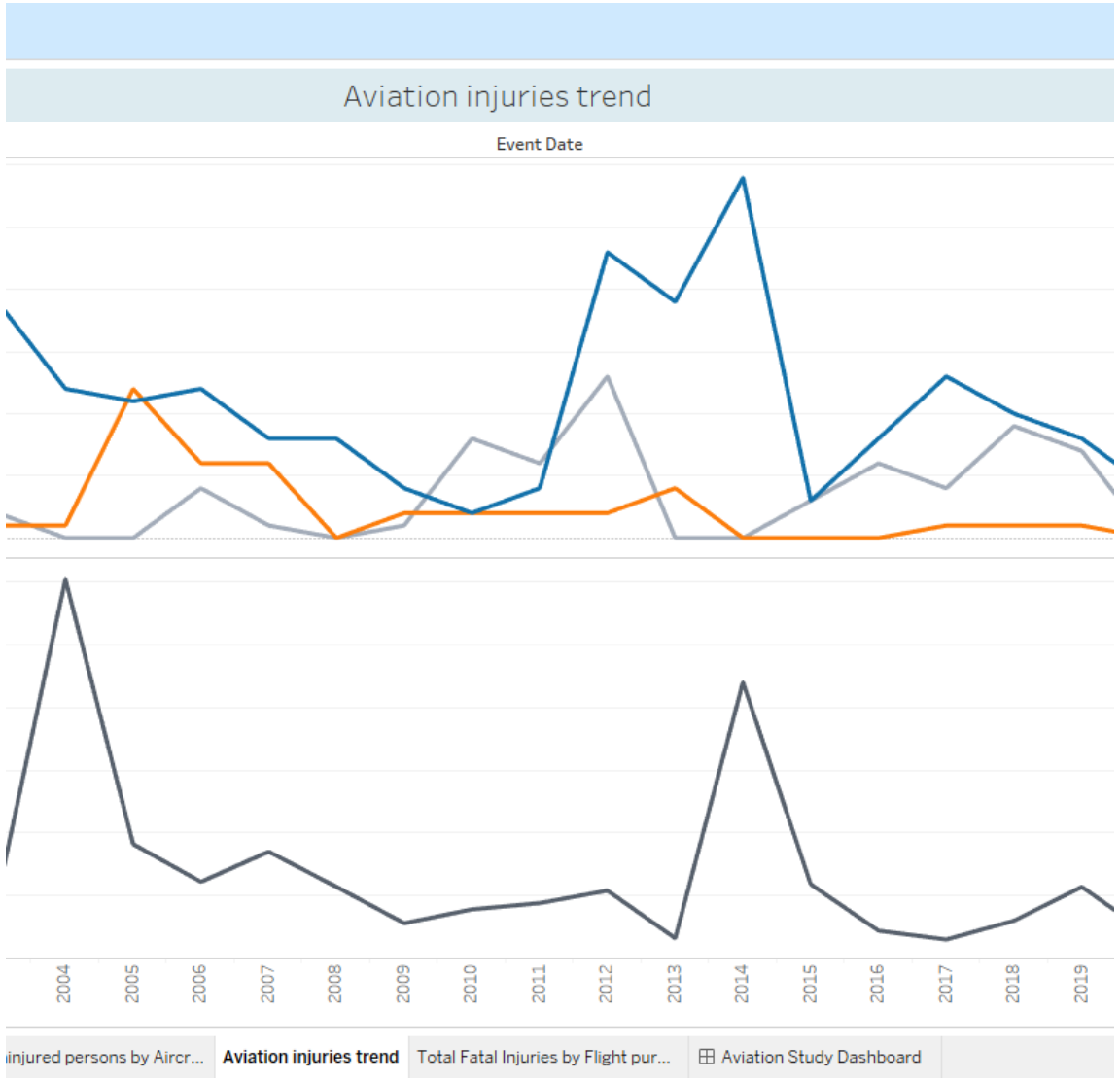
Decline in accidents/incidents YoY with less injuries from 2000 onwards

2000–2023

2000

Dataset used for the analysis:

- Provides a good balance between being recent enough to reflect modern technology
- Captures meaningful data relating to the accidents/incidents.



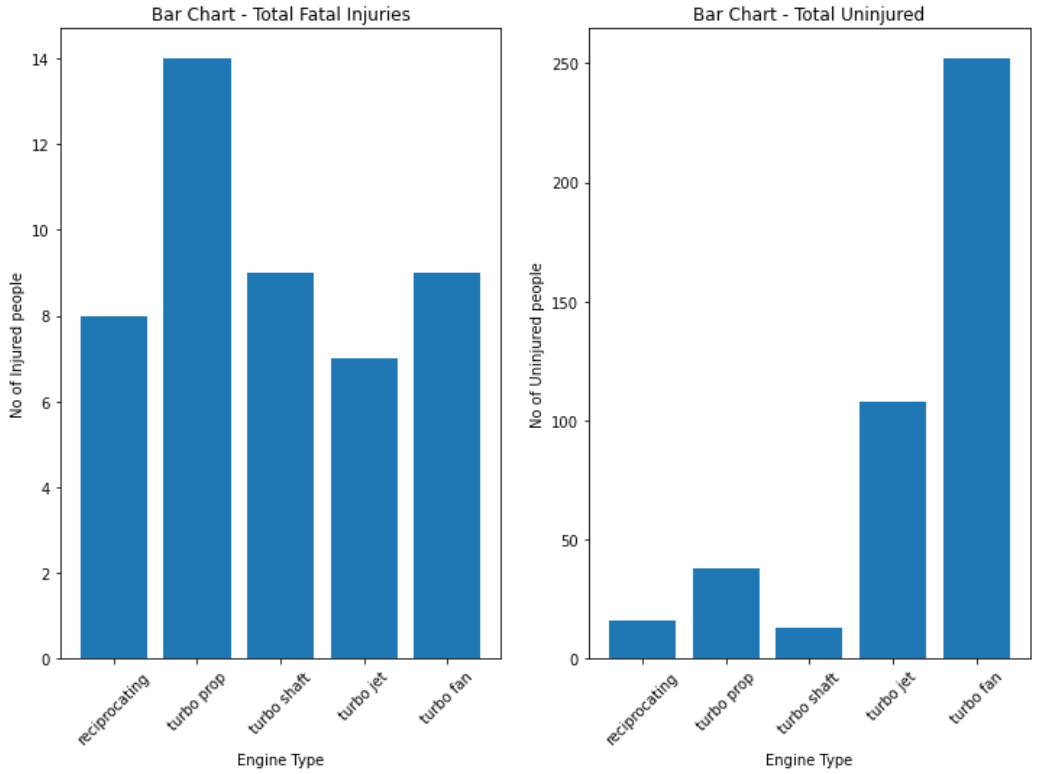
Key considerations in the analysis

- Engine Type
- Number of Engines
- Purpose of Flight

Engine Type

Key Findings

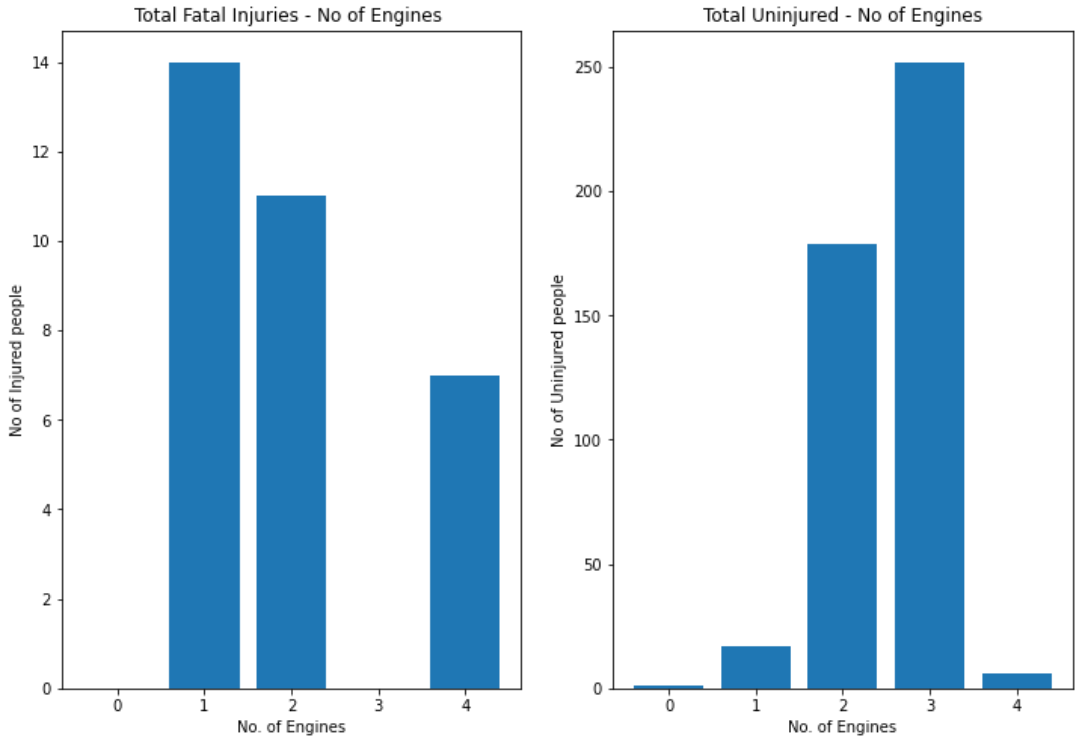
- Engines with a higher safety record tend to have lower fatal injuries
- Turbo fan engine had the highest number of uninjured persons following an accident/incident
- Turbo prop engine had the highest number of fatal injuries following and accident/incident



No of Engines

Key Findings

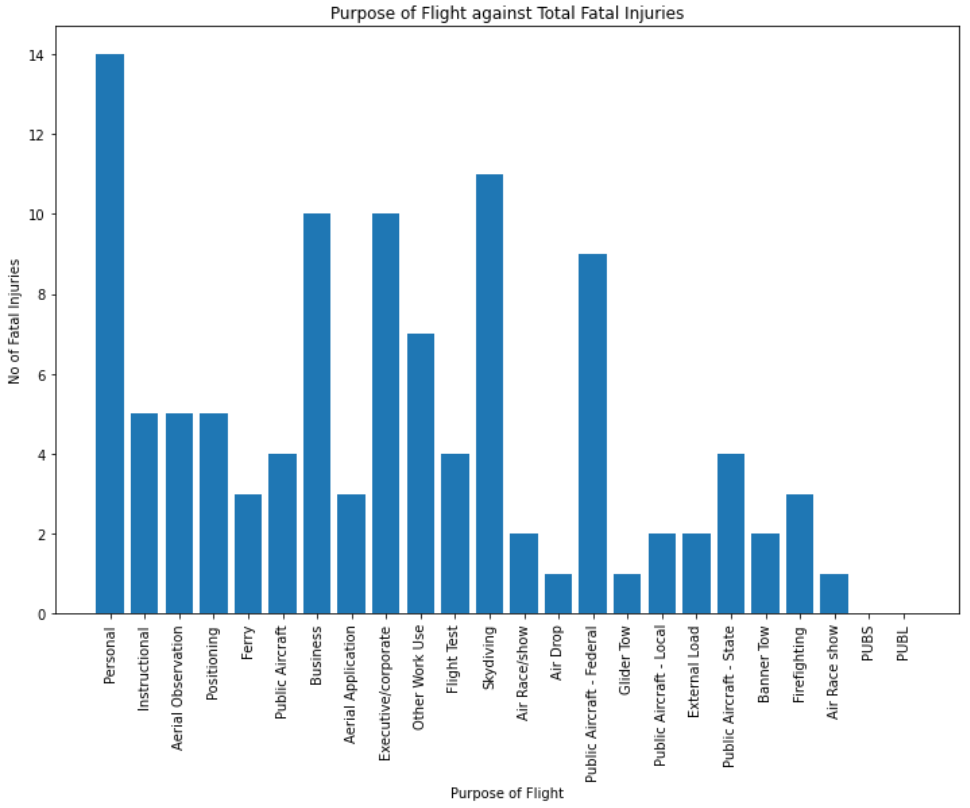
- Aircrafts with three engines had the highest number of uninjured persons and no recorded total fatal injuries.
- Aircraft with one engine had the leading number of total fatal injuries with the minimum number of uninjured persons.



Purpose of flight

Key Findings

- Personal flying had the highest incidences of fatal injuries with 14 fatal injuries followed by sky diving with 11 fatal injuries.
- Business and Executive /Corporate were tied at third place with 11 fatal injuries.



Business recommendations

- **Engine Type**: Aircraft with turbo fan engine most preferred. Safest engine with the highest number of persons uninjured following an aviation incident/accident
- **No of Engines**: Company should choose aircraft that has 3 engines. Offers the perfect combination i.e., has the lowest number of fatal injuries and the highest number of uninjured persons in the event of an accident/incident.
- **Airline Business**: Options listed below :
  - Business
  - Positioning
  - Executive/Corporate
  - Aerial Application

Recommended Aircrafts

- Recommended aircraft makes are:
  - Dassault Aviation
  - McDonnell Douglas
  - Dassault Bregguet
- Model chosen depends on airline business the company will operate in.

	Make	Model	Investigation_Type	Event_Date	Aircraft_damage	Amateur_Built	Number_of_Engines	Engine_Type	Purpose_of_flight
54666	dassault aviation	DA-50	Accident	2003-05-21	Minor	No	3.0	turbo fan	Business
56476	mcdonnell douglas	DC-10-30	Accident	2004-10-04	Substantial	No	3.0	turbo fan	Public Aircraft
60269	dassault aviation	Falcon 900EX	Incident	2006-03-03	Minor	No	3.0	turbo fan	Business
62221	dassault aviation	Mystere Falcon 900C	Accident	2007-03-23	Substantial	No	3.0	turbo fan	Positioning
62673	dassault-breguet	Mystere Falcon 900	Accident	2007-10-06	Substantial	No	3.0	turbo fan	Executive/corporate
62783	mcdonnell douglas	DC 10-10	Accident	2007-06-25	Substantial	No	3.0	turbo fan	Aerial Application
63464	dassault aviation	Mystere Falcon 900	Accident	2007-09-28	Substantial	No	3.0	turbo fan	Executive/corporate
76516	dassault-breguet	MYSTERE FALCON 900	Incident	2015-04-16	Minor	No	3.0	turbo fan	Executive/corporate

Considerations beyond the scope of data

PURCHASE COSTS AND MAINTENANCE COSTS

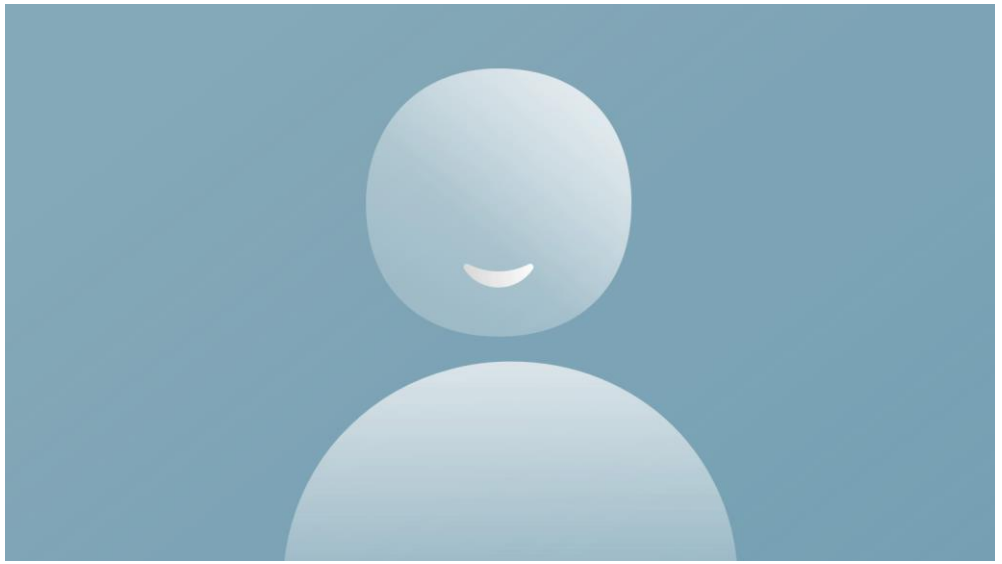
INSURANCE COSTS

MAINTENANCE HISTORY

Conclusion

- The proposal determined eight aircraft models under the **Dassault Aviation**, **Mcdonnell Douglas** and **Dassault-Breguet** makes which were low risk.
- Choice of model would be influenced by the line of business the company intends to venture into
- Additional considerations such as purchase, servicing and insurance costs.

Q & A



Thank you!