AVIATION RISK ANALYSIS

GOAL: HELP THE COMPANY IDENTIFY LOW-RISK AIRCRAFT FOR COMMERCIAL/PRIVATE OPERATIONS.

Aviation Risk Analysis for Aircraft Acquisition
Insights from U.S. Accident Data (up to 2025)

American Airlines Flight 11 and United Airlines Flight 175
2001 – 2,763 deaths

American Airlines Flight 77
2001 – 189 deaths

American Airlines Flight 587
2001 – 265 deaths

TAM Airlines Flight 3054
2007 – 199 deaths

Air France Flight 447
2009 – 228 deaths

Indonesia AirAsia Flight 8501
2014 – 162 deaths

Metrojet Flight 9268
2015 – 224 deaths

Ukraine International Airlines Flight 752
2020 – 176 deaths

Jeju Air Flight 2216
2024 – 179 deaths

Air India Flight 171
2025 – 260 deaths

Business Problem and Objective

► A company is looking to Expand in Aviation Operations

► There is need for analyzing and identifying the low-risk aircrfats for purchase

► We need to identify , *Which aircraft types and categories report the lowest risks and casualties*

► *DATA SOURCE :* *https://www.kaggle.com/datasets/khsamaha/aviation-accident-database-synopses*

► Aviation accidents Database and Synopses
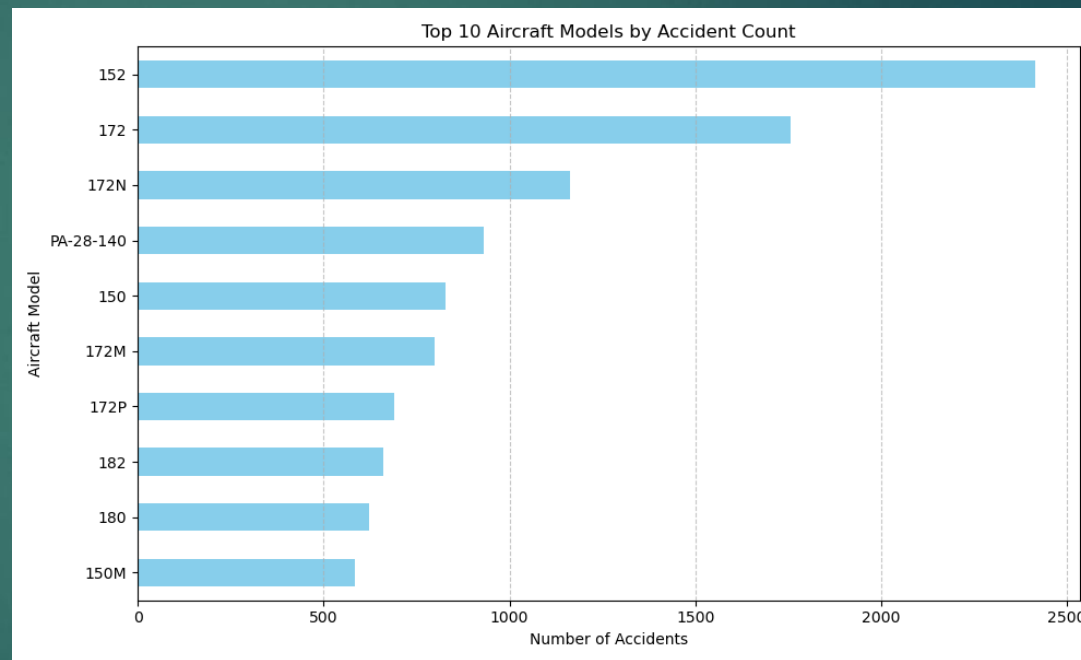
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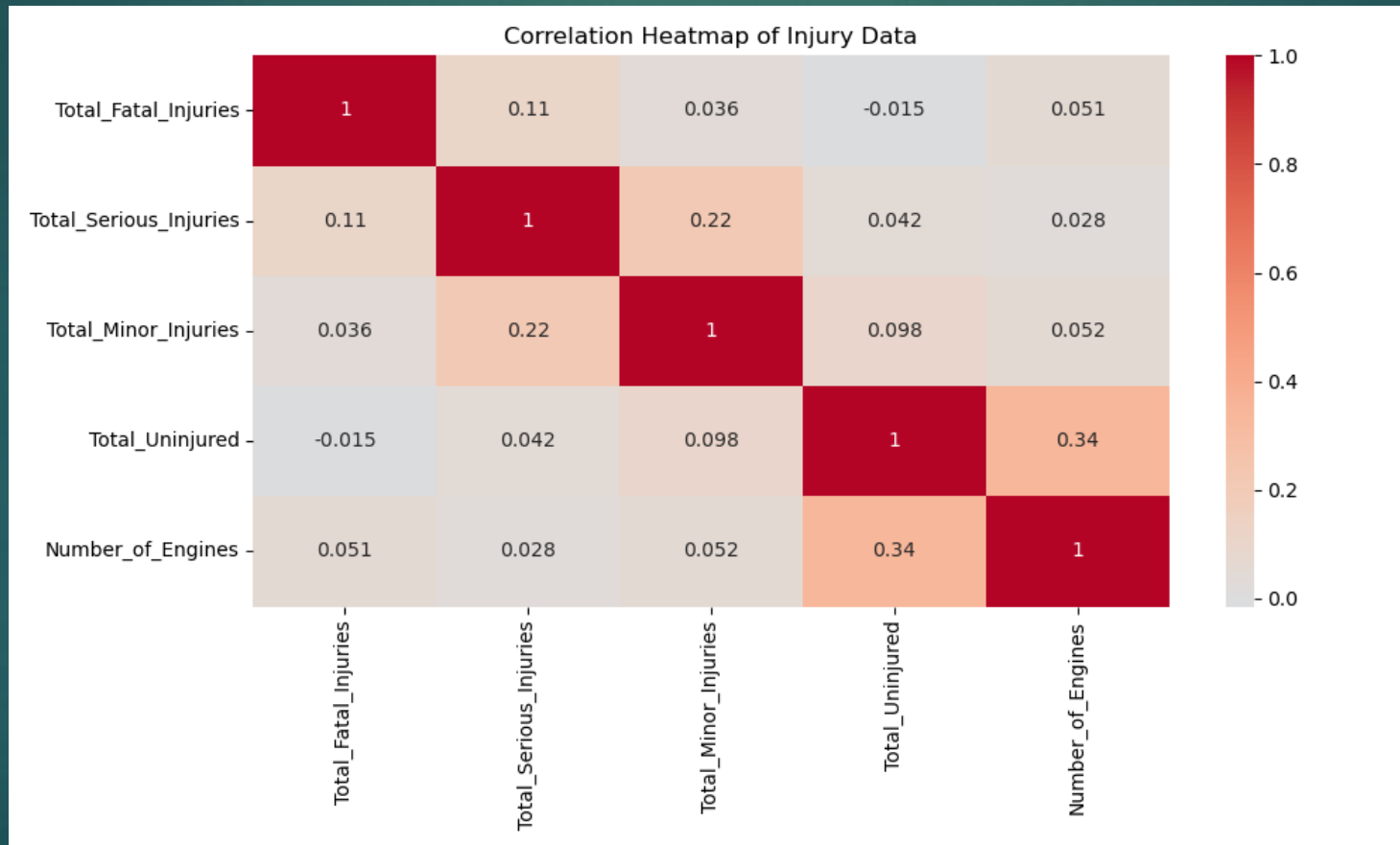
Aircraft Category by Accident counts

From the observation , the following are the most Aircraft categories with high number of accident counts .

152 Category has the highest frequency , followed closely by 172 and 172N respectively
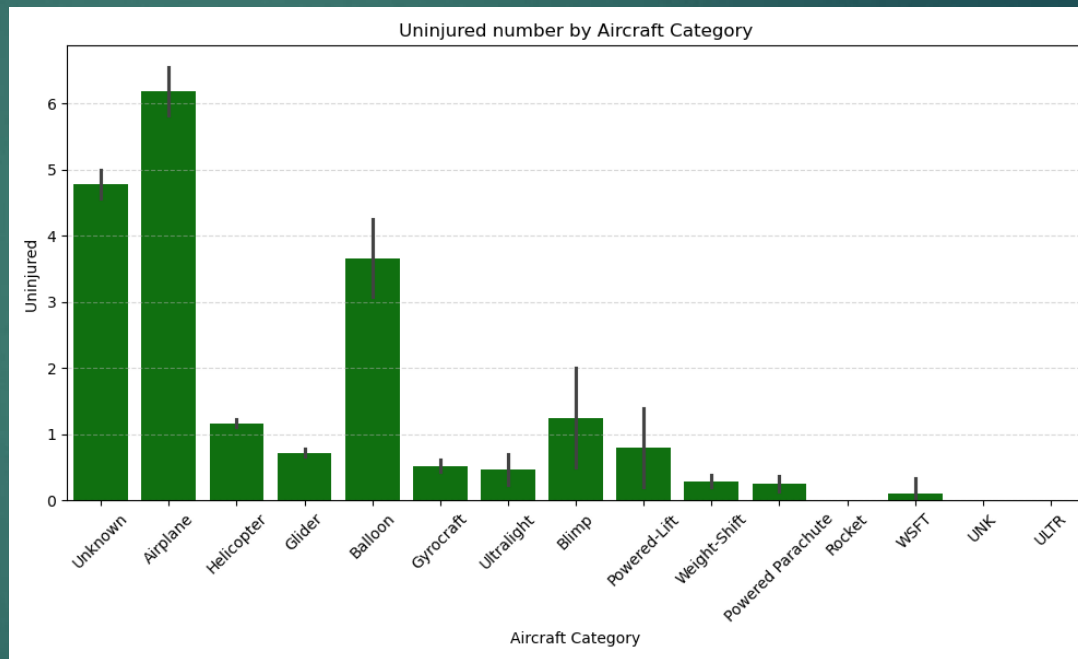
Ones with the lowest frequency are MMB-BK117-B2

What are the Average fatalities by Aircraft categories

Uninjured number by Aircraft Category
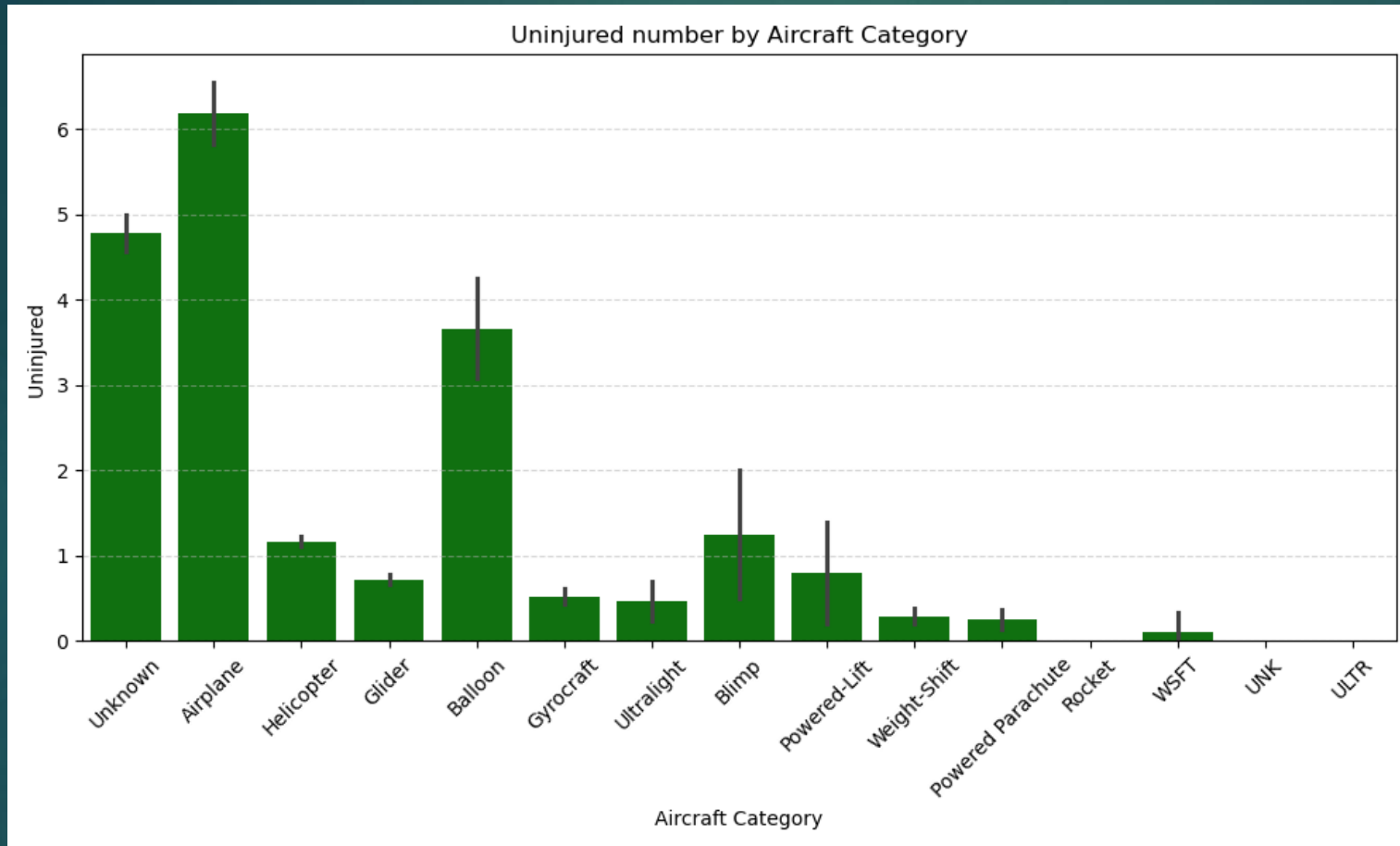
Average Fatalities By Aircraft Category

WSFT has the least number of uninjured passengers .

Airplanes and Helicopter tend to pose high risk
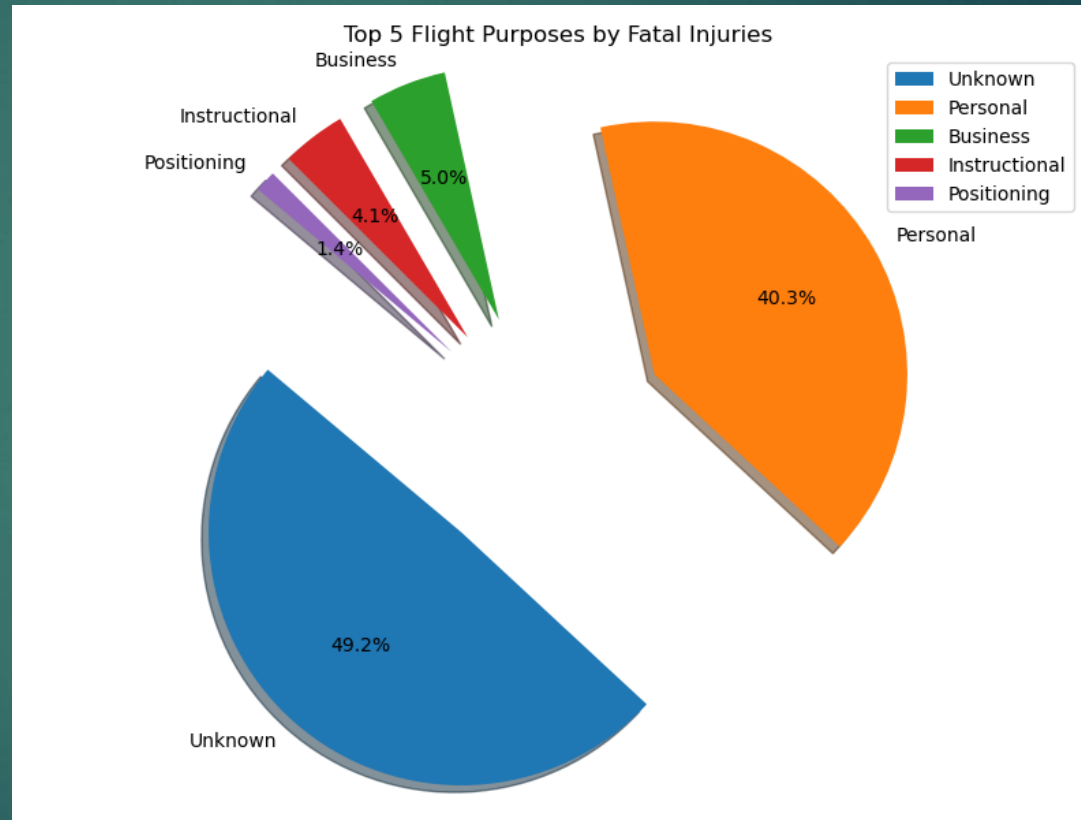

Uninjured number by Aircraft Category
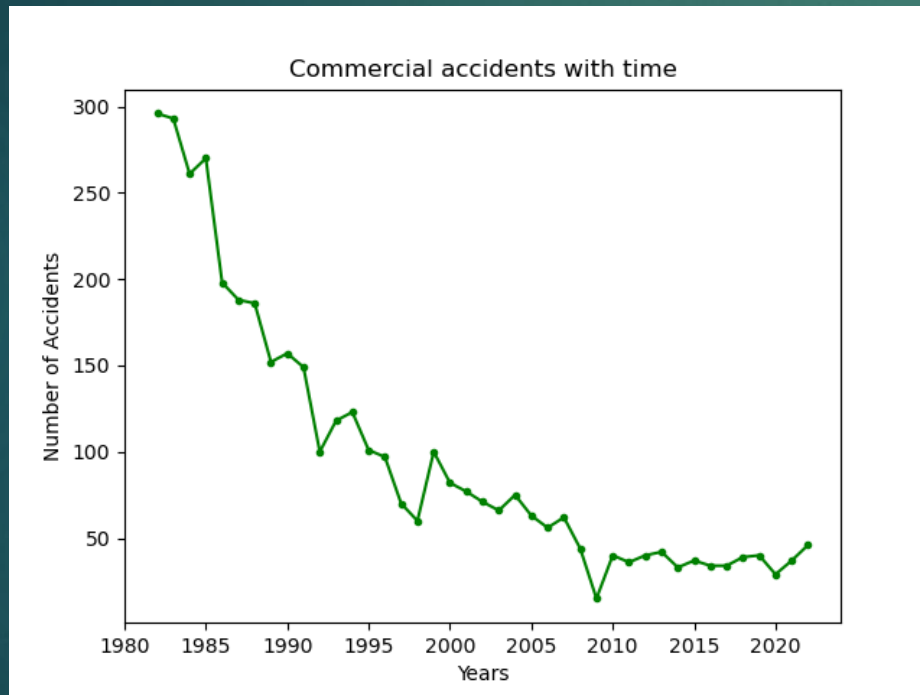
Fatal Injuries By Purpose of Flight

Personal Flights report high number of fatal cases in Aviation accident cases

Business flights tend to experience a lower percent of fatal cases in aviation accidents
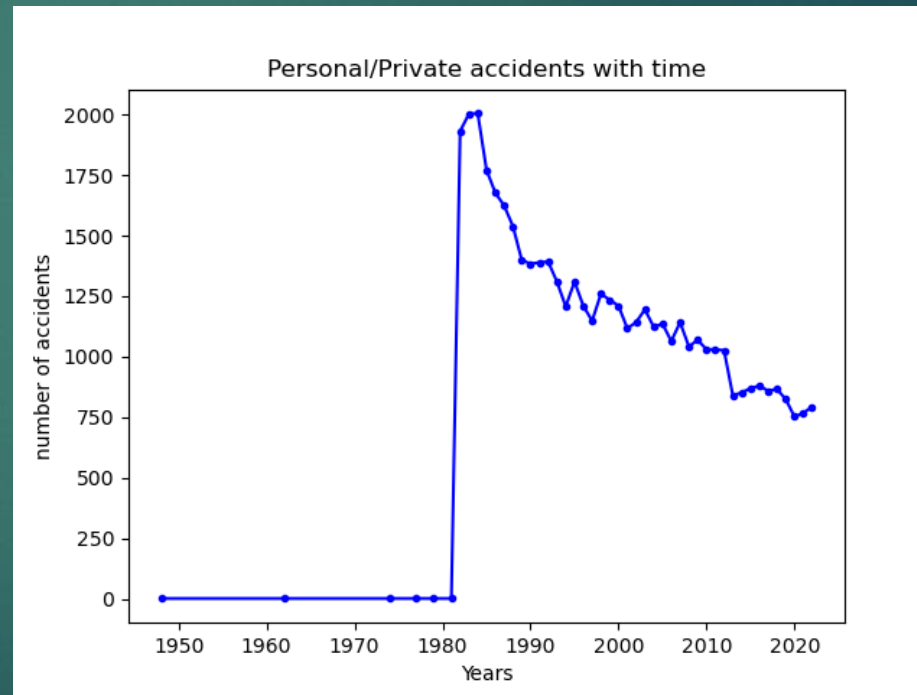
The Trend of accidents with time

Commercial Aviation flights are significantly reporting low accident frequencies

Personal/private flights spiked in the year 1980 and began to steadily fall in frequency .

Key Observations

- 1.Aicrafts with a single number pose higher risks of aviation accidents . Those with 8 engines pose less risk .

- Reciprocating engine type records high number of aviation accidents .

- It is also responsible for high casualties reported

- 3. Aviation accidents are declining with time . Commercial flights are significantly reporting lower cases , followed by business flights

- 4. UNK engine type records minimal accident counts and less fatal cases reports

Recommendations

1. Invest in Commercial flights , they are less prone to aviation accidents

2. Purchase flights with UNK engine type as it is less prone to accidents and records low number of fatalities accident cases

3. SNJ-5C , QUICKSILVER SPORT 2 , 727-2Q8, WMF, and M-8-EAGLE are the ideal Aircraft models

4. Flights with high engine numbers are safer compared to with less number of engines¶

- THANK YOU :
- Lawrence Kamerino
- Linkedin

- More visuals at : Phase 1 project | Tableau Public