TITLE: AVIATION RISK ASSESSMENT FOR AIRCRAFT ACQUISITION

SUB-TITLE: STRATEGIC INSIGHTS FOR SAFE AND SUSTAINABLE AVIATION PORTFOLIO EXPANSION

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BUSINESS PROBLEM

- Company is expanding into aviation but lacks risk knowledge.
- Need to determine safest aircraft to minimize financial and reputational risks

OBJECTIVE

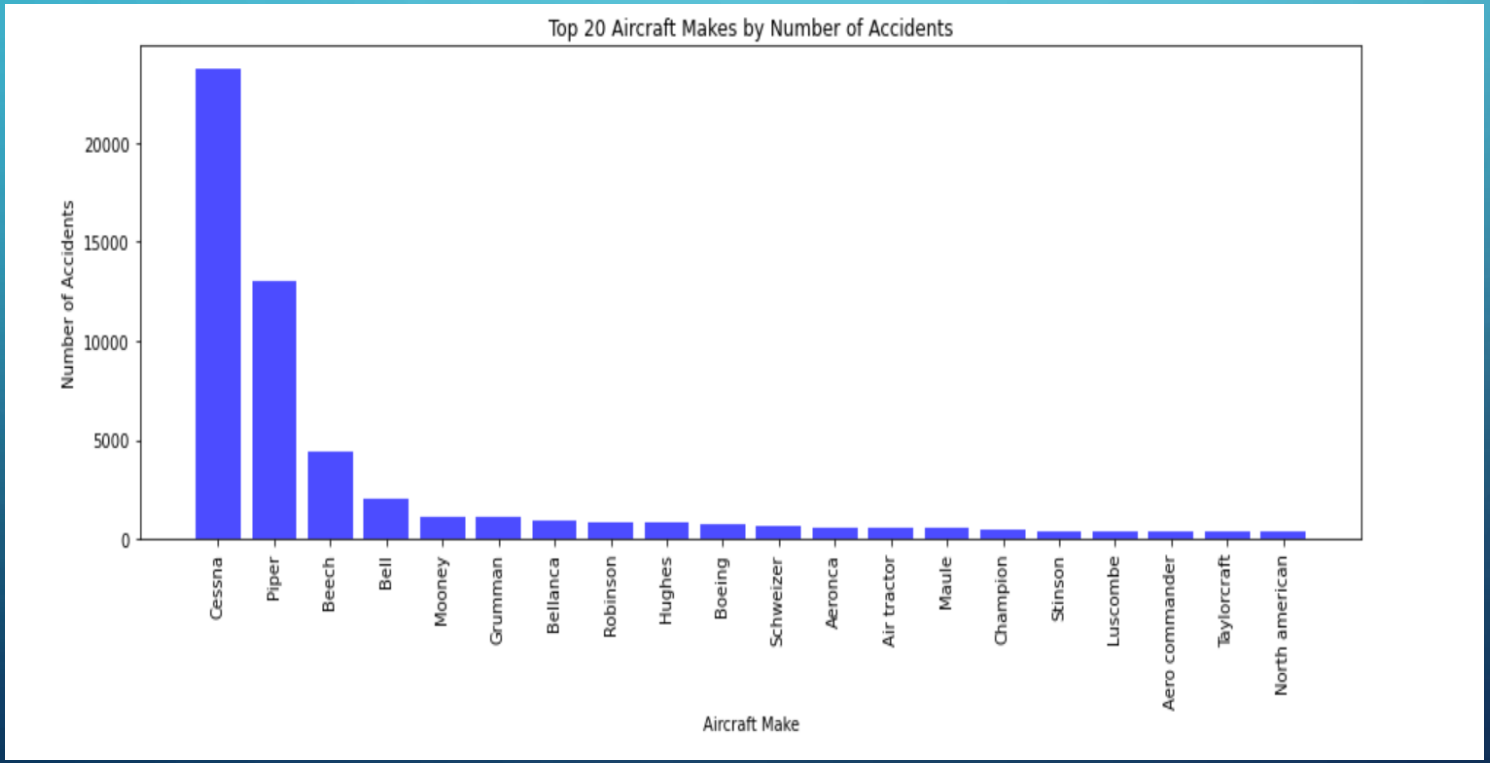
- Identify the safest aircraft by analyzing safety records, accident history, locations, and engine performance.
- Support decision-making for aircraft purchases.

DATA & METHODOLOGY

- **Data Source:** NTSB (1962–2023, U.S. and international waters).
- **Tools:** Python (Pandas, NumPy, Matplotlib), Tableau.
- **Key Variables:** Aircraft make, engine type, engine count, flight phase.

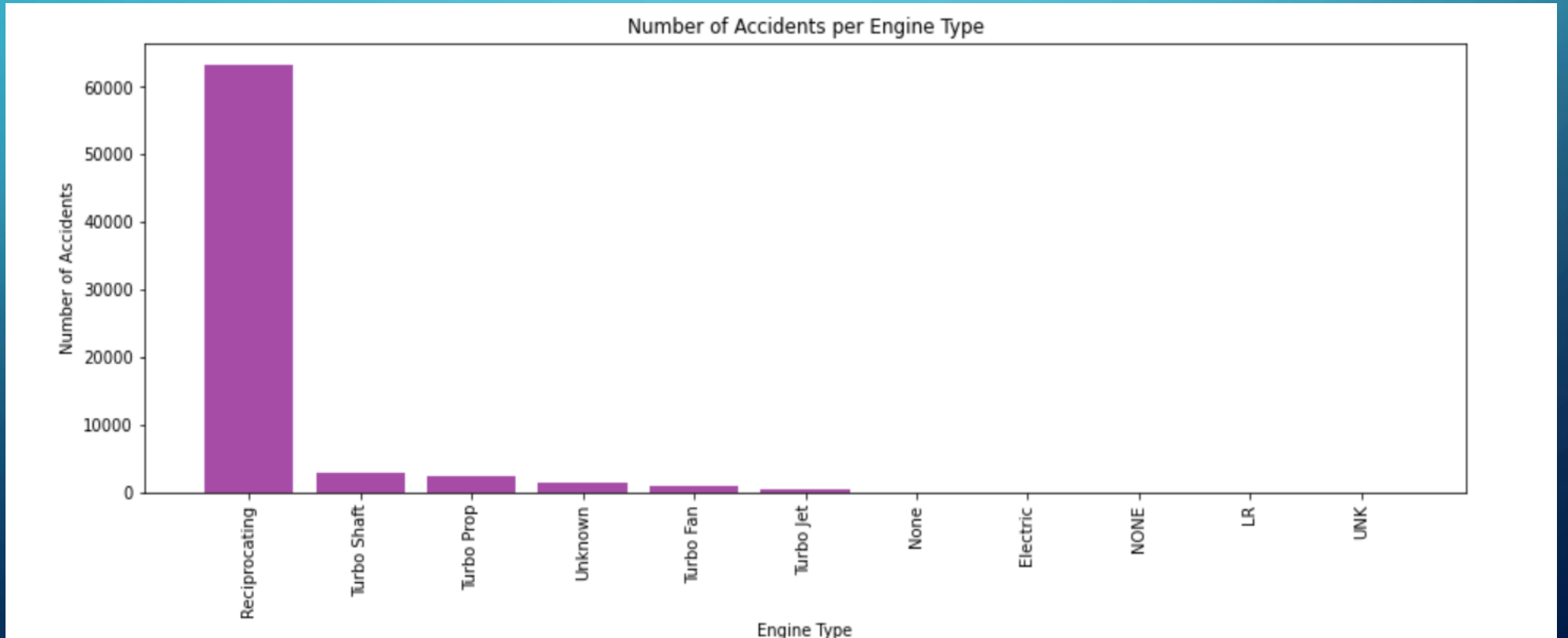
AIRCRAFT MAKE ANALYSIS

- **High Accident Makes:** Cessna, Piper, Beech (>5,000 accidents each)
- **Implication:** Avoid high-risk manufacturers.



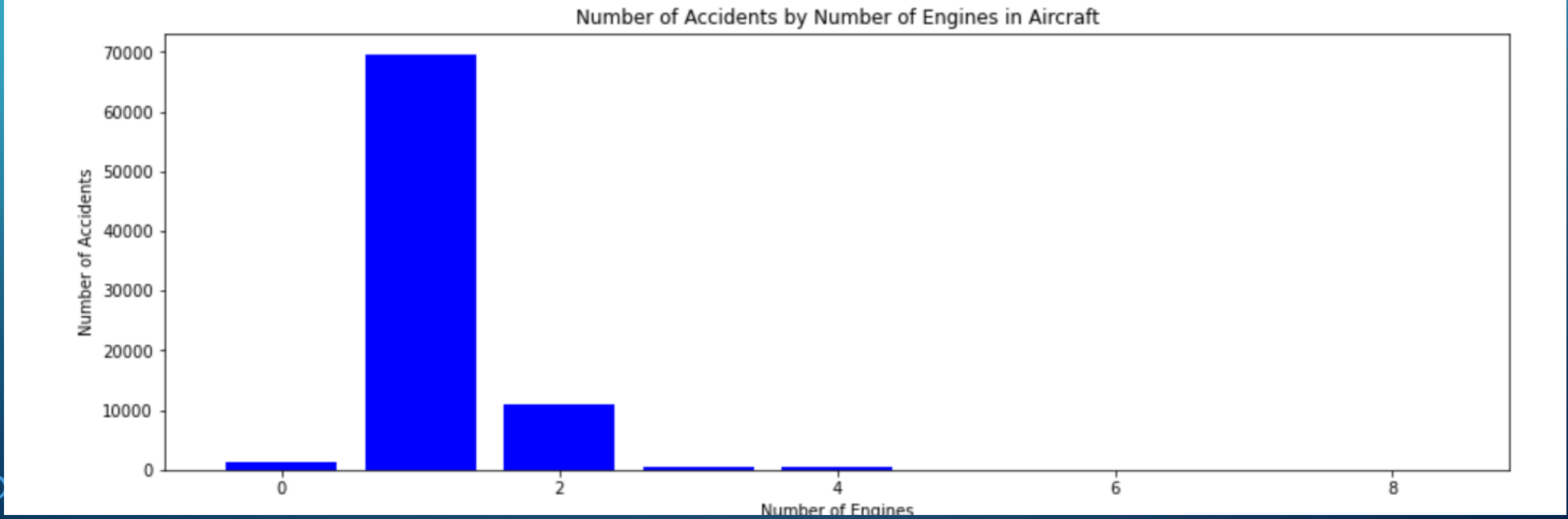
ENGINE TYPE RISK ANALYSIS

- **High Risk:** Reciprocating engines have the most accidents.
- **Low Risk:** UNK engines show the least accidents.
- **Implication:** Prioritize aircrafts with UNK engines



ENGINE COUNT RISK ANALYSIS

- **High Risk:** Single-engine aircraft have the highest accident rates.
- **Low Risk:** Multi-engine aircraft demonstrate better safety records.
- **Insight:** Multi-engine configurations reduce the likelihood of complete power failure, increasing overall safety.



LINK TO TABLEAU VISUALIZATIONS

- https://public.tableau.com/app/profile/brian.kipyegon8353/viz/Aviation_Data_Vizzes/AnalysisofAviationAccidentsImpactofLocationFlightPhaseandEngineTypeonAccidentFrequency

RECOMMENDATIONS

1. **Select Low-Risk Aircraft Makes:** Avoid Cessna, Piper, Beech. Consider safer manufacturers.
2. **Choose Multi-Engine Aircraft:** Reduces failure risks, enhances safety.
3. **Prioritize Safer Engine Types:** Avoid reciprocating engines; prefer UNK engines

NEXT STEPS

- Shortlist low-risk aircraft vendors.
- Audit engine types.

Any

Question

Thank you