

Aviation Risk Analysis

Identifying Low-Risk Aircraft for Investment
Using Aviation Accident Data

Business overview

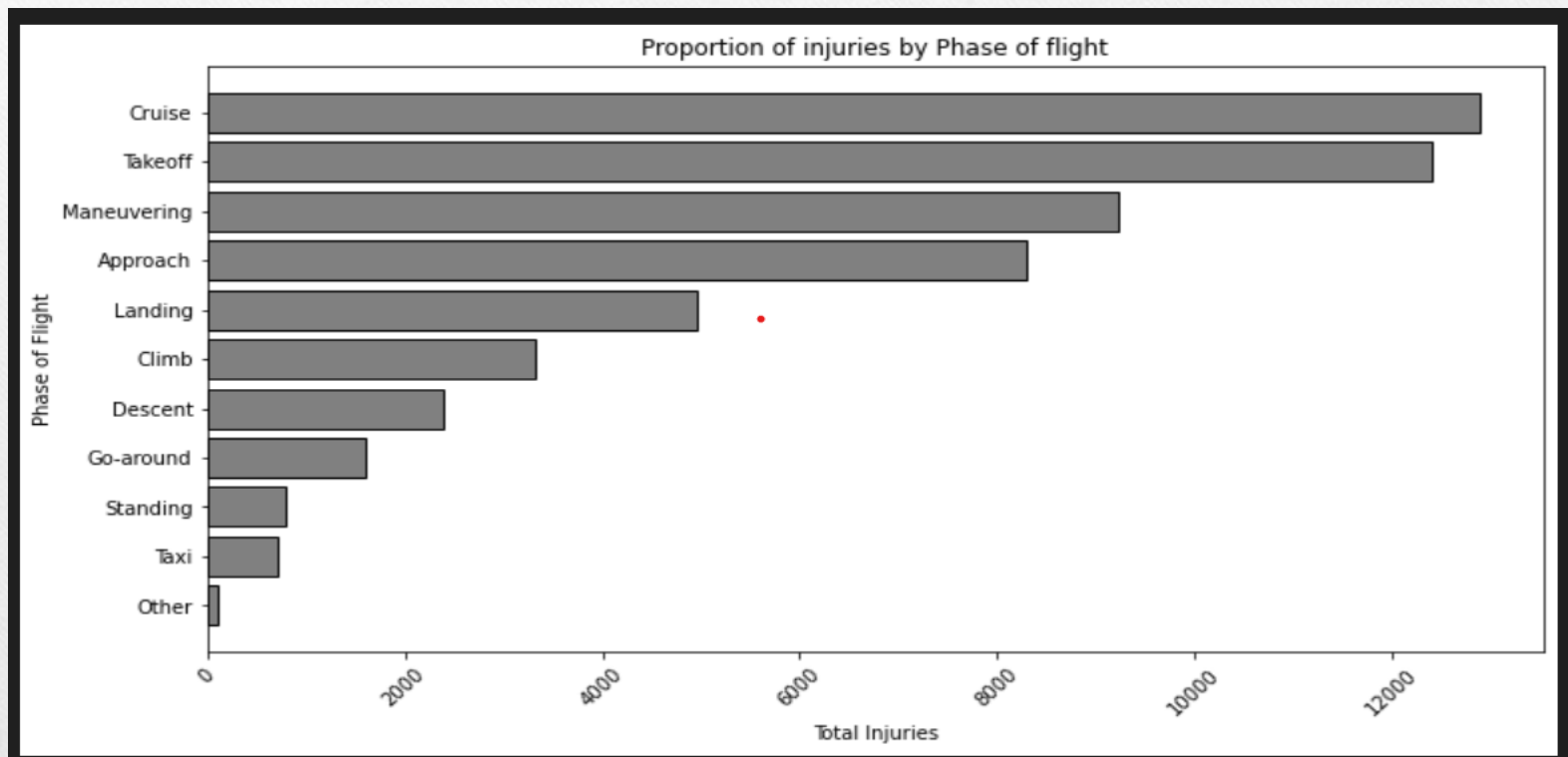
- Our company is expanding in aviation, managing both private and commercial aircraft
- **Goal** :use data-driven analysis to identify the safest, lowest-risk aircraft for acquisition and operations

Data Analysis

- Analysis of Injury Severity by Aircraft Make and Model
- Survivability Analysis by Aircraft Make
- Incident Frequency by Aircraft Make
- Time Trend Analysis of Incidents
- Injury Severity by Broad Phase of Flight
- Analysis of risks associated with Purpose of Flight

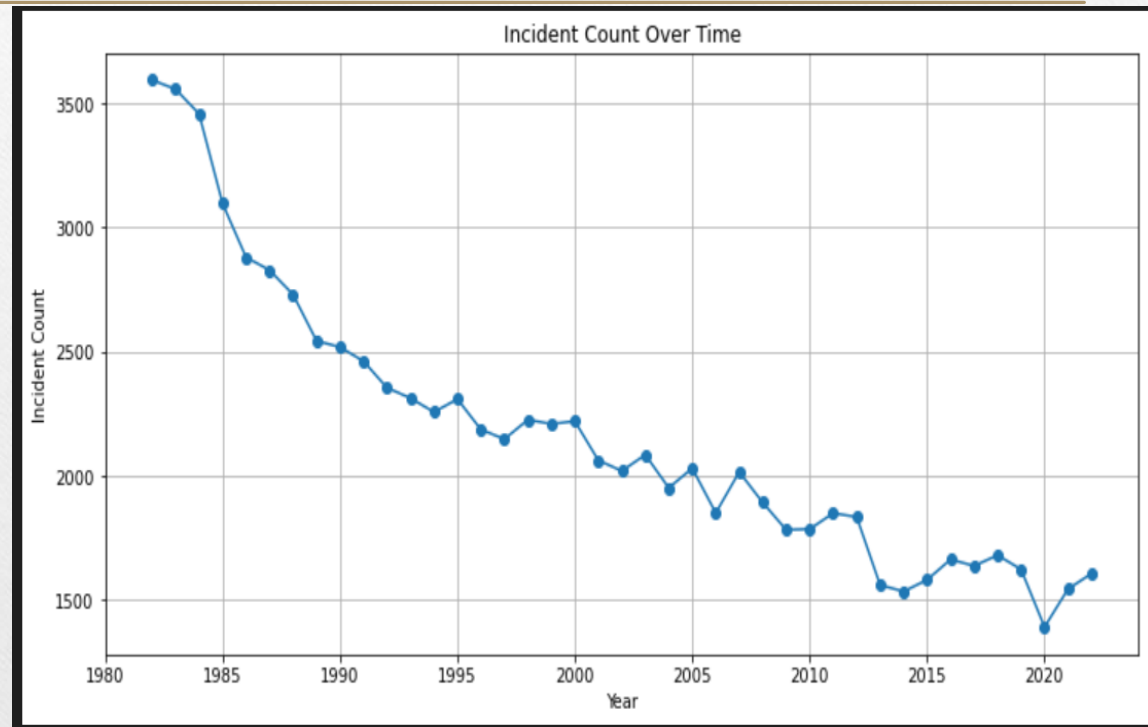
Proportion of injury by phase of flight

- The analysis to understand the relation between phase of flight and total injuries reveals that most passenger injuries occur during the cruise and take-off phases. A fairly large portion of injuries also occur in the maneuvering and approach phases.



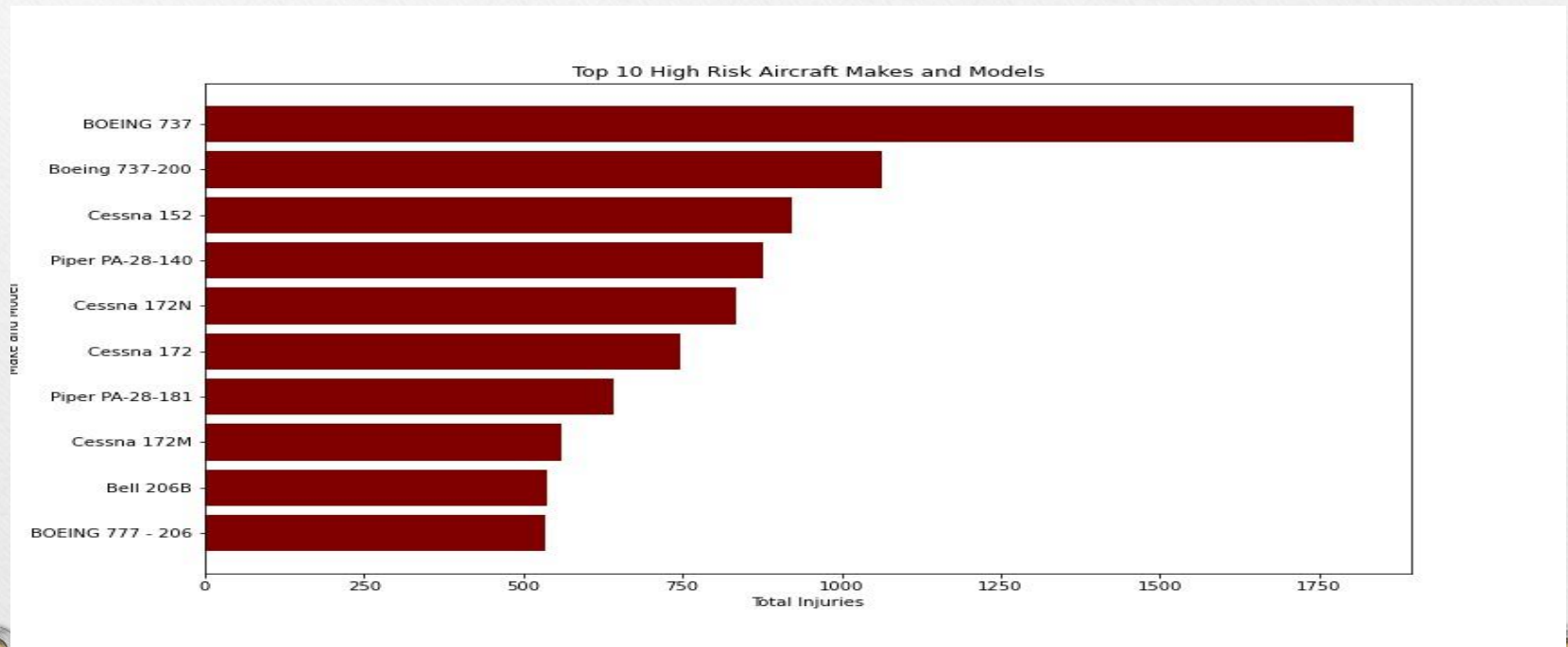
Incident count over time

The trend analysis shows that airplane incidents have been on a gradual decline over the years



Top 10 high risk aircraft makes and models

This analysis shows that various models of the Cessna and Piper makes are high risk, in that they have caused the most number of injuries.



Recommendations

- Prioritize aircraft models with low accident and fatality rates
- Consider engine type safety performance before purchase
- Avoid aircraft linked to high-risk flight purposes
- Use data-driven dashboards for ongoing risk monitoring

Conclusion

- Most injuries occur during Cruise and Take-Off phases, indicating critical points where enhanced safety measures are necessary.
- Personal and Instructional Flight categories have the highest total injuries, indicating they are the most risky.
- Cessna and Piper aircraft makes are associated with the highest injury and incident rate

Thank you!
