

Aviation Data Analysis

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Which aircraft has the
lowest risk for the
company to start its
new business
endeavor?

The Analysis

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Leading questions

- What defines a low risk aircraft according to the data provided?
 - Where can we implement strategies in anticipation of risk within the variables in the data?
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Strategy

1. Determine the safest aircraft category in accidents based on the number of un-injured individuals.
2. Explore aircraft makes and engine types to identify which ones are the most safe.
3. Evaluate the safety of the aircraft by comparing the extent of aircraft damage across different makes.
4. Analyze the influence of weather conditions on events.
5. Examine the relationship between the phase of flight and fatal injuries.



Hypothesis

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If we are able to:

- Identify the aircraft category with the highest percentage of uninjured passengers.
- Determine the safest make within that category.
- Analyze optimal weather conditions for flights.
- Identify hazardous phases of flight.

We will be able to make an informed decision on a low-risk aircraft for purchase and take proactive steps to manage potential risks.

Hypothesis support

A low-risk aircraft is one that is least likely to be involved in accidents, ensuring it remains operational and profitable for the client.

Additionally, selecting engine types with a lower likelihood of failure is a prudent choice, as it enhances reliability and safeguards human lives by reducing the risk of accidents.

Identifying the most hazardous flight phases and weather conditions allows the client to implement proactive measures to protect both the aircraft and its passengers during these critical situations.

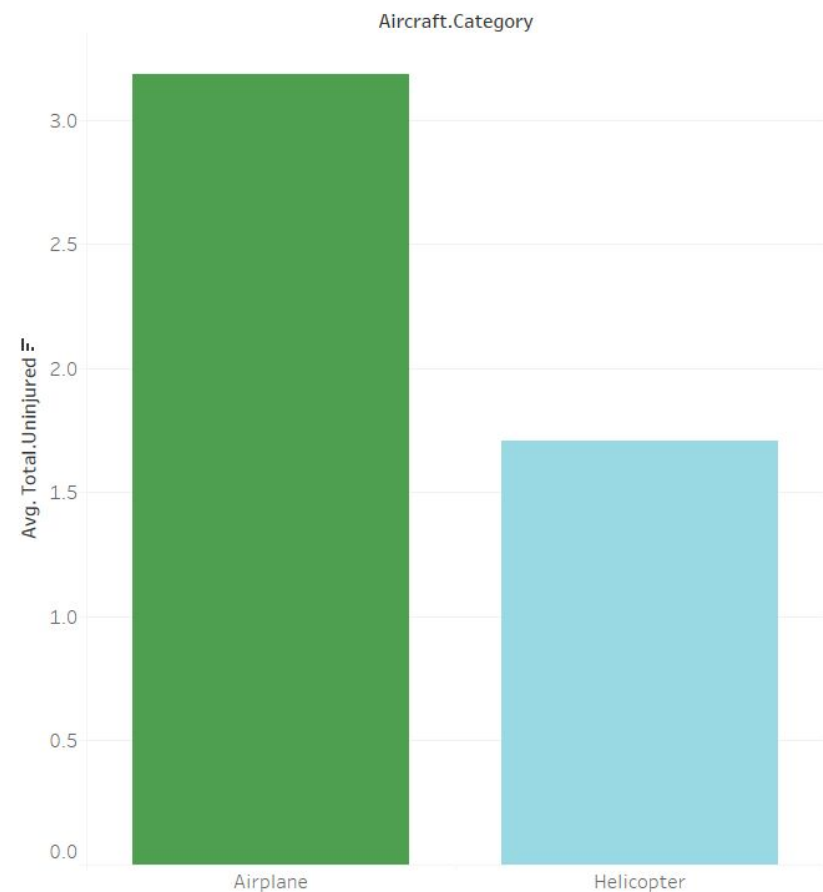
Variables that may affect the outcome include:

- Pilot experience, decision-making, and training or weather conditions can impact accident rates.
- Aircraft with excellent safety records could still pose risks if maintenance is neglected.



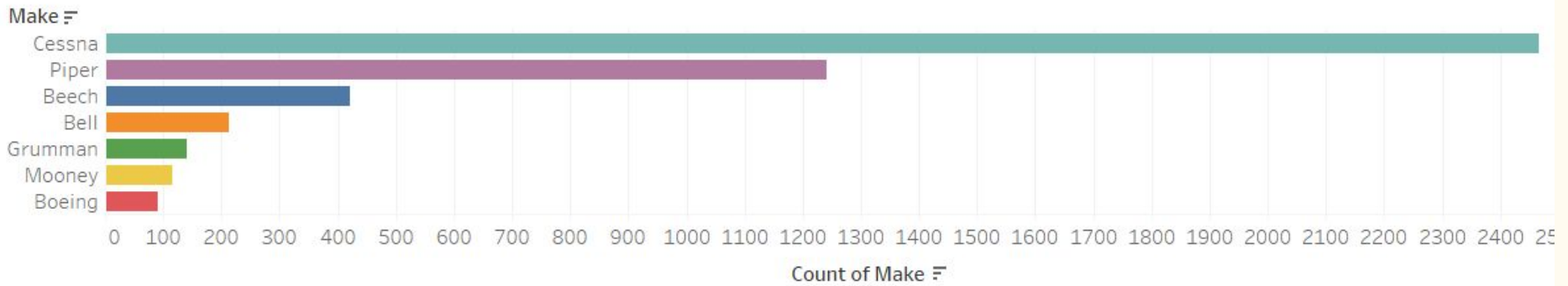
The Findings

TOTAL UNINJURED PER AIRCRAFT CATEGORY



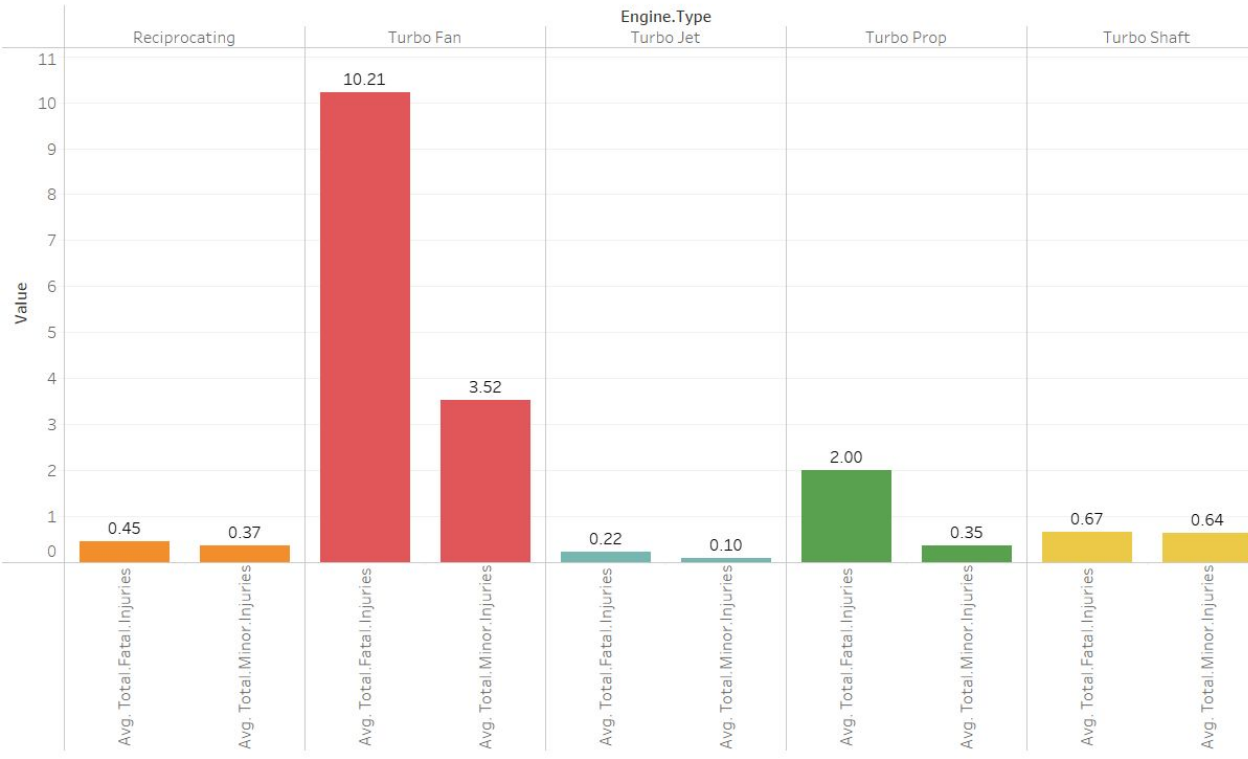
We can see that the airplane category has the highest percentage of uninjured passengers.

POPULAR AIRPLANE MAKES

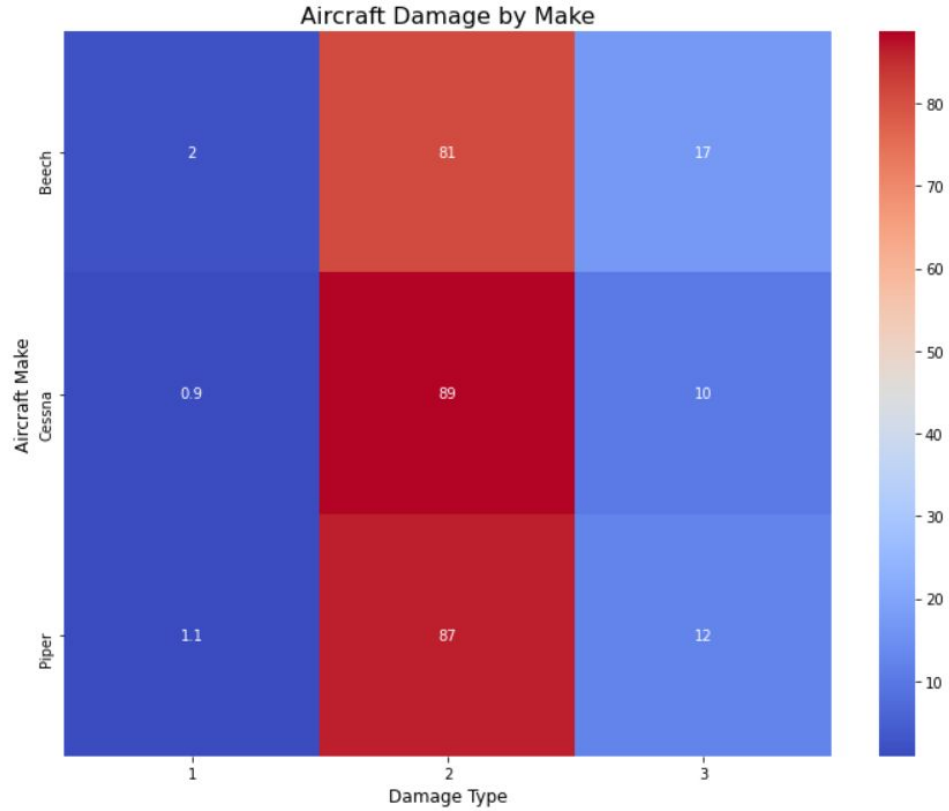


The Cessna make seems to be the most popular in the industry.

ENGINE TYPE VS AVERAGE FATAL INJURIES



We can see that the reciprocating engine has the least number of injuries implying airplanes with this engine are less likely to be involved in accidents.

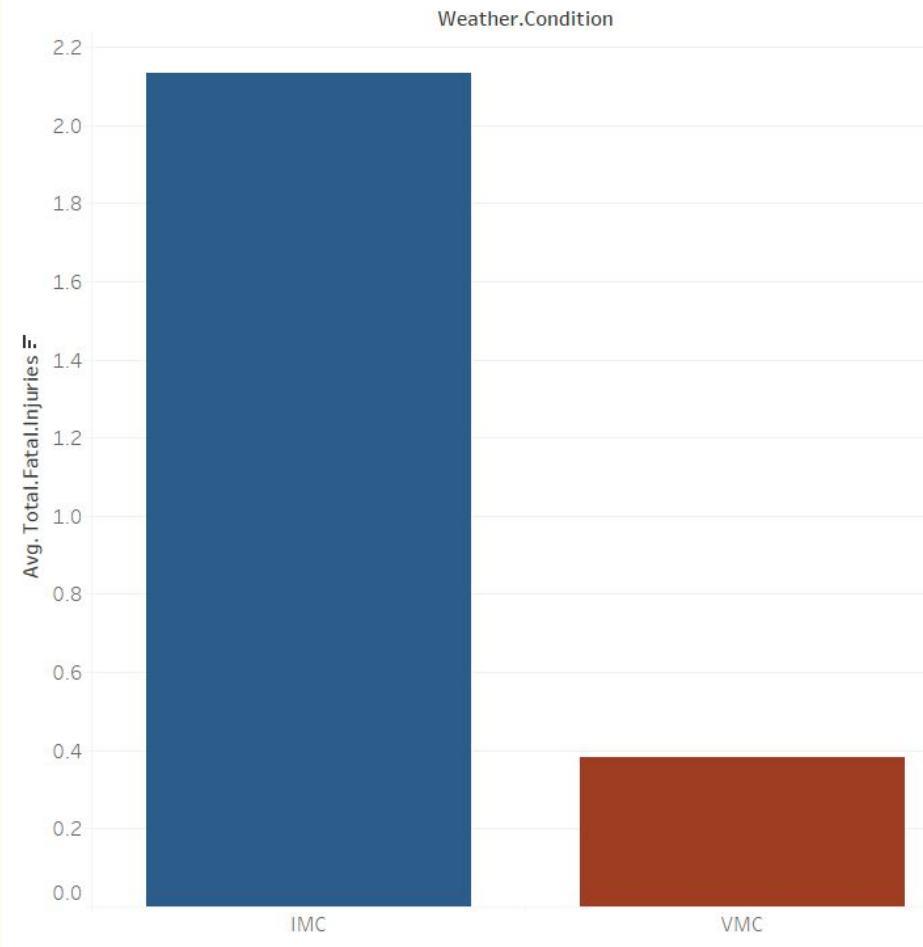


The damage type levels are as follows:

- 1 - Minor damages
- 2 - Substantial damages
- 3 - Aircraft completely destroyed

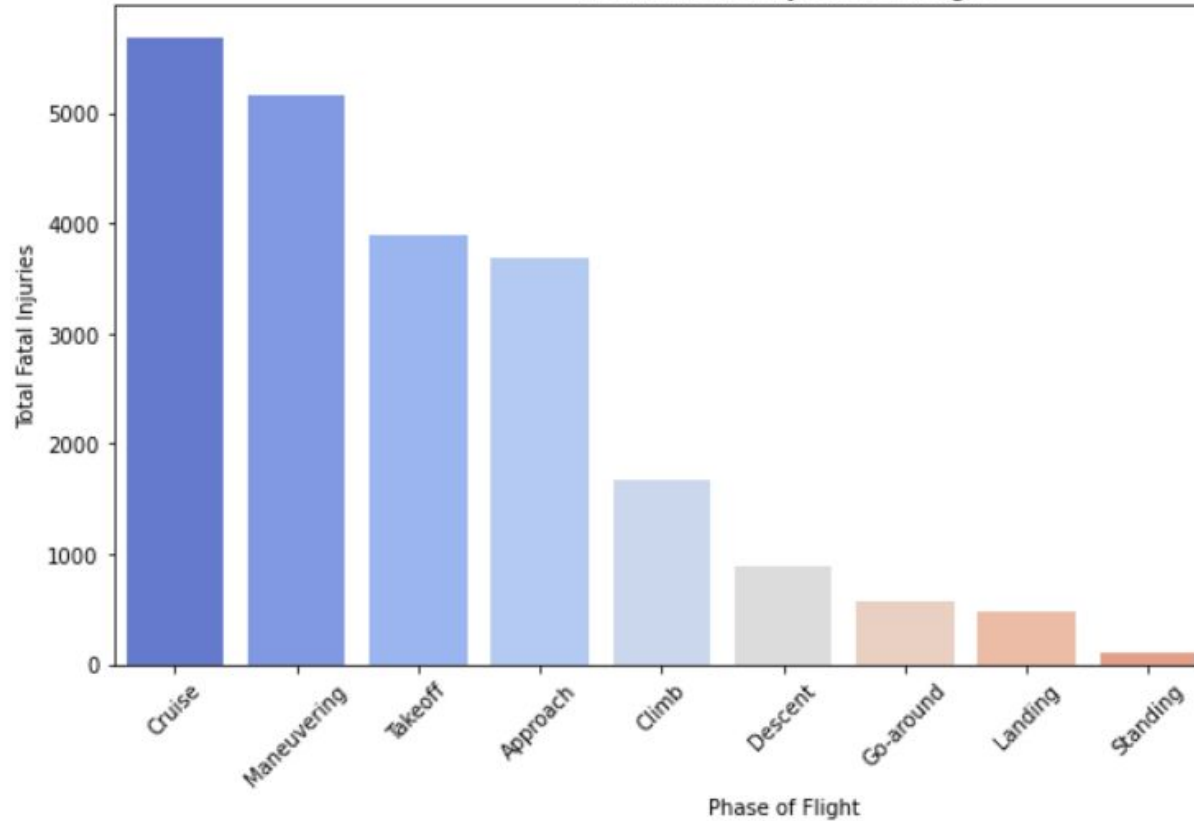
The Cessna make appears to have a slight advantage over its competitors in terms of the extent of damage.

EVENTS VS WEATHER CONDITION



We can see that most fatal accidents occur in the Instrument Meteorological Conditions(IMC) compared to the Visual Meteorological Conditions(VMC).

Fatal Accidents by Phase of Flight



The cruise, maneuvering, takeoff and approach phases seem to be the most fatal.

Conclusion

- Opt for the Cessna airplane model, as it has proven to be the safest with the lowest extent of damage, despite its high prevalence. This indicates that it is resilient and can withstand risks, even though it is the most exposed to them.
- Choose the reciprocating engine, which has the lowest number of fatal injuries, indicating a lower likelihood of engine failures.
- Consider scheduling flights during VMC weather conditions and implement enhanced safety measures for flights in IMC conditions. This will help manage risk and improve safety during adverse weather scenarios.
- Focus on enforcing additional safety measures during critical flight phases such as 'Cruise,' 'Maneuvering,' 'Takeoff,' and 'Approach.' Explore ways to ensure smooth operations during these phases and invest in robust precautionary measures to minimize mishaps

THANK YOU!!!

Any questions?

