

Aviation Data Analysis

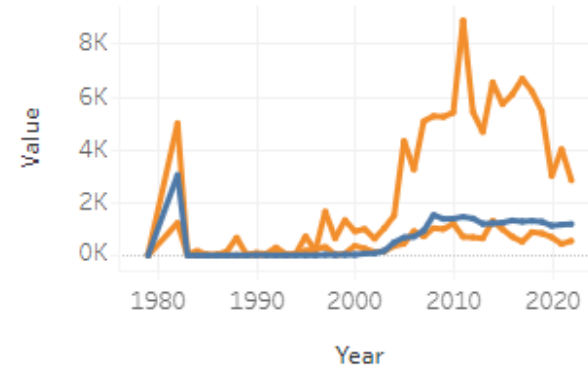
Deon Durrant

Dec. 24, 2023

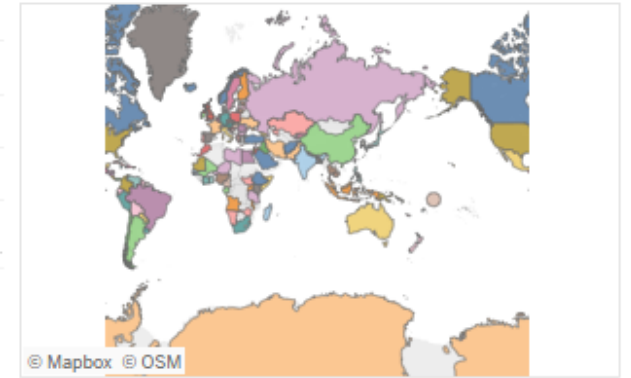


Aviation Dashboard

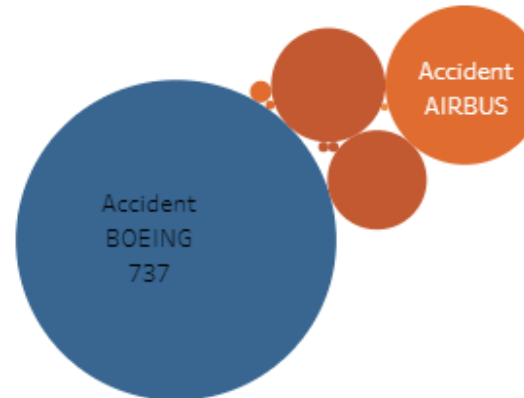
Accident Fatalities Uninjured by Year



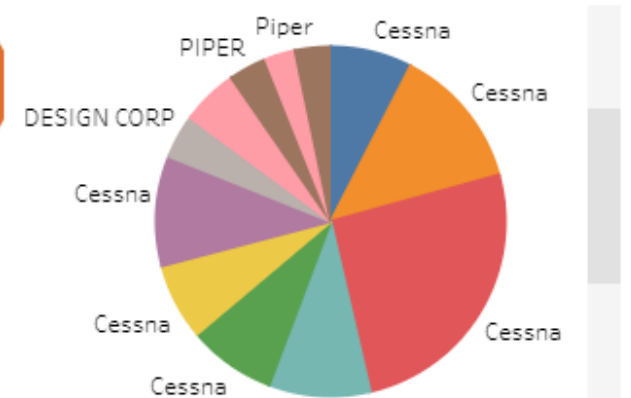
Accident Fatalities Uninjured by Country



Safest Make and Model



Purpose by Make Model



Summary

Descriptive analysis of the Aviation accident data demonstrated :

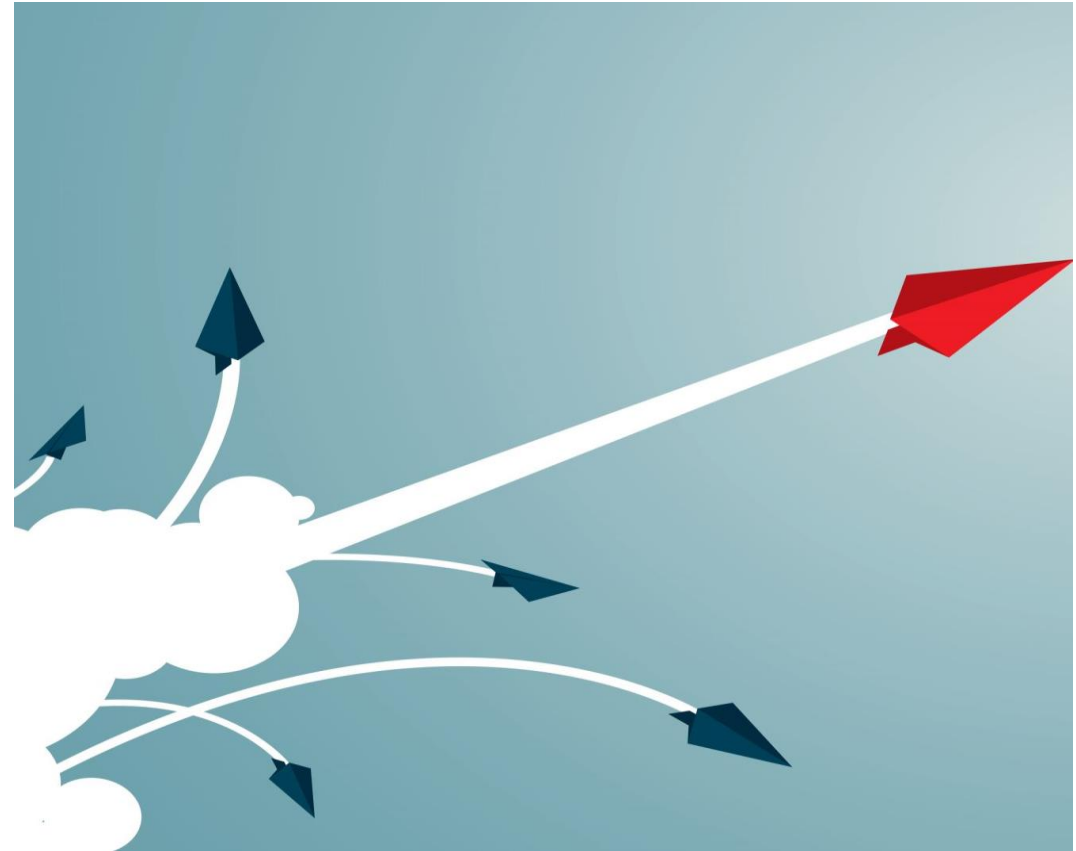
- Boeing (Make & Model) manufactures lowest risk aircrafts.
- Least human consequences or the highest uninjured by manufacturer resulted from Boeing, Airbus and Cessna.
- Business enterprise - Primary purpose of flight – The most common purposes are Personal and Instructional. The airplane most frequently used for these primary purposes is the Cessna.

Outline

- Business Problem
- Data and Method
- Results
- Conclusions

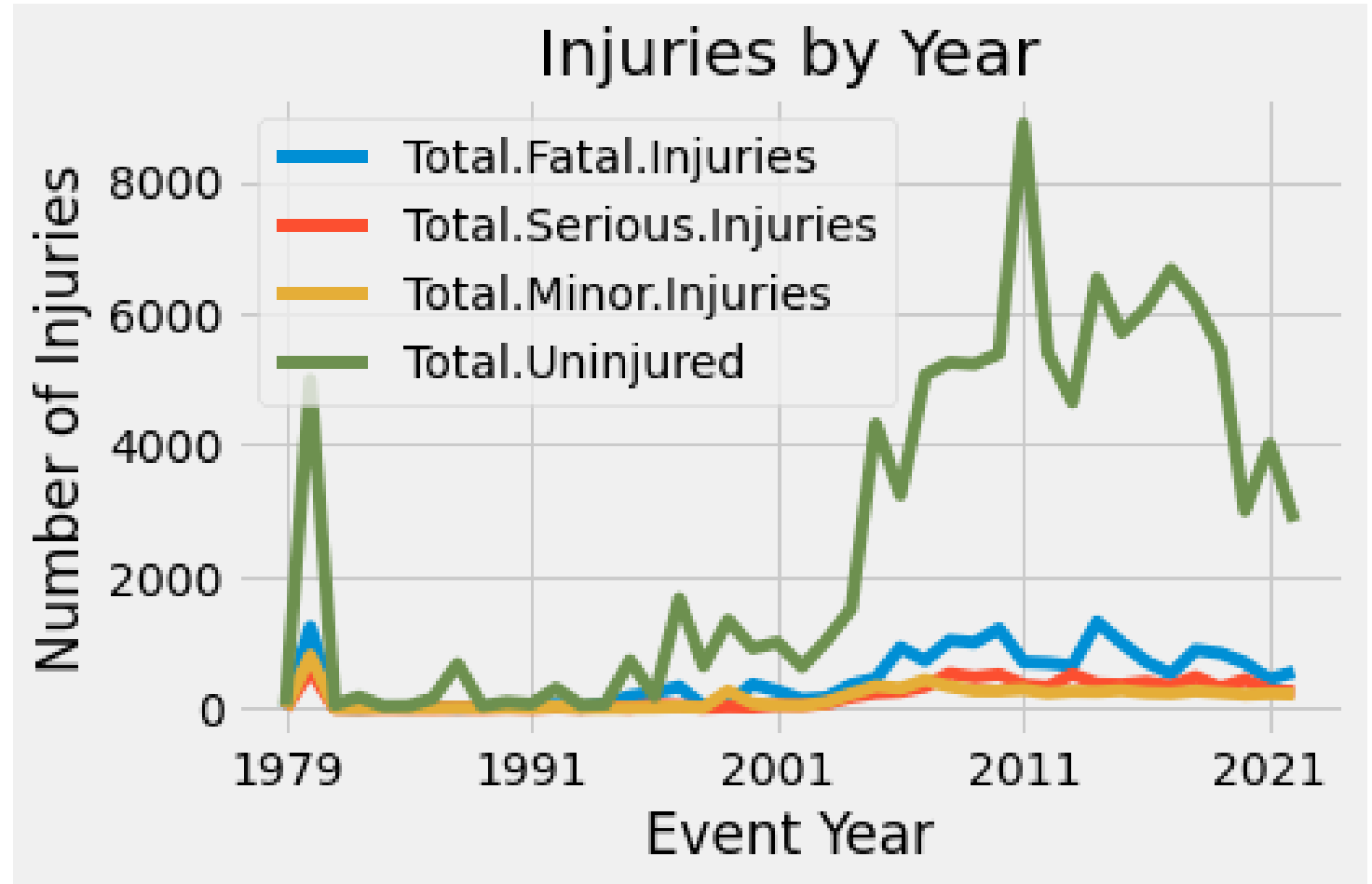
Business Problem

- Lowest risk aircraft
- Least human consequences
- Business enterprise - Primary purpose of flight



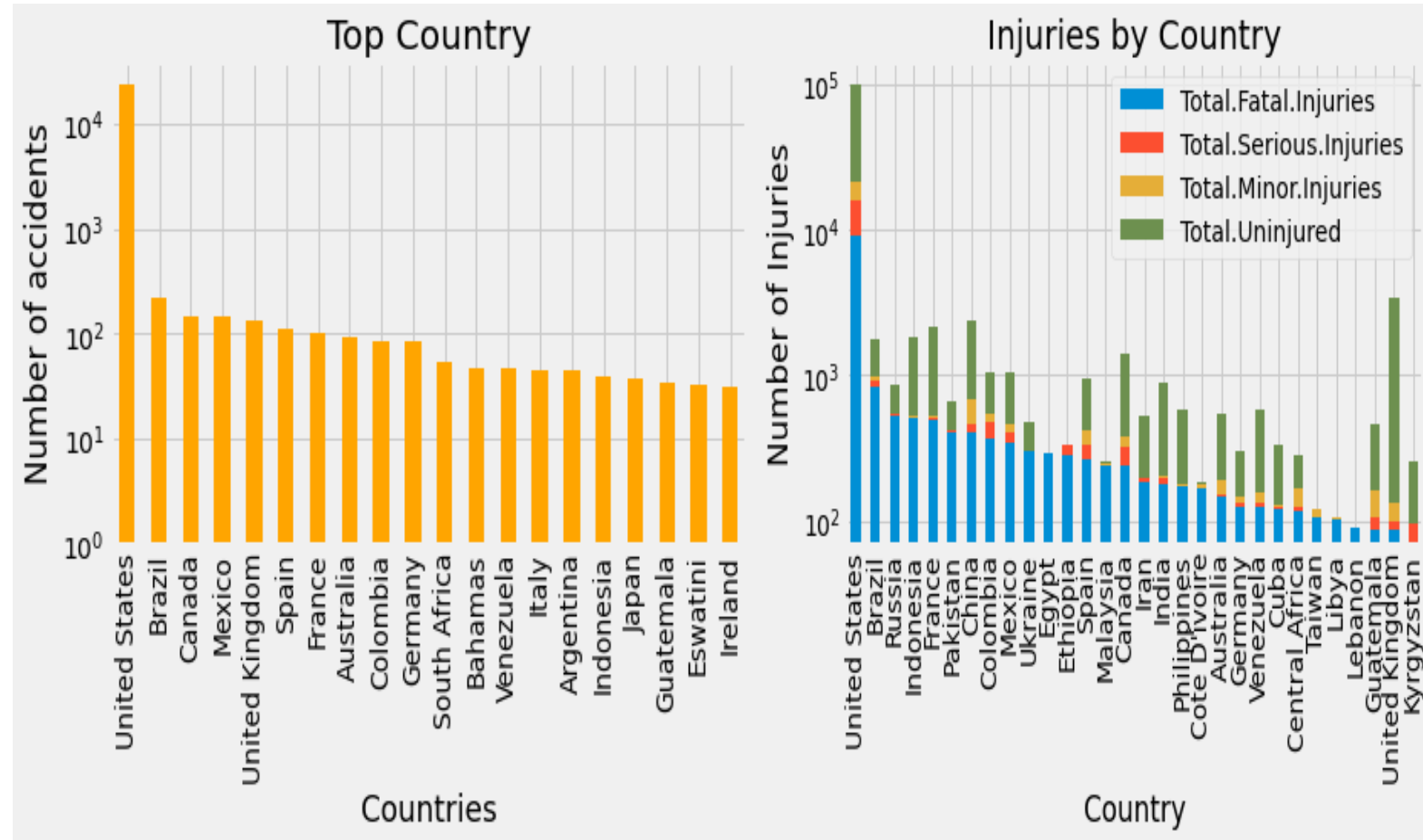
Data and Method

- **Human Cost by Year**
- Fatalities trends downward ,uninjured increases through the years, peaking in 2011.
- 10 times the number of uninjured to fatalities.



Data and Method

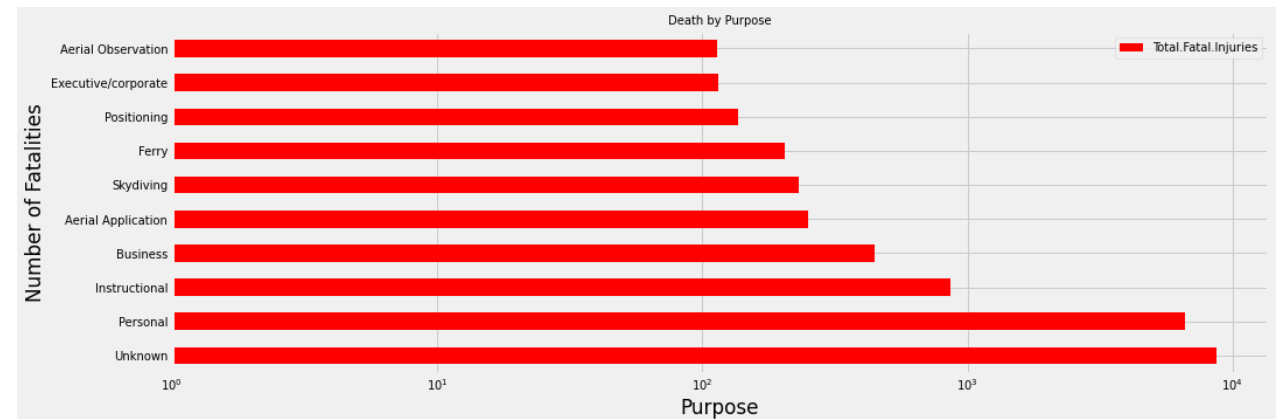
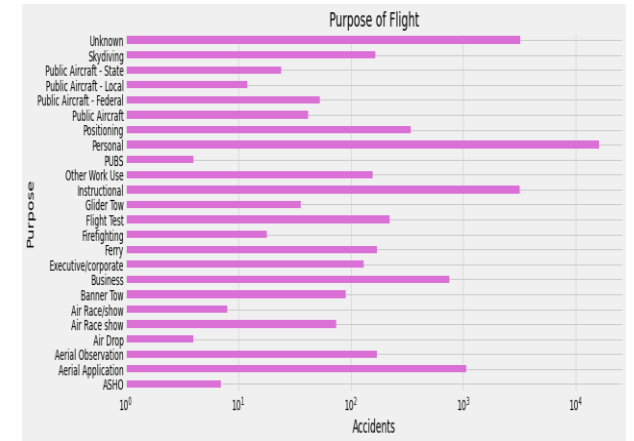
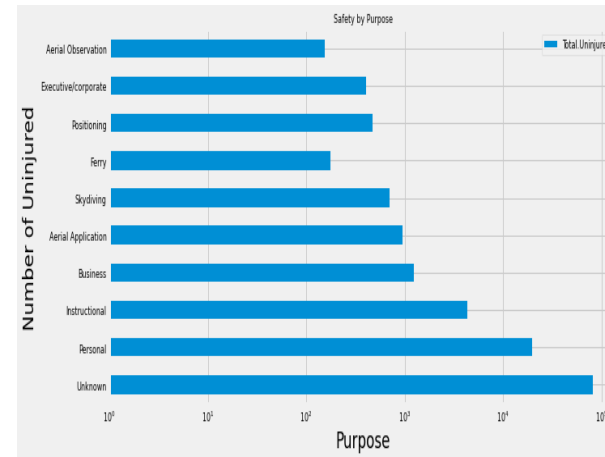
- **Community Consequences**
- The United States has the most accidents followed by a distanced Brazil.
- The United States has the highest rate of fatalities, injuries and non-injured,
- 100% of Lebanon's and 97% Libya's records are fatalities



Data and Method

Personal and Social Consequences

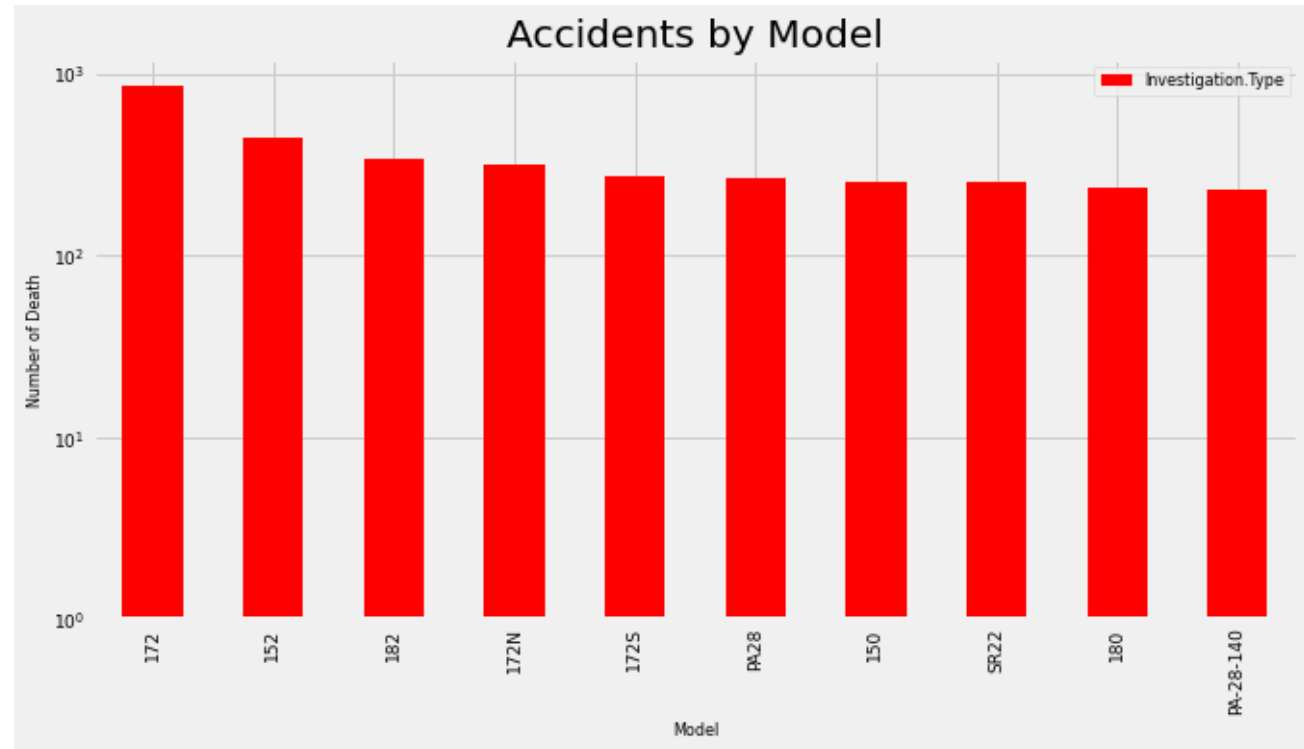
- A significant number of fatalities occur when the travel purpose is 'Personal'.
- The Unknown category has the highest fatality and uninjured rates.
- Exclude Unknown top safest
 - Personal
 - Business
 - Instructional
 - Aerial Application'
 - Skydiving
- Zero fatalities for the AirDrop and PUBS subsets.



Data and Method

Riskiest models

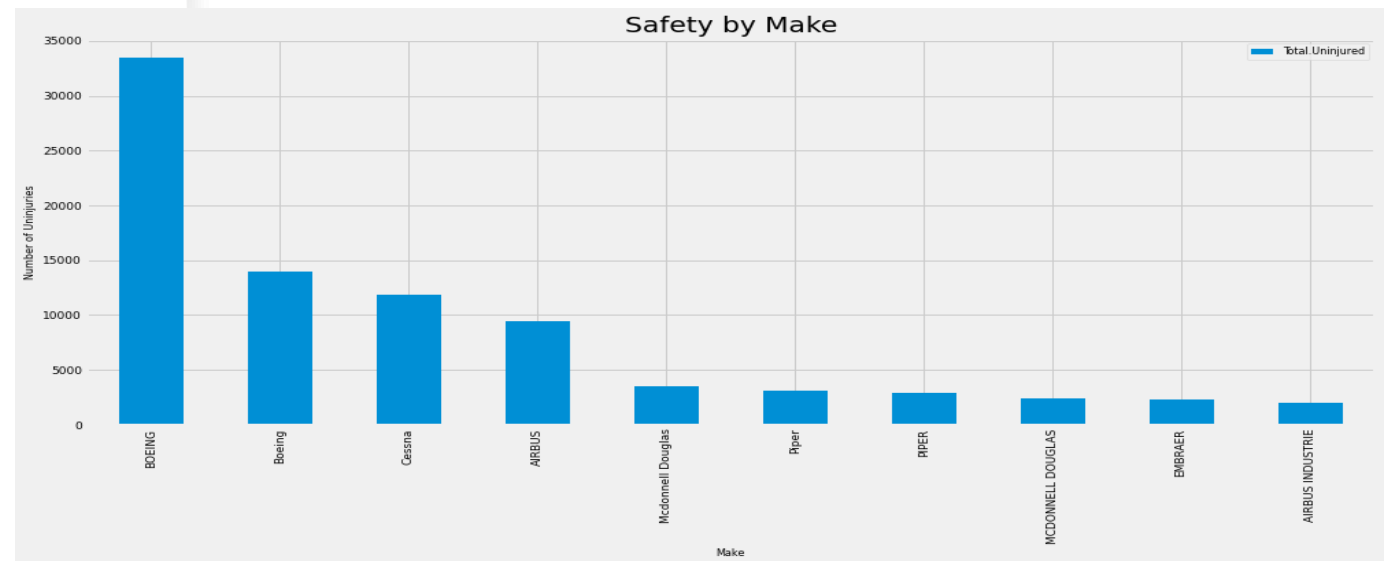
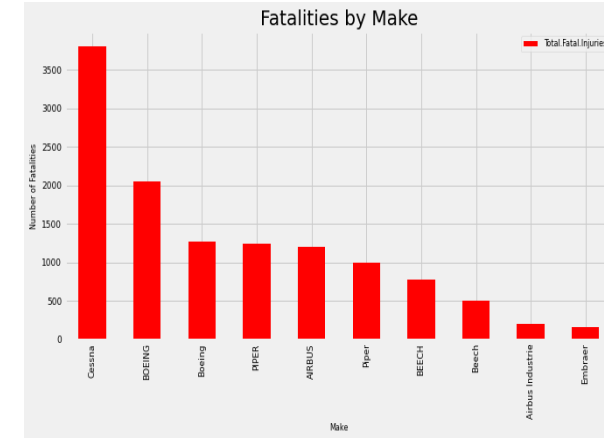
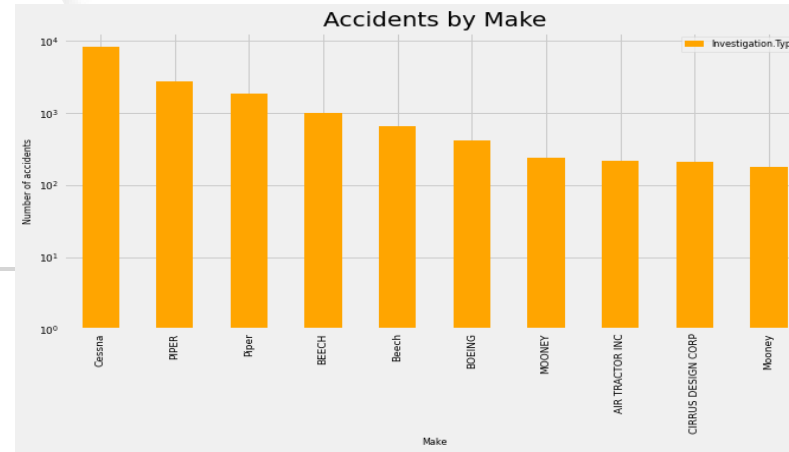
- The riskiest models
 - 172
 - 152
 - 182
 - 172N
 - 172s



Data and Method

Impact on lives

- Highest accident rates
 - Cessna, Piper, Beech, Boeing.
- Highest fatalities
 - Cessna, Boeing, Piper, Airbus
- Most uninjured
 - Boeing, Cessna, Airbus, McDonnell Douglas

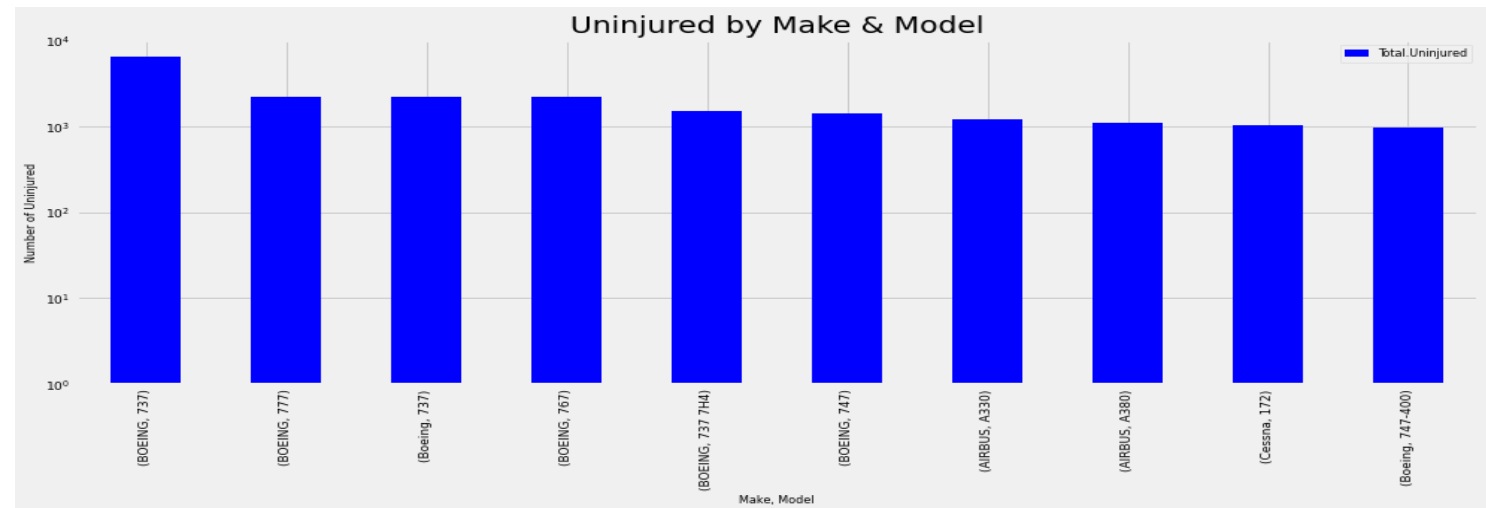
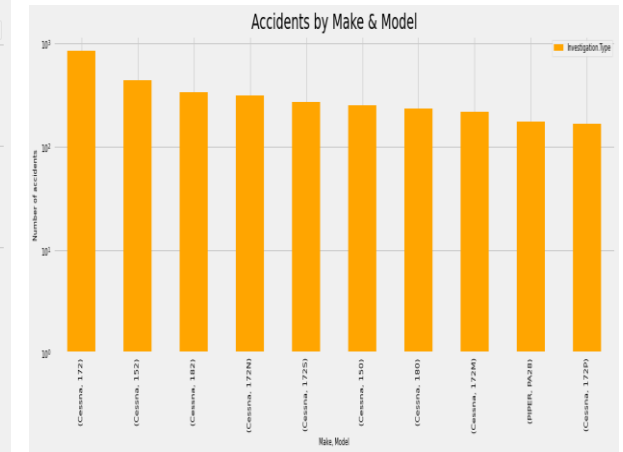
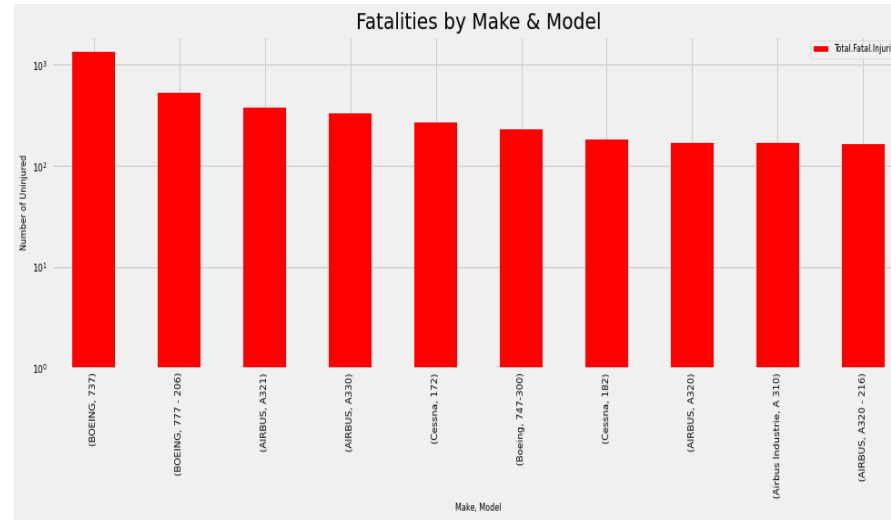


Results

Consequences on human lives

Safest Make and Model

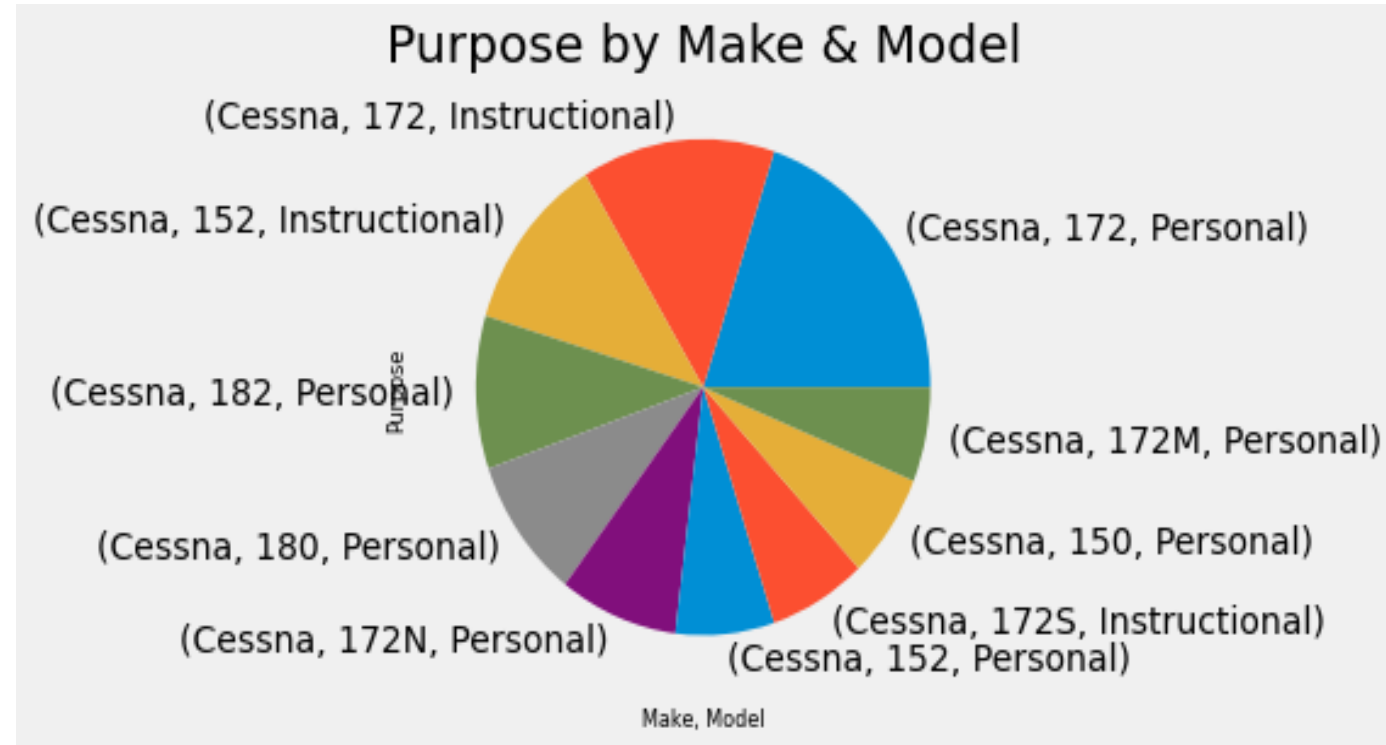
- BOEING
 - 737
 - 777
 - 767
 - 7H4
 - 747
- Airbus
 - A330
 - A380
- Cessna
 - 172



Results

Impact on lives

- Cessna models
 - Personal
 - Instructional



Conclusions

- Boeing (Make & Model) manufactures lowest risk aircraft.
- Least human consequences or the highest uninjured by manufacturer resulted from Boeing, Airbus and Cessna
- Business enterprise - Primary purpose of flight – The most common purposes are Personal and Instructional. The airplane most frequently used for these primary purposes is the Cessna and carries the lowest risk.

Next Step

- Include more variables to assess risk by airplane
- Examine geography, weather patterns
- Predict undesirable outcomes by primary purpose of flight

Questions



Thank You!

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Column Name	Short Description	Meaning
InvestigationType	Type of Event	Refers to a regulatory definition of the event severity. The severity of a general aviation accident or incident is classified as the combination of the highest level of injury sustained by the personnel involved (that is, fatal, serious, minor, or none) and level of damage to the aircraft involved (that is, destroyed, substantial, minor, or none). The
EventDate	Event Date	The date of the event. Dates are be entered in the format: MM/DD/YYYY
Country	Event Country	The country in which the event took place.
AircraftCategory	Aircraft Category	The category of the involved aircraft. In this case, the definition of aircraft category is the same as that used with respect to the certification, ratings, privileges, and limitations of airmen. Also note that there is some overlap of category and class in the available choices.
Make	Aircraft Manufacturer's Full Name	Name of the manufacturer of the involved aircraft.
Model	Aircraft Model	The full alphanumeric aircraft model code, including any applicable series or derivative identifiers. For example, a 200 series Boeing 737 is entered as 737-200.
PurposeOfFlight	Type of Flying (Per_Bus / Primary)	If the accident aircraft was operating under 14 CFR part 91,103,133, or 137, this was the primary purpose of flight.