Aircraft safety recommendations

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Introduction

- Objective; Purpose of analysis is to provide three business recommendations related to a measure of safety
- Business Context: Pfizer will benefit from these recommendations due to improving employee and product safety of cargo.
- Data Overview: Data is from National Transportation Safety Board [NTSB], information from 1962 to current dates in the United States

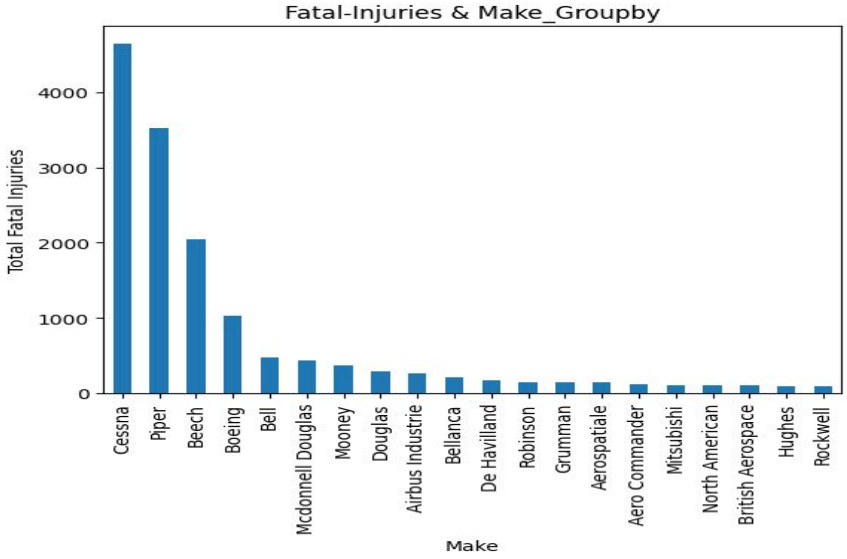
Data Understanding

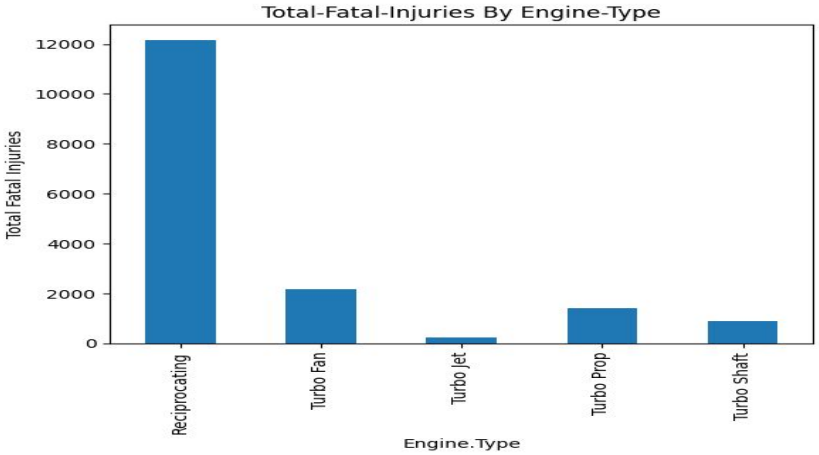
- Dataset was filtered by aircraft models to display only “Airplane” and “Helicopter” for the aircraft category.
- Examples of data columns of importance: ‘Total.Fatal.Injuries’, ‘Total.Serious.injuries, ‘Engine.Type.

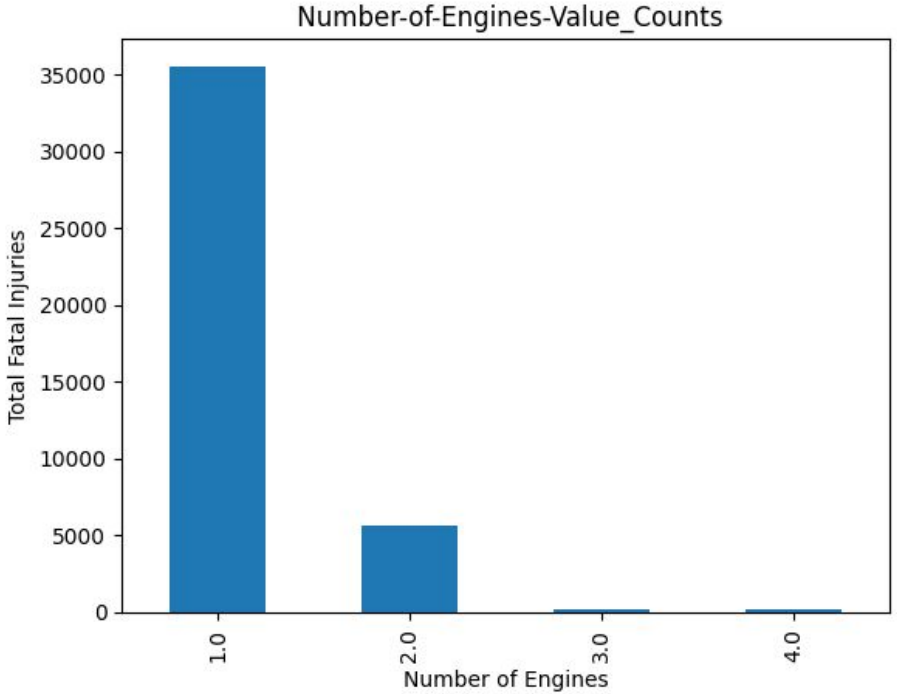
Data Cleaning & preprocessing

- Handling missing values: For categorical columns,with high amounts of unique values, I dropped missing data based on percentages in columns with missing values.
- Data transformation: Values had changes made based on if factors were associated with decreased safety, such as the number of engines from 1 to multiple engine types.

Exploratory Data Analysis







Insights & Findings

- Obtained results from data analysis consist of:
  - Engine types:
    - “Reciprocating” is the engine type most related to Total fatal injuries.
      - This may be due to frequency of use which would affect the amount of available chances for fatalities to occur.
  - Number of engines:
    - Two or more engine types is most consistent with improved safety standards due to having a backup engine in case of engine failure.
      - Aircrafts with two or more engines require more financial resources
  - Make of Aircraft:
    - “Cessna”, “Piper”, “Boeing”, and “Beech” have most amount of total fatal injuries
      - This may be due to popularity of these makes which provides more trials for fatal injuries to occur.

Conclusion

Summary of key points

- Standards of aircraft usage influence factors like increased fatal injuries
- “Engine type”, “Make”, and “Number of Engines” are key columns to determine safest aircrafts

Business implications:

- Pfizer will be able to have options for improved safety for cargo and employees
- Pfizer will obtain information about financial cost versus safety for future purchases of airplanes.