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AVIATION ACCIDENT ANALYSIS

UNDERSTANDING ACCIDENTS TRENDS

INTRODUCTION

- Air travel is considered one of the safest modes of transportation, yet accidents still occur.
- This project aims to analyze aviation accident data to identify trends in the US in different states among different plane makes and models

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PROJECT OBJECTIVES

- Explore aviation accident trends over time.
- Identify key factors influencing accident severity.
- Visualize patterns in accident occurrences.
- Provide insights for improved aviation safety.

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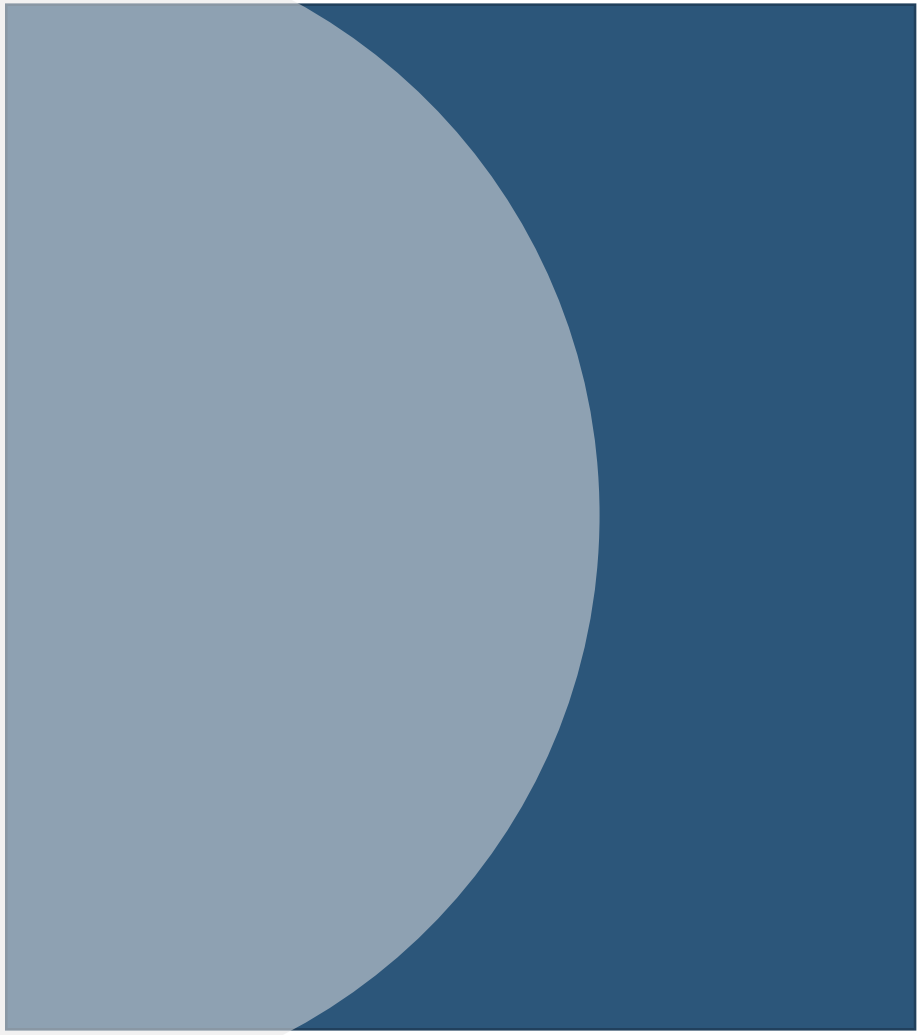
DATASET

- The data set comprises of over 80,000 investigated aviation accidents and incidents starting form the 1940's
- The data is mainly centered around events that happened in the US in different states
- Key features of the data set include:
  - *Accident date & location*
  - *Injuries (Fatal, Serious, Minor, Uninjured)*
  - *Aircraft details (Type, Number of Engines)*



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DATA CLEANING & PREPROCESSING

- Removed missing values and inconsistencies.
- Standardized column names for uniformity.
- Converted necessary data types (e.g., Date format).
- Removed duplicates in the Data Frame.
- Created new feature in the data set(e.g state column) by merging it with the US_State csv file

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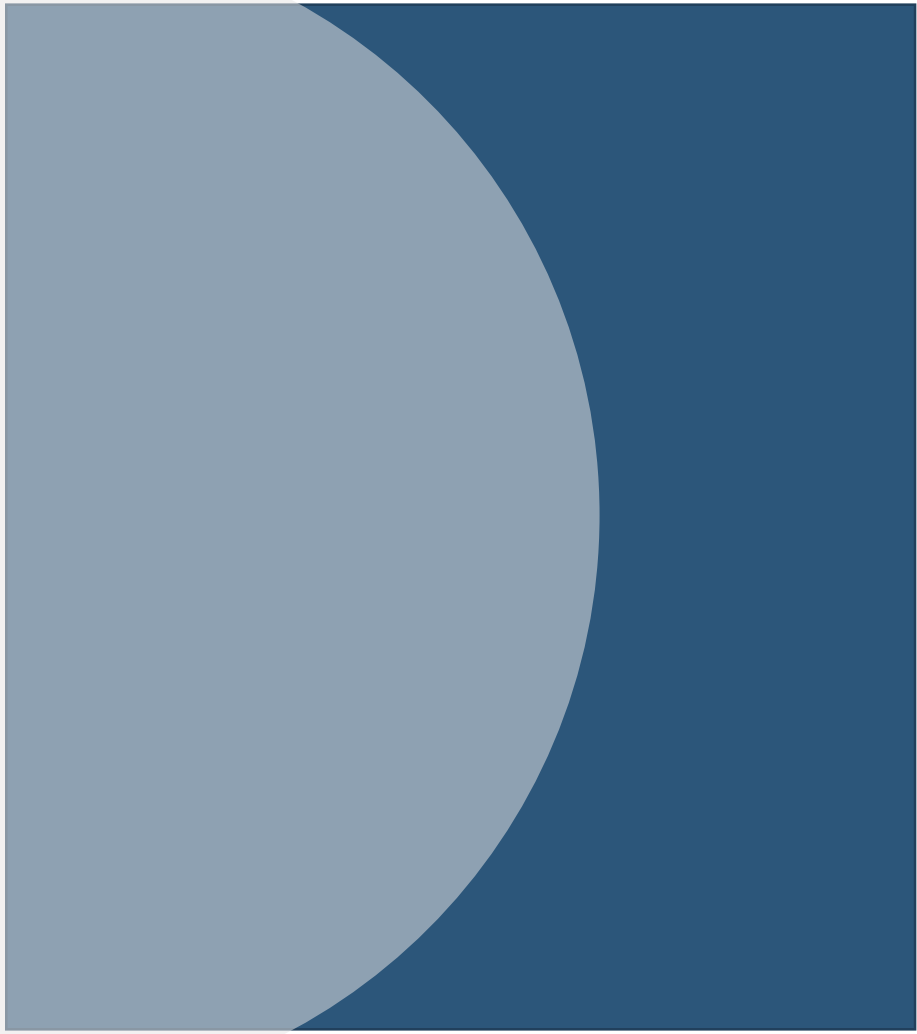
TRENDS OVER TIME

- Number of aviation accidents has fluctuated over the years.
- Recent trends indicate improved safety measures.



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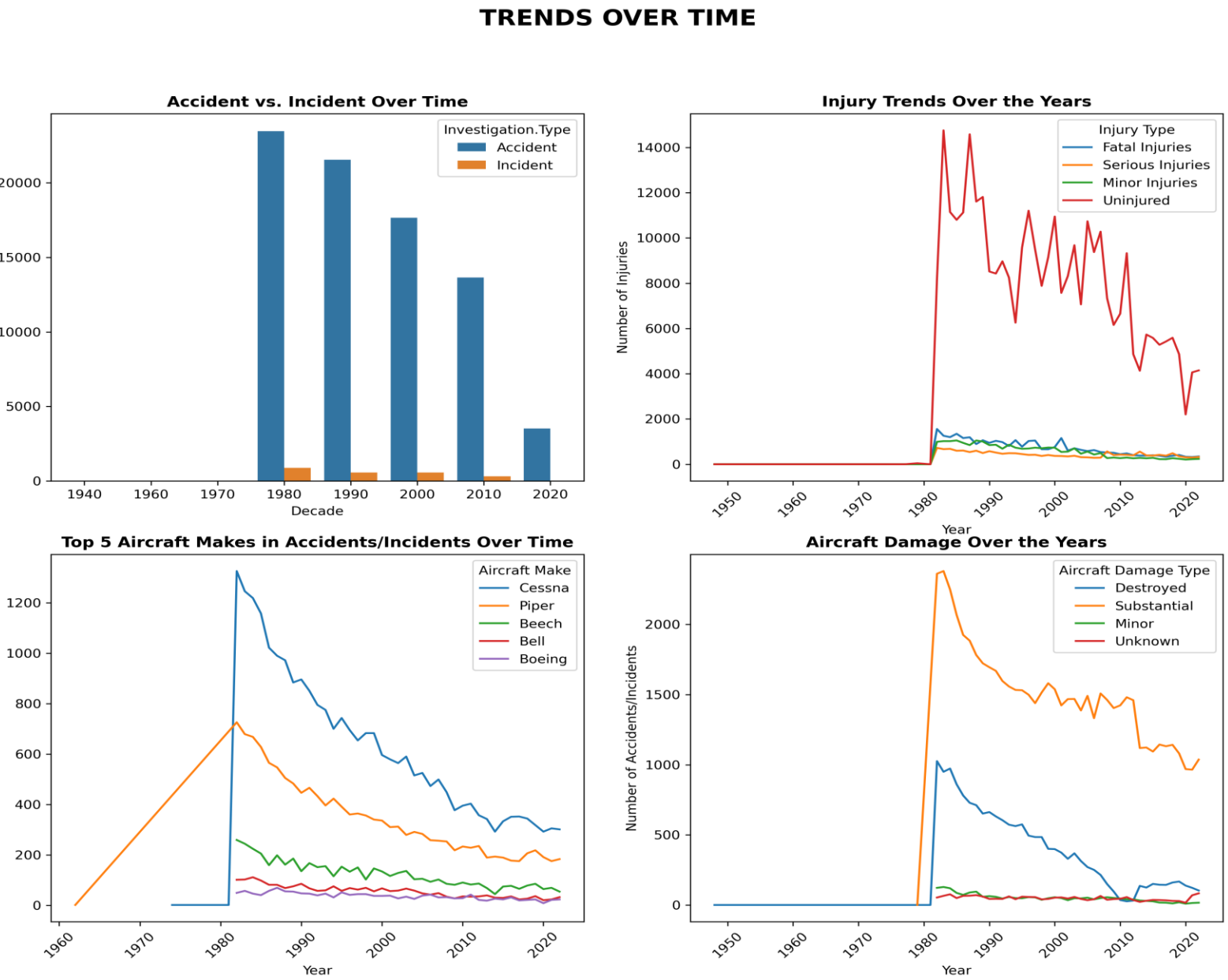
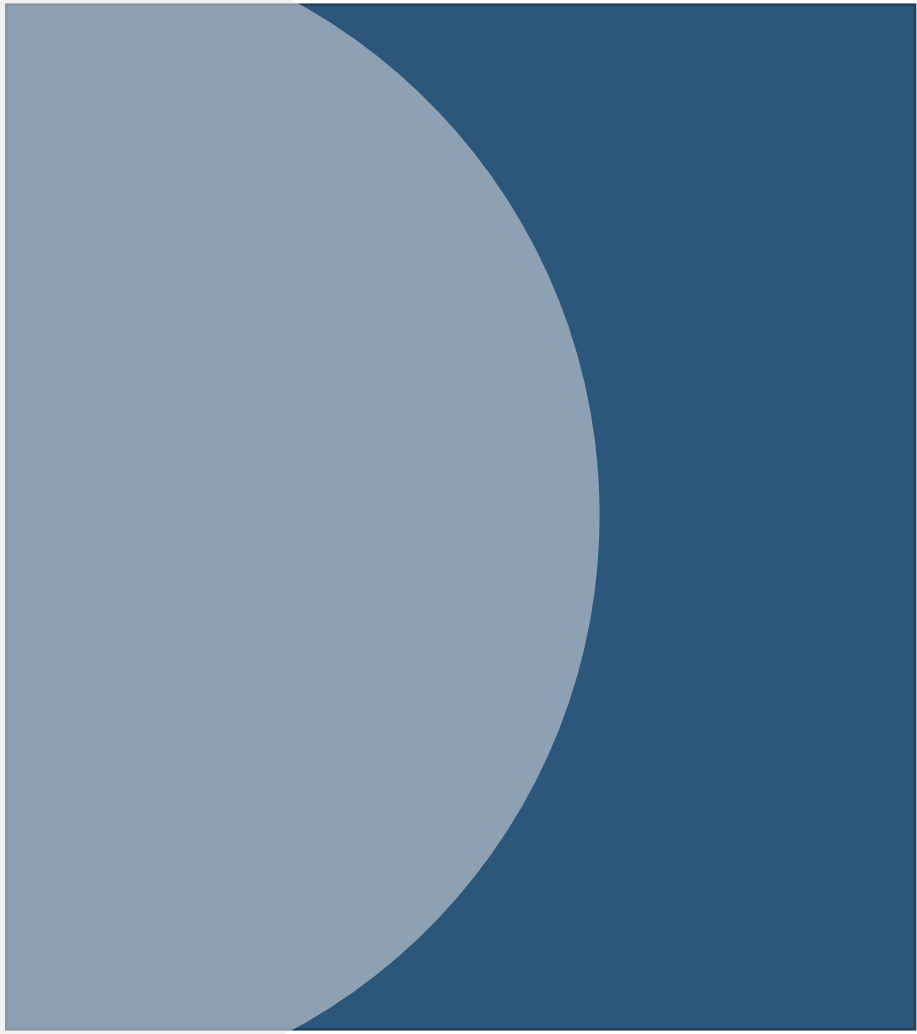
TRENDS OVER TIME



CORRELATION ANALYSIS

- A correlation matrix was used to identify relationships between different variables.
- **Key Observations:**
  - Fatal injuries correlate with serious injuries.
  - Number of engines has a weak correlation with injuries



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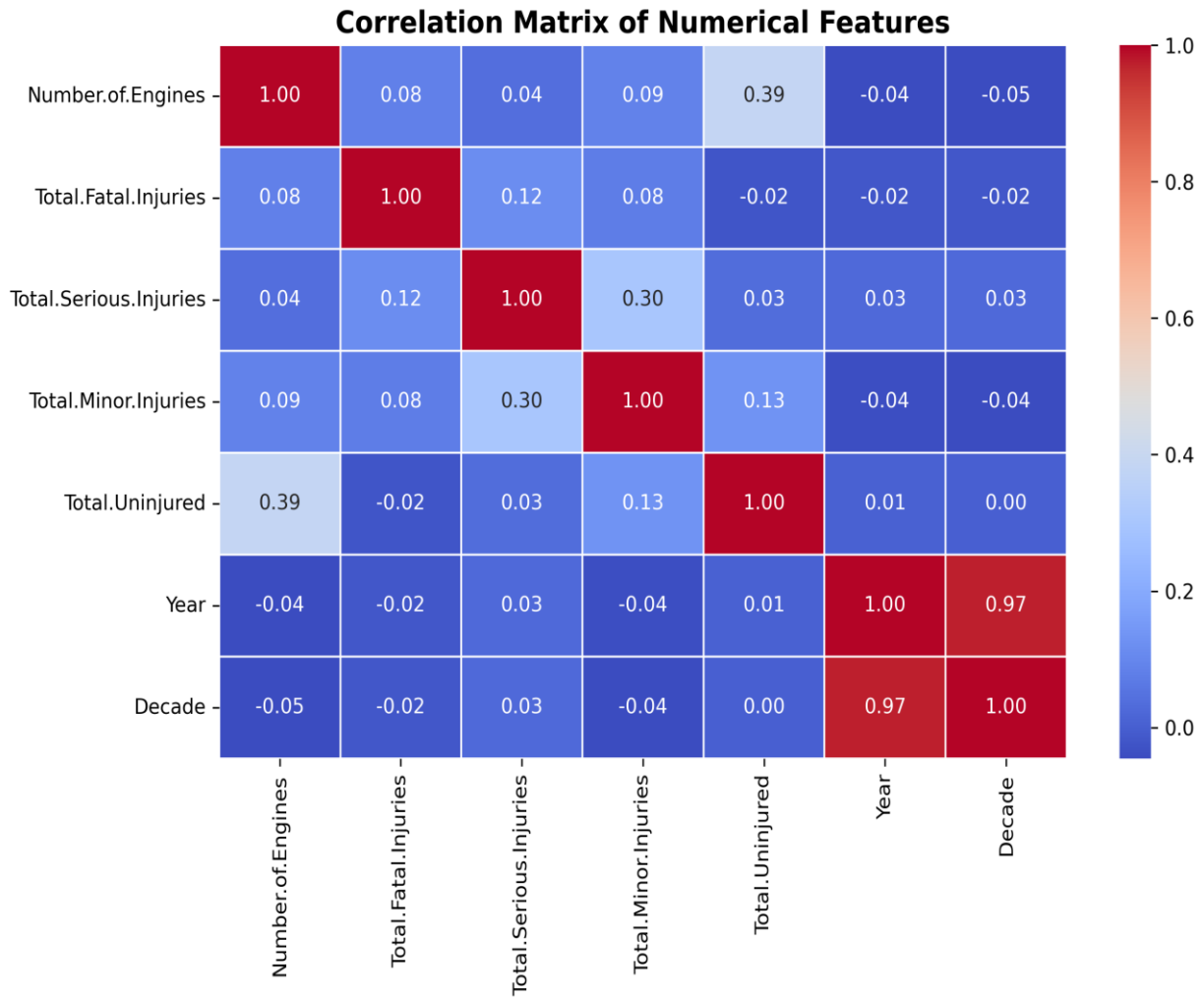
CORRELATION ANALYSIS



KEY TAKEAWAYS

- Most accidents result in minor or no injuries.
- Serious and fatal injuries tend to occur together.
- Over the years, aviation safety has improved.(Most likely due to Technological advancements over the years)

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RECOMMENDATIONS

- **Improve Aircraft Safety Measures** (e.g., better emergency protocols).
- **Enhance Pilot Training** to handle critical situations.
- **Increase Awareness** of contributing factors to accidents.

CONCLUSION

- Data analysis helps us understand aviation safety trends.
- Findings can be used for better preventive measures.
- Future studies can incorporate additional factors such as weather conditions

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THANK YOU

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